EMXP

version 3.10

Software for vintage EMU Samplers

REFERENCE MANUAL

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DISCLAIMER

Version Number: **This is version 3.10**

EMXP v3.10 is an official version.

Note however that all EMXP versions should be considered to be a beta version to a certain degree. The number of test people and test cases is simply too low, and the time spent on testing EMXP by the developer is not sufficient to justify a non-beta status.

EMXP definition: **The EMXP software consists of:**

- emxpn.exe (the program itself)
- emxpv310_referencemanual.pdf (the EMXP reference manual)
- emxpv310_guidedtours.pdf (the EMXP guided tours manual)
- emxpv310_macOSWine_manual.pdf (the installation and user manual for Mac OS X/macOS)

Any reference to EMXP includes all of these components.

Specifications: **Except for the E-Mu System's SoundFont2 specification, EMXP is *not* based on any official specification by E-Mu Systems or by Akai Pro.**

The EMAX specifications have been reverse engineered on EMAX-I and EMAX-II hardware samplers. The AKAI implementation is based partly on the specifications by Paul Kellett (see www.sonicspot.com/guide/akaifiles.html) and partly on additional reverse engineering on AKAI S1000 samplers. The EMULATOR-III and EMULATOR-IIIX specifications have been reverse engineered on EMULATOR-III and EMULATOR-IIIX samplers. The ESI and ESI-v3 specifications have been reverse engineered on an ESI-4000 sampler. The EMULATOR-II specifications have been reverse engineered on an EMULATOR-II sampler using SOUND DESIGNER II FOR EMU II; the EMULATOR-II hard disk specifications have been reverse engineered by means of DREM files created on an EMULATOR-II sampler equipped with a DREM. The EMULATOR-I specifications have been reverse engineered on an EMULATOR-I hardware sampler, with help of aKryoFlux floppy disk controller and an SD HxC floppy emulator. The SP-12 specifications have been reverse engineered on an SP12 Turbo sampling percussion instrument.

As these specifications are not official, Kris Van de Cappelle (the author) can not guarantee correct results.

The SoundFont2 features of EMXP are based on the SoundFont® Technical Specification versions 2.01 (July 23, 1998) and 2.04 (February 3, 2006) published by E-Mu Systems.

The HxC HFE file structure used by EMXP is based on the "SDCard HxC Floppy Emulator HFE File format - Rev.1.1-06/20/2012 document" available on http://hxc2001.free.fr, on the FM and MFM disk format described in literature (e.g. "het PC-hardwareboek, Hans-Peter Messmer, Addison-Wesley, ©2000-2001", "the floppy user guide, M.Haardt, A.Knaff, D.C. Niemi, 2001", …), on the Emulator-I and Emulator-II disk format structures reverse engineered by Kris Van de Cappelle in 2010 (see "Disk_layout_of_EmulatorI_floppy_ disks_v0_8.pdf" and " Disk_layout_of_EmulatorII_floppy_disks_v4.pdf" available on http://www.emxp.net) and by investigating the HFE files generated by the HxCFloppyEmulator software that can be downloaded from http://hxc2001.free.fr.

Special thanks: Adding Emulator-II hard disk and DREM support to EMXP would not have been possible without the help from and intensive test efforts done by Brian Kenneth Ronn, Charles Stella and James Reeb. Moreover all of this would not have been possible if the DREM would not have been capable of supporting Emulator-II+HD hard disks in the first place. A special thanks to Oleksandr Kapitanenko and James Reeb for their huge effort to make this possible.

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EMXP however ***may not be sold*** and may not be included in commercial software.

The EMXP software ***may not be changed*** without permission of the author.

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SCSI2SD is a trademark of Michael McMaster (http://www.codesrc.com)

VERSION INFORMATION

Changes in v3.10: **Following features, improvements and changes have been implemented since the previous version:**

New features:
- Support for *ESI hard disks* and *ESI hard disk images*, used by ESI-32, ESI-2000 and ESI-4000 samplers. All features that are available for Emulator-III/IIIX hard disks and hard disk images are also available for ESI hard disks and hard disk images: read, write, format and backup/restore/clone
- Full support for the ESI-v3 sampler format. ESI-v3 banks can be copied from any file or disk type to any other file or disk type, conversions between the ESI-v3 sampler format and any other sampler format supported by EMXP (except Akai S1000) are possible in both directions, ESI-v3 samples can be played in the audio player, and reports can be created for a selection of ESI-v3 sound banks.
- ESI-v2 sound banks are fully supported as well by means of the Emulator-IIIX format.
- When constructing sound banks, copying presets is now supported as well (next to creating and erasing presets which was already supported in previous versions)
- When constructing sound banks, it's possible to choose whether assigning the same WAV-file to different key areas or presets should result in the same shared sample (to preserve memory space) or in different samples.

Optimizations applied in this version:
- Additional information is displayed in the bank details window of the EMXP constructing module. At all times it's possible now to see how much sample memory is already in use and how many samples will be generated in the target sound bank
- The possibilities how to deal with stereo WAV-files in the EMXP construction module have been extended.
- The performance of converting large banks (especially in EMAX-II, Emulator-III and Emulator-IIIX format) has been improved.
- The performance of conversions to the SoundFont2 format of source banks having sample loop address offsets which are not compliant with the SoundFont2 specification has been improved.
- A new preference has been added which controls how to convert voice/output channel assignments between sampler formats which have a different polyphony.
- A new preference has been added for the EMAX-II format which defines whether voice/output channel assignments should be converted to EMAX-II submix output channel assignments or not (in previous versions, this conversion was done by default)
- A new preference has been added which controls how conversions to/from the SoundFont2 chorus effects processor should be done if the other sampler format does not support FX processors. In previous versions the conversion was by default done from/to the voice-level chorus parameter of Emu sampler formats.
- Conversion support for SoundFont2 Exclusive Class Generators has been added
- When generating or converting to very large banks (Emulator-EIIIX/ESI-v3/SoundFont2) having a large number of samples, the progress bar has been improved.
- When converting to the EMAX-I or EMAX-II format, the total available target sample memory size is used in a more optimized way. As a result, the number of generated target banks may be lower now if the converted source bank would not fit in a single target bank.

Bugs fixed in this version:
- When converting sound banks in fully automated batch mode to the EMAX-I, EMAX-II, Emulator-III or Emulator-IIIX format, and the minimum allowed sample rate preference was set to another value than the maximum allowed sample rate preference, the samples in the generated banks had a lower sample rate than intended. This problem has been resolved.
- When converting more than 122 WAV-files to a sampler sound bank, not all WAV-files were converted. This has been resolved.
- The Emulator-IIIX sample numbers shown in the sample overview and sample details screens were wrong for samples with a sample number higher than 255. This has been resolved.
- In Emulator-III/IIIX sample overview and sample detail screens, LOOP ON was shown if no loops were set but reverse play was enabled, and LOOP OFF was shown even if a forward/backward loop was enabled. This has been resolved.
- When asking for key area details of an empty Emulator-III/IIIX preset, EMXP does not crash anymore.

- When converting sound banks with defined but empty samples (i.e. with a size of 0 sample points and/or with no left nor right channel defined), EMXP could crash. This has been resolved.
- Conversions of Emulator-III/IIIX voices in which the sample channels have been switched off (resulting in no sound) could result in an error. This has been resolved.
- Conversions to the Emulator-IIIX format were based on some sampler limits of the Emulator-III instead of the Emulator-IIIX, e.g. with respect to the maximum possible preset parameter size. As a consequence the conversion of large banks could result in more Emulator-IIIX banks than required. This has been resolved.
- The maximum available memory size per sample for Emulator-III/IIIX was slightly too low. This has been corrected.
- The default value for the pitch bend range and velocity switch level parameters for Emulator-III/IIIX presets was wrong. This has been corrected.
- The preference screen for selecting the WAV naming rule when extracting samples to WAV-files could behave strangely. This has been resolved.
- The default minimum and maximum allowed samplerate of a new created EMXP construction file for EMAX-II were not correctly derived from the preference settings if one or both of these samplerates where set to 39069 Hz or higher in the preferences. This has been resolved.
- When converting samples to WAV-files in manual mode, the settings for the extent to which selected items should be automatically processed where reset everytime a WAV conversion process was started. The previous settings/preferences were not taken into account. This has been resolved.
- When converting to the EMAX-I or EMAX-II sampler format with the request to convert stereo samples to PRI and SEC voices, and at least one stereo sample could not be converted to PRI and SEC voices in a destination preset (due to an unavailable PRI or SEC voice), the destination preset had no PRI+SEC stereo voices at all, even if other stereo samples could perfectly be converted to PRI and SEC voices in that destination preset. This problem has been resolved.
- Converting SoundFont2 banks containing "stereo linked" samples could result in errors (like error 637) or even in a crash if the left and/or right sample were also used as mono samples in the same bank (e.g. if the instrument zone of the left channel had different generator/modulator settings than the instrument zone of the right channel). This has been resolved.
- When converting SoundFont2 stereo samples of which the left or right channel (also) had to survive as a mono sample, this mono sample was based on a stereo-to-mono conversion of the stereo sample instead being based on the original left or right channel. This has been resolved.
- Conversions of SoundFont2 banks with a bank name containing special characters (like "/") do not result in error 867 anymore.
- EMAX-I and EMAX-II voices with an Attenuation set to a value between 32dB and 46dB are not being reported anymore as being corrupt.

Test conditions: **This version has not gone through an extended testing cycle.**

EMXP has been tested on following hardware:

- AMD Athlon 64 3000+ 1.8GHz , internal floppy drive, 512MB Ram, running Windows XP
- Intel Core i5-3210 2.5Ghz 8GB Ram, no floppy drive, running Windows 10 Home
- HP Pavilion X2 12 running Windows 10 Home Premium
- Apple Macbook Air running macOS Sierra 10.12.6 and Wine.App version 1.8
- Macintosh Classic running Mac OS 7.1 and Sound Designer for EmuII
- Macintosh SE/30 running Mac OS 6.1 and Sound Designer for EMAX-I
- Macintosh Centris 650 running Mac OS 7.6 and Alchemy 3.0
- EMAX Keyboard with SCSI and SE upgrade (type 1000) and internal card reader SCM PCD-50B running OS Plus 1.0
- EMAX Keyboard (type 1000) running OS v3.2
- EMAX Plus SCSI Rack running OS Plus 1.0
- EMAX-II Turbo Rack 4MB (type 2213) running OS 2.14
- EMAX-II Turbo Keyboard 4MB (type 2212) running OS 2.14
- EMAX-II Turbo Keyboard 8MB (type 2205) running OS 2.14
- AKAI S1000 4MB Rack, running OS 4.40 (OS 2.00 on chip)
- AKAI S1000 HD 8 MB Rack, running OS 4.40 (OS 1.31 on chip)
- EMULATOR Keyboard 1x128 Kb (type 6000) running OS 3.11 (v820816 eprom)
- EMULATOR-II+ Keyboard 2x512Kb (type 6050) running OS 3.10

- EMULATOR-II+HD Keyboard running OS 3.1 HD, with DREM running firmware v4.X and v5 *(these tests have been done by fellow Emulator-II owners, see "special thanks")*
- EMULATOR-IIIXS Rack 8MB (type 6103) running OS 2.10
- EMULATOR-III Keyboard 8MB (type 6108) running OS 2.42
- ESI-4000 Rack 32 MB (type 6225) running OS 3.02
- SP-12 Turbo (type 7021) running OS 2.6
- Oberheim DPX-1 with CDROM interface running OS 2.2
- Creative Lab SoundBlaster Audigy 2 ZS soundcard with native SoundFont2 support driven by Creative Lab's Vienna SoundFont Studio software.
- IOMEGA 250M ZIP drive SCSI (connected to EMAX sampler)
- IOMEGA 100M ZIP drive SCSI (connected to EMAX sampler)
- IOMEGA 250M ZIP drive USB (connected to computer)
- IOMEGA 100M ZIP drive PARALLEL (connected to computer)
- EMuSer USB ←→ RS422 adaptor
- M-Audio Midisport 2x2 Anniversary Edition USB MIDI interface
- M-Audio Midisport 4x4 USB MIDI interface
- MOTU Midi Express 128 USB MIDI interface
- Steinberg MI4 audio and MIDI interface
- KryoFlux floppy drive controller (connected to computer)
- SD HxC hardware floppy drive emulator (connected to Emulator-I, Emulator-II and EMAX-II)
- SCSI2SD version 5 board

Test results: **Following test results were achieved till now:**

- No serious problems have been found yet with version 3.10.
- *Formatting* Akai S1000 *double (low) density floppy disks* seems not to work all the time. Some computers create disks which can not be written/read by the computer nor by Akai samplers. In that case, either use high density disks or format the DD disks on the Akai sampler itself. Note: this problem did not occur so far with HD disks. Moreover, reading and writing DD disks that have been formatted elsewhere works fine as well.

Special thanks: Adding Emulator-II hard disk and **DREM support** to EMXP would not have been possible without the intensive help from and test efforts by Brian Kenneth Ronn, Charles Stella and other Emulator-II+HD owners.

Your help: **The EMAX-I, EMAX-II, Emulator-I, Emulator-II, Emulator-III, Emulator-IIIX, ESI, SP-12 and Akai S1000 community can be considered the perfect "testing team" for EMXP :-)**

Please don't panic or throw away this software if it crashes at the first run !

It is a *beta* version. This means that I have to finalize the software by adding features *and* by updating the software based on any bugs or problems reported by you.

You can report bugs and problems to *esynthesist [at] yahoo [dot] com*

Support: **I am not a professional software builder.**

This means I don't have a lot of time to give support on EMXP.

I will try however to respond to as many questions and problems as possible.

1. INSTALLATION

1.1 SYSTEM REQUIREMENTS

EMXP:

- needs the Microsoft Windows XP operating system or higher. Windows Vista, Windows 7, Windows 8 and Windows 10 are also supported but the floppy disk functions have not been tested on these platforms. The Windows 2000 operating system and lower versions of Windows are not supported.
- can also be run on macOS (Mac OS X) by means of Wine version 1.8-rc4 or higher. Most functions of EMXP are currently supported under Wine, except for direct access to sampler disks (but there's a work around for that) and SP12 MIDI data transfers. There's a separate manual dedicated to specific issues when running EMXP under Wine on macOS. EMXP under Wine has only been tested on Mac OS X 10.11 El Capitan and macOS 10.12 Sierra.
- must be installed on a (removable) hard disk which is not write-protected.
- requires less than 6 MB hard disk for software installation.
- requires about 30 MB RAM memory to operate.

Hard disk space for using EMXP depends on the volume of sound banks and files you want to use, and on how many file types you want to store for each sound bank.

EMXP needs:

- An internal floppy drive in your computer if you want to be able to read/write EMAX, Emulator-III/IIIX and Akai S1000 floppy disks. *External floppy drives (e.g. USB floppy drives) are NOT supported.*
- A CD-ROM drive or any other removable hard disk drive (such as a CF Card drive, an SD Card drive or an IOMEGA ZIP drive), either internal or external, if you want to read EMAX-I/EMAX-II/ Emulator-III/IIIX/ESI CD-ROMs or read/write EMAX-I/EMAX-II/Emulator-III/IIIX/ESI hard disks.
- If you want to use high speed RS422 communication features, an *RS422 serial communications port* which is capable of *synchronous communication* – this means it must be capable of being externally clocked. Moreover this device should switch to this external clocking mode upon receiving a normal "baud rate set" instruction. The baud rate which triggers the switch to external clocking is configurable in EMXP (factory default: 500000 baud). Schematics to build a compatible USB←→RS422 adapter (called EmuSer) can be found in a separate document. Caution: standard commercial USB/RS422 adapters are NOT compliant with the above requirements !
- A *MIDI interface* with at least one IN and one OUT port, if you want to use low speed MIDI communication features.
- Your EMAX-I to run an SE operating system, i.e. SE, SE HD or Plus, if you want to use the RS422 or MIDI transfer features.
- A *WAVE compliant audio player device*, if you want to listen to samples or WAV-files.

***Important notes**:*

1. EMXP can only process files that have correct file extensions (see *section "4.5.1 Supported file and disk types"*).

2. EMXP requires access to its configuration file at all times. This file is called EMXPNCFG.BYT and is located in the same folder as the one EMXPN.EXE is stored in. See also *section "1.8"*.

3. The **response time** of getting any **files** overview in EMXP **decreases when a lot of files are present** in the selected folder. This is especially true the first time you ask an overview after starting EMXP. Once loaded in memory, Windows will guarantee faster response times the next time you ask the same overview during the same EMXP session again. The initial slow response time is due to the fact that EMXP has to open each of the files to validate and collect some information on the contents of the file. *Hint: avoid storing more than 1000 files per (sub)folder !*

4. The **response time** of reading and writing EMAX-I, EMAX-II, Emulator-III/IIIX and ESI-v3 banks from/to **hard disks** depends on the size of the banks.

   Tests show that
   - writing a 512Kb bank to a (usb) ZIP disk takes about 7 seconds.
   - reading a 512 Kb bank from a (usb) ZIP disk takes about 3 seconds.
   - writing an 8 MB bank to a (usb) ZIP disk takes about 65 seconds.
   - reading an 8 MB bank from a (usb) ZIP disk takes about 13 seconds.
   - writing a 512Kb bank to a (usb2 connected) CF card takes about 2 seconds.
   - reading a 512 Kb bank from a (usb2 connected) CF card takes about 2 seconds.
   - writing an 8 MB bank to a (usb2 connected) CF card takes about 10 seconds.
   - reading an 8 MB bank from a (usb2 connected) CF card takes about 10 seconds.

5. The **response time** of sending or receiving sound banks and samples via RS422 between EMXP and the EMAX-I/EMAX-II/Emulator-II/Oberheim DPX-1 depends on the speed of the RS422 device being used. When using an Atmel AVR processor based device, following communication durations must be taken into account:

   - Sending a bank from EMXP to EMAX-I takes about 40 seconds, although 34 seconds may be achievable by setting the "Delay time during bulk data transfer (OUT)" to zero.
   - Receiving a bank from EMAX-I to EMXP takes about 55 seconds, although 39 seconds may be achievable by setting the "Delay time during bulk data transfer (IN)" to zero.
   - Sending a bank from EMXP to Emulator-II takes between 1 second and 19 seconds, depending on the size of the bank and whether the fast load/unload setting has been enabled.
   - Receiving a bank from Emulator-II to EMXP takes about 1 second and 20 seconds, depending on the size of the bank and whether the fast load/unload setting has been enabled.
   - Sending a bank from EMXP to Oberheim DPX-1 takes about 14 seconds.

   Experience shows that communication is faster when using EMXP under Wine on macOS.

6. The **response time** of sending or receiving samples via MIDI between EMXP and the EMAX-I or EMAX-II can slightly depend on the speed of the MIDI interface device being used. We experienced speed differences between the four MIDI interfaces that we have been testing.

   You should be aware that MIDI is not originally designed for high volume data transfers. RS422 is much faster than MIDI for transferring complete banks and samples.

   Just for comparison:
   - Receiving a 4MB sample (ok, this is a big one) from EMAX-II to EMXP via MIDI takes about **40-50 minutes** (!)
   - Receiving the same 4MB sample via RS422 takes ‘only’ 4 minutes…

7. The **response time** of sending or receiving (banks of) sounds or (banks of) sequences via MIDI between EMXP and the SP-12 can slightly depend on the speed of the MIDI interface device being used. We experienced speed differences between the four MIDI interfaces that we have been testing. But the MIDI data transfer times are without any doubt **much shorter** than the data transfer times between the SP-12 and a Commodore 1541 floppy drisk drive.

   - Sending a sound bank from EMXP to SP-12 in which all Turbo sampling memory has been used (5 seconds of samples) takes about 1 minute 50 seconds.
   - Receiving a sound bank from SP-12 to EMXP in which all Turbo sampling memory has been used (5 seconds of samples) takes about 1 minute 30 seconds.
   - Sending a sound (bank) of 200 ms from EMXP to SP-12 takes about 6 seconds.
   - Sending a sequence bank from EMXP to SP-12 in which all Turbo sequence memory has been used takes about 20 seconds.
   - Receiving a sequence bank from SP-12 to EMXP in which all Turbo sequence memory has been used takes about 16 seconds.

1.2 INSTALLATION PROCEDURE

EMXP is easy to install, but:

- if you want floppy disk support the OMNIFLOP ***floppy driver*** must have been installed first (in a manual way);
- if you want RS422 communication support, a compatible RS422 port (adapter) must have been installed first.
- if you want MIDI communication support, a MIDI interface must have been installed first.
- if you want to listen to samples or WAV-files, a WAVE compliant audio device player must have been installed first.

Note:
You don't have to install the OMNIFLOP floppy driver (omniflop.sys) if you will not read or write floppy disks with EMXP, or if you are running EMXP under Wine on macOS.

Important notes:

- The EMAX floppy driver (flpyemax.sys) is not supported anymore since version 2.02. You should use the OMNIFLOP floppy driver instead.
- The OMNIFLOP floppy driver (omniflop.sys) is not part of the EMXP software package. OMNIFLOP is a product of Sherlock Consulting Limited and must be downloaded from their website. Make sure you use at least the **2.01N version** ! Older versions are not compatible with EMXP.
- EMXP does not support Emulator-III/EIIIX/ESI *sound bank* floppy disks, it only supports Emulator-III/IIIX *operating system* floppy disks
- EMXP does not support Emulator-I and Emulator-II floppy disks ! These disks will never be supported by EMXP, because Emulator-I and Emulator-II disks are formatted in a way that is not supported by standard PC hardware (disk controllers, BIOS). Only specialized advanced disk controller devices (like KryoFlux) can access these disks via their own software and drivers.
- When running EMXP under Wine on macOS, EMXP currently does not support direct access to any external sampler disk (hard disk, CD-ROM, memory card, floppy disk, ...), and MIDI transfers with the SP12 won't work neither. This is due to limitations imposed by Wine. We are trying to resolve this in the future.
- These are some possibilities to **get Emulator-I and Emulator-II bank files into your Windows computer:**
    - Using a 5.25 floppy drive and the KryoFlux floppy drive controller connected to the computer
        - Use the KryoFlux hardware and software to read the Emulator-I and Emulator-II floppy disks
        - The resulting floppy disk images should be assigned a correct file extension (.EMUFD for Emulator-I and .EMUIIFD for Emulator-II) and can be processed by EMXP
        - More information can be found in *chapter "13. USING HXC AND KRYOFLUX"*
    - Using an SD HxC hardware floppy emulator device installed in your Emulator-I or Emulator-II
        - On the Emulator-I and Emulator-II, you can copy floppy disks or save any sound bank in memory to files on the SD Card in the SD HxC.
        - These files can be converted to floppy disk image files using the HxCFloppyEmulator software on a Windows computer. These floppy disk image files should be assigned a correct file extension (.EMUFD for Emulator-I and .EMUIIFD for Emulator-II) and can be processed by EMXP.
        - More information can be found in *chapter "13. USING HXC AND KRYOFLUX"* and in a separate document.
    - [Emulator-II only:] Using a Mac with Sound Designer for EII:
        - first download the banks from the Emulator-II to a Mac computer running Sound Designer for EmuII;
        - then transfer these files to your computer using Mac←→PC file exchange software (e.g. MacDisk, PC Exchange, …).

      → See also *section "11.1 TRANSFERRING BANKS FROM EMULATOR-II TO COMPUTER WITH SOUND DESIGNER"*

- [Emulator-II only:] Using EMXP on Windows:
    - EMXP supports RS422 communication with the Emulator-II; make sure you have a compatible RS422 port available on your computer – this should typically be a custom built device like the EMuSer

    → See also *section "9.6 TRANSFERRING BANKS VIA RS422 WITH EMXP"*
- [Emulator-II only:] Using a DREM hard disk emulator installed in your Emulator-II+HD.
    - EMXP supports DREM .DSK files for the Emulator-II+HD. These files are called Emulator-II hard disk image files in EMXP.

- These are the possibilities to **get SP-12 sound bank or sequence bank files into your Windows computer:**
    - Using a Mac with SP-12 Librarian by Water's Edge Software:
        - first download the banks from the SP-12 to a Mac computer running SP-12 Librarian;
        - then transfer these files to your computer using Mac←→PC file exchange software (e.g. MacDisk, PC Exchange, …).

            → See also *section "12. EXCHANGING FILES BETWEEN EMXP AND SP-12 LIBRARIAN"*
    - Using EMXP on Windows:
        - EMXP supports MIDI communication with the SP-12.

            → See also *section "9.7 TRANSFERRING SOUNDS AND SEQUENCES TO/FROM SP-12 VIA MIDI"*

1.3 INSTALLING THE OMNIFLOP FLOPPY DRIVER (OMNIFLOP.SYS)

You don't have to install the OMNIFLOP floppy driver (omniflop.sys) if you will not read or write floppy disks with EMXP.

Note 1: When running EMXP under Wine on macOS, floppy disks are not supported. You can skip this section.
Note 2: Do not use the original EMX software(from 1993) under Windows XP/Vista/7/8/10 with the Omniflop Floppy Disk Driver installed, it will generate corrupt EMAX disks and corrupt EMAX files.

You have to download the OmniFlop driver first. After downloading the omniflop package the driver has to be installed before you can use floppy disks with EMXP. Download **the latest version** of OmniFlop, or at least **v201N or higher**.

- Downloading the driver:
    - Follow the download instructions on **http://www.shlock.co.uk/Utils/OmniFlop/**
    - **Make sure you install version 2.01n or higher**.
- Installing the driver:
    - Detailed installation instructions can be found in the manual provided by Sherlock Consulting Limited.
    - Here's a brief overview of how to install the driver. The instructions below are valid for Windows XP. However the procedure is similar for newer versions of Windows.

1. Unzip the OmniFlop package

    a) create a folder "EMXP Driver" (e.g. in "My Documents")
    b) unzip the OMNIFLOP.ZIP package
    c) put following files in this folder:
        - omniflop.inf
        - omniflop.sys

2. Make a backup of the current floppy driver of your system:

    a) create a folder "Backup Driver" (e.g. in "My Documents")
    b) copy following two files to this folder:
        - C:\WINDOWS\inf\flpydisk.inf (setup file)
        - C:\WINDOWS\system32\drivers\flpydisk.sys (system file)

    This is just a safety measure. Windows should be able to reactivate
    the original drivers automatically in case of trouble.

3. Choose
    a) START (--> SETTINGS) --> CONTROL PANEL
    b) click on the SYSTEM ICON
    c) choose the HARDWARE tab
    d) click on the DEVICE MANAGER button
    e) unfold [+] Floppy Disk Drives (not the Floppy Disk Controllers !)
    f) right click the floppy disk device and choose UPDATE DRIVER

    The Hardware wizard pops up.

4. In the Hardware Wizard:
    a) choose INSTALL FROM A LIST OR SPECIFIC LOCATION (ADVANCED)
    b) click NEXT
    c) choose DON'T SEARCH, I WILL CHOOSE THE DRIVER TO INSTALL
    d) click NEXT
    e) click BROWSE and again BROWSE. Browse to the folder "EMXP Driver"
      in which the OMNIFLOP.INF and OMNIFLOP.SYS files have been saved
      (see step 1)
    f) click on OMNIFLOP (.inf)
    g) click NEXT

    The Hardware wizards start the installation of the driver.

5. If you get a warning about (...) NO COMPATIBILITY WITH XP/VISTA/7 (...)
    click CONTINUE

The driver has been installed now.

The installation of OmniFlop for EMXP is complete now.

1.4 INSTALLING THE RS422 PORT DEVICE

The installation of the RS422 communication port depends on the RS422 device you will be using.
We refer to the installation instructions accompanying your RS422 device.

If you are using the EMuSer custom built USB←→RS422 adapter, the installation instructions can be downloaded separately from the EMXP website.
Make sure to connect the EMuSer to a HIGH powered (or externally powered) USB port (or hub) on your computer; if you are using a LOW powered or UNpowered USB port, RS422 communication may not be reliable nor stable.

Important note:

The stability and speed of the RS422 communication with the EMAX-I, EMAX-II, Emulator-II or Oberheim DPX-1 is determined by a set of communication parameters. These parameters can be changed in the Preferences menu (see *section "10.6 COMMUNICATION PREFERENCES*"). The out-of-the-box values of these parameters may not be the best for your specific set-up. The values that should be used depend on the speed of the computer and on the reliability of the USB ports. The most important ones are the "Delay time ..." settings.
Don't worry or get angry if the communication (always) fails when using EMXP with the initial (factory) communication preference settings !
Just go to the Communication Preferences (option 6.5 in the Main Menu) and change the values of the "Delay time ..." settings:

- Decrease these values if you have an old or slow computer, or if you want to increase the speed of the data transfer. The communication will be faster but could be less reliable.
- Increase these values if you have a fast modern computer. The communication will slow down but could be more reliable.

If the communication fails and additional attempts result in EMXP errors saying that **no data could be written to the RS422 port due to reason code 31**, you will have to unplug the RS422 port and plug it in again. Then retry sending or receiving the data in EMXP.
If the **EMAX-I or EMAX-II** was still in a "sending or receiving data over RS422" wait mode, it will be interrupted by the next data transfer attempt saying a bad packet has been received. Don't worry. A next data transfer attempt will probably be accepted again by the EMAX-I or EMAX-II.

In some exceptional cases, it could be required to replace two capacitors in the EmuSer if you're using an EmuSer USB-RS422 interface. For more details, we refer to the EmuSer Construction Manual.

1.5 INSTALLING THE MIDI INTERFACE

The installation of the MIDI interface depends on the MIDI interface device you will be using.
We refer to the installation instructions accompanying your MIDI interface device.

1.6 INSTALLING THE EMXP SOFTWARE

Installing the EMXP software is very simple.

1. Unzip the EMXPV310.ZIP package
2. Put the EMXPN.EXE file in the folder (directory) of your choice.
    a. This has to be a folder on a disk which has write-access. Running EMXP from read-only disks like CDROMs is not possible.
    b. **In Windows Vista/7/8/10, use a subfolder of your Users folder, e.g. Documents. Don't save this program in other any folder. If you save the emxpn.exe file elsewhere (e.g. in the Program Files folder) EMXP will not be able to find its own files anymore !**
    c. When using Wine on macOS, it is advised (but not mandatory) to use a subfolder of the "drive_c" folder generated by the Wine installation process.
3. Create the \Images, \Akais1000, \Wav, \Os and \Temp subfolders in the EMXP folder:
    a. By creating them manually (e.g. using Windows Explorer > File > New > … or by using the MKDIR dos command in a DOS Window)
    b. OR simply by running EMXPN.EXE. If EMXPN does not find these subfolders, it creates them automatically !
4. Software installation is finished.

1.7 STARTING THE EMXP SOFTWARE

You can start the EMXP software in two ways:

- Double click the EMXPN.EXE file in Windows Explorer (or in Wine's File Manager when running EMXP under Wine on macOS),
- Or type EMXPN.EXE <*ENTER*> in a DOS Window/Command Prompt Window.

The first time EMXPN is started

- it will automatically create default subfolders for storing the different objects EMXP is able to process. These folders are created in the EMXP folder and are called \Images, \Akais1000, \Wav, \Os and \Temp You *don't have to actually use these folders*, but they are the default folders used by EMXP if you don't specify other folders while using EMXP. For more information, see *section "4.5 FILE AND DISK MANAGER"*.
- a configuration file will be created in the EMXP folder. This file is called EMXPNCFG.BYT and is continuously updated with the most recent preferences, settings and paths used by EMXP. See *section "1.8"*
- the command prompt window size and buffer size are automatically adjusted to the EMXP screen size (25 lines, 80 characters per line). This behaviour and the screen size can be changed in the Look & Feel preferences. See *section "10.4 LOOK AND FEEL PREFERENCES"*.

If there is a problem with the size of the Command Prompt Window of EMXP and this problem results in not being able to see the full EMXP main window, you may have to disable the preference related to automatically adjusting the command prompt window size to the EMXP screen size. See *section "10.4.1.2 Define if command prompt window size should automatically be adjusted"*.

If you can't get access to the preferences menu (e.g. because of the command prompt window is currently too small), you should start EMXP with an additional parameter, as follows:
- Open a Command Prompt Window
- Adjust the size of that window by right-clicking the title bar and selecting "Properties" (see also *section "10.4.1.2 Define if command prompt window size should automatically be adjusted")*
- Type EMXPN -NOSIZING and press Enter
- EMXP starts without automatically adjusting the window size
- Disable the preference related to automatically adjusting the command prompt window size (see *section "10.4.1.2 Define if command prompt window size should automatically be adjusted")*
- Leave EMXP
- Restart EMXP in normal mode

If you encounter other problems resulting in not being able to see the EMXP screens or getting "messy" EMXP screens whenever the contents of an EMXP screen is updated/refreshed, you may have to disable the advanced console in the Look & Feel preferences and enable the basic console mode which will refresh the whole screen whenever an EMXP screen is updated. This basic mode may be required when running EMXP in Windows emulator on other platforms. See *section "10.4.1.3 Define how EMXP screens should be updated and refreshed"*.

If you can't get access to the preferences menu you should start EMXP with an additional parameter, as follows:
- Open a Command Prompt Window
- Type EMXPN -SCREENREFRESH and press Enter
- EMXP starts in the basic console mode
- Disable the preference related to the positional (advanced) console mode. See *section "10.4.1.3 Define how EMXP screens should be updated and refreshed"*.
- Leave EMXP
- Restart EMXP in normal mode

in normal mode

1.8 CONFIGURATION FILE EMXPNCFG.BYT

All user preferences and settings, including the default folders and drives for the different objects supported by EMXP, are stored in a configuration file called EMXPNCFG.BYT, which is located in the root folder of EMXP.

This file contains (amongst others):

- The drive letters for the various supported sampler hard disks, one drive letter per sampler type
- The folders (paths) for the various supported image/file types, one folder per file type
- The preferred file extensions for EMULATOR-III/X and ESI-v3 bank files, for Akai S1000 sample and program files, for floppy disk image files and for hard disk image files
- Which generic file extensions (like .ISO and .IMG) are enabled for which type of file, and how to deal with these files if their content is not compatible with the sampler files you are looking for
- All SCSI2SD configuration parameters
- Whether some specific parameters in one or more SCSI2SD configurations should be overruled or not
- All Emulator-II physical format and physical configuration parameters for hard disks and hard disk images
- The default Emulator-II physical formats and configurations for various processes (format/generation process, HD OS copy process, ...)
- Whether Emulator-II hard disk images should be compatible with DREM
- Whether DREM config files should be generated when creating Emulator-II hard disk images
- The algorithm that should be used by EMXP to detect/recognize Emulator-II hard disks/hard disk images
- The algorithm that should be used by EMXP to consider bank slots on Emulator-II hard disks or hard disk images as being empty or not
- Whether Emulator-II (HxC) floppy disk images should load faster on the Emulator-II, and under which conditions
- Whether default folder settings should be updated whenever the user selects other folders in the file manager
- Whether EMXP should replace default folders by factory defaults if the currently set folder is not found
- Whether warnings should be suppressed or not when using USB floppy drives
- What EMXP should do when ESC is being pressed while multiple items are still in the wait queue for processing
- The automation level for copy and conversion processes: whether the user prefers batch or manual processing, or rather semi-manual processing and what parts should be automated and what parts require manual intervention.
- All settings that should be used during conversions and audio play:
    - The EMAX-I compatibility mode level for compressed data
    - The EMAX-I, EMAX-II, Emulator-III/IIIX and ESI-V3 target sample rate ranges for conversions
    - The EMAX-II, Emulator-III/IIIX/ESI and SP-12 target sampler’s memory sizes for conversions
    - The EMAX Dual Voice/Stereo Voice conversion setting
    - Whether voice/output channel assignments should be converted to EMAX-II submix channel assignments
    - How to deal with stereo samples when converting to EMAX-I, EMAX-II, EMULATOR-III, EMULATOR-IIIX or ESI-v3
    - How to convert output/voice channel assignments between samplers with different polyphony
    - How to deal with stereo samples when converting from SOUNDFONT2 to WAV or when playing SOUNDFONT2 samples
    - To what extent SOUNDFONT2 modulators should be converted
    - Whether and how the ExclusiveClass generator should be taken into account when converting from or to the SoundFont2 format
    - How to convert effects parameters if either the source of target sampler doesn't support FX processors
    - How to deal with chorus settings when converting to EMULATOR-II or AKAI S1000
    - The conversion engine to be used when converting between EMAX-I and EMAX-II
    - The Emulator-I conversion/audio play preferences (in/out sound amplification level and conversion priority)

    - What part of the keyboard (lower/upper/both) should be converted when converting to EMULATOR-I Sound Images (=Lower/Upper images)
    - To what part of the keyboard sounds should be converted when converting from EMULATOR-I Sound Images (=Lower/Upper images) to other sampler types.
    - How to deal with Natural Release settings in Emulator-I
    - The WAV naming format when converting from EMULATOR-III/X, ESI-v3, SOUNDFONT2, SP-12 or AKAI S1000 to WAV
    - How a sampler keyboard or the sampler's samples should map to SP-12 sounds when converting from any sampler format to SP-12
    - How WAV files or SP-12 sounds/samples should map to SP-12 sounds when converting from WAV/SP-12 to SP-12
    - Which sampler keys or samples should get priority when converting from any (non-EMULATOR-I) sampler format to SP-12 if not all keys/samples would fit in the SP-12 memory
    - How SP-12 sounds or samples should map to the target sampler's keyboard when converting from SP-12 to any sampler format.
    - Which keys should be the first key and last key for selecting the key range which is subject of conversions between any (non-EMULATOR-I) sampler format and SP-12
    - How to deal with output channels, tuning and decay settings when converting from any sampler format or WAV to SP-12
    - How to deal with filter settings and velocity when converting from SP-12 to any sampler format
    - Which sampler keyboard layer is subject of conversions from any (non-EMULATOR-I) sampler format to SP-12
    - How the default decay value should be derived when converting from any sampler format or WAV to SP-12
    - How to convert ESI-v3 non-lowpass filters
    - Which default polyphony should be assumed for ESI-v3 banks (32 voices of ESI-32 or 64 voices of ESI-2000/ESI-4000)
    - Whether it should be assumed that a Turbo option with FX processors and additional submix output channels is installed in the ESI sampler or not
- All settings that should be used during copy processes:
    - To what degree operating system files should be copied to target disks/images when the user will copy/convert sound banks to these disks/images
    - When copying files between file types/disk types of the same sampler family (e.g. EMULATOR-III, EMULATOR-IIIX and ESI-v3 or EMAX-I and EMAX-II), whether a plain vanilla copy should be done or rather a conversion to the other "family's" sampler type
    - The file naming format when copying AKAI S1000 files from AKAI S1000 floppy disks or floppy disk image files
    - The automation level (manual vs batch) when copying to/from AKAI S1000 floppy disks and floppy disk image files
    - Whether a warning should be raised whenever an attempt to overwrite hard disk image files occurs or whenever an attempt to copy data to an Akai S1000 floppy disk image file occurs.
    - Which Emulator-II physical configuration should be used when copying HD operating systems to (HxC) floppy disk images
- Whether the alternative bank overview style (including number of sequences) should be used for EMAX-I, EMAX-II and Emulator-II sound banks
- The EMXP screen size setting and whether the command prompt window and buffers sizes should automatically be adjusted to this EMXP screen size
- The EMXP screen update/refresh mode (Windows console mode)
- The window command prompt size detection mode and number of retrials used in that algorithm
- The file and folder overview appearance settings
- The settings regarding the appearance of the available control keys and short cut keys in list screens
- How to deal with warnings when invalid files, unavailable folders or incorrect hard disk sizes are detected
- Whether to pre-fill suggested answers in the response field area or not
- The cursor symbol on overview screens
- The most recent file overview screen settings for each of the supported file types (which columns to display and in which order the files should be sorted)

- The most recent set of shortcut keys displayed at the bottom line for each of the overview screens (i.e. how many times the '+' More key has been pressed)
- Whether items can be selected by their item number even if they're not shown on the current screen
- The view mode of the Folder Manager overview screen
- The RS422 communication settings per sampler type
- The RS422 baud rate instruction set mode
- The MIDI communication settings per sampler type
- The Audio Device Player settings (incl. Volume settings)
- The audio player's disk cache size
- The settings related to automatically starting the audio player and to the automated sequential play of samples and sound banks/files
- The timer resolution settings for RS422 and MIDI communication
- The delimiter character that is being used in CSV reports
- The EMXP construction undo/redo buffer size
- The middle C scale convention for keyboard notes
- The date format to be used when showing dates in EMXP
- The bank naming conventions for Emulator-III/IIIX/ESI-v3 banks on hard disks and hard disk images
- All settings related to loop conversions between WAV files and any sampler format, and/or related to playing WAV files in the EMXP audio player
    - Whether the loops should be converted or not
    - Which WAV loop type should be played or converted to sampler loops if the WAV file contains different types of loops (forward, backward, alternating)
    - Which WAV loop should be played or converted to a sampler loop if the WAV file contains multiple loops of the same type
    - Whether WAV loops should be converted to "sustain" or to "in release" sampler loops
- Whether voice/zone/sound specific sample settings should be used or rather the general/common sample settings when converting Emulator-II, SoundFont2 or SP-12 samples to WAV files
- The maximum Akai S1000 file names size

If you change one of these preferences or settings while using EMXP, the updated settings will be written to this file.
Restoring some or all of these settings to the default factory settings can be done at all times by choosing one of the "Reset" options in the Preferences menu. See *section "10.1 RESETTING PREFERENCES TO DEFAULT FACTORY SETTINGS"*.
As an alternative for re-setting *all* preferences to the factory defaults, you can also simply exit EMXP, remove the EMXNCFG.BYT file and restart EMXP.

1.9 MOVING EMXP TO ANOTHER LOCATION OR RENAMING EMXP'S FOLDER(S)

Copying EMXP to another folder or disk is as simple as copying the EMXPN.EXE file to that folder or disk.

1If you want to keep all preferences, settings and paths used by EMXP, make sure to copy the EMXPNCFG.BYT file to the new location as well.

If EMXP has been copied to a new location

- and its EMXPNCFG.BYT configuration file has been copied as well
- and *one or more of its subfolders* have been copied as well,
- and these subfolders contain files that have recently be used by EMXP (e.g. EMAX bank files, WAV files, ...)

EMXP will detect that it has been moved because the subfolders stored in its configuration file don't match the actual (new) folders anymore.

The same is true if you would rename one or more of EMXP's parent folders, e.g. if EMXP's folder would be renamed from "...\Sound software" to "...\Conversion software".

If one of the above events has occurred, following message will appear the next time EMXP is launched:

```
                WARNING - FOLDER HAS BEEN COPIED OR RENAMED
------------------------------------------------------------------------------

        EMXP detected that its folder or one if its parent folders
     have been renamed or have been moved/copied to another location.

        The renamed or moved folder contains subfolders which have
   the same name as some subfolders had in the previously known folder.

    These subfolders may simply have been copied or moved together with
EMXP's folder or may even be exactly the same ones as the original ones.

Press [Y]es if you want EMXP to treat these subfolders as being the same
       subfolders as the ones before the copy or rename was done.
Press [N]o if you want EMXP to treat these subfolders as being different
     subfolders from the ones before (another installation of EMXP).

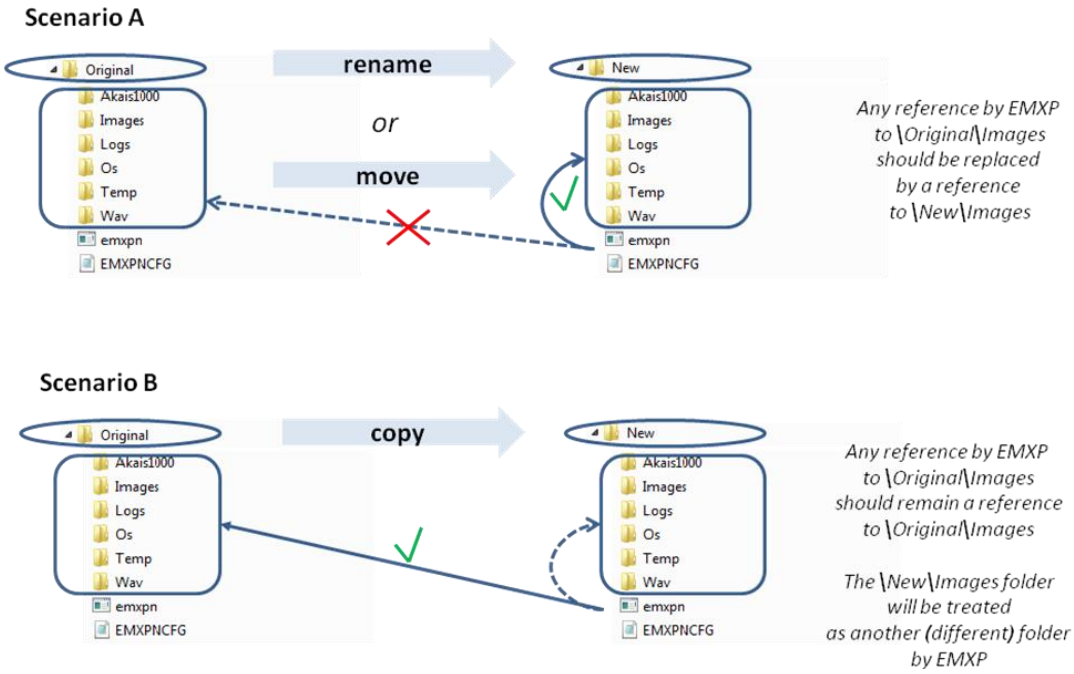
                Press ESC if you want to leave EMXP.

  (NOTE: EMXP will not actually move, copy or rename any file or folder)

------------------------------------------------------------------------------
            [Y]: Yes          [ESC]: Cancel          [N]: No
------------------------------------------------------------------------------
                        Choose [Y]es, [N]o or [ESC]ape: _
```

EMXP needs to know whether its subfolders should be considered to be the same as the ones before the copy or rename event took place (scenario A in the picture below), or whether they should be considered to be different (or newly created) subfolders (scenario B in the picture below).

If they are the same subfolders as before, because they are simply the result of a copy or rename event, answer Yes by pressing the Y key.
If they should be considered to be other subfolders, e.g. because you want to start with a new or parallel EMXP library, answer No by pressing the N key.

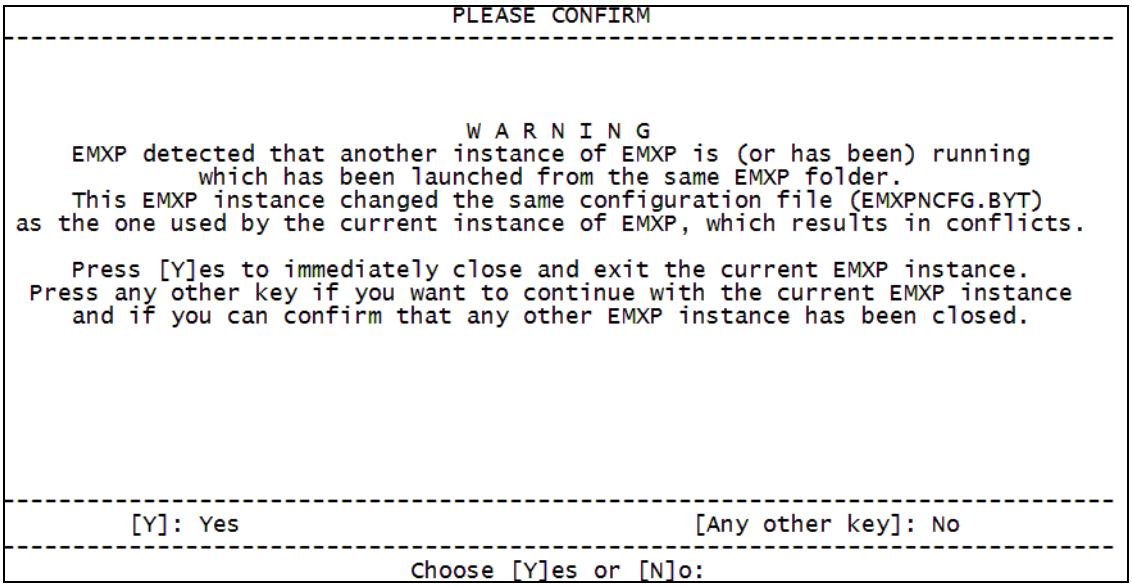


1.10 RUNNING MULTIPLE INSTANCES OF EMXP IN PARALLEL

Of course it's perfectly possible to run multiple instances of EMXP in parallel on your computer.

However it's highly recommended *not* to launch multiple instances of EMXP *from the same location.* As explained, EMXP is continuously updating the EMXNCFG.BYT file which is located in its root folder. If multiple EMXP instances are launched from the same EMXP folder, these instances will update the *same EMXPNCFG.BYT file*. This can cause conflicts or unexpected results.

Note that EMXP is able to detect that another EMXP instance has been updating the EMXPNCFG.BYT with different settings. In that case a warning may be raised and you will be requested to close some of the EMXP instances (see picture below). This will not occur as long as the settings and preferences remain identical between the different instances.



1.11 UNINSTALLING

You can **uninstall the EMXP software** simply by removing the EMXPN.EXE and EMXPNCFG.BYT files.
To **uninstall the OmniFlop floppy driver**, follow the instructions below.
These instructions are valid for Windows XP. However the procedure is similar for newer versions of Windows.

Uninstalling the floppy driver means:
- replacing the OmniFlop Floppy Disk Driver by the original Microsoft Driver

1. Choose
    a) START --> SETTINGS --> CONTROL PANEL
    b) click on SYSTEM ICON
    c) choose the HARDWARE tab
    d) click on the DEVICE MANAGER button
    e) unfold [+] Floppy Disk Drives (! not the Floppy Disk Controllers)
    f) right click the floppy disk device and choose UPDATE DRIVER
    The Hardware wizard pops up.

2. In the Hardware Wizard:
   a) Choose INSTALL FROM A LIST OR SPECIFIC LOCATION (ADVANCED)
   b) click NEXT
   c) Choose DON'T SEARCH, I WILL CHOOSE THE DRIVER TO INSTALL
   d) click NEXT
   e) either:
      - click on the original driver (probably called "Floppy Disk Drive")
     or:
      - click BROWSE and again BROWSE. Browse to the folder "Backup Driver" in which the FLPYDISK.INF and FLPYDISK.SYS files have been saved (see step 2 in the installation instructions)
      - click on FLPYDISK (.inf)
   f) click NEXT
   The Hardware wizards start the installation of the driver.

3. If you get a warning about (...) NO COMPATIBILITY WITH XP (...)
   click CONTINUE

The OmniFlop driver has been uninstalled now.

More details on the uninstall instructions can be found in the OmniFlop manual.

2. A QUICK START

We recommend that you read the whole reference manual before using EMXP.
However if you're tired of reading, you can try out EMXP now.

Before you start: we assume that you have one or more of these available before using EMXP:

- EMX images
- EMAX-I or EMAX-II floppy disks
- EMAX-I or EMAX-II hard disks (Hard disk, CF card, SD card, ZIP disk, ...) or a SCSI2SD card containing EMAX-I or EMAX-II formatted partitions
- EMAX-I or EMAX-II HxC (HFE) floppy disk image files used by the SD HxC Floppy Emulator
- EMAX-I or EMAX-II floppy disk image files (e.g. derived from SD HxC EMAX HFE files or created from floppy disks with OmniFlop)
- Emulator-I HxC (HFE) floppy disk image files used by the SD HxC Floppy Emulator
- Emulator-I floppy disk image files, created with KryoFlux or derived from SD HxC Emulator-I HFE files
- Emulator-II bank files created by SoundDesigner for EmuII for Mac which have been transferred to your computer
- Emulator-II HxC (HFE) floppy disk image files used by the SD HxC Floppy Emulator
- Emulator-II floppy disk image files, created with KryoFlux or derived from SD HxC Emulator-II HFE files
- Emulator-III, Emulator-IIIX or ESI hard disks (Hard disk, CF card, SD card, ZIP disk, ...) or a SCSI2SD card containing Emulator-III, Emulator-IIIX or ESI formatted partitions
- SP-12 sound bank files or sequence bank files created by SP-12 Librarian for Mac which have been transferred to your computer
- ISO cdrom image of an EMAX-I/EMAX-II cdrom or hard disk
- ISO cdrom image of an Emulator-III/Emulator-IIIX/ESI cdrom or hard disk
- ISO image of a SCSI2SD partitioned SD card
- SoundFont2 files
- Akai S1000 floppy disks
- Akai S1000 HxC (HFE) floppy disk image files used by the SD HxC Floppy Emulator
- Akai S1000 floppy disk image files (e.g. derived from SD HxC EMAX HFE files or created from floppy disks with OmniFlop)
- Akai S1000 samples (.S files)
- WAV files
- No files at all but an Emulator-II sampler connected to your computer via RS422
- No files at all but an EMAX-I or EMAX-II sampler connected to your computer via RS422 or MIDI
- No files at all but an SP-12 connected to your computer via MIDI

If you have any of the previous mentioned files or disks laying around somewhere and want to start using EMXP immediately, we recommend to jump to one of the **Guided Tours** in the "Guided Tours Manual".

Although there's no guided tour for *every possible scenario or function* supported by EMXP, we are convinced that you will find one which is *at least similar* to the scenario you have in mind.

Here's the list of the guided tours that can be found in this manual:

- GUIDED TOUR #1: EXPLORING THE CONTENTS OF AN EMAX-I EMX FILE
- GUIDED TOUR #2: FORMATTING AN EMAX-I FLOPPY DISK
- GUIDED TOUR #3: FORMATTING AN EMAX-II HARD DISK
- GUIDED TOUR #4: COPYING EMAX FLOPPY DISKS TO AN EMAX-II HARD DISK
- GUIDED TOUR #5: COPYING AN EMAX-II BANK FROM ONE SCSI2SD PARTITION TO ANOTHER SCSI2SD PARTITION
- GUIDED TOUR #6: CONVERTING EMULATOR-II BANK FILES TO SOUNDFONT2 FILES
- GUIDED TOUR #7: CONVERTING EMAX-II EMX FILES TO AN EMULATOR-IIIX BANK ON A HARD DISK IMAGE FILE
- GUIDED TOUR #8: CONVERTING AN EMULATOR-III CDROM INTO AN EMAX-II HARD DISK

- GUIDED TOUR #9: CONVERTING ALL SAMPLES FROM A SET OF EMULATOR-III BANKS TO WAV FILES
- GUIDED TOUR #10: CONVERTING A SINGLE SAMPLE FROM AN EMULATOR-II BANK TO A WAV FILE
- GUIDED TOUR #11: COMPRESSING AN 8 MB EMAX-II BANK INTO A 4 MB EMAX-II BANK
- GUIDED TOUR #12: SENDING A BANK TO AN EMULATOR-II WITH RS422
- GUIDED TOUR #13: SENDING SAMPLES TO AN EMAX-I WITH RS422
- GUIDED TOUR #14: SENDING A WAV FILE TO AN SP-12 WITH MIDI
- GUIDED TOUR #15: CONSTRUCTING AN EMAX-II BANK
- GUIDED TOUR #16: LISTENING TO EMULATOR-II BANKS

Hint 1: If you don't have a clue how the User Interface of EMXP works with its vintage MSDOS look & feel, e.g. if you try to select menu options by clicking your mouse buttons or touching your touch-sensitive screen, we highly recommend to read *section "4.4 USER INTERFACE"* before jumping to one of the guided tours.

Hint 2: Since EMXP expects valid file extensions in the file names – like .EM1 for EMAX-I EMX files, or .EMUFD or .IMG for Emulator-I floppy disk image files – you may have to change some file name extensions from time to time. This can be done with the RENAME command in an MSDOS window, but we recommend to use one of the freeware programs which add this possibility to the (right-click) menu of Windows Explorer.[1]

Hint 3: It may be a good idea to reset all preferences and settings to the factory defaults first, especially if you are not sure if your EMXP installation is clean (fresh) or not. Resetting the factory defaults can be done by selecting: *"6. Preferences" → "9. Reset Preferences to Factory Default Values" → "1. Reset All Preferences to Factory Defaults" → "[2]. Reset values of all preferences" → "[Y]es"*

Note:
This manual assumes that the "Yamaha" convention for the keyboard octave notation is applicable. As a consequence the text and pictures in this manual assume that the middle C is the C3 note (corresponding to MIDI note 60). This is the convention used by EMU samplers as well. Many other musical instruments and software use the scientific pitch notation though, which considers the C4 note to be the middle C. EMXP offers the possibility to choose the middle C convention by means of a Preference.

[1] Example: the free Change File Extension Shell Menu from T800 Productions, which adds the file extension changing option to the Windows Explorer's file right click menu

3. OVERVIEW OF EMXP

3.1 FEATURES

This section contains a summary of the features supported by EMXP.
More details about each feature can be found in the next chapters.

Disks and files:

- Compatibility with widely spread file formats:
    - EMAX-I and EMAX-II EMX file layout (.EM1, .EM2 files)
    - Digidesign SoundDesigner for Emulator II files
    - Digidesign SoundDesigner for EMAX files
    - HxC floppy emulator files for EMAX-I, EMAX-II, Emulator-I, Emulator-II, Akai S1000 and Emulator-III/IIIX operating systems (.HFE files) - see below.
    - SoundFont2 files (.SF2)
    - Emulator-III and Emulator-IIIX bank (aka ESI-v2) files (.EB3, .E3B, .E3X)
    - ESI-v3 bank files (.ESI)
    - DREM[2] Emulator-II hard disk image files (.DSK)
    - Water's Edge Software SP-12 Librarian sound files and sequence files (assumed compatibility)
- Compatibility with the HxC floppy emulator for the EMAX-I, EMAX-II, Emulator-I, Emulator-II, Emulator-III (OS only), Emulator-IIIX (OS only) and Akai S1000:
    - Native support for HxC .HFE files: all EMXP functions available for any other file type are also available for .HFE files.
    - Moreover EMXP also supports the input files for the HxCFloppyEmulator software:
        - EMAX-I and EMAX-II EMX files (.EM1, .EM2) and EMAX operating system files (.EMX) as input for creating .HFE files
        - EMAX-I, EMAX-II, Emulator-III OS and Emulator-IIIX OS floppy disk image files (.EM1FD, .EM2FD, .E3OFD, .IMG) as input and output for converting to/from .HFE files
        - Emulator I disk images (.EMUFD files)
        - Emulator II disk images and OS overlay files (.EMUIIFD files)
        - Akai S1000 disk images (.IMG files)
- Floppy disk support: *(not available yet when running EMXP under Wine on macOS)*
    - Read, write and format EMAX-I and EMAX-II floppy disks (DSDD disks, 800 Kb)
    - Read, write and format Emulator-III and Emulator-IIIX operating system floppy disks (DSDD disks, 800 Kb)
    - Read, write and format Akai S1000 floppy disks (both DD and HD)
- Hard disk (ZIP, CF, SD, …) and CD-ROM support: *(not available yet when running EMXP under Wine on macOS; for a work-around we refer to the separate manual for using EMXP in Wine on macOS)*
    - Read, write and format EMAX-I, EMAX-II, Emulator-III, Emulator-IIIX and ESI removable hard disks, such as ZIP disks, CF and SD cards
    - Read, write and format Emulator-II hard disks (*note: at the time of writing this manual, no method is known yet how to connect an original Emulator-II hard disk to a computer)*
    - Read EMAX-I, EMAX-II, Emulator-III, Emulator-IIIX and ESI CD-ROMs
    - Backup and restore EMAX-I, EMAX-II, Emulator-II, Emulator-III, Emulator-IIIX and ESI hard disks and CD-ROMs
        - These backup images can also be accessed in read and write mode as virtual hard disks
        - These backup images can also be burned to an EMAX-I, EMAX-II, Emulator-III, Emulator-IIIX or ESI-compatible CD using any CD burning software package (besides being written or restored to any removable hard disk such as ZIP disks or CF cards) *(not applicable for Emulator-II)*
        - These backup images can also be created from scratch: this allows you to create your own sound libraries which then can be written to EMAX-I, EMAX-II, Emulator-II, Emulator-III,

[2] DREM hard disk emulator device for MFM/RLL hard disks, see https://www.drem.info

Emulator-IIIX or ESI removable hard disks or CD-ROMs, or specifically for the Emulator-II as .DSK files in the DREM emulator.

- Reading and writing EMAX-II, Emulator-III, Emulator-IIIX and ESI formatted hard disks of more than 4GB is supported; formatting is limited to 1GB for EMAX-II and Emulator-III, 4GB for Emulator-IIIX and 14GB for ESI (because larger sizes don't make sense)
- Compatibility with SCSI2SD[3] emulator
  - Read, write and format up to 7 EMAX-I, EMAX-II , Emulator-III, Emulator-IIIX or ESI partitions (called "*devices*") on a single SD card used in the SCSI2SD
  - Backup and restore of entire SCSI2SD cards (all partitions at once) and of each individual EMAX-I, EMAX-II , Emulator-III, Emulator-IIIX or ESI partition of a SCSI2SD card
  - In a nutshell:
    - each individual partition on a SCSI2SD card is treated just like any other (normal, un-partitioned) hard disk in EMXP - all functions available for hard disks are available for SCSI2SD partitions as well
    - each individual partition in a SCSI2SD disk image file is treated just like any other (normal, un-partitioned) hard disk image file in EMXP - all functions available for hard disk image files are available for SCSI2SD partitions as well

- Hard disk image support for EMAX-I, EMAX-II, Emulator-II, Emulator-III, Emulator-IIIX and ESI
  - The same features are available as for hard disks and CDROMs (see previous topic)
  - Emulator-II hard disk images are compatibel with the DREM hard disk emulator (DSK files). EMXP can also generate DREM config files (.CFG) when creating a new Emulator-II hard disk image
- EMAX-I, EMAX-II, Emulator-I, Emulator-II, Emulator-III and Emulator-IIIX file and disk support is available for both sound banks and operating systems
- Akai S1000 file and disk support is for programs, samples, drums and operating systems
- A file and disk manager is available for exploring any disk or any folder for selecting files and sound banks

Copying:

- Copy sound banks and sound data from any file or disk type to any other file or disk type within a sampler family, e.g. copy a set of related EMAX-II EMX files to an EMAX-II hard disk
- Copy operating systems to/from floppy disks, floppy disk images, HxC floppy disk images, hard disks and hard disk image files (EMAX-I, EMAX-II, Emulator-I, Emulator-II, Emulator-III, Emulator-IIIX, Akai S1000)
- Raw copying between floppy disk image files and HxC floppy disk image files (EMAX-I, EMAX-II, Emulator-I, Emulator-II, Emulator-III OS, Emulator-IIIX OS, Akai S1000)
- Removing sound banks and operating systems from hard disks and hard disk images
- Backup/restore of hard disks (EMAX-I, EMAX-II, Emulator-II, Emulator-III/IIIX/ESI) or SCSI2SD hard disk partitions (EMAX-I, EMAX-II, Emulator-III/IIIX/ESI) and floppy disks (EMAX-I, EMAX-II, Akai S1000)
- Support for fully automated batch processing as well as for fully manually controlled item-per-item processing
- Detailed copy execution reports are produced for each copy process

Conversions:

- Conversion of samples to WAV files from EMAX-I, EMAX-II, Emulator-I, Emulator-II, Emulator-III, Emulator-IIIX (ESI-v2), ESI-v3, SP-12, Akai S1000 or SoundFont2 banks on any disk or in any file; this includes the possibility to convert the sample's loops to WAV loops as well (besides simply converting the audio part).
- Conversion between EMAX-I, EMAX-II, Emulator-I, Emulator-II, Emulator-III, Emulator-IIIX (ESI-v2), ESI-v3, SP-12 and SoundFont2 banks to and from any disk or any file.
- Conversion to Akai S1000 programs and samples is only supported for EMAX-I and EMAX-II sound banks
- Native conversion between EMAX-I and EMAX-II, preserving the sequence and SE data
- Support for sample rate conversion and adapting sound bank memory size for conversions to EMAX-I, EMAX-II, Emulator-III, Emulator-IIIX (ESI-v2) and ESI-v3

[3] SCSI2 to SD card emulator device, see http://www.codesrc.com/

- Sound attenuation/amplification support for conversions to and from Emulator-I
- Possibility to choose between keeping stereo sample characteristics or converting them to mono
- Support for fully automated batch processing as well as for fully manually controlled item-per-item processing
- Detailed conversion reports are produced for each conversion

Construction:

- Simple construction of sound banks from scratch: definition of presets and assigning WAV files to key areas (or sounds for SP-12). Banks can be created for EMAX-I, EMAX-II, Emulator-I, Emulator-II, Emulator-III, Emulator-IIIX (ESI-v2), ESI-v3, SP-12and SoundFont2. A possibility to convert the WAV loops to sampler loops during construction is included as well.
- Real time validation of constructed sound banks against the target sampler's limits
- Generation of constructed sound banks to any file or disk type supported for the target sampler.
- Possibility to change the original note and tuning of each assigned sample (WAV file)
- Possibility to copy presets and to choose between generating different occurrences of the same WAV-file into different samples or into the same shared sample
- Possibility to monitor the total sample size that will be used in the target sampler

Communication:

- Transferring sound banks between EMXP and EMAX-I, EMAX-II, Emulator II or Oberheim DPX-1 via RS422 (EMAX-II: only transfer of compressed EMAX-I banks towards the EMAX-II). For Emulator-II there's an option to make the transfer time even faster than with SoundDesigner for EII.
- Transferring sound banks and sequence banks between EMXP and SP-12 via MIDI
- Transferring individual samples (WAV-files) between EMXP and EMAX-I or EMAX-II via RS422 or MIDI
- Transferring individual samples (WAV-files) between EMXP and Emulator-II via RS422
- Transferring individual sounds, segments and WAV-files from EMXP to SP-12 via MIDI
- When transferring individual samples, there's an option to transfer the loop definitions as well (besides the audio part)

Viewing:

- Show details of EMAX-I, EMAX-II, Emulator-I, Emulator-II, Emulator-III, Emulator-IIIX (ESI-v2) and ESI-v3 banks, presets, samples and voices on-screen
- Show details of SoundFont2 banks, presets, instruments, zones and samples on-screen
- Show details of SP-12 sound banks, sounds and samples on-screen
- Show details of SP-12 sequence banks, segments, songs and mixes on-screen

Audio play:

- Play EMAX-I, EMAX-II, Emulator-I, Emulator-II, Emulator-III, Emulator-IIIX (ESI-v2), ESI-v3, SoundFont2, SP-12 and Akai S1000 samples (without having to export them to WAV files first)
- Play WAV files
- Sequential playing of multiple (all) samples of multiple selected sound banks/files without any user intervention. This allows for fast auditioning and for quickly searching a specific sound bank.
- Sample loops can be played as well.

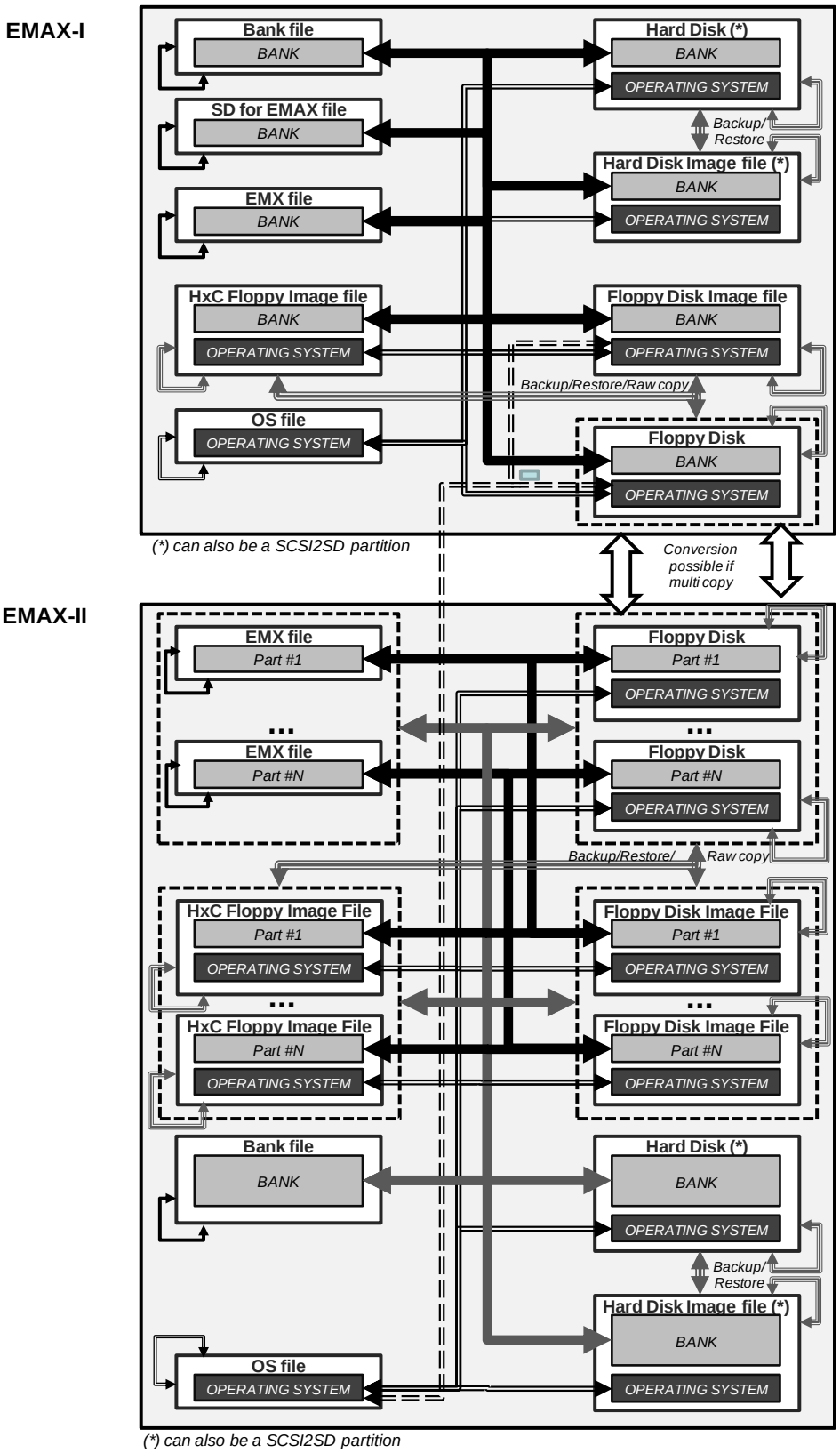
Other:

- Runs on Windows and in Wine on macOS
- Physical and logical formatting of floppy disks for EMAX-I, EMAX-II, Emulator-III OS, Emulator-IIIX OS, Akai S1000

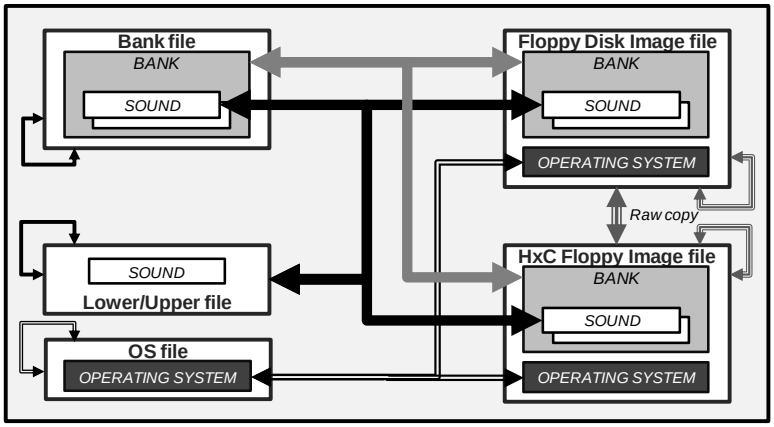
- Physical and logical formatting of hard disks for EMAX-I, EMAX-II, Emulator-II, Emulator-III, Emulator-IIIX and ESI
- Bulk replacement of operating system on EMAX-I and EMAX-II floppy disks, floppy disk image files and HxC floppy disk image files; bulk replacement of operating system on Emulator-I and Emulator-II floppy disk image files and HxC floppy disk image files.
- Generate reports in TXT or CSV format containing an overview of any selection of EMAX-I, EMAX-II, Emulator-II, Emulator-III, Emulator-IIIX (ESI-v2), ESI-v3 or SoundFont2 banks and their presets
- Assign user defined names to SP-12 sounds, segments and songs
- Generate reports in TXT or CSV format containing an overview of any selection of SP-12 sound banks and their individual sounds, or any selection of SP-12 sequence banks and their individual songs and segments.
- Change the boot rom protection on Emulator-I floppy disk images and Emulator-I HxC floppy disk images
- Compatibility with the OmniFlop floppy driver software, no licensing required anymore
- Wide use of user preferences and settings related to automation/workflow, copy/conversion behaviour, look and feel, file and disk location, MIDI and RS422 communication, logging and reporting
- User definable screen size

3.2 COPY FLOWS SUPPORTED BY EMXP

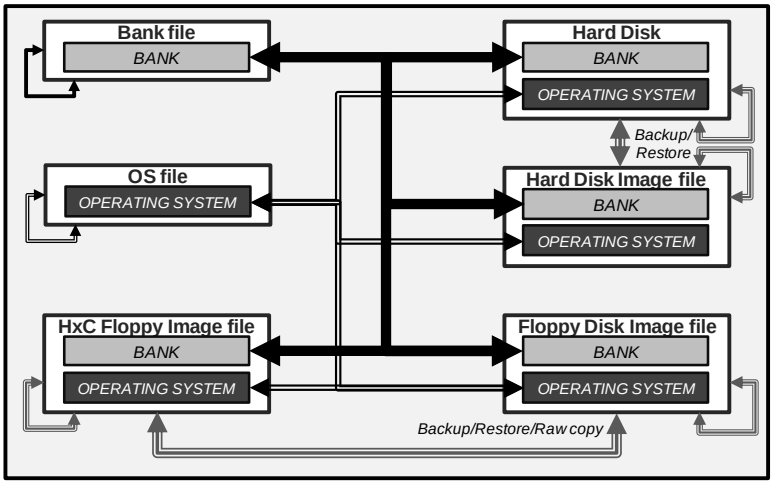
The following diagrams show all possible copy flows supported by EMXP.



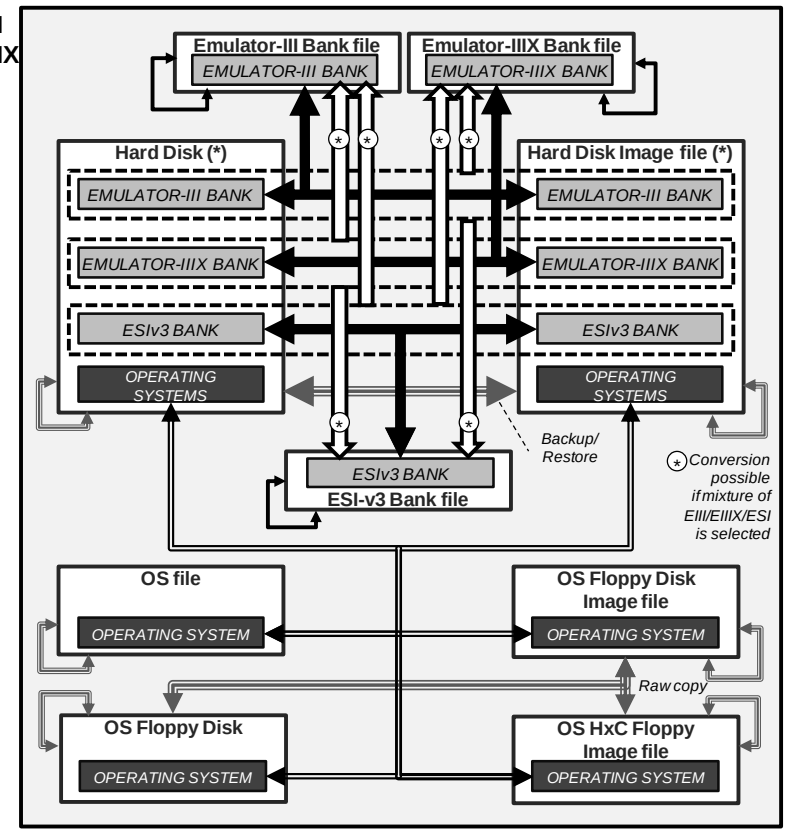
Emulator-I



Emulator-II

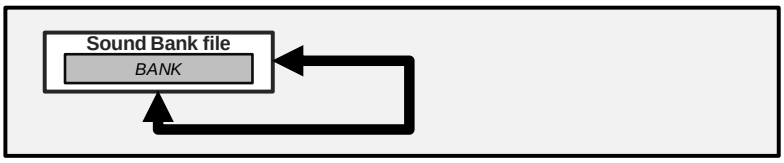


Emulator-III
Emulator-IIIX
ESI-v3

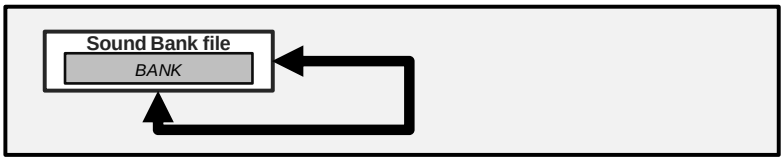


(*) can also be a SCSI2SD partition

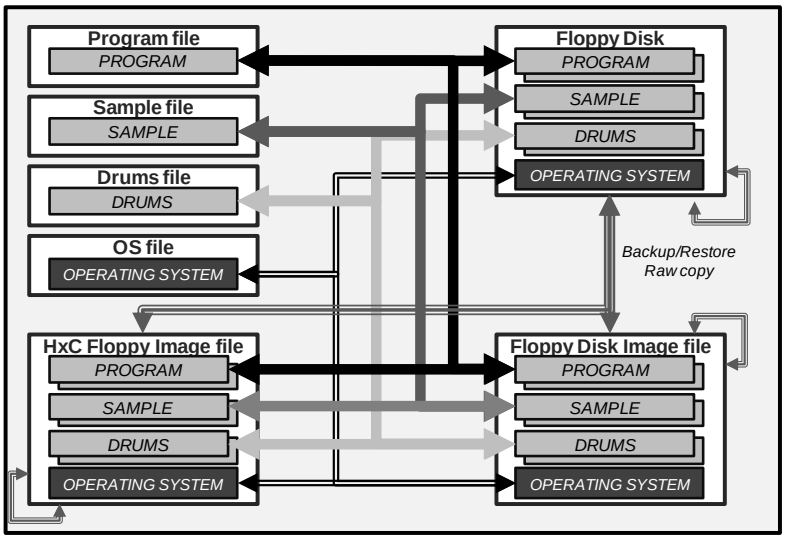
SP-12



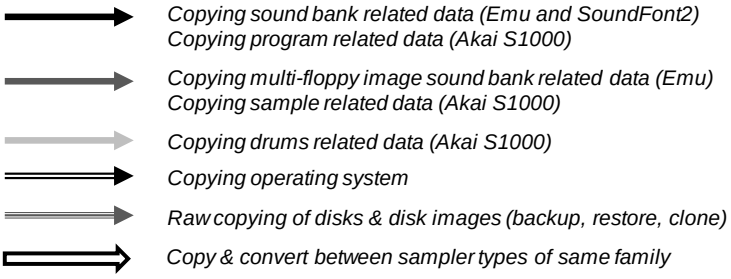
SoundFont2



Akai S1000

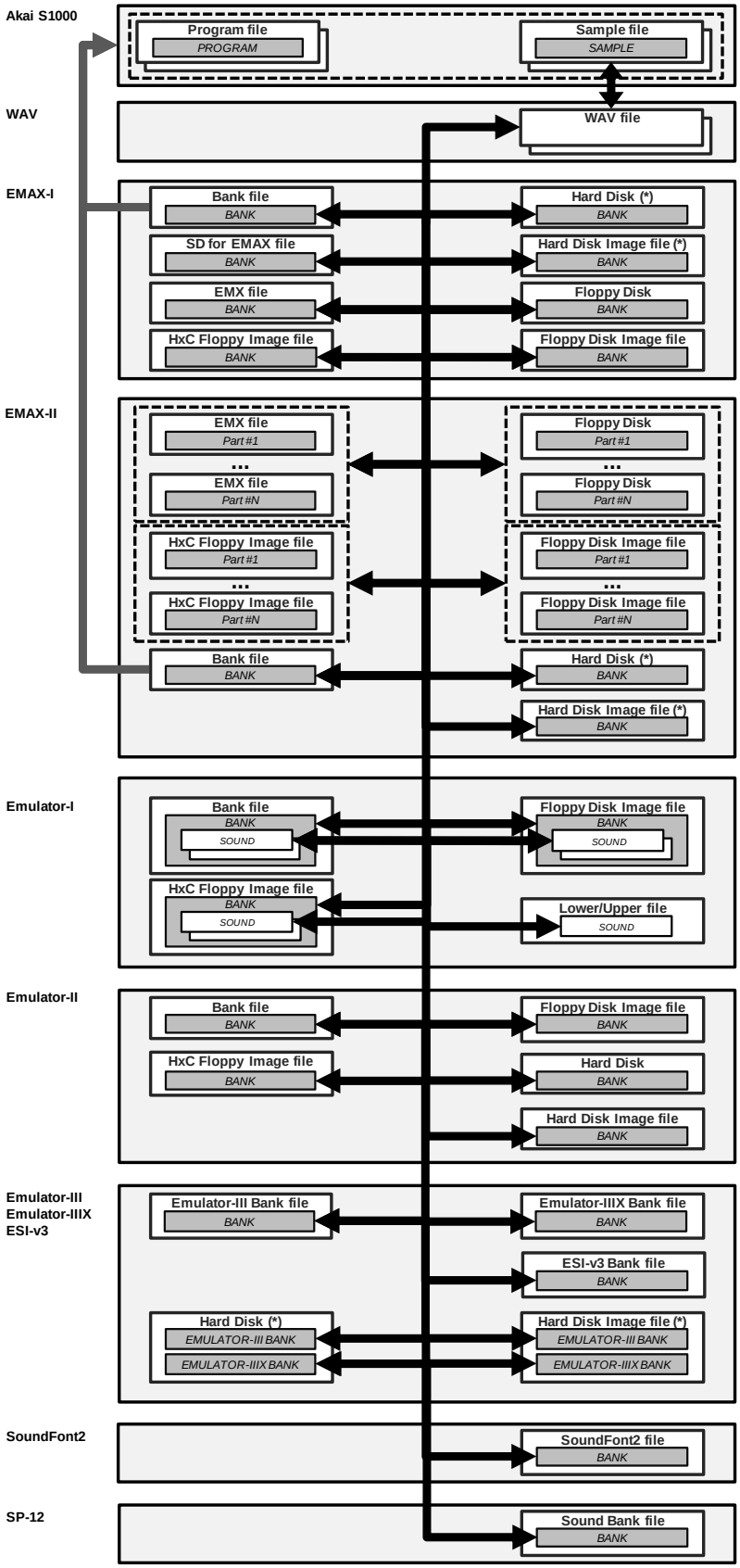


Legend



3.3 CONVERSION FLOWS SUPPORTED BY EMXP

The following diagram shows all possible conversion flows supported by EMXP.



(*) can also be a SCSI2SD partition

Although the picture shows arrows between virtually all supported samplers and sampler file/disk types, conversions *within the same sampler type* (e.g. EMAX-II to EMAX-II) are only supported if sample rate conversion (re-sampling) or memory size conversion are supported. In that case conversions between identical sampler types make sense because the size and nature of a sound bank can be changed. This is true for the EMAX-I, EMAX-II, Emulator-III, Emulator-IIIX (ESI-v2), ESI-v3 and SP-12.
If sample rate conversions or memory size conversions are *not* supported, conversions between identical sampler types do not make sense and hence are not supported by EMXP. This is true for Emulator-I, Emulator-II, Akai S1000 and SoundFont2.

Although EMXP supports conversions from any file or disk type to any other file type or disk type, the **bank files** (with extensions .EB1, .EB2, .EB3/.E3B/.E3X, ESI, E1B, .EII, .SP12 and .SF2) can be considered to be **the main file type** for each of the supported EMU samplers.

When building a library of EMU sound banks, we recommend to use this **bank file** type, because these files contain all parameters and all samples of a sound bank, while not having the overhead of containing operating system data. This is opposed to e.g.:

- EMAX-II EMX files, floppy disks, floppy disk image files and HxC floppy disk image files which may not contain all sample data; moreover you might need multiple EMX files, floppy disks, floppy disk image files or HxC floppy disk image files to get a single sound bank.
- Emulator-II floppy disk image files and HxC floppy disk image files which contain not only sound banks, but also an operating system: since the required operating system depends on the type of Emulator-II sampler, it's probably not wise to store them together with the sound banks.

4. USING EMXP: BASIC PRINCIPLES

4.1 WARNING

All versions of EMXP should be considered to be more or less in a BETA phase. This is due to the fact that the user base (and hence "test user group") is quite small.
This means that you should NOT TRUST EMXP !
Don't rely on this software version as the only way of saving your sampling work !
You don't want to destroy your floppy disks or SD/CF cards containing weeks of studio sampling time.
If you use this software, you are aware of the fact that

- this software has not been tested thoroughly
- this software could "destroy" the contents of your floppies or sampler hard disks
- you are a beta tester ☺

Please report your EMXP-problems to esynthesist [at] yahoo [dot] com

That being said, I can say that

- *until today almost no (serious) error reports have been sent to me*
- *I am using EMXP myself all the time and it has never caused any damage to my disks, to my sample library nor to my samplers*
- *EMXP is being used for many years now, so most functions dating from earlier versions should be considered to be quite stable…*

4.2 RECOMMENDATION

If you want to use the sampler hard disk capabilities of this software, like the support for memory cards (SD, CF, …), ZIP disks and DREM files, we strongly recommend to:

- use an empty hard disk/card formatted by an EMAX-I/EMAX-II/Emulator-IIIX/Emulator-IIIX/ESI sampler when using EMXP for the first time,
- to backup your hard disk or DREM files if they already contain valuable sound banks, before writing additional content to it with EMXP.

If you want to use RS422 or MIDI communication facilities, we recommend to **save** your banks on the sampler before starting any transfer. Transmission problems may cause the sampler to hang (crash).

4.3 STARTING EMXP

You can start the EMXP software in two ways:

- Double click the EMXPN.EXE file in Windows Explorer (or in Wine's File Manager when running EMXP under Wine on macOS),
- Or type EMXPN.EXE <*ENTER*> in a DOS Window/Command Prompt Window.

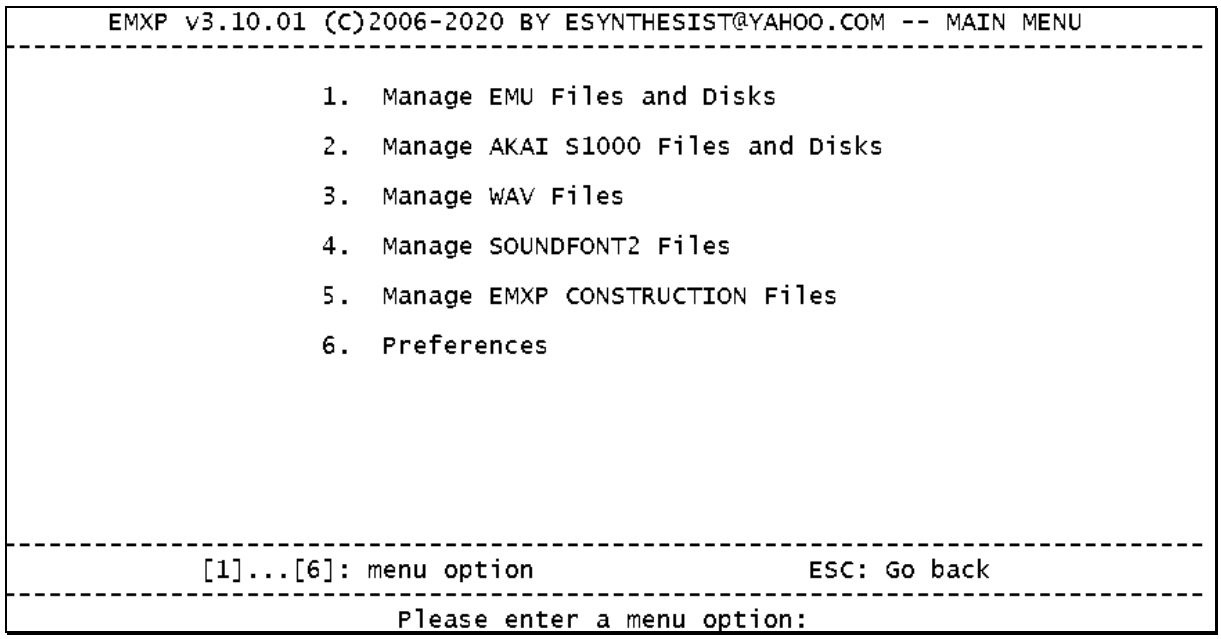
4.4 USER INTERFACE

4.4.1 Introduction

The user interface of EMXP has a *good old MSDOS look & feel*, although it can only run under Windows XP or higher…

Fortunately the user interface is more user-friendly than the old EMX software or the initial EMXP versions. E.g. you don't have to type input file names anymore: you can select file(s) from a list.

The main screen after launching EMXPN.EXE looks like this:



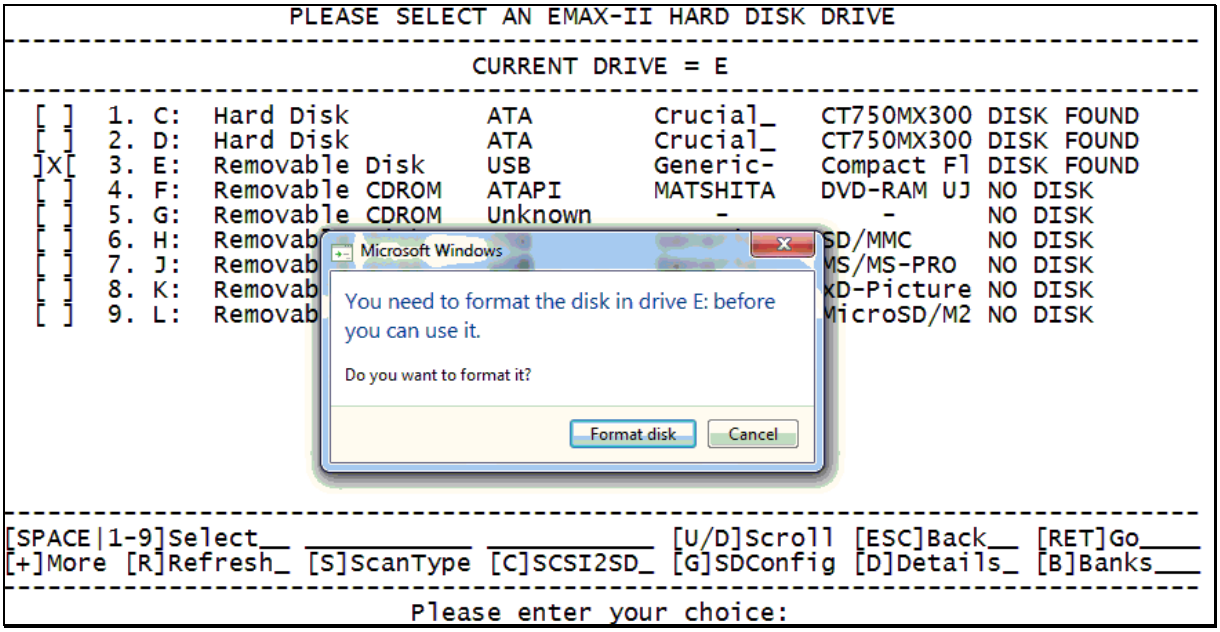
Selecting a menu option can be done simply by typing the menu option number.
E.g. if you want to process Emu files or disks (like Emulator-II or EMAX-I files or disks), you press 1 and the EMU SAMPLER MENU will appear.
Note that you don't have to press ENTER: after pressing 1, EMXP immediately responds and executes the requested function.

EMXP consists of 10 types of screens:

1) Menu screens, in which you can choose a function of EMXP
2) List screens / overviews, in which you can choose one or more items (files, banks, presets, files, keys, preferences…)
3) Detailed information screens, in which all details of an item are displayed
4) Report screens, in which a report is displayed
5) Request screens, in which you have to type a value or a name
6) Confirmation screens, in which you have to confirm critical operations such as deleting a bank
7) End-of-process screens, in which EMXP confirms that (part of) a process has been completed
8) Warning or Error screens, in which EMXP tells you that something has gone wrong (WARNING / ERROR) or seriously gone wrong (FATAL ERROR).
9) Proceeding screens, in which EMXP shows to what extent an operation has already been executed, by displaying a progressing bar
10) Wait screens, which ask you to be patient while EMXP is doing something.

In almost all screens, you can leave the screen and go back to the previous screen by pressing the **ESCAPE** button on your keyboard.

Windows itself may also show warning or error screens due to some processes in EMXP. This is true when a serious bug occurs (e.g. a System Error due to a memory leak), but Windows messages can also pop up when in other situations, e.g. if you connect a sampler hard disk to your computer. See example below.



In the above example, simply press “cancel” and continue using EMXP.

Refreshing overview lists

If you **go back** to a list of **files** on your computer in the File Manager (see *section "4.5 FILE AND DISK MANAGER"*), the list is **not refreshed automatically** with new content that may have been added to or removed from the current folder. To refresh the list, you can return to the previous menu level and select the list/overview function again *or* you can use the **Refresh** short cut key in the overview screen (by pressing 'R'). The refresh short cut key only works if no files have been selected yet in the overview screen.

If you have selected some files in the File Manager (e.g. EMAX-II Bank Files) and have requested EMXP to either create new files of the same type (e.g. EMAX-II Bank Files) or to modify or delete some of the selected files, EMXP will not return the original file list screen anymore because the original file overview may not be consistent anymore. In that case EMXP will automatically return to the menu screen preceeding the original file list screen.

As opposed to file list screens, if you go back to a list of **drives** on your computer in the Disk Manager (see *section "4.5 FILE AND DISK MANAGER"*), the list will always be **autmatically refreshed**.

Screen size

The default screen size of EMXP screens is 80 columns and 25 lines.
The size can be changed from 25 lines till 96 lines by changing the *EMXP screen size preference.*
See *section "10.4.1 Define size of EMXP screens".*

4.4.2 How to use the different screen types

Let's give some more details on each of the screen types:

4.4.2.1 Menu screen

E.g. the main menu shown before.
On a menu screen you can:

- Select a menu function by typing the correct function number
- Leave the menu by pressing ESC.

4.4.2.2 List screen or overview screen

In a list screen, you see an overview of items such as banks, presets, files or drives.

The top row(s) of the screen either display a short description of the objects shown in the overview, or *a question or an instruction* in which EMXP tells you what you are expected to do on the overview screen.

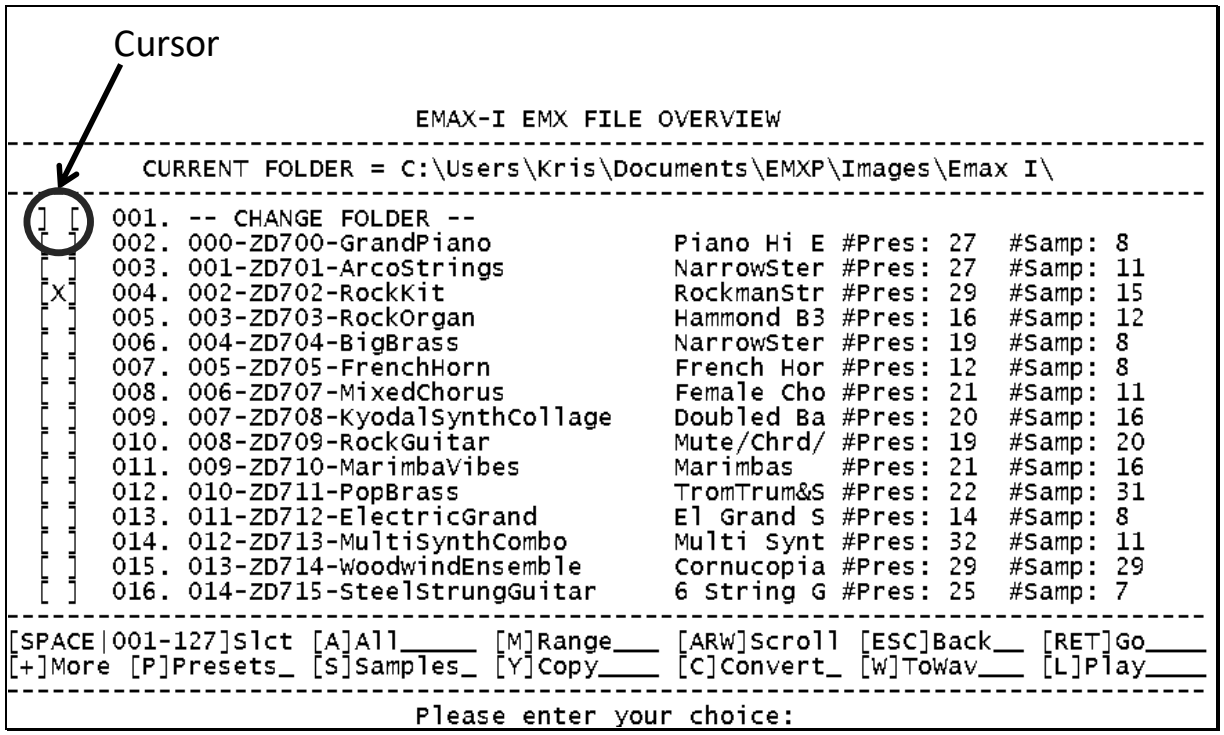
On the bottom row(s), the available actions are displayed.

- The first row shows the available *control keys*. These are the keys that can be used to select items, to scroll through items and columns, to go to the next screen (e.g. menu) or to leave the list screen.
- The second row shows the available *short cut keys* (only if any are available). These are keys that give direct access to actions that can be done with the item(s). Most of these actions are also available in the menu and submenu screens that would appear if you would press ENTER, but for file overviews these actions also include sorting the items or refreshing the overview.

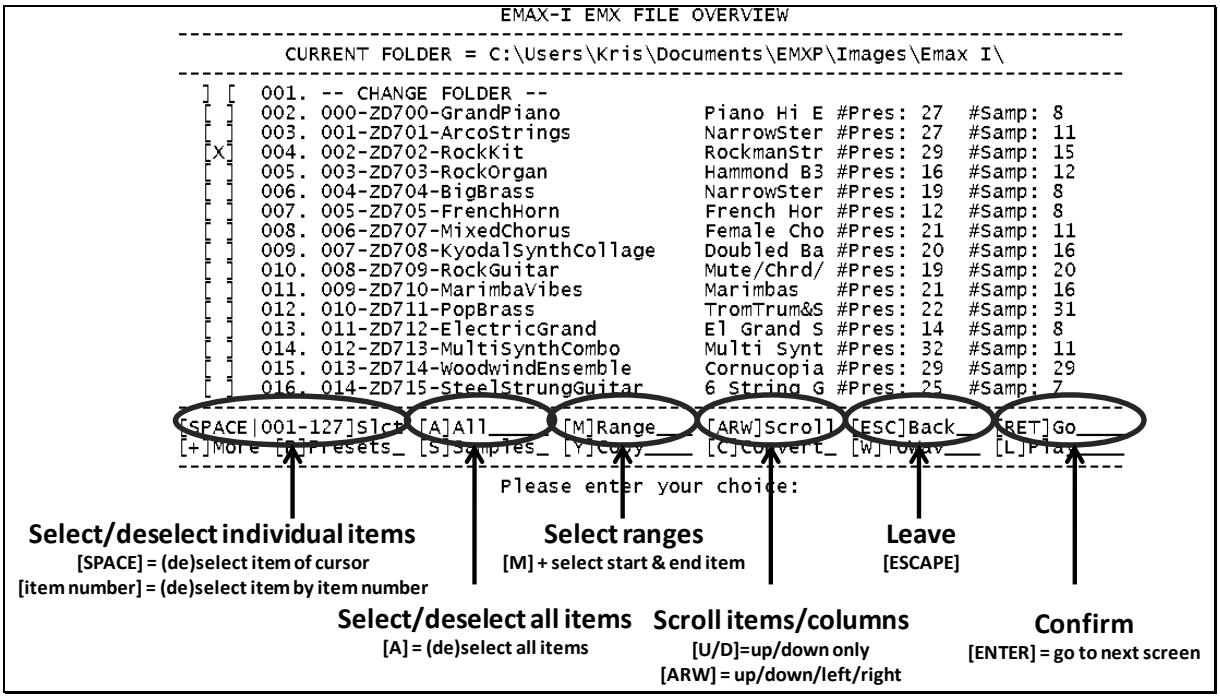
If you want to limit the number of bottom rows to 1 (in order to have more items available in the actual list screen), you can configure EMXP not to show control keys if short cut keys are available. See *section "10.4.3 Define which available keys should be displayed in list screens"*.

The cursor

The cursor is a visual pointer on a list screen that can be used to select an item. The way the cursor looks can be configured in the look & feel preferences, see *section "10.4.2 Define cursor symbol in overview screens"*. In the remainder of this document, the '][' representation is assumed.



Control keys: selecting items, scrolling though items, confirming selected items or leaving the overview



- *Scrolling*

  There can be more items in a list screen than the items that are displayed on the current screen.
  Scrolling through the items can be done by moving the cursor up and down. The following keys can be used for scrolling:
  - UP and DOWN arrow keys: to move the cursor forward and backward line by line
  - PAGE UP and PAGE DOWN keys: to move the cursor forware and backward screen by screen
  - HOME key: to move the cursor to the first item
  - END key: to move the cursor to the last item

  There can also be more columns than the columns that are displayed on the current screen. However this is only true for file overview screens.
  Scrolling through the columns can be done by moving the cursor to the right and to the left. This can be done with the following keys:
  - RIGHT and LEFT arrow keys

  If the LEFT and RIGHT keys are enabled, the label of the 'Scroll' key at the bottom line will become [ARW] (=arrow) instead of [U/D] (=up/down).

- *Selecting items*

  For selecting or de-selecting *individual* items one by one, two methods are avaiable;
  - Move the '][' cursor across the items with the UP/DOWN/PAGE UP/PAGE DOWN/HOME/END keys and pressing the SPACE bar to select the item.
  - Enter an item number directly, e.g. type 004 to select the 002-ZD702-ROCKKIT EMX file in the above list.
    If the item number is preceeded by zeros (like the 2 zeros in item number 004), there are 2 ways to enter the number:
    - enter the full item number: after entering 0, 0 and 4, item number 004 will autmatically be selected or de-selected
    - enter only the meaningful part of the item number (here: 4) and press ENTER

    If the item is not displayed on the current screen but you enter its number anyway (e.g. item 105 in the above example), EMXP will scroll the screen automatically and select the item. If you want to disable

this possibility, a preference setting must be changed. See *section "10.4.4 Define short cut key and item selection ranges in overview screens"*.

Once you have selected an item, an ‘X’ is put in front of it. Depending on the type of list screen (see later), it can be possible to select multiple items.

To de-select individual items, the same 2 methods can be used. The 'X' in front of the item(s) will disappear again.

For selecting or de-selecting *a range of* items, the following method is available:

- Press the ‘M’ key. Then select the start item of the range: an 'M' will be put in front of the start item. Finally select the end item of the range: an 'X' will now be put in front of all items of the range. Selecting the start and end item can be done with one of the 2 methods explained before. You can leave the *select range mode* at any time by pressing ESCAPE.

This mode is only available in *standard list screens* (see later).

For selecting or de-selecting *all* items at once, the following method is available:

- Press the 'A' key (both lower and upper case will work).

This mode is only available in *standard list screens* (see later).

- *Confirming the selection*

  Once you have selected the items, you can confirm the selection and go to the next process step by pressing ENTER.

  The next process step can consist of displaying a *menu screen* in which you have to choose what you want to do with the selected items. Alternatively you can also press any of the available *short cut keys* (see later).

  But the next process step can also simply be a confirmation of the selected item, which brings you back to the previous screen (as opposed to pressing ESCAPE, which also brings you back to the previous screen but which ignores the selections that have been made).

- *Leaving the overview screen*

  You can leave a list screen at any time by pressing ESCAPE.
  Any selection you have made will be un-done or ignored.

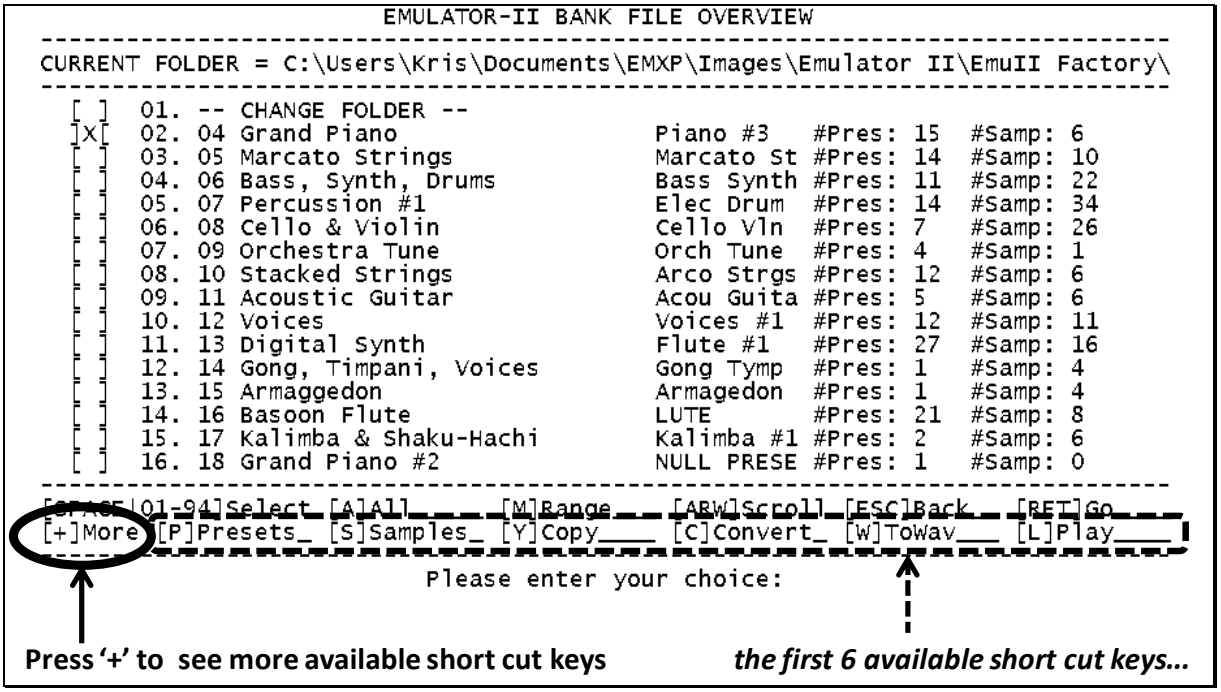
Short cut keys: performing actions on selected items and sorting items

The number of available (and hence displayed) short cut keys can depend on the number of selected items:

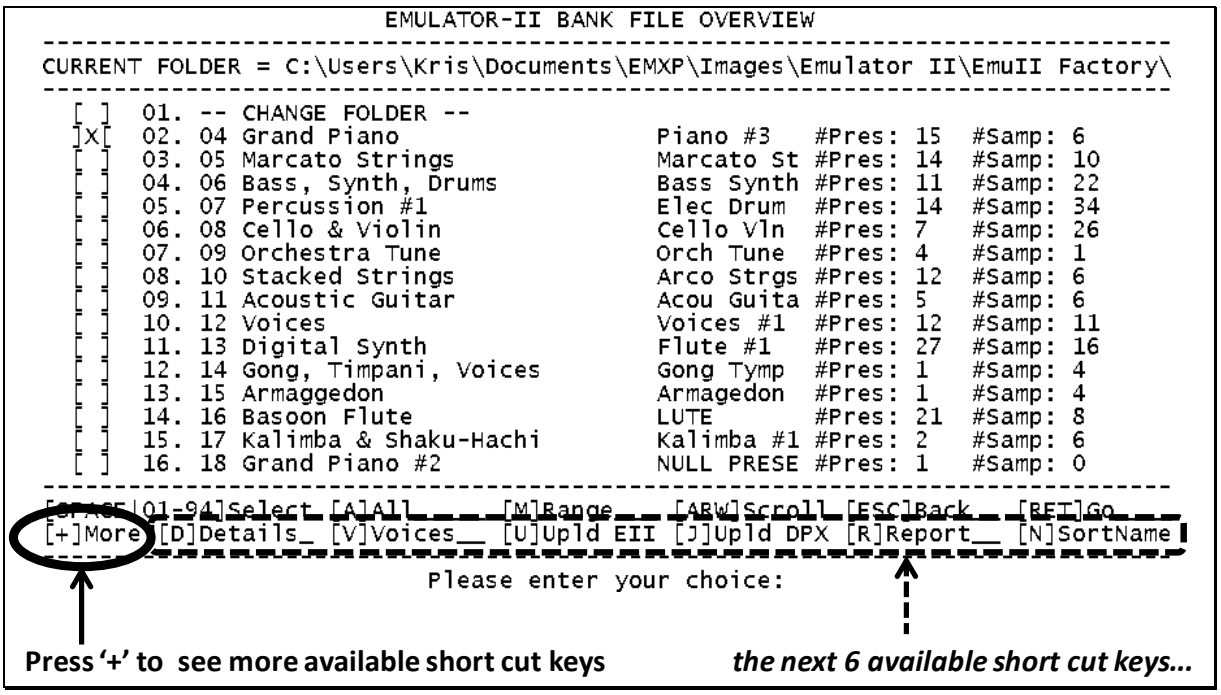
- Some short cut keys may only be available *if no items* have been selected
- Some short cut keys may only be available if *exactly one item* has been selected
- Some short cut keys may be available if *one or more items* have been selected
- Some short cut keys may *always* be available, no matter how many items have been selected

If more than 6 *short cut keys* are available, you can scroll through them by pressing the '+' key on your keyboard. Each time the '+' key is pressed, the next set of (up to) 6 available short cut keys will be displayed. If no more short cut keys are defined, the first set of 6 short cut keys will be displayed again. This is illustrated below for an overview of Emulator-II bank files.

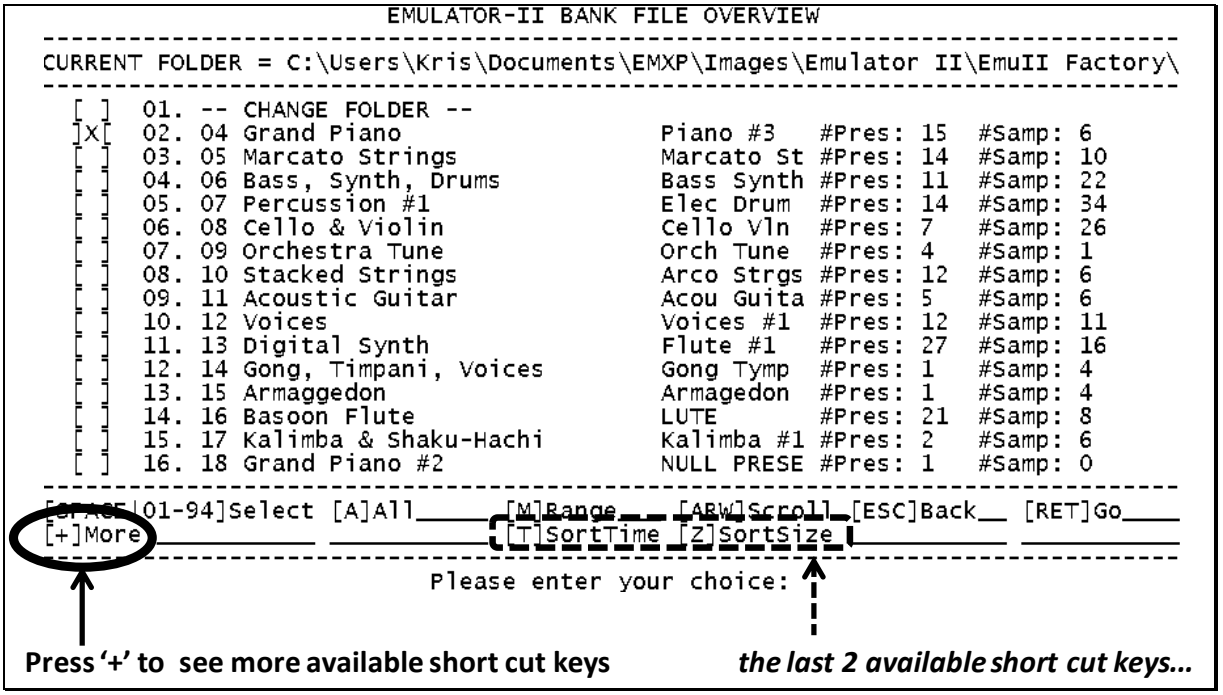
- The default screen mentions the first 6 short cut keys that are available:



- After pressing '+', the next 6 available short cut keys are displayed:



- After pressing '+' again, the remaining 2 short cut keys are shown.



- If '+' is pressed once more, the first 6 short cut keys are displayed again. So for Emulator-II bank files, a total of 14 short cut keys is available:
    - [P] to get an overview of all presets in the bank *(only available if 1 bank has been selected)*
    - [S] to get an overview of all samples in the bank *(only available if 1 bank has been selected)*
    - [Y] to copy the selected banks (*available if 1 or more banks have been selected)*
    - [C] to convert the selected banks (*available if 1 or more banks have been selected)*
    - [W] to convert all samples of the selected banks to WAV files (*available if 1 or more banks have been selected)*
    - [L] to play all samples of the selected banks (*available if 1 or more banks have been selected)*
    - [D] to get some details of the bank file *(only available if 1 bank has been selected)*
    - [V] to get an overview of all voices in the bank *(only available if 1 bank has been selected)*
    - [U] to upload the selected banks to an Emulator-II via RS422 (*available if 1 or more banks have been selected)*
    - [J] to upload the selected banks to an Oberheim DPX-1 via RS422 (*available if 1 or more banks have been selected)*
    - [R] to create a report of all presets per bank for all selected banks (*available if 1 or more banks have been selected)*
      [R] to refresh the file overview list (*only available if no bank files have been selected)*
    - [N] to sort the files on file name in ascending order. Pressing [N] once more sorts the files in descending order *(always available)*
    - [T] to sort the files on modification timestamp in ascending order. Pressing [N] once more sorts the files in descending order *(always available)*
    - [Z] to sort the files on file size in ascending order. Pressing [N] once more sorts the files in descending order *(always available)*

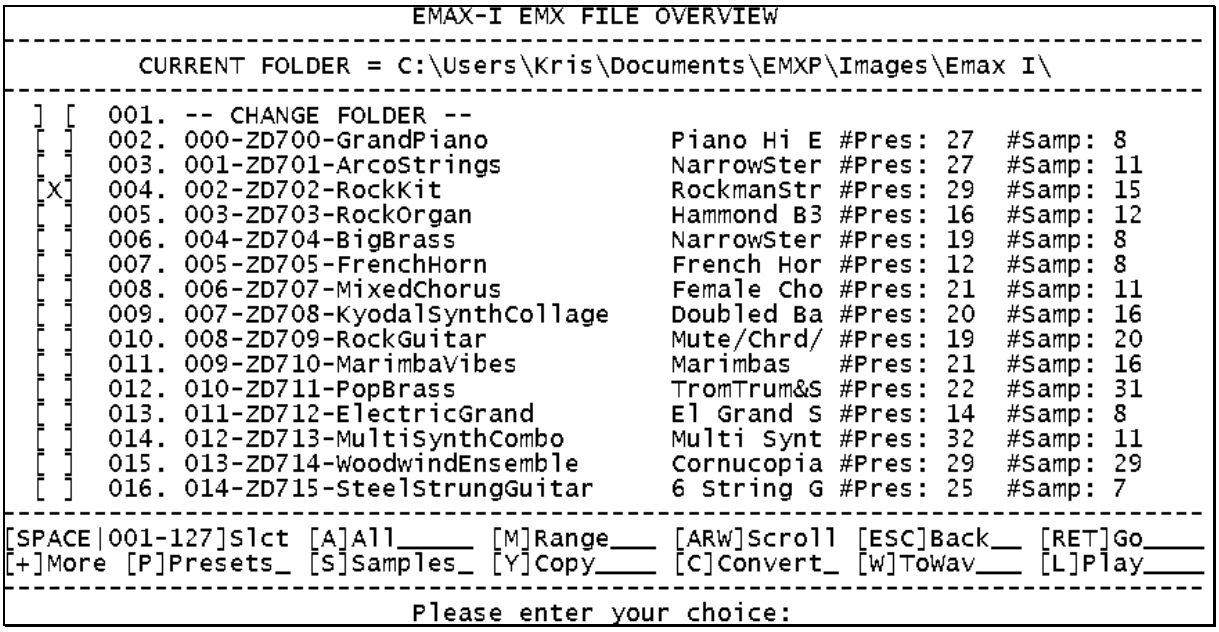
Whether short cut keys that are not displayed on the current screen are enabled or disabled can be configured in the Preferences menu. See *section "10.4.4 Define short cut key and item selection ranges in overview screens"*.

Types of list screens

There are four types of list screens:

- *Standard list screen* on which you can select one or more items
- *Exclusive select list screen* on which one and only one item can be selected
- *Exclusive select multiple list screen* which contains two or more sets of items, and in each set only item can be selected (in some screens selecting *no* item in a set may be allowed as well)
- *Exclusive multiple select list screen* on which selecting one item automatically selects a few surrounding items as well; but one and only one such group of items can be selected

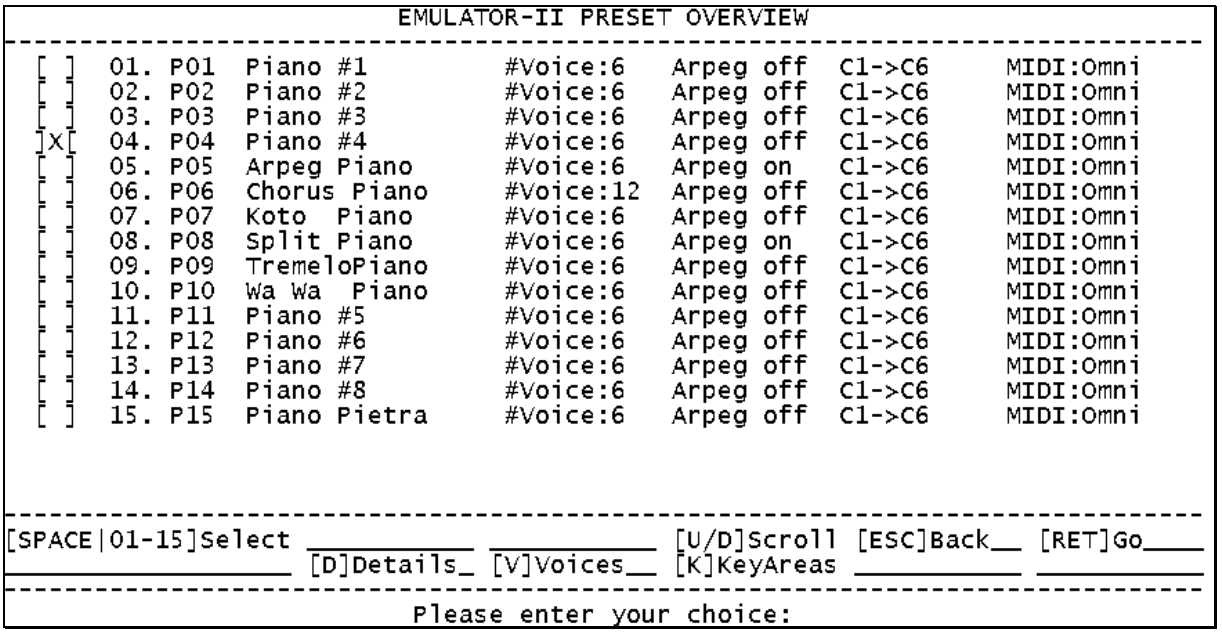
Standard list screen



On a *standard list screen* (like the EMX File Overview shown above) you can:

- Scroll through items and screens, by pressing the UP, DOWN, PAGE UP or PAGE DOWN keys, or by pressing the HOME or END keys.
- Scroll through columns, by pressing the LEFT and RIGHT keys. This is only possible on file list screens, when the '[ARW] Scroll' label is displayed on the bottom line instead of the '[U/D] Scroll' label.
- Select / de-select one or more individual items, by moving the '][' cursor and pressing the SPACE bar, or by directly entering the item number(s)..
- Select / de-select one or more ranges of items, by typing 'M' followed by selecting the first item and the last item of the range...
- Select / de-select all items, by typing 'A'.
- Confirm the selection and/or go to the next process step/screen, by pressing the ENTER key.
- Immediately launch a specific action on the selected item(s), by presssing one of the available *short cut keys,* which are mentioned on the second bottom line. E.g. in the above example, you can press 'P' to immediately get an overview of all presets in the selected EMX file. If more than 6 short cut keys are available, you can scroll through them by pressing the '+' (More) key.
- Leave the list screen by pressing the ESCAPE key.

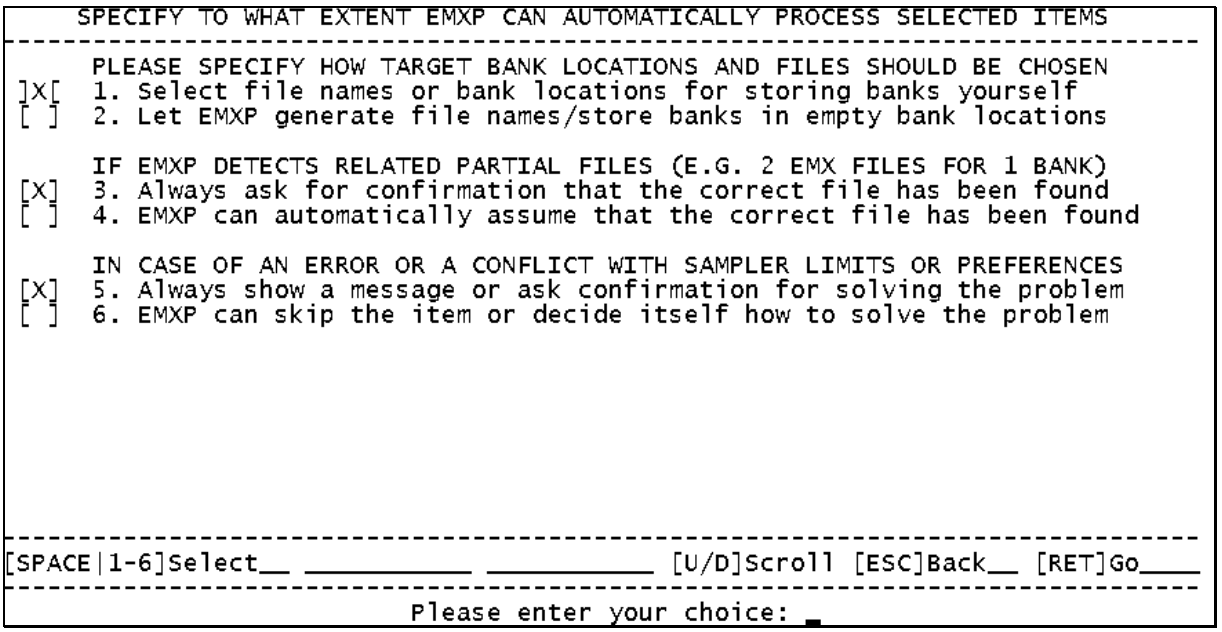
Exclusive select list screen



On an *exclusive list screen* (like the Emulator-II Preset Overview shown above) you can:

- Scroll through items and screens, by pressing the UP, DOWN, PAGE UP or PAGE DOWN keys, or by pressing the HOME or END keys.
- Scroll through columns, by pressing the LEFT and RIGHT keys. This is only possible on file list screens, when the '[ARW] Scroll' label is displayed on the bottom line instead of the '[U/D] Scroll' label. In the above example, scrolling through columns is not enabled since it's not a file overview screen.
- Select / de-select exactly one item, by moving the ‘][‘ cursor and pressing the SPACE bar, or by directly entering the item number..
- Confirm the selection and/or go to the next process step/screen, by pressing the ENTER key.
- Immediately launch a specific action on the selected item, by presssing one of the available *short cut keys*, which are mentioned on the second bottom line. E.g. in the above example, you can press 'V' to immediately get an overview of all voices in the selected Emulator-II preset. If more than 6 short cut keys are available, you can scroll through them by pressing the '+' (More) key.
- Leave the list screen by pressing the ESCAPE key.

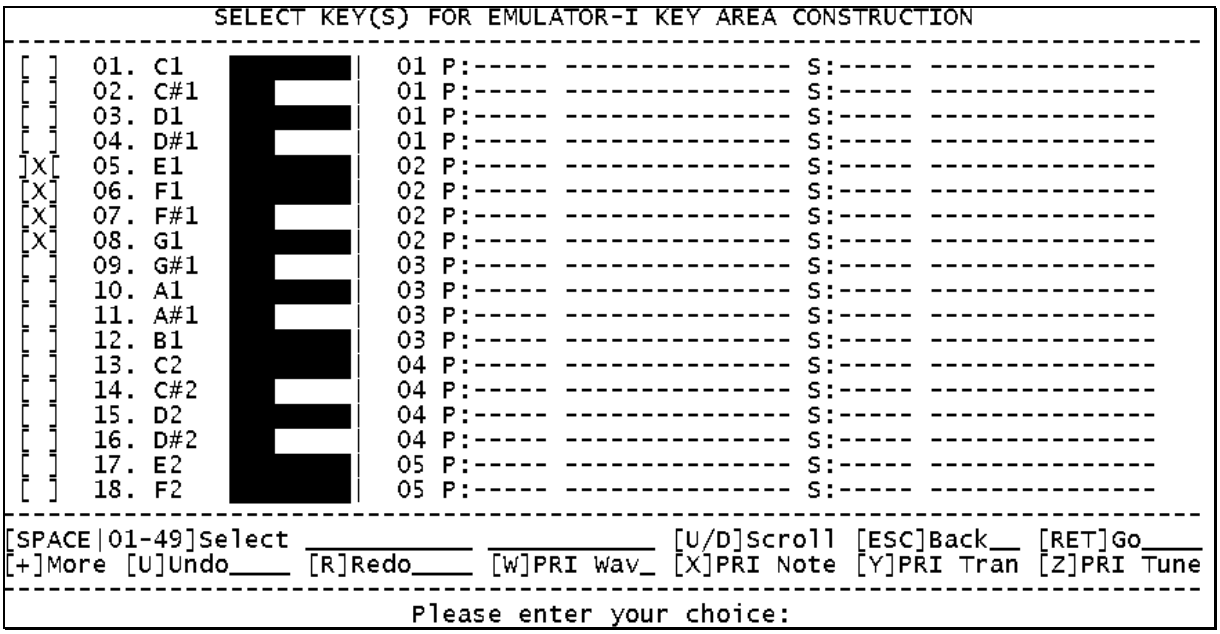
Exclusive select multiple list screen



On an *exclusive select multiple list screen* (like the copy/conversion/unload preference usage screen shown above) you can:

- Scroll through items by pressing the UP or DOWN keys, or by pressing the HOME or END keys.
- Select exactly one item within *each of the groups of items*, by moving the '][' cursor and pressing the SPACE bar, or by directly entering the item number(s)..
  E.g. you can select item number 2 to select the "No, always review of change the copy/conversion/unload preferences" condition of the first item group, item number 3 to select the "Yes, always use the existing automatic processing preferences" condition of the second item group, and item number 6 to select the "No, always review or change the preferences about copying the OS" condition of the third item group.
  You *have* to select an item in *each item group* unless a group consists of only one item, like option 7 in the above example.
- Confirm the selection and/or go to the next process step/screen, by pressing the ENTER key.
- Immediately launch a specific action on the selected item(s), by presssing one of the available short cut keys, which are mentioned on the second bottom line. If more than 6 short cut keys are available, you can scroll through them by pressing the '+' (More) key. In the above example, no short cut keys are available, since it's just a process configuration setting screen.
- Leave the list screen by pressing the ESCAPE key.

Exclusive multiple select list screen

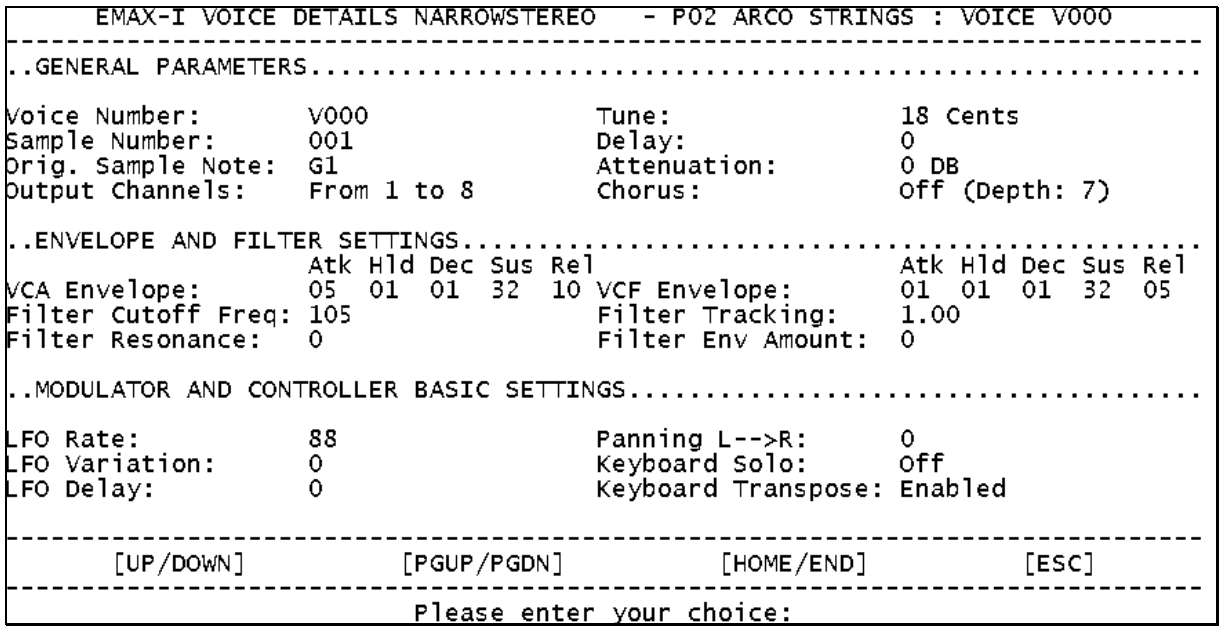


On an *exclusive multiple select list screen* (like the Emulator-I Key Area Construction screen shown above) you can:

- Scroll through items and screens, by pressing the UP, DOWN, PAGE UP or PAGE DOWN keys, or by pressing the HOME or END keys.
- Scroll through columns, by pressing the LEFT and RIGHT keys. This is only possible on file list screens, when the '[ARW] Scroll' label is displayed on the bottom line instead of the '[U/D] Scroll' label. In the above example, scrolling through columns is not enabled since it's not a file overview screen.
- Select exactly one *group of items*, by moving the '][' cursor and pressing the SPACE bar on one of the items of that group, or by directly entering the item number of one of the items of the group. E.g. you have can select item number 05 or 06 or 07 or 08 to select the second key area (keys E1 → G1) in the above list. Once you have selected an item group, 'X'-es are put in front of all items belonging to the selected group.
- Confirm the selection and/or go to the next process step/screen, by pressing the ENTER key.
- Immediately launch a specific action on the selected item(s), by presssing one of the available *short cut keys*, which are mentioned on the second bottom line. E.g. in the above example, you can press 'W' to immediately assign a WAV-file to the selected keys. If more than 6 short cut keys are available, you can scroll through them by pressing the '+' (More) key.
- Leave the list screen by pressing the ESCAPE key.

4.4.2.3 Detailed information screen

On a detailed information screen, EMXP shows all parameters and their values that are available for a selected item. E.g. voice parameters for a specific voice that has been selected in the EMAX-I Voice Overview screen:

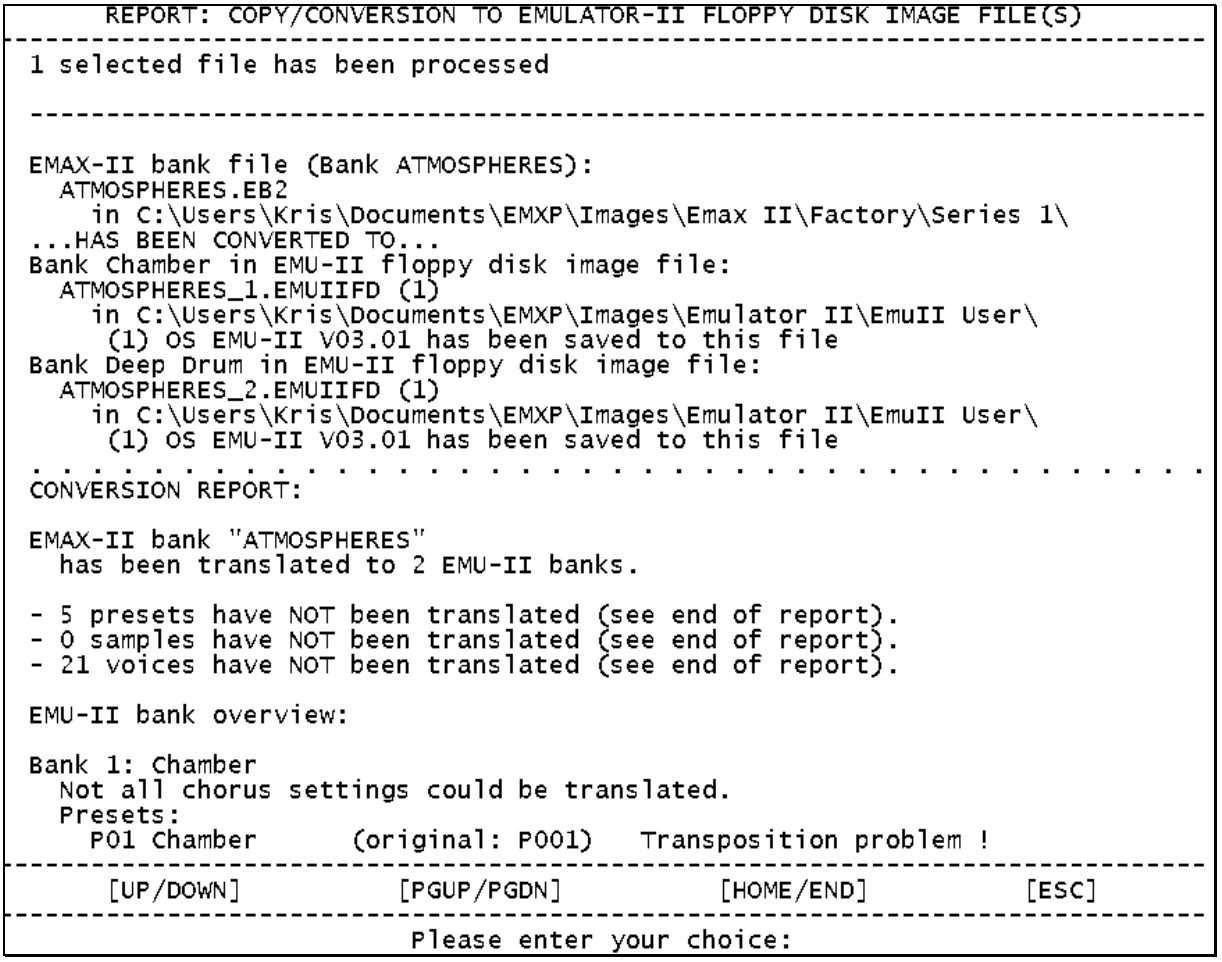


On a detailed information screen you can:

- Scroll through the information by pressing the UP/PGUP or DOWN/PGDN or HOME/END keys on your keyboard. PGUP and PGDN keys allow for scrolling screen by screen; UP and DOWN arrow keys allow for scrolling line by line. HOME and END keys can be used to jump to the first and last line.
- Leave the screen and go back by pressing ESC.

4.4.2.4 Report screen

On a report screen, EMXP shows a report containing e.g. the results of a copy or conversion process, or e.g. an overview of banks and their presets that has been specifically requested by the user.

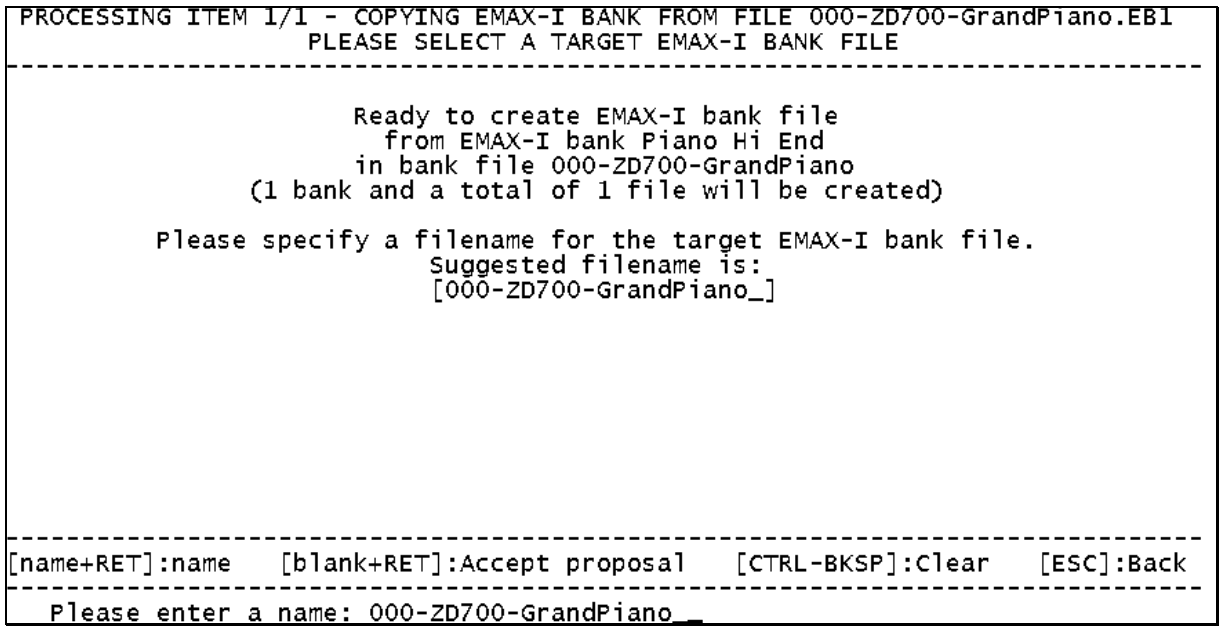


Just like on a detailed information screen, on a report screen you can:

- Scroll through the report by pressing the UP/PGUP or DOWN/PGDN or HOME/END keys on your keyboard. PGUP and PGDN keys allow for scrolling screen by screen; UP and DOWN arrow keys allow for scrolling line by line. HOME and END keys can be used to jump to the first and last line.
- Leave the screen and go back by pressing ESC.

4.4.2.5 Request screen

In a request screen, EMXP asks you to type in a value or a name.
E.g. a file name request screen for when creating a new EMAX-I bank file:

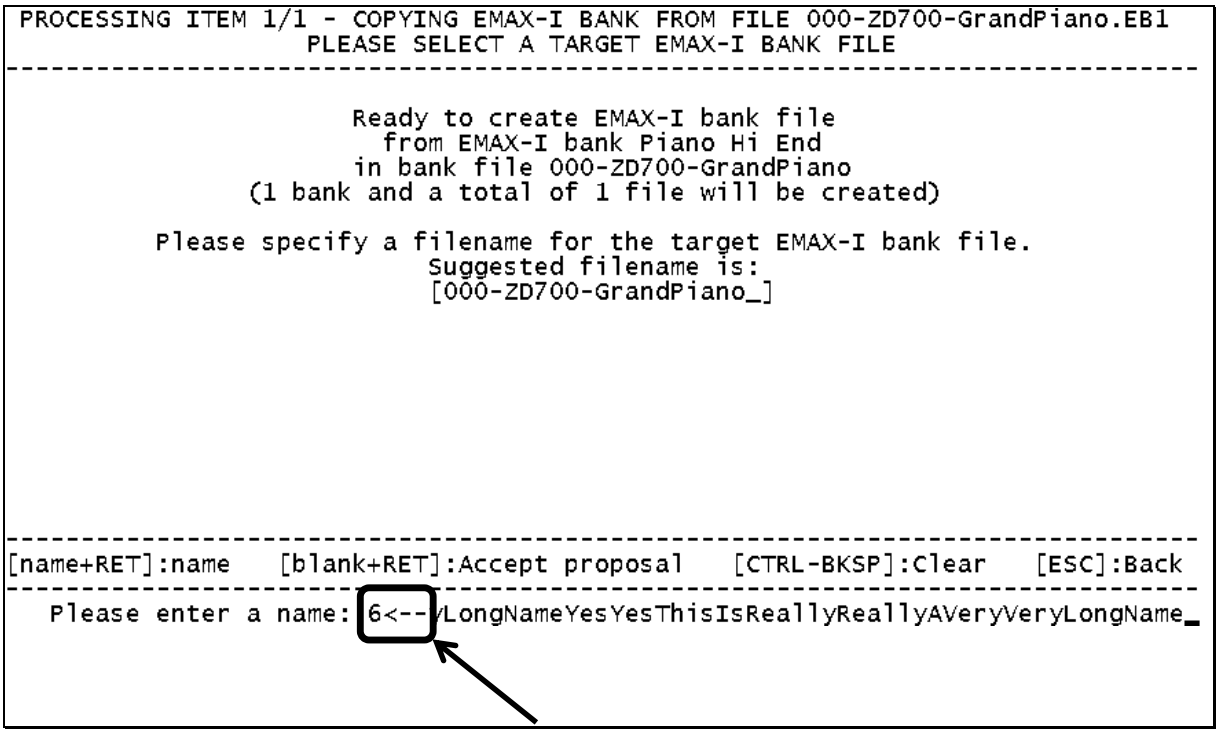


On a request screen you can:

- Type a value or name, followed by ENTER.
- Accept a default name suggested by EMXP, simply by pressing ENTER.
- Hide or display the default name suggested by EMXP, by pressing CTRL-Backspace.
- Leave the screen and go back by pressing ESC.

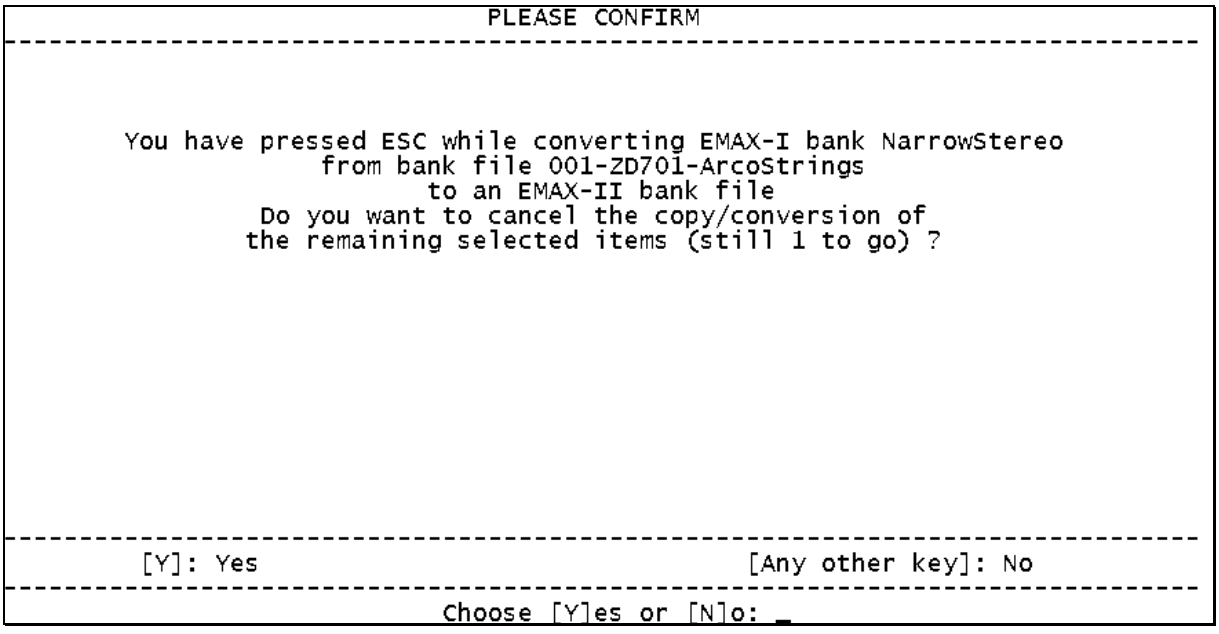
Notes

- EMXP validates the value or name while you are typing the value or name. E.g. if a numeric value is required, only numbers will be accepted. If a file name is required, only valid characters for file names will be accepted. The maximum length of a value or name is validated as well: you won't be able to enter more characters than allowed.
- When a filename must be entered, the extension of the file (e.g. .EMX or .EB1) will automatically be appended by EMXP. If you add an extension to the filename yourself, it will be considered part of the name, not as the extension itself !
- If the name you want to enter is longer than the available size on the bottom line of the screen, EMXP will start scrolling the entered name by hiding the first characters. The number of hidden characters is displayed at the start of the name. See picture below. If less than 4 characters are hidden, only an arrow is shown ('<' for one hidden character, '<-' for 2 hidden characters and '<--' for 3 hidden characters)



4.4.2.6 Confirmation screen

On a confirmation screen, EMXP asks to confirm some critical operations, such as terminating a conversion process (see example).

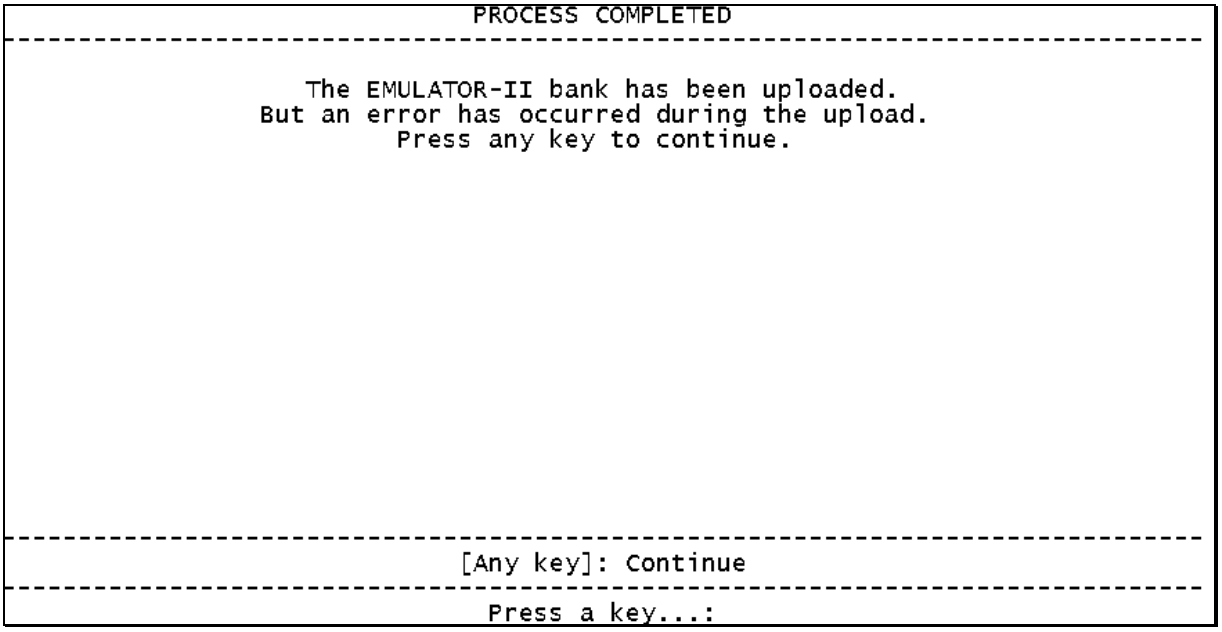


On a confirmation screen you can:

- Press Y to confirm
- Press any other key to go on
- Sometimes it is also possible to press ESCape. The difference between ESC and “any other key” is that ESC can terminate a sequence in which you are confirming actions, while “any other key” only skips the current action. See also *section "10.2.2.4 Define behaviour when ESC is pressed while processing multiple items"*

4.4.2.7 End of process screen

In an end-of-process screen, EMXP informs you that an operation has been completed (successfully or unsuccessfully). Usually an end of process results in displaying a report, e.g. a copy or conversion report. But sometimes a simple end-of-process screen will be shown.
E.g. when transferring a bank via RS422 to an Emulator-II is unsuccessfully completed:



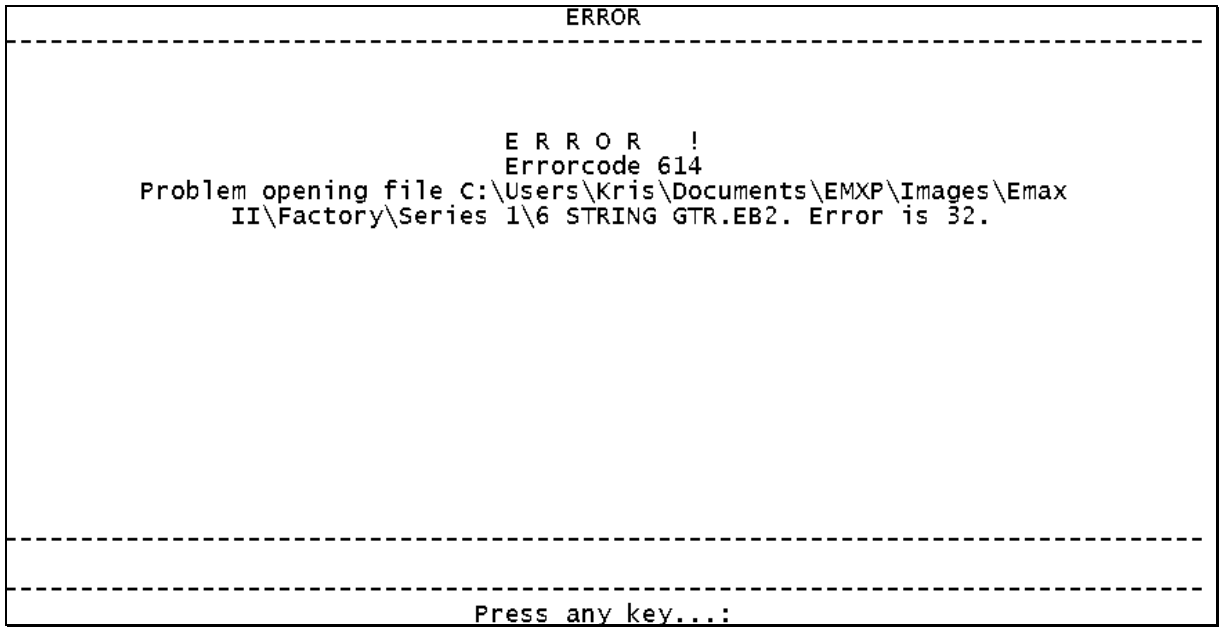
On an end-of-process screen you can:

- Leave the screen by pressing any key

4.4.2.8 Error screen

In an error screen, EMXP informs you of an error that has occurred.
Sometimes an error is fatal, i.e. an internal error has occurred due to a bug in the software. If this kind of error arises, EMXP will be terminated immediately after displaying the error message.

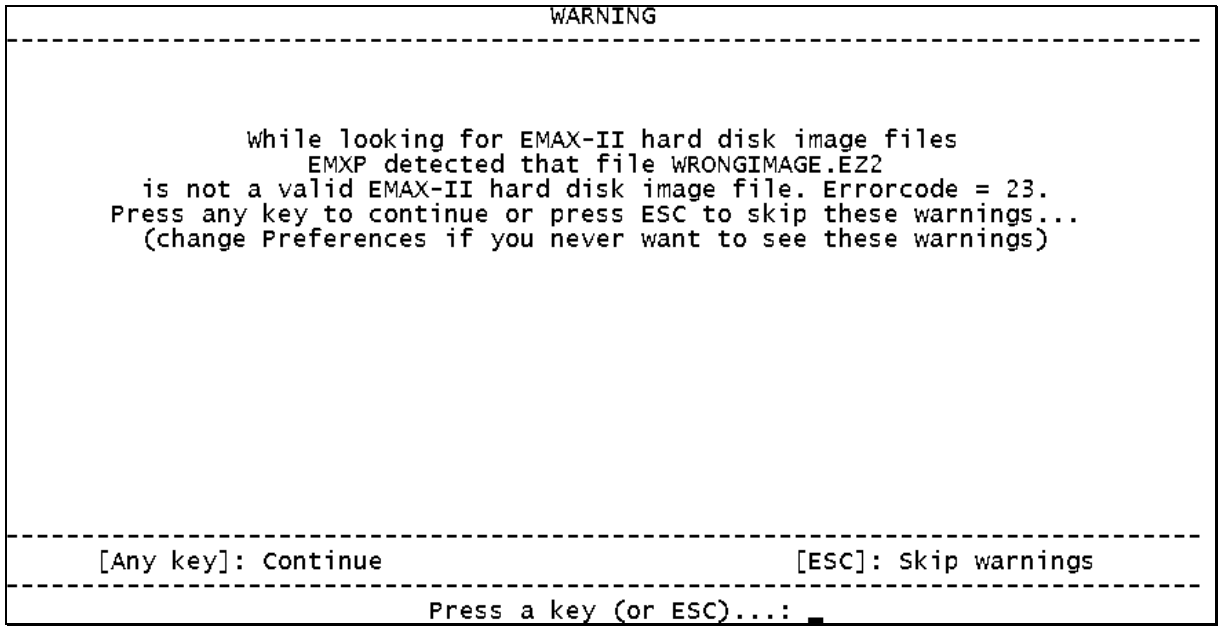
In the example below an error is displayed when EMXP tries to write an EMAX-II bank file which is in use by another program:



On an error screen you can:

- Leave the screen by pressing any key

Below is an example of a warning screen, in which EXMP tells you that it has found a corrupt hard disk image file while looking for all hard disk image files in the current folder:

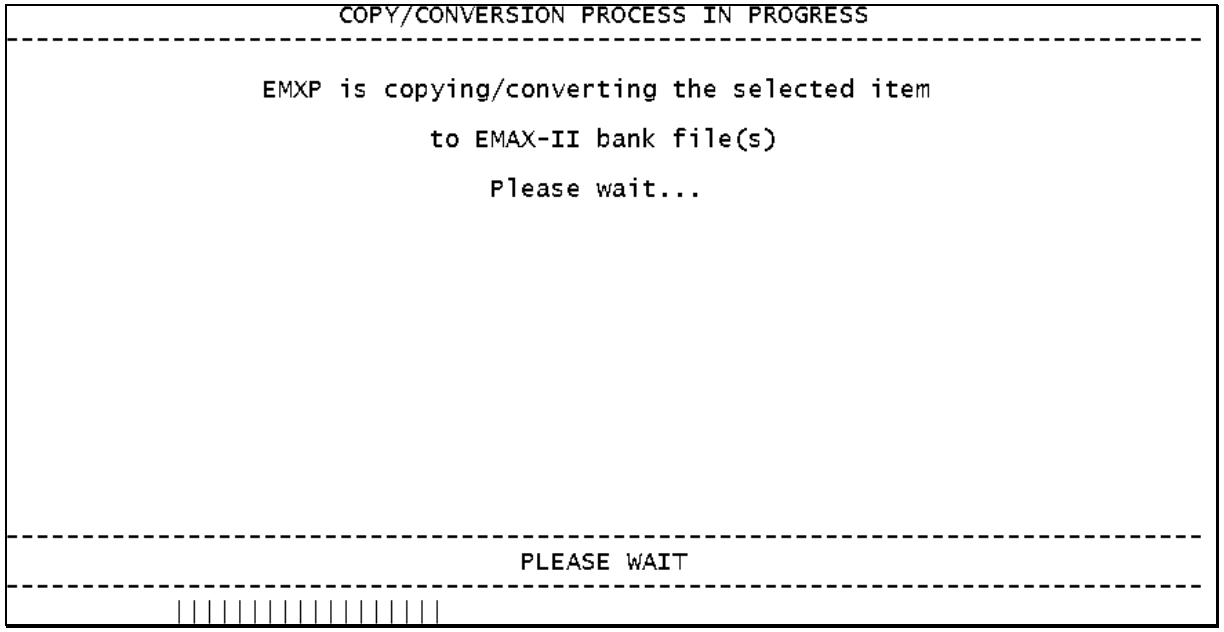


On this kind of warning screen, you can:

- Skip the current warning and go on (perhaps to the next warning), by pressing any key besides ESC
- Skip the current and all succeeding warnings of the same type, by pressing ESC. E.g. in the example above EMXP might have found other corrupted images. To avoid the popup of a warning screen for every corrupted image, press ESC.

4.4.2.9 Proceeding screen

On an proceeding screen, EMXP informs you of the remaining time to complete a job.
EMXP uses a bar at the bottom of the screen to display the progress of a (long running) process.

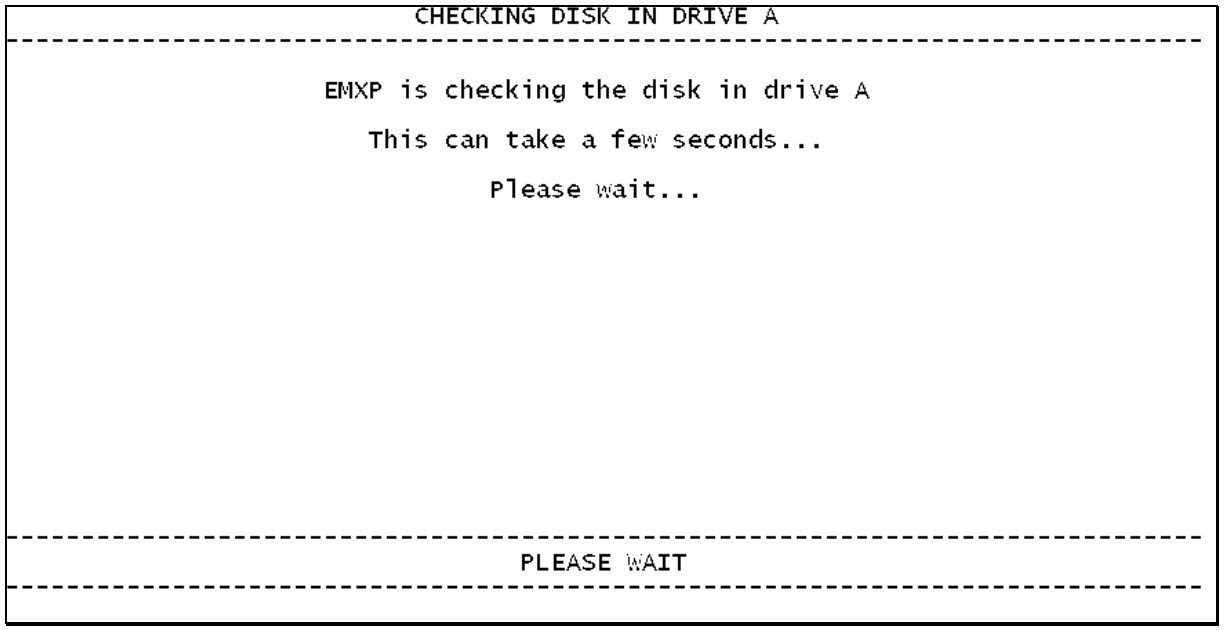


Important note: You can **not** interrupt the activity while this screen is shown. If you type something on the keyboard, this is remembered by EMXP and will be executed after the proceeding screen has disappeared ! As this is a dangerous practice, we recommend not to enter anything at all on the keyboard while the proceeding screen is shown !

On a proceeding screen you can't do anything. The screens disappears automatically after completion of the job.

4.4.2.10 Wait screen

On a wait screen, EMXP asks you to wait until the processing of EMXP has completed. This is almost the same as a proceeding screen, but there is no "progress bar" in a normal wait screen.



Important note: You can **not** interrupt the activity while this screen is shown. If you type something on the keyboard, this is remembered by EMXP and will be executed after the wait screen has disappeared ! As this is a dangerous practice, we recommend not to enter anything at all on the keyboard while the wait screen is shown !

On a wait screen you can't do anything. The screen disappears automatically after completion of the operation.

4.5 FILE AND DISK MANAGER

Whenever you deal with files or disks in EMXP, either by selecting them or by creating them, you will be using the EMXP *File and Disk Manager*.

As you may expect, this tool allows you to

- select files from any disk or folder to view or process them
- change folders or disks
- save files as a result of a copy or conversion process

If you are dealing with files on your computer, we will refer to the tool as the *"File Manager"*; if you are dealing with disks - either Windows compatible disks or sampler-specific disks like an EMAX-II hard disk - we will refer to the tool as the *"Disk Manager"*.
Of course the Disk Manager has been integrated into the File Manager in order to allow you to change disks when dealing with files.

The File and Disk Manager are always launched by EMXP with a specific file type or disk type in mind. E.g.:

- if you want to view or process Emulator-II floppy disk image files, the File Manager will show Emulator-II floppy disk image files only; all other files will be ignored and will not appear in the file overview screen.
- if you want to view or process the contents of an EMAX-II hard disk, the Disk Manager will show all disks it can find on your system, but once you select one of them EMXP will only accept EMAX-II hard disks.

4.5.1 Supported file and disk types

4.5.1.1 Overview

The following two tables give an overview of the file types and disk types that are supported by the EMXP File and Disk Manager.

File type	DOS file extension(s)	Factory default sub folder
EMAX-I/EMAX-II:		
EMX file EMAX-I	.EM1	\Images
EMX file EMAX-II	.EM2	\Images
Sound Designer for EMAX file	.EMS	\Images
Bank file EMAX-I	.EB1	\Images
Bank file EMAX-II	.EB2	\Images
Floppy disk image file EMAX-I	.EM1FD, .IMG(***)	\Images
Floppy disk image file EMAX-II	.EM2FD, .IMG(***)	\Images
HxC floppy disk image file EMAX-I	.HFE	\Images
HxC floppy disk image file EMAX-II	.HFE	\Images
Hard disk image file EMAX-I	.EZ1, .ISO, .IMG(*)	\Images
Hard disk image file EMAX-II	.EZ2, .ISO, .IMG(*)	\Images
SCSI2SD partitioned hard disk image file EMAX-I	.ISO, .IMG(**)	\Images
SCSI2SD partitioned hard disk image file EMAX-II	.ISO, .IMG(**)	\Images
EMAX Operating System file	.EMX	\Os
Emulator-I:		
Bank file Emulator-I	.E1B	\Images
(Lower/Upper) Sound file Emulator-I	.E1H	\Images
Floppy disk image file Emulator-I	.EMUFD, .IMG(***)	\Images
HxC floppy disk image file Emulator-I	.HFE	\Images
Emulator-I Operating System file	.E1O	\Os
Emulator-II:		
Bank file Emulator-II	.EII	\Images
Floppy disk image file Emulator-II	.EMUIIFD, .IMG(***)	\Images
HxC floppy disk image file Emulator-II	.HFE	\Images
Hard disk image file Emulator-II, e.g. DREM	.DSK, .EMUIIHD, .ISO, .IMG (*)	\Images
Emulator-II Operating System file	.E2O	\Os

Emulator-III/IIIX/ESI:		
Bank file Emulator-III	.EB3 or .E3B	\Images
Bank file Emulator-IIIX (or ESI-v2)	.EB3 or .E3X or .ESI	\Images
Bank file ESI-v3	.ESI or .E3X	\Images
Hard disk image file Emulator-III/X/ESI	.EZ3, .ISO, .IMG(*)	\Images
SCSI2SD partitioned hard disk image file Emulator-III/X/ESI	.ISO, .IMG(**)	\Images
Emulator-III/Emulator-IIIX Operating System file	.E3O	\Os
Floppy disk image file for Emulator-III or Emulator-IIIX Operating System (****)	.E3OFD, .IMG(***)	\Os
HxC Floppy disk image file for Emulator-III or Emulator-IIIX Operating System (****)	.HFE	\Os
SP-12:		
SP-12 Sound bank file	.SP12	\Images
SP-12 Sequence file	.SQ12	\Images
SoundFont2:		
SoundFont2 file	.SF2	\Images
Akai S1000:		
Akai S1000 program file	.P or .AKP	\Akais1000
Akai S1000 sample file	.S or .AKS	\Akais1000
Akai S1000 drum file	.AKD	\Akais1000
Akai S1000 operating system file	.AKO	\Akais1000
Akai S1000 floppy disk image file	.AKI, .IMG(***)	\Akais1000
Akai S1000 HxC floppy disk image file	.HFE	\Akais1000
Wav:		
WAV file	.WAV	\Wav
EMXP construction file:		
EMXP construction file	.EMXP	\Images
Bank/Preset overview report file:		
Text report file	.TXT	\Logs
CSV report file	.CSV	\Logs
Log report file:		
Master log file (LOG2EMXP)	.TXT	\Logs
Copy/conversion log file	.TXT	\Logs

Table 4.5.1: file types supported by EMXP

Disk type	Factory default drive letter
EMAX/EMAX-II:	
EMAX-I hard disk/cdrom	H
EMAX-II hard disk/cdrom	H
SCSI2SD partitioned EMAX-I hard disk	H
SCSI2SD partitioned EMAX-II hard disk	H
EMAX-I/EMAX-II floppy disk	A
Emulator-II:	
Emulator-II hard disk (*****)	H
Emulator-III/IIIX/ESI:	
Emulator-III/IIIX/ESI hard disk/cdrom	H
SCSI2SD partitioned Emulator-III/IIIX/ESI hard disk	H
Emulator III/IIIX operating system floppy disk (****)	A
Akai S1000:	
Akai S1000 low density floppy disk	A
Akai S1000 high density floppy disk	A

Table 4.5.2: sampler disk types supported by EMXP

Table 4.5.1 also shows the factory default folder for each file type, but of course you can store the files in any folder you like.
Table 4.5.2 also shows the factory default drive letter for each disk type, but you can change the drive at any time.

All files *must have* an EMXP-compliant file extension as defined by table 4.5.1.

Emulator-III bank files can have two different extensions: .EB3 and .E3B. Both are recognized by EMXP when EMXP is searching for Emulator-III bank files. When saving Emulator-III bank files, either .EB3 or .E3B will be used by EMXP, depending on the default extension set in the Preferences (see *section "10.5.3.1 Define the default extensions for some specific file types"*).

ESI-v2 sound banks are considered the same as Emulator-IIIX banks.
Emulator-IIIX (or ESI-v2) bank files can have three different extensions: .EB3, .E3X and .ESI. All of them are taken into account by EMXP when EMXP is searching for Emulator-IIIX (or ESI-v2) bank files. EMXP will automatically detect if they are Emulator-IIIX bank files or rather Emulator-III or ESI-V3 bank files. When saving Emulator-IIIX (ESI-v2) bank files, either .EB3, .E3X or .ESI will be used by EMXP, depending on the default extension set in the Preferences (see *section "10.5.3.1 Define the default extensions for some specific file types"*).

ESI-v3 sound banks are not compatible with ESI-v2 or Emulator-IIIX banks, by consequence they are treated as a separate sampler format.
ESI-v3 bank files can have two different extensions: .ESI and .E3X. Both of them are taken into account by EMXP when EMXP is searching for ESI-v3 bank files. EMXP will automatically detect if they are ESI-v3 bank files or rather Emulator-IIIX bank files When saving ESI-v3 bank files, either .ESI or .E3X will be used by EMXP, depending on the default extension set in the Preferences (see *section "10.5.3.1 Define the default extensions for some specific file types"*).

Akai S1000 sample files can have two different extensions: .S and .AKS. Both are recognized by EMXP when EMXP is searching for Akai S1000 sample files. When saving Akai S1000 sample files, either .S or .AKS will be used by EMXP, depending on the default extension set in the Preferences (see *section "10.5.3.1 Define the default extensions for some specific file types"*). While older versions of EMXP only supported .AKS for Akai S1000 sample files, we strongly recommend to use .S instead of .AKS because .AKS is reserved for Akai S5000, S6000, Z4 and Z8 sample files. Note that these .AKS files are not supported by EMXP and will be treated as "invalid Akai S1000 sample files" instead.

Akai S1000 program files can have two different extensions: .P and .AKP. Both are recognized by EMXP when EMXP is searching for Akai S1000 program files. When saving Akai S1000 program files, either .P or .AKP will be used by EMXP, depending on the default extension set in the Preferences (see *section "10.5.3.1 Define the default extensions for some specific file types"*). While older versions of EMXP only supported .AKP for Akai S1000 program files, we strongly recommend to use .P instead of .AKP because .AKP is reserved for Akai S5000, S6000, Z4 and Z8 program files. Note that these .AKP files are not supported by EMXP and will be treated as "invalid Akai S1000 program files" instead.

(*) EMAX-I, EMAX-II, Emulator-II, Emulator-III, Emulator-IIIX and ESI hard disk image files can have up to four file extensions. The sampler-specific file extensions .EZ1, .EZ2, .EZ3, .DSK and .EMUIIHD are always supported. The generic file extensions .ISO and .IMG are only supported if they have been *enabled* in the Preferences (see *section "10.5.3.2 Define support for generic extensions for some specific file types"*). If they are disabled, EMXP will ignore files with the .ISO and/or .IMG file extension when looking for EMAX-I, EMAX-II, Emulator-II, Emulator-III, Emulator-IIIX and ESI hard disk image files. By default file extension .ISO is enabled while file extension .IMG is disabled. When creating hard disk image files, either .EZ1/.EZ2/.EZ3/DSK/EMUIIHD, .ISO or .IMG will be used by EMXP, depending on the default extension set in the Preferences (see *section "10.5.3.1 Define the default extensions for some specific file types"*).

(**) SCSI2SD partitioned hard disk image files which contain one or more EMAX-I, EMAX-II, Emulator-III, Emulator-IIIX or ESI partitions (*devices*) can have up to two file extensions which are both generic file extensions. The sampler-specific file extensions .EZ1, .EZ2 and .EZ3 are **not applicable nor supported** for SCSI2SD partitioned hard disk image files. Only the generic file extensions .ISO and .IMG are supported, and only if they have been *enabled* in the Preferences (see *section "10.5.3.2 Define support for generic extensions for some specific file types"*). If they are disabled, EMXP will ignore files with the .ISO and/or .IMG file extension when looking for SCSI2SD partitioned hard disk image files containing EMAX-I, EMAX-II, Emulator-III, Emulator-IIIX or ESI partitions (*devices*). By default both file extensions .ISO and .IMG are enabled. When creating SCSI2SD partitioned hard disk image files, either .ISO or .IMG will be used by EMXP, depending on the default extension set in the Preferences (see *section "10.5.3.1 Define the default extensions for some specific file types"*).

(***) EMAX-I, EMAX-II, Emulator-I, Emulator-II, Emulator-III OS, Emulator-IIIX OS and Akai S1000 floppy disk image files can have up to two file extensions. The sampler-specific file extensions .EM1FD, .EM2FD,

.EMUFD, .EMUIIFD, .E3OFD and .AKI are always supported. The generic file extension .IMG is only supported if it has been *enabled* in the Preferences (see *section "10.5.3.2 Define support for generic extensions for some specific file types"*). If it's disabled, EMXP will ignore files with the .IMG file extension when looking for EMAX-I, EMAX-II, Emulator-I, Emulator-II, Emulator-III OS, Emulator-IIIX OS and Akai S1000 floppy disk image files. By default file extension .IMG is enabled. When creating floppy disk image files, either .EM1FD/.EM2FD/.EMUFD/.EMUIIFD/.E3OFD/.AKI or .IMG will be used by EMXP, depending on the default extension set in the Preferences (see *section "10.5.3.1 Define the default extensions for some specific file types"*).

(****) Please note that the floppy disk support, the floppy disk image support and the HxC floppy disk image support for the Emulator-III and Emulator-IIIX is limited to disks and images that contain an operating system. Floppy disks and (HxC) floppy disk image files containing sound bank data are not supported by EMXP. For ESI samplers floppy disks, floppy disk images and HxC floppy disk images are not supported at all, because the ESI operating system is not residing on disk.

(*****) While Emulator-II hard disk support has been added to EMXP, there is currently no method known to connect an original Emulator-II hard disk to a computer. There's currently also no hard disk emulator available of which the memory cards are a raw clone of an Emulator-II hard disk.
The SD cards used in the DREM hard disk emulator are not raw clones of an Emulator-II hard disks: they are formatted with file system FAT32, behave as the internal hard drive of the DREM computer itself, and should be filled with one or more hard disk image files (.DSK files).
Emulator-II hard disk image files should be used in EMXP if you want to use the DREM emulator in your Emulator-II+HD

More details about the meaning of the file and disk types mentioned in tables 4.5.1 and 4.5.2 can be found in *section "4.6 SUPPORTED SAMPLER OBJECTS"*.

4.5.1.2 SCSI2D support

EMXP supports *partitioned SD memory cards* which are specifically configured for use in a SCSI2SD board installed in an Emax-I, Emax-II or Emulator-III/X/ESI sampler. Both v5 and v6 SCSI2SD boards are supported. EMXP also supports (raw) hard disk image files (with file extension .ISO or .IMG) that have been made from partitioned SD cards or which are generated by EMXP from scratch.

Please note that EMXP does not support SCSI2SD for the Emulator-II, because the SCSI2SD is not supported by the Emulator-II sampler. There's another hard disk emulator however which is supported by the Emulator-II+HD. This device is called DREM and EMXP supports the DREM .DSK and .CFG files which are required on the SD card of the DREM when using the DREM in an Emulator-II+HD sampler.

The SCSI2SD supports up to 4 (for v5 boards) or even 7 (for v6 boards) SCSI hard disk *partitions* on a single SD memory card. These partitions are called *devices* in the *scsi2sd-util* program.
Each of these *devices* can be assigned a unique SCSI-ID, a size, a name and a start address on the SD card. When selecting a hard drive on the Emax-I, Emax-II or Emulator-III/X/ESI sampler, each of the enabled SCSI-IDs on the SCSI2SD board will be available and will be presented as a separate hard drive to the sampler.

It's very important to understand that the partitioning schema of a SCSI2SDv5 SD card is *NOT STORED ON THE SD CARD*. It's only stored in flash RAM on the SCSI2SDv5 board.
For SCSI2SDv6 boards, the partitioning schema IS stored on the SD card, but EMXP does not use it.

To update the partitioning schema, the *scsi2sd-util* software[4] must be used. For SCSI2SDv5 boards, this software updates the flash RAM on the SCSI2SD board via USB but it doesn't store this information on the SD card itself. For SCSI2SDv6 boards, this software saves the information on the SD card.

Since the partitioning schema is not stored on SCSI2SDv5 SD cards, EMXP can't simply "ask" an SD card whether it's a partitioned card for use in a SCSI2SDv5 board or not.
Moreover EMXP does not support (yet) the partitioning data stored on SCSI2SDv6 SD cards. EMXP will treat v6 SD cards in the same way as v5 SD cards. The same procedure must be used for v5 and v6 cards.

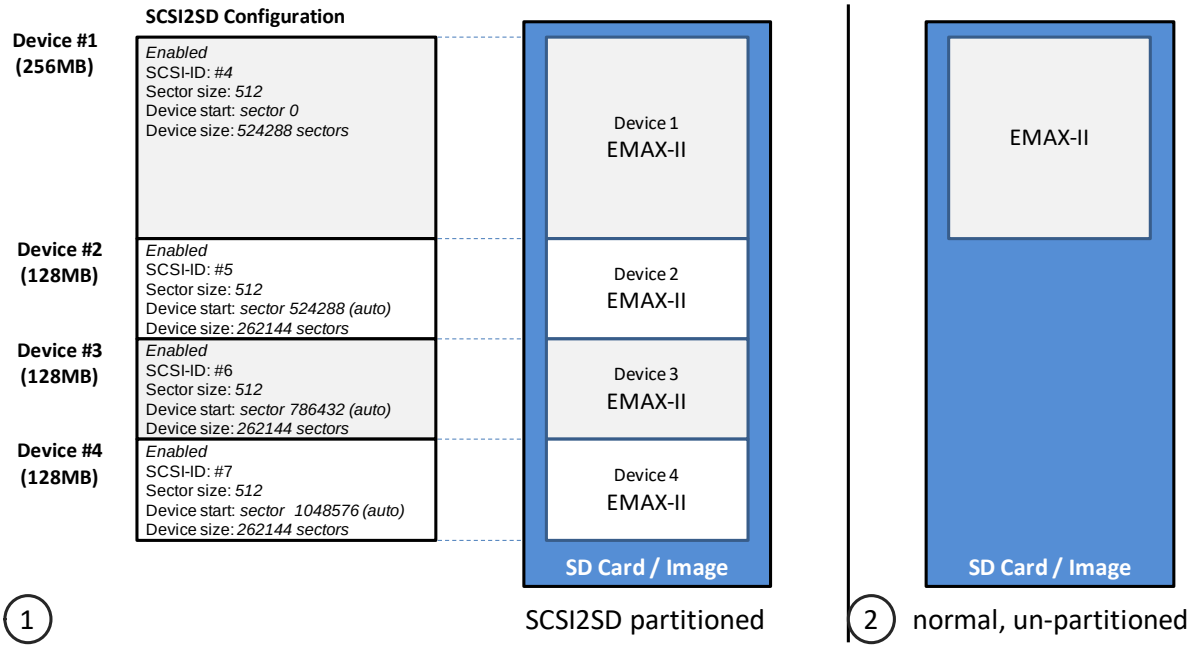
[4] the scsi2sd-util software can be downloaded from http://www.codesrc.com/

If only one *device* has been enabled on the SCSI2SD, and its start address is set to the *first sector of the SD card*, the SD card can be used like any other normal un-partitioned sampler hard disk in EMXP.

But if more than one *device* has been enabled, or if the start address of the first device is not the first sector of the SD card, you will have

- to tell EMXP explicitly that the SD card is partitioned
- to provide the partitioning schema parameters that have been used in *scsi2sd-util* for that particular SD card

The same is true for (raw) hard disk image files (.ISO, .IMG) that have been made from partitioned SD cards.



As illustrated in the picture, an SD card (or SD card image file) can be treated

- either as a normal un-partitioned sampler hard disk (or hard disk image file), see (2) at the right
- or as a partitioned sampler hard disk (or hard disk image file) containing multiple "sampler hard disk devices" at once, see (1) at the left.

As explained in the previous *section "4.5.1.1 Overview"*, please note that there's a slight difference in the file extension support between partitioned and un-partitioned hard disk image files. E.g. for Emax-II:

- a normal un-partitioned hard disk image file can have file extensions .EZ2, .ISO and .IMG
- a partitioned hard disk image file can only have file extensions .ISO and .IMG

Defining the partitioning schema parameters should be done by means of SCSI2SD preferences that can be set up in the SCSI2SD configuration definition screen. Up to 10 different configurations can be defined in EMXP. This can be useful if you have multiple SCSI2SD boards installed in different samplers, and if these SCSI2SD boards have been configured differently.

Defining the configurations can be done in the Preferences menu as follows:

"6. Preferences" → "4. Manage File/Drive Preferences" → "4. Define SCSI2SD related settings" → "1. Define SCSI2SD device configurations"

This configuration definition screen can also be launched directly from the EMXP File and Disk Manager. This is explained in more detail in *section "4.5.2.4 Using the File Manager with SCSI2SD hard disk image files"* and in *section "4.5.3 Using the Disk Manager"*.

For an exhaustive description of the SCSI2SD support in EMXP and an explanation of all possible SCSI2SD configuration parameters, we refer to *section "10.5.4 Define SCSI2SD related settings"*.

Reading and writing partitions on SCSI2SD disks or disk images in EMXP is almost identical as reading and writing normal disks or disk images. A detailed explanation can be found in *section "4.5.2.4 Using the File Manager with SCSI2SD hard disk image files"* and in *section "4.5.3 Using the Disk Manager"*.

In a nutshell

If you want to use an Emax-I, Emax-II or Emulator-III/X/ESI partition (*"device")* on a SCSI2SD disk or disk image, you open the EMXP Disk Manager or EMXP File Manager by selecting the same menu functions as the ones that you would select if you want to access normal Emax-I, Emax-II and Emulator-III/X/ESI disks or disk images.
E.g. if you want to access a SCSI2SD partitioned hard disk continaing Emax-II partitions, you would select

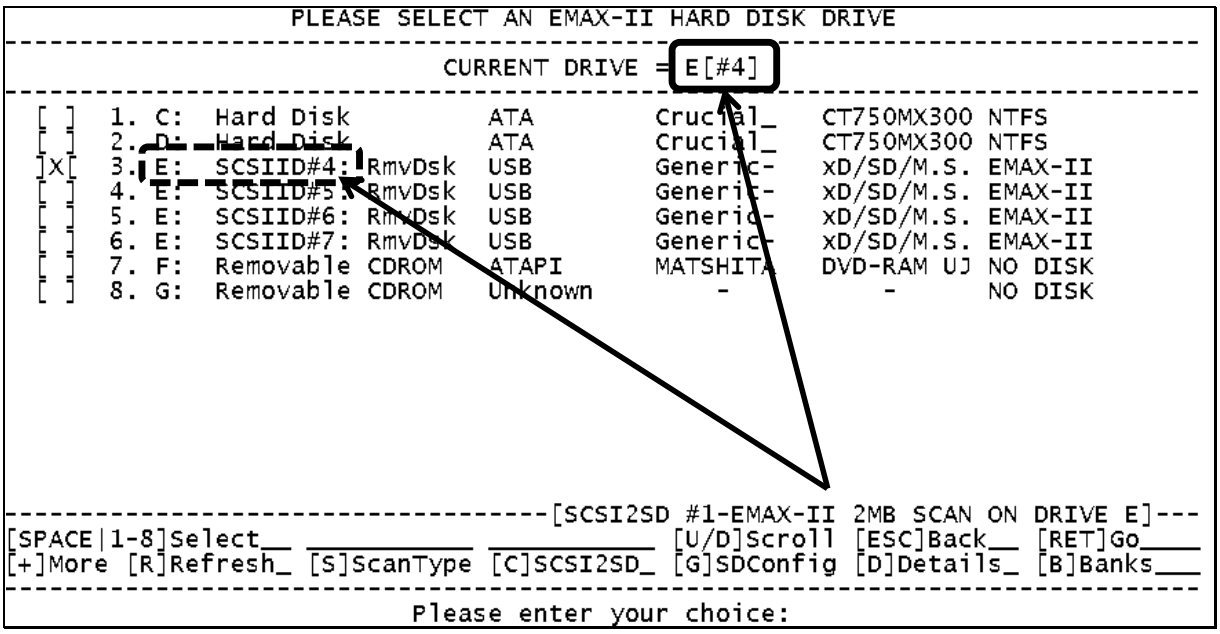
"1. Manage EMU Files and Disks" → "2. Manage EMU EMAX-II Files and Disks" → "5. Manage EMAX-II Hard Disks"

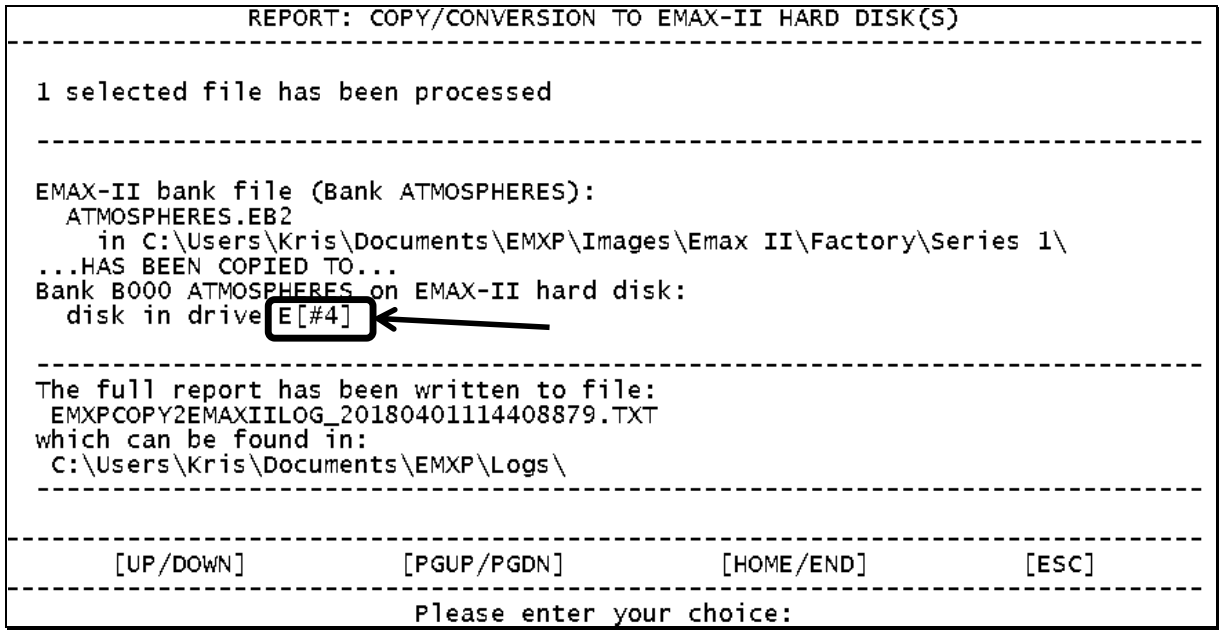
After opening the EMXP Disk or File Manager, the disks or disk images initially displayed in the overview screen are always limited to normal (un-partitioned) disks or disk images.

If you want EMXP to deal with the disk(s) or disk image(s) as SCSI2SD partitioned disk(s) or disk image(s), you'll have to press the special [C]SCSI2SD shortcut key. If you want EMXP to treat the disks(s) or disk image(s) as normal disk(s) or disk image(s) again, you'll have to press the same shortcut key once again.

But you'll have to tell EMXP which of the 10 SCSI2SD configurations to use when "scanning" the disks or disk images for SCSI2SD partitioned sampler disks or disk images. This can be done either by means of preferences, or (at any time) by pressing the [G]SDConfig shortcut key in the EMXP Disk or File Manager.

If the hard disk or hard disk image which is used in any of the functions supported by EMXP is actually a *device* (partition) of a SCSI2SD partitioned hard disk or hard disk image, the name of the hard disk or hard disk image will contain a suffix which refers to the *device number* or *SCSI-ID#* of the *device* on the hard disk or hard disk image. This is illustrated in the pictures below.





Whether you would like to use the *SCSI-ID# number* or rather the *device number* as a suffix can be defined with a preference. See *section "10.5.4.7 Define SCSI2SD device identifier to be displayed in EMXP"*. The default setting is the SCSI-ID# number.

While SCSI2SD is not supported in the Emulator-II, the Disk Manager supports the use of the [C]SCSI2SD and [G]SDConfig shortcut keys when selecting an Emulator-II hard disk. The reason for this is that you can verify whether a disk has been formatted as a SCSI2SD card for another sampler already, before e.g. deciding (by mistake) to format the SD card for Emulator-II.
But selecting a SCSI2SD partition as an Emulator-II hard disk will not be possible.

4.5.2 Using the File Manager

4.5.2.1 Concept of current, preferred and factory default folder and disk

For each file type and disk type in tables 4.5.1 and 4.5.2, the File Manager is dealing with folders and disks on 3 levels:

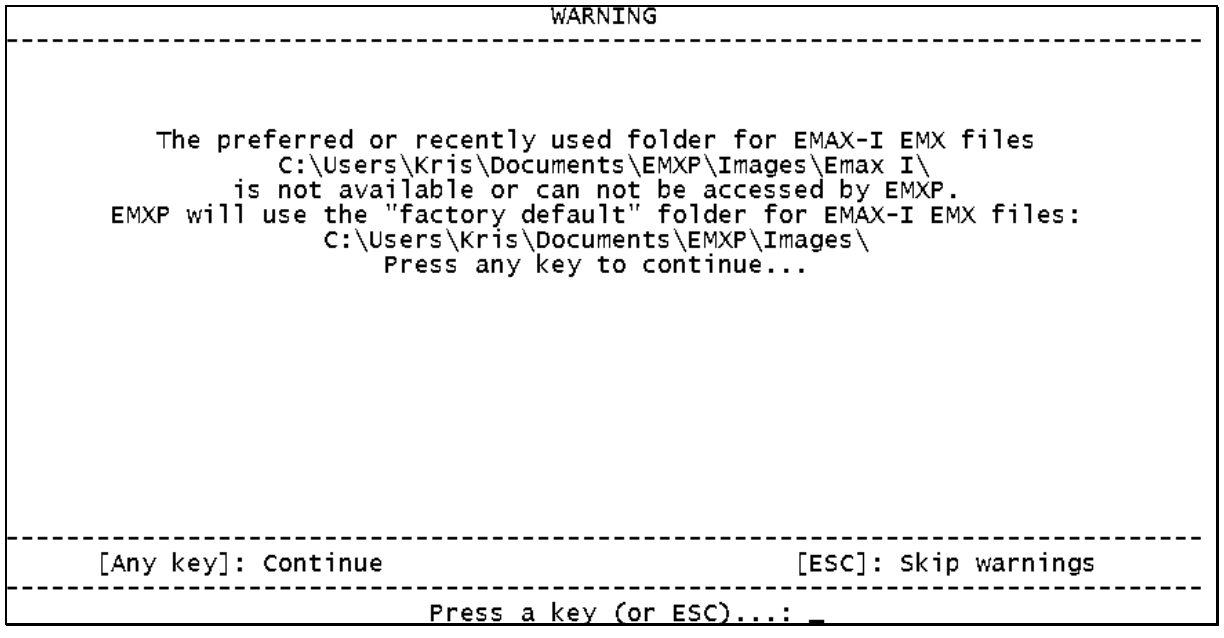
- The *current* folder or disk: this is the folder or disk which is currently being used for both selecting or creating files or disks of the chosen type.
- The *preferred* folder or disk: this is the folder or disk which will be used as a starting point whenever the File Manager/Disk Manager is launched for selecting or creating files or disks of the chosen type. Setting the preferred folders and disks can be done in the File/Drive Location Preferences.
- The *factory default* folder or disk: this is the folder or disk which is assigned to the chosen file or disk type when you start EMXP for the first time. A folder or disk will be reset to this factory default by EMXP whenever the preferred folder or disk can not be found or is not available. You can make these factory default folders and disks the preferred ones at any time by using the Reset File and Drive Related Preferences option in the File/Drive Location Preferences. The values of the factory default folders and disks can be found in tables 4.5.1 and 4.5.2.

EMXP will automatically *keep the preferred and current folders and disks synchronized*, unless you have explicitly asked EMXP not to do so. This can be done with the "Define if the preferences should be updated automatically" option of the File/Drive Location Preferences menu. See *section "10.5.2 Define if these preferences should be updated automatically"*.

If the option to automatically update the file/disk preferences is enabled, EMXP will continuously update the value of the *preferred* folder or disk with the *most recently used* folder or disk.

As explained, when launching the File or Disk Manager the File Manager will immediately start looking for files in the preferred folder and the Disk Manager will immediately try to preselect the preferred disk.
And as explained as well, you can configure EMXP in such a way that this preferred folder or disk is simply the most recently used folder or disk for the chosen file/disk type.

If for some reason the *preferred* folder can not be found, the File Manager will raise a warning and will automatically use the *factory default* folder instead. This is illustrated in the picture below.



4.5.2.2 Selecting files

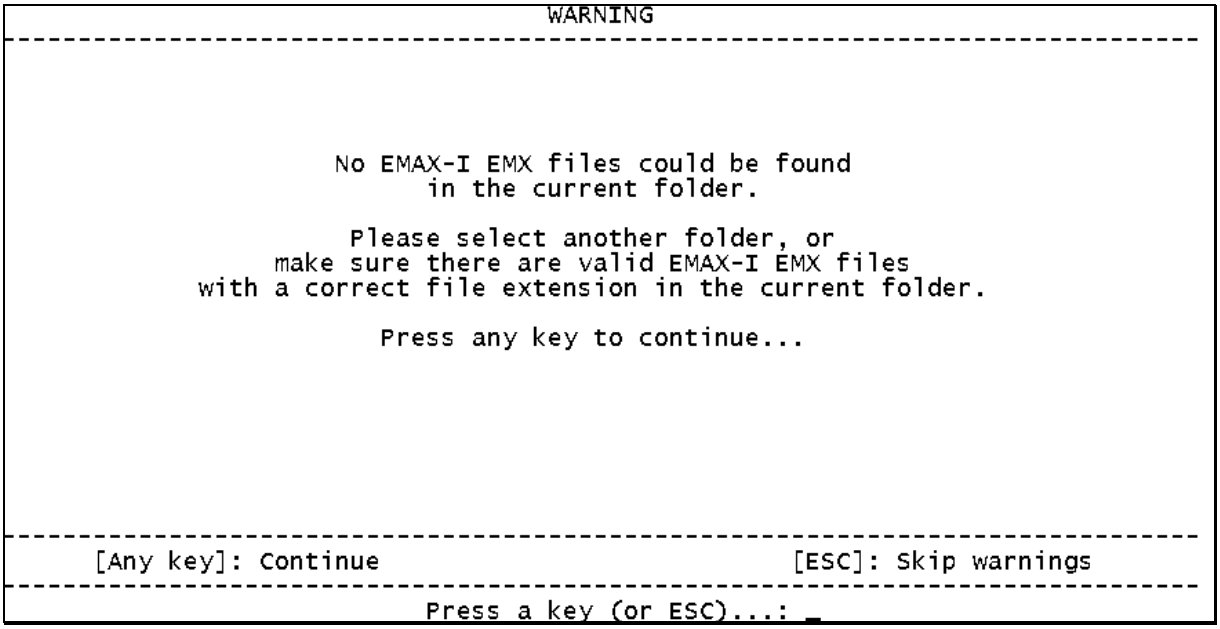
We will illustrate the use of the File Manager for selecting files with an example of selecting EMAX-I EMX image files:

"1. Manage EMU Files and Disks" → "1. Manage EMU EMAX-I Files and Disks" → "2. Manage EMAX-I EMX Files"

In our example, the EMAX-I EMX image files are stored in the "\Images\Emax I\" subfolder.

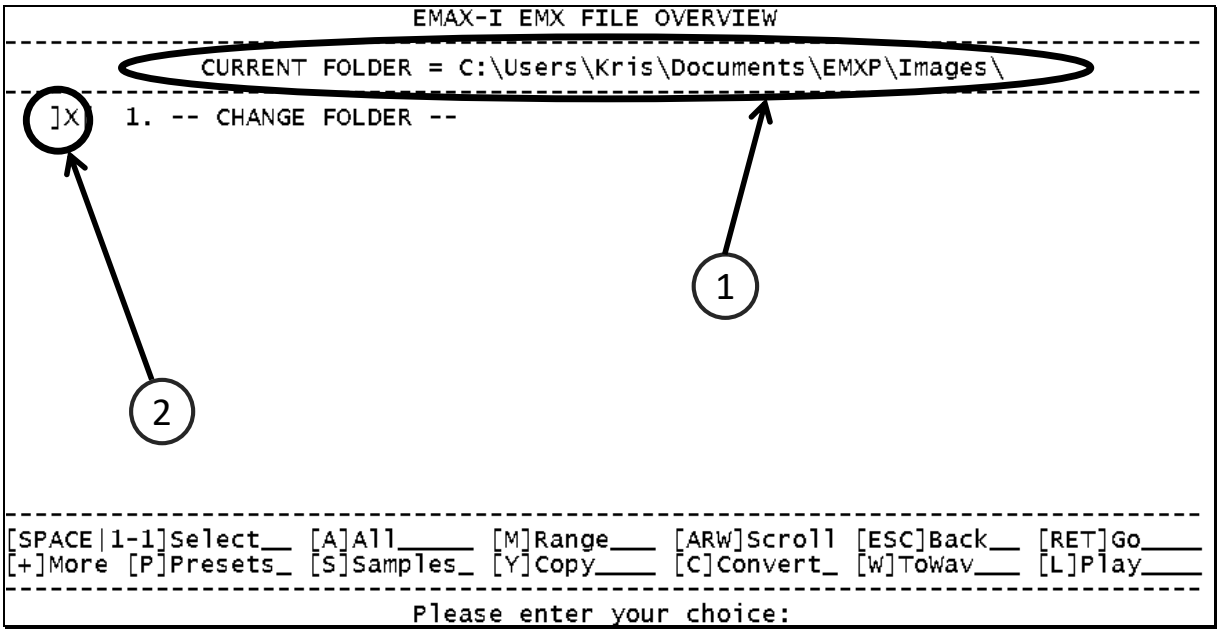
We assume that the preferred (and current) folder for EMAX-I EMX image files is still set to the factory default "\Images". In our example the "\Images" folder itself does not contain any EMX file.

If no files of the requested type are found in the current folder, a warning will be displayed as depicted below.



After pressing a key, the file overview screen is displayed.

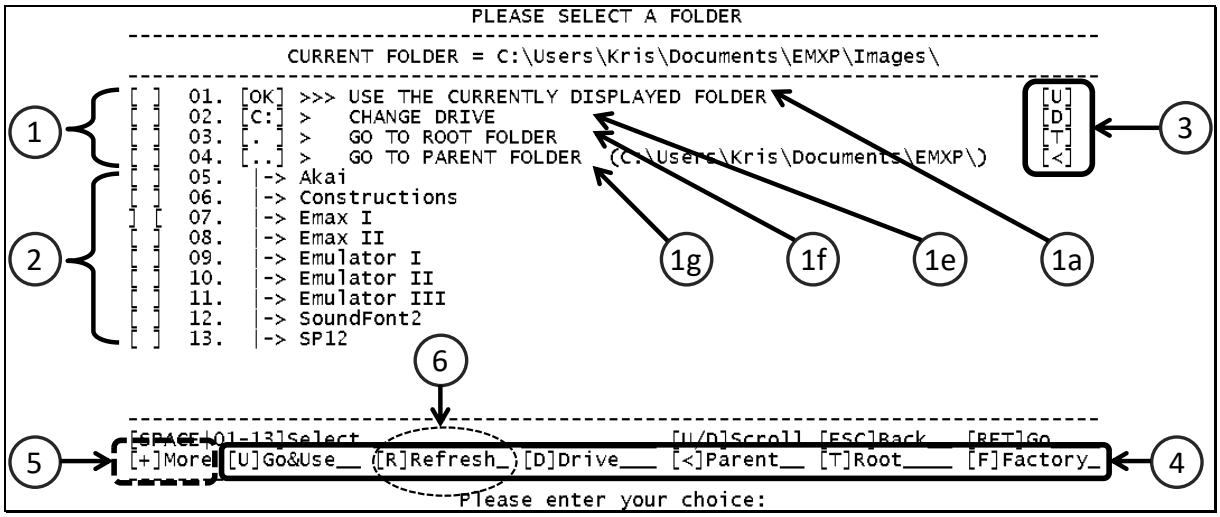
As illustrated in the next picture this file overview is empty in our example, because the EMX files are in another folder.
Note that the name of the current folder is displayed on top of the overview just below the EMXP title bar (see [1] on the picture), except if you would have specifically configured EMXP not to show this current folder name: this can be done in the Look & Feel preferences - see *section "10.4.5.3 Define if current folder should be shown in file overview screens"*.



4.5.2.2.1 Folder Manager

To change the folder, select the "`-- CHANGE FOLDER --`" item (by pressing the space bar or entering "1" followed by pressing ENTER). See [2] on the picture.
The Folder Manager will be launched now. By default, EMXP will:

- display an overview of all subfolders of the current folder, see [2] on the picture below
- give the possibility to jump to the parent folder of the current folder, see [1g] on the picture below
- give the possibility to jump to the root folder of the current disk, see [1f] on the picture below
- give the possibility to change the disk, see [1e] on the picture below
- give the possibility to accept the folder of which the subfolders are currently shown, this is the folder mentioned in the line below the title bar. See [1a] on the picture below.

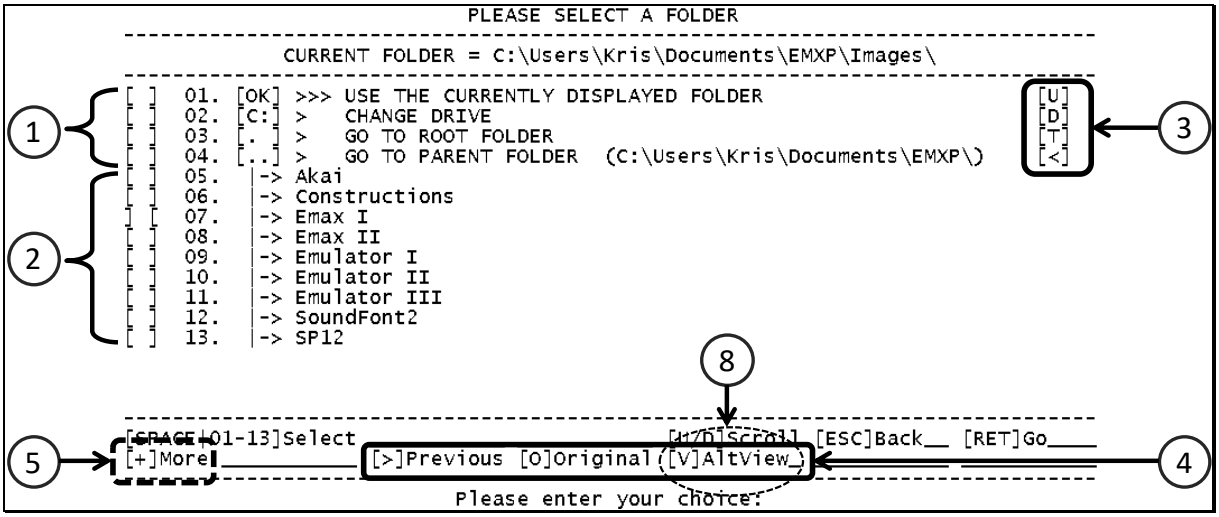


Each action mentioned in area [1] on the picture can be selected in 2 different ways:

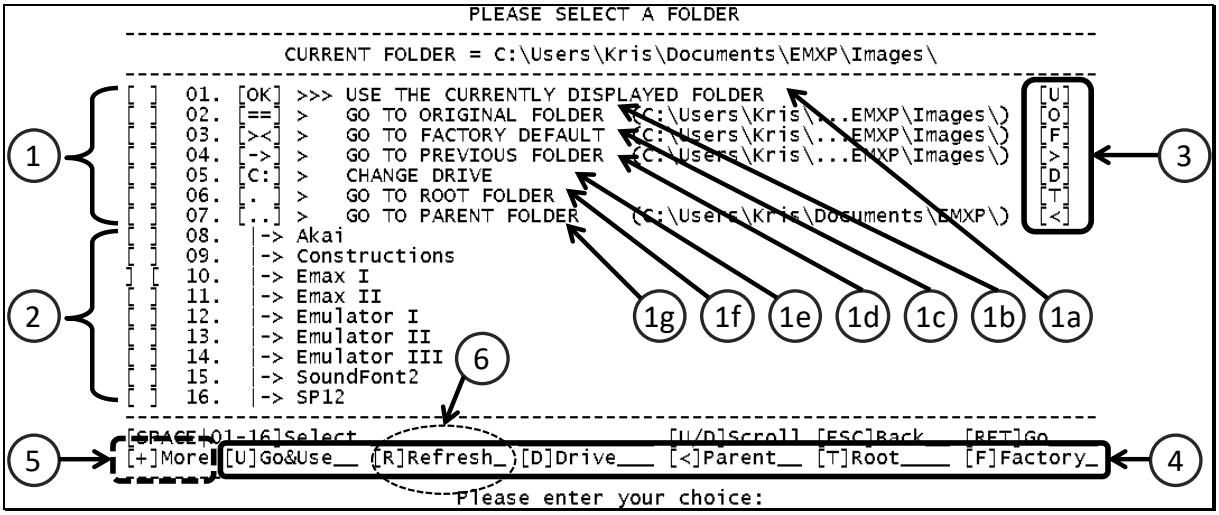
- By selecting the item belonging to the action and pressing ENTER. E.g. select item number 4 and press ENTER to go to the parent folder
- By using the *short cut key* belonging to that action. The short cut key can be found at the end of each item (see [3]), and is also mentioned at the bottom line of the screen (see [4]). E.g. the LEFT arrow key (marked as '<' on the screen) can be used to go to the parent folder.

Next to the possibilities mentioned on the default folder screen of EMXP (possibilities 1a, 1e, 1f, 1g and 2), there are even more options available. To make these visible, you can:

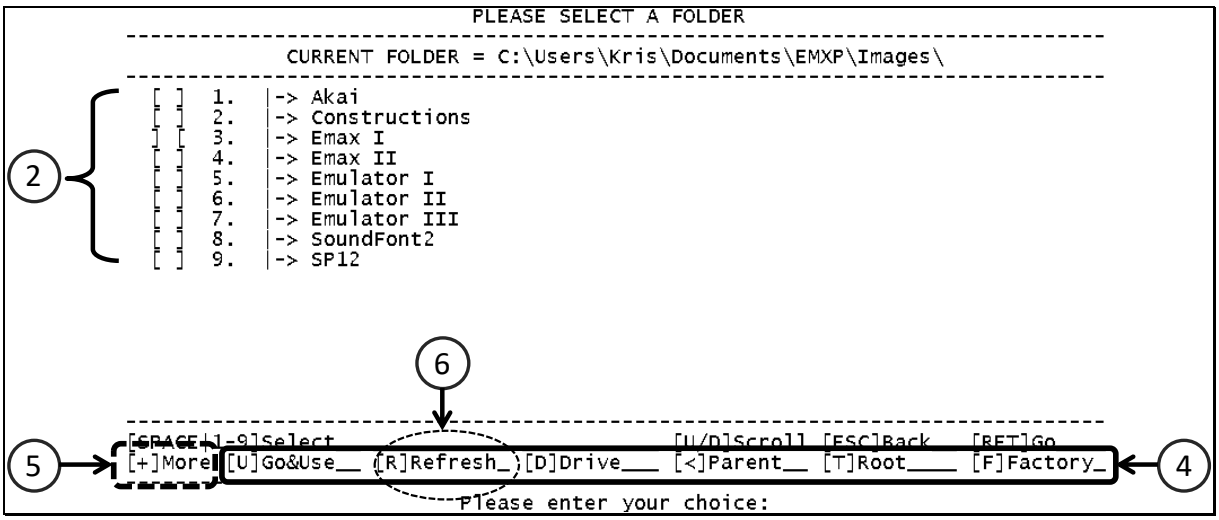
- scroll through *the short cut keys* by pressing the '+' key (=More) on your keyboard



- expand the items by pressing the 'V' key (=AltView) key on your keyboard



Pressing the 'V' key once more will *hide* all action-related items: the full screen can be used now for displaying the available folders. Actions can only be selected by means of short cut keys.



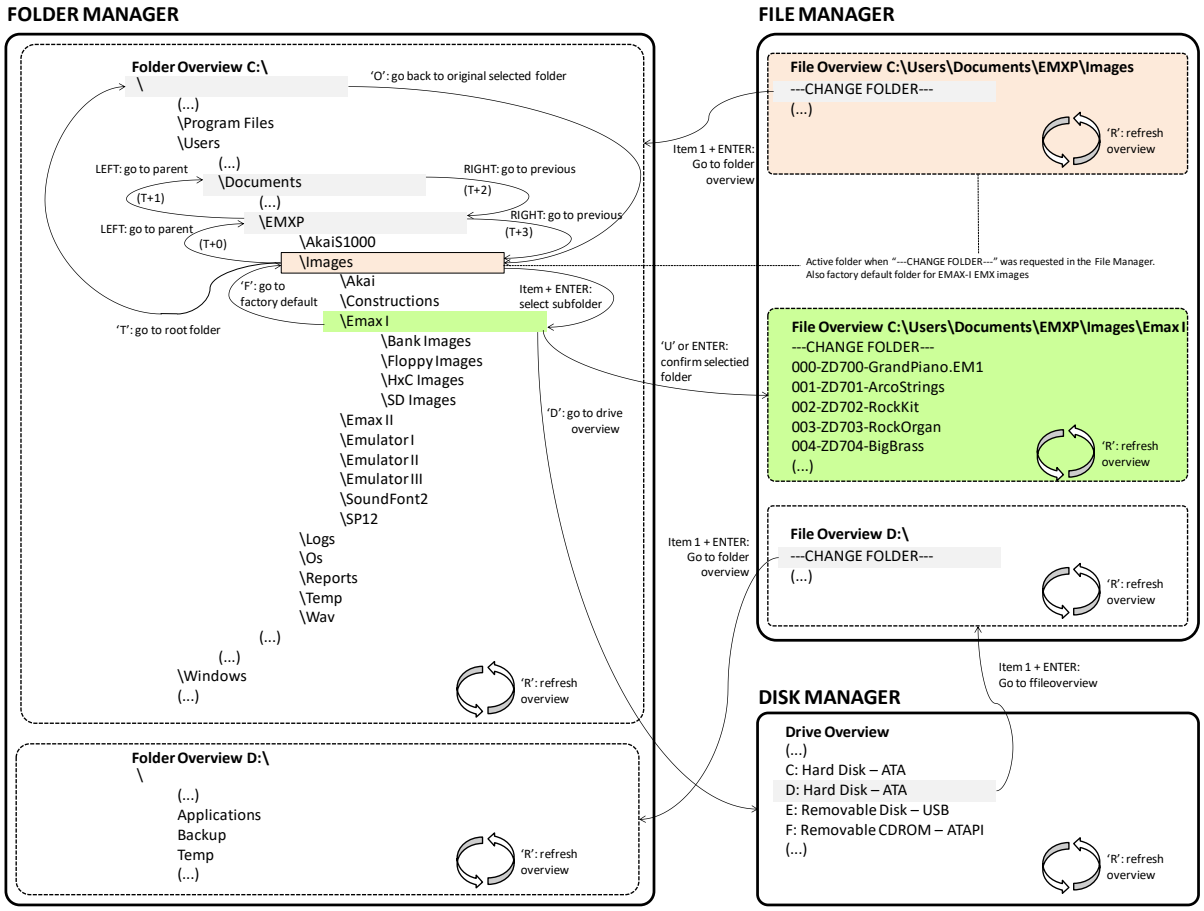
Pressing the 'V' key once more will return to the default folder view mode.

The selected view mode will be remembered by EMXP: the next time you open the Folder Manager, the most recently used view mode will still be active.

To summarize, the following actions are available in the Folder Manager:

No	Action	Item No (def. view)	Item No (exp. view)	Short cut key
1a	Select a folder (and show the files of that folder)	1 or none	1 or none	U
1b	Go back to the folder that was originally selected when you opened the Folder Manager (when you pressed "-- CHANGE FOLDER --")	-	2	O
1c	Go to the default factory folder for the requested file type	-	3	F
1d	Go back to the folder that was selected before you navigated to the parent folder	-	4	RIGHT
1e	Change disk or drive	2	5	D
1f	Go to the root folder of the current disk	3	6	T
1g	Go to the parent folder	4	7	LEFT
2	Show the subfolders of a folder	5 or higher	8 or higher	ENTER
6	Refresh the list of folders	-	-	R
8	Expand or collapse the item overview (hide/show action-related items)	-	-	V

The picture below illustrates how the short cut keys of the Folder Manager can be used.



Selecting another disk

If you want to see (and use) the folders of another disk, you should select the "`[drive:] > CHANGE DRIVE item`", or press the 'D' short cut key. This will launch the Disk Manager, which is explained further in detail in *section "4.5.3 Using the Disk Manager"*.

Quick navigation to often used folders

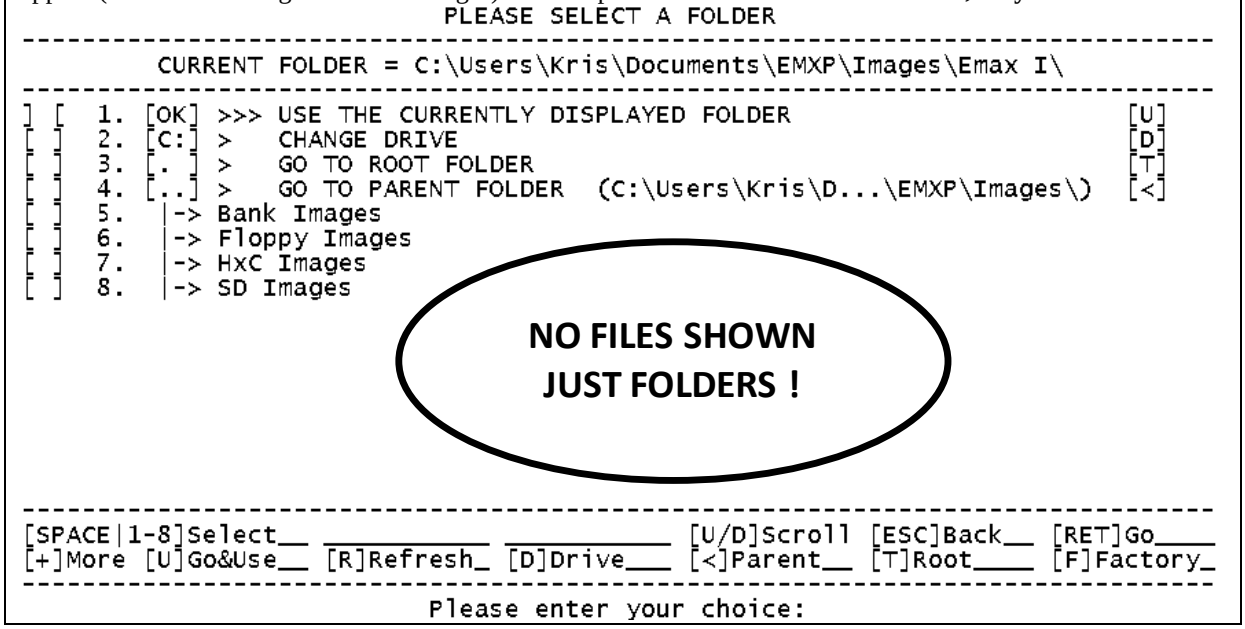
You can quickly navigate to some commonly used folders by means of a set of specific 'action' items or (even faster !) by means of a set of *short cut keys.* If you want to use items instead of short cut keys, you may have to change the folder view mode to make all possible actions visible: short cut key 'V' (=AltView) can be used to change the folder view mode.

- If you want to see the folders *of the root of the current disk*, you can select the "`[.] > GO TO ROOT FOLDER`" item, or press the 'T' key.
- If you want to see the folders *of the parent folder if the current folder*, you can select the "`[..] > GO TO PARENT FOLDER`" item, or press the LEFT arrow key. Note that the path of the parent folder is mentioned on the item line.
- If you want to return to the *most recently selected child folder of the current (parent) folder*, you can select the "`[->] > GO TO PREVIOUS FOLDER`" item, or press the RIGHT arrow key. Note that the path of this child folder is mentioned on the item line. If the lowest child folder that was previously selected has been reached, this action will simply refresh the current folder overview.
- If you want to see the *folders of the factory default folder* for the requested file type, you can select the "`[><] > GO TO FACTORY FOLDER`" item, or press the 'F' key. Note that the path of the factory folder is mentioned on the item line.
- If you want to return to the f*older overview that was initially displayed after selecting the "`-- CHANGE FOLDER --`"*, you can select the "`[==] > GO TO ORIGINAL FOLDER`" item, or press the 'O' key. Note that the path of the original selected folder is mentioned on the item line.

Hint: use the LEFT and RIGHT arrow keys to quickly navigate to parent folders and child folders !

Selecting a folder is just navigating to that folder, not requesting for its files.

If you select one of the subfolders, or if you navigate to the parent, root, original, factory default or previous folder, EMXP will simply update the screen with an overview of the subfolders of the selected folder. In our example, when selecting the 'Emax I subfolder', an overview of the subfolders of the "\Emax I" folders will appear (here: \Bank Images and \SD Images). See the picture below. **No files are shown, only folders**.

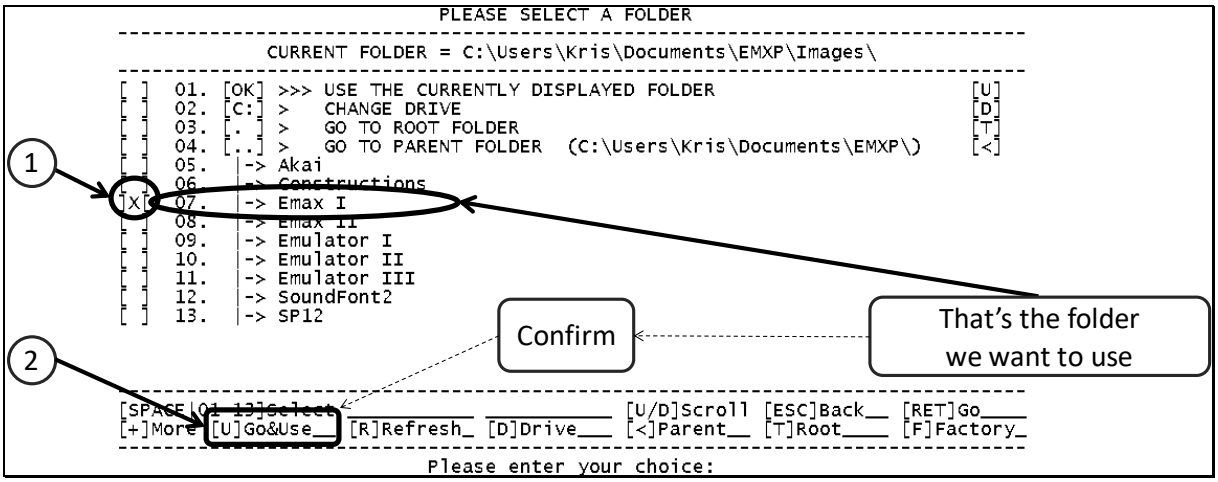


Confirming the selected folder and getting the file overview of te selected folder

It's important to understand that simply selecting a folder in the Folder Manager does not result in an overview of the *files* that are stored in that folder, but rather in an overview of the *folders* within that folder. Selecting a folder in the Folder Manager is basically only a means to navigate to other folders or subfolders. If you select a folder and press ENTER, the Folder Manager will simply show the subfolders of that folder.

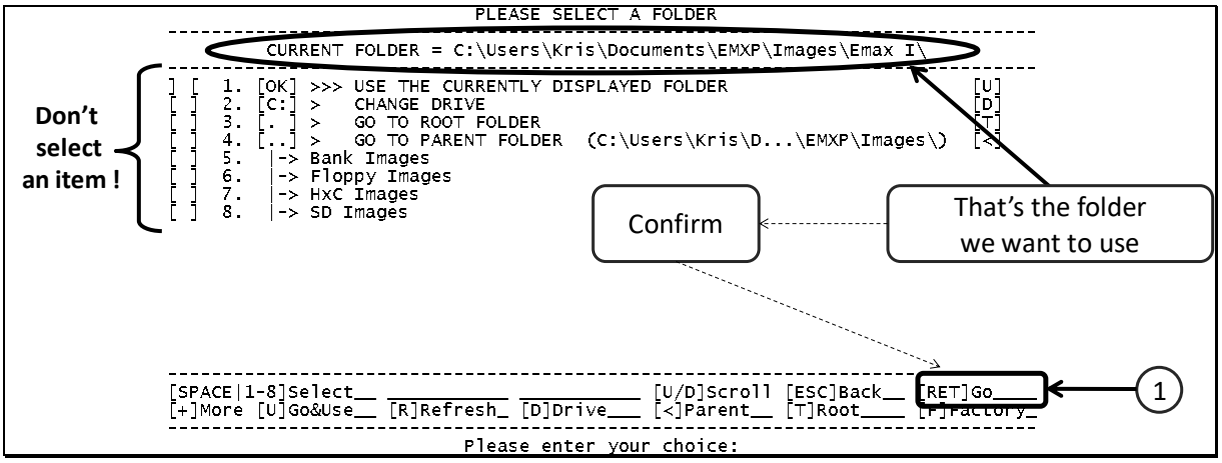
If you want to actually confirm and use a folder, and get an ***overview of the files stored in that folder,*** there are 4 options available:

- If the folder you want to use is one of the folders in the folder overview
  - *Option 1:* move the '][' cursor to the folder item you want to use and press the SPACE bar, or directly enter the folder's item number. Then press the 'U' (=Go&Use) key.

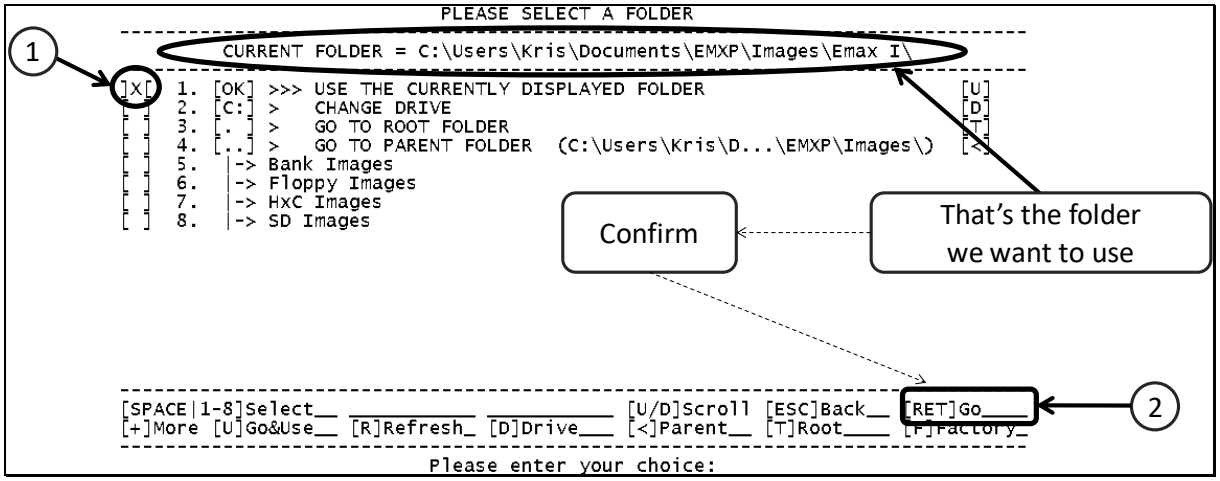


  - *Option 2*: move the '][' cursor to the folder item you want to use and press the SPACE bar, or directly enter the folder's item number. Then press ENTER, *and use option 3 or option 4 as explained below*.

- If the folder you want to use is the current folder mentioned on top of the overview:
  - *Option 3:* simply press ENTER without selecting any item at all. The current folder mentioned on top of the folder overview will be used and its files will be shown by the File Manager.



  - *Option 4:* select the "[OK] >>> USE THE CURRENTLY DISPLAYED FOLDER" item and press ENTER. Just like in option 1, the current folder mentioned on top of the folder overview will be used and its files will be shown by the File Manager.



.

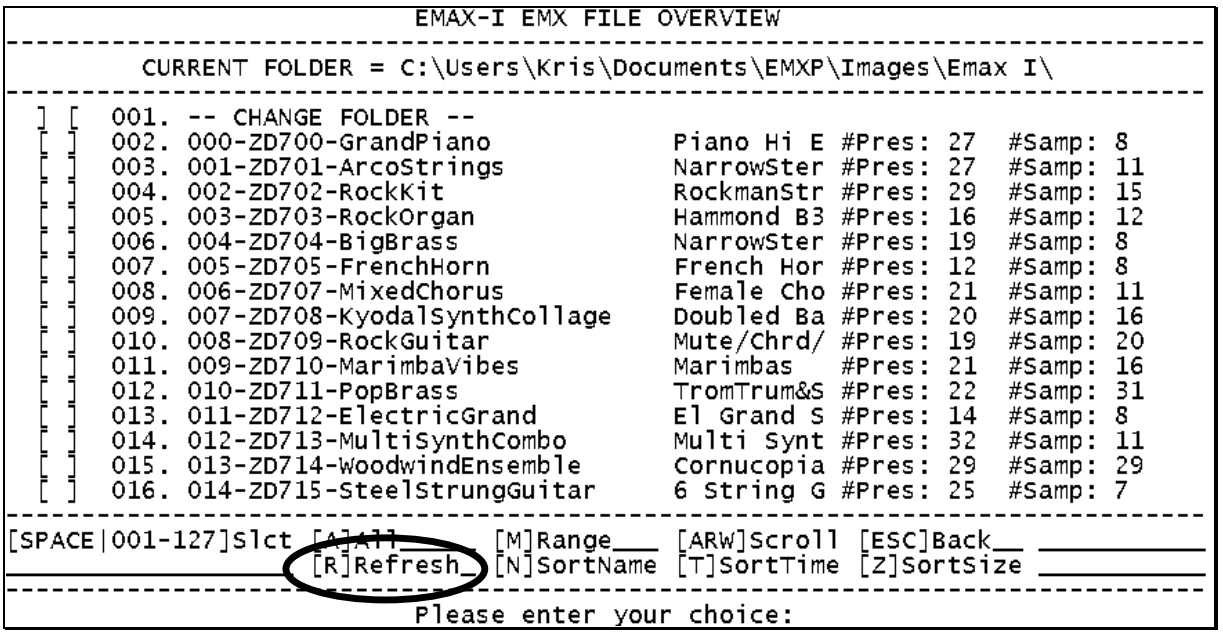
Hint: selecting a folder in the folder overview and pressing the 'U' key is the fastest way to get the file overview of that folder

Refreshing the folder overview

While using the EMXP Folder Manager, the folders currently displayed in the Folder Manager may have changed, e.g. because you added or removed some folders in Windows Explorer. EMXP does not automatically refresh its folder overview screens, but you can ask to do so by pressing "R" which is a short cut key for refreshing the folder overview.

4.5.2.2.2 Refreshing the file overview

While using the EMXP File Manager, the contents of the folder currently displayed in the File Manager may have changed, e.g. because you added or removed some files in Windows Explorer. EMXP does not automatically refresh its file overview screens, but you can ask to do so by pressing "R" which is a short cut key for refreshing the file overview.
As opposed to folder overview, the refresh option for files is *only available if no files items have been selected*. Once one or more items have been selected, the [R]efresh short cut key will disappear and will be replaced by other short cut keys.



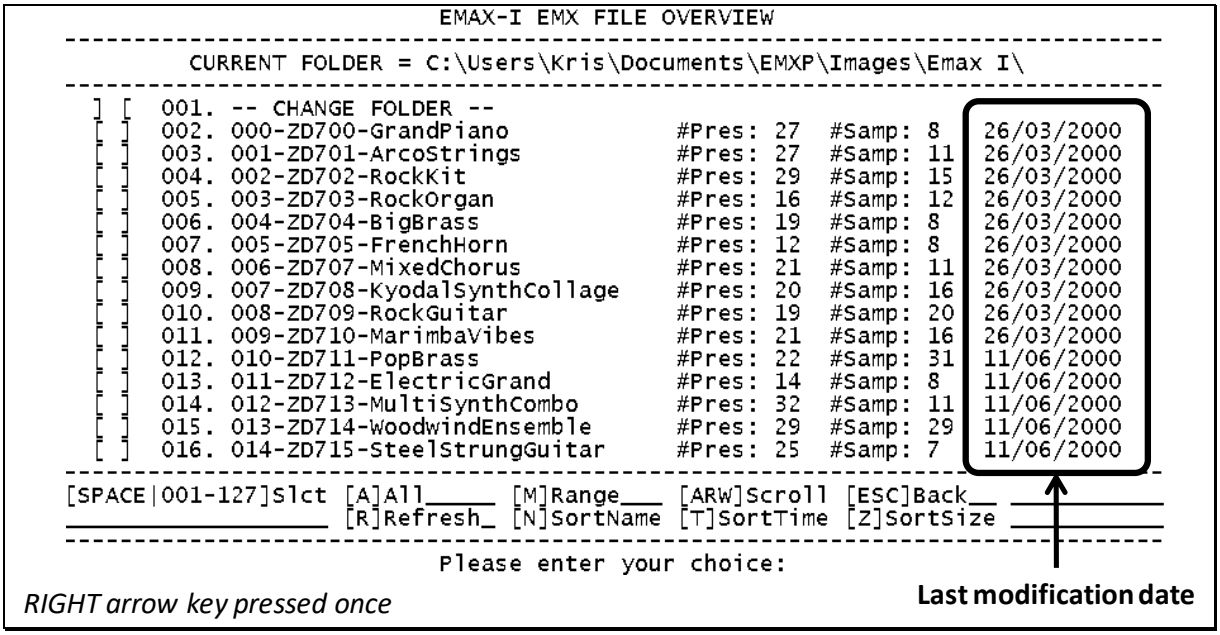
4.5.2.2.3 Viewing the file size and the 'last modified' date and time

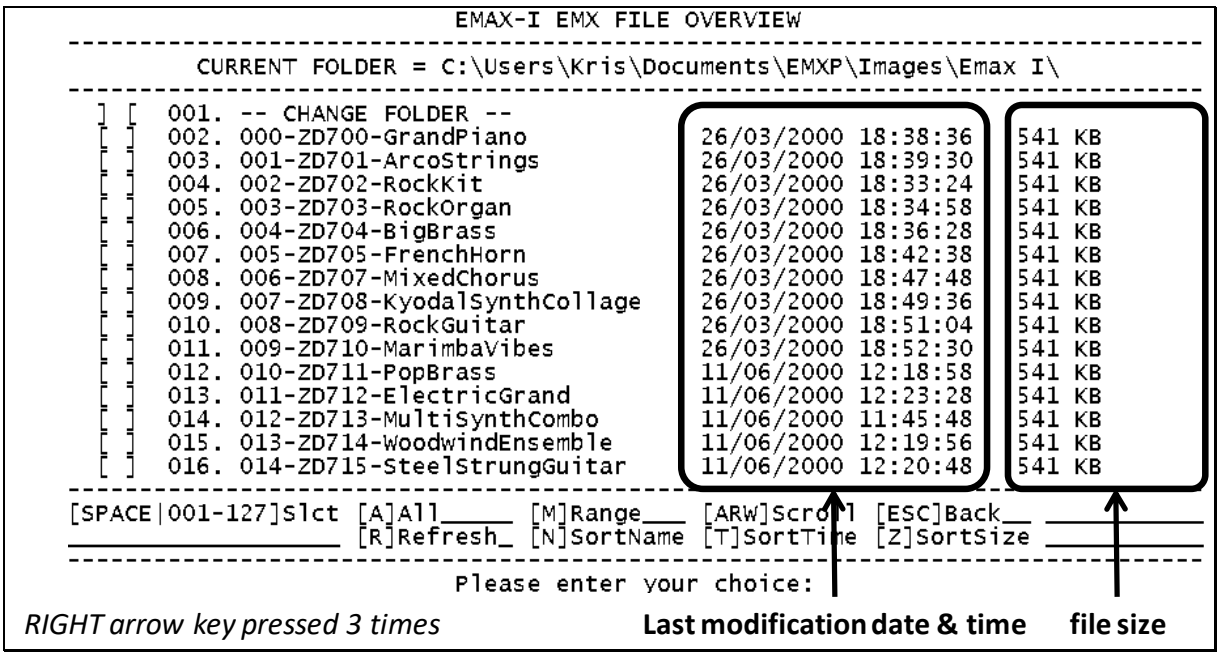
In addition to the information that is displayed for each file (in the columns after the file name), of which the meaning can vary depending on the file type (see *section "5.4 DESCRIPTION OF PARAMETERS IN OVERVIEW SCREENS"*), the File Manager can also show

- the size of the file on disk
- the date and time of the last modification of the file

This information is available in additional columns, which will appear by using the RIGHT arrow key. You can scroll back to the original columns by using the LEFT arrow key. It's also possible to sort the files on date/time or file size, see *section "4.5.2.2.4 Sorting files"*. EMXP will remember your most recent choice of columns that should be displayed; this setting is saved for each file type separately.

The picture below shows an example for an EMAX-I EMX file overview, in which the RIGHT key has been pressed once. The second picture shows the same file overview, but now the RIGHT key has been pressed three times.





4.5.2.2.4 Sorting files

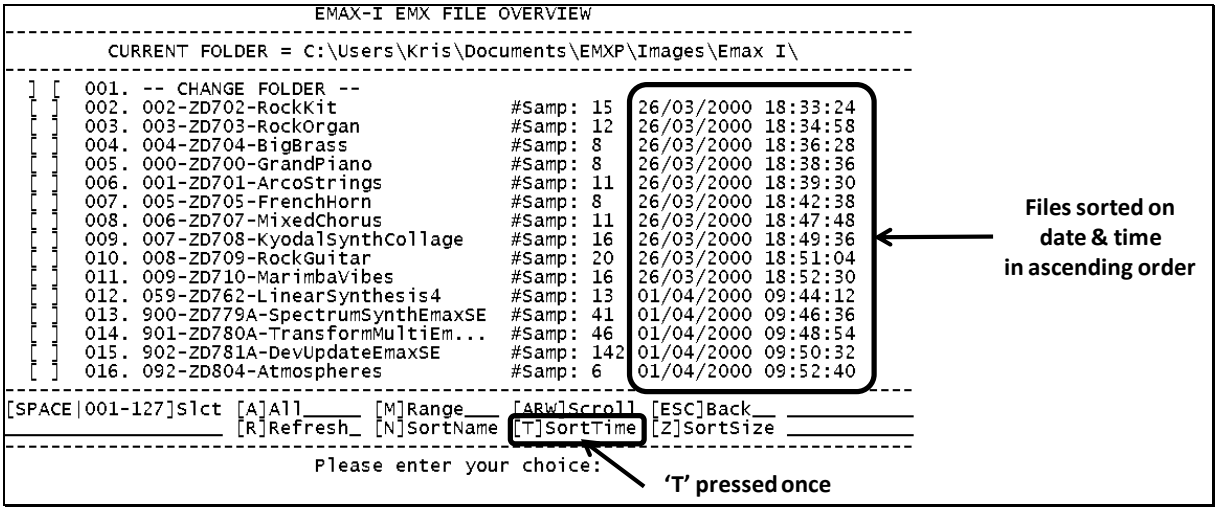
It's possible to sort the file items in a file overview. Files can be sorted in ascending order or in descending order on file name, file size and date & time of the last modification.
The following short cut keys can be used for sorting purposes:

Sort criterium	Short cut key
File Name	N
File Size	Z
Data & Time of last modification	T

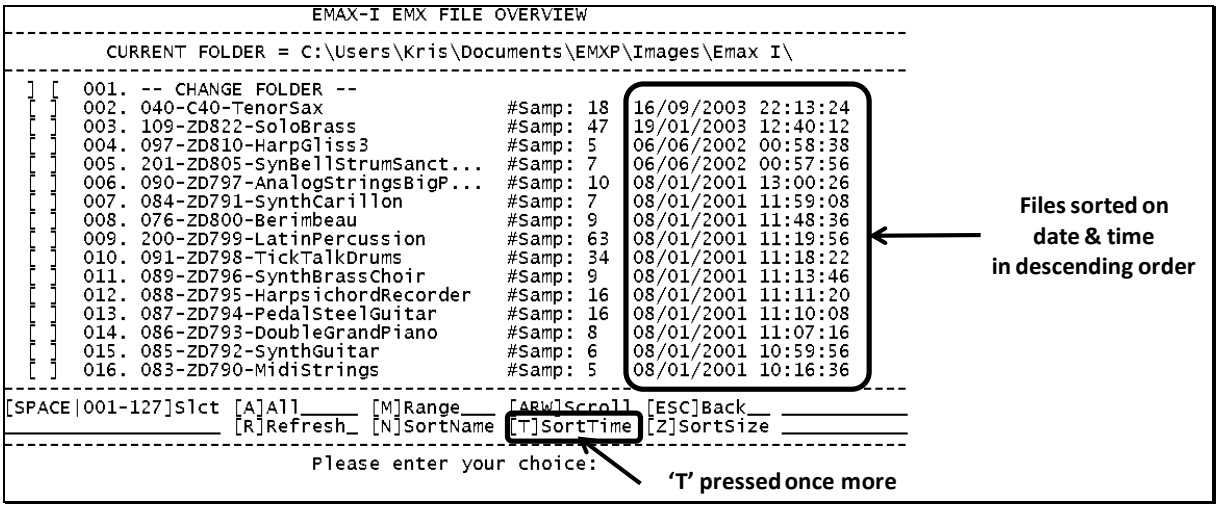
Sorting can be done when no items have been selected yet.
But sorting can also be done when items have already been selected. In that case

- the selections will be retained and EMXP will automatically scroll to the first selected item
- the sorting short cut keys may only become visible on the bottom line after pressing the '+' (=More) key

When you press a sort key (e.g. 'T') for the first time, the files will be sorted in ascending order. See the picture below (in which the RIGHT key has been pressed twice in order to make the date and time columns visible)



When you press the same sort key (e.g. 'T') again, the files will be sorted in descending order. See picture below.



When your press the same sort key once more, the ascending order will be applied again. And so on.
The sorting criterium and sorting order are remembered by EMXP. The settings are saved for each file type separately.

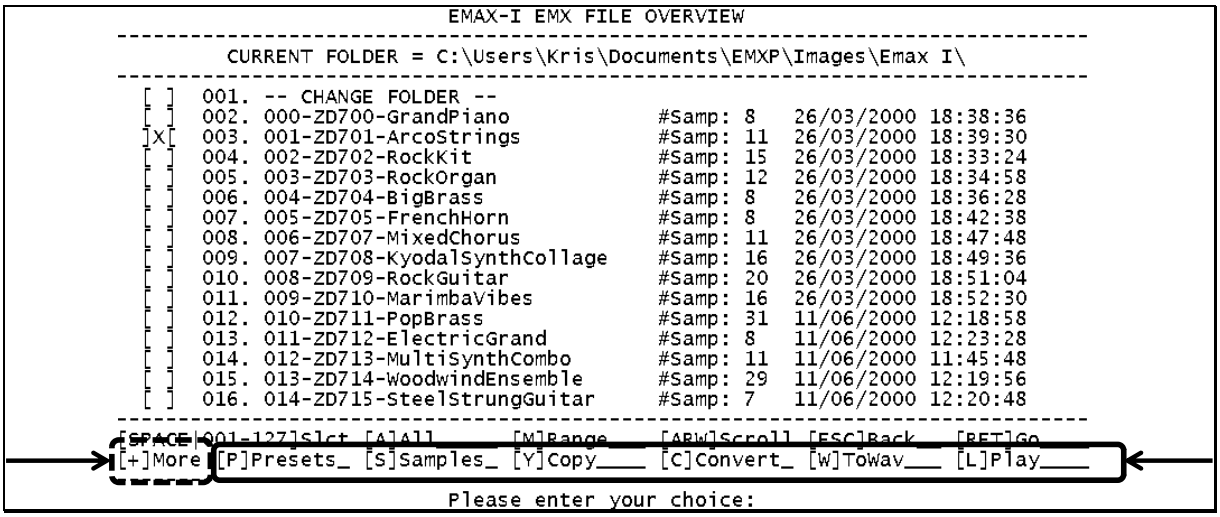
4.5.2.2.5 File type specific short cut keys

Just like on any other item overview screen, EMXP offers one or more short cut keys which can instruct EMXP to do something without first having to go to the next menu screen. The amount and meaning of the short cut keys depend on the requested file type. E.g. the available options will differ between SP12 sound bank files and EMAX-I hard disk image files.
Except for the actions related to SCSI2SD and to refreshing or sorting the file overview, all other short cut key actions can also be found as menu (or submenu) options if you would simply press ENTER.

In our example of EMAX-I EMX files, the following file type specific short cut keys are available:

- [P] to get an overview of all presets in the bank *(only available if 1 bank has been selected)*
- [S] to get an overview of all samples in the bank *(only available if 1 bank has been selected)*
- [Y] to copy the selected banks (*available if 1 or more banks have been selected)*
- [C] to convert the selected banks (*available if 1 or more banks have been selected)*
- [W] to convert all samples of the selected banks to WAV files (*available if 1 or more banks have been selected)*
- [L] to play all samples of the selected banks (*available if 1 or more banks have been selected)*
- [D] to get some details of the bank file *(only available if 1 bank has been selected)*
- [U] to upload the selected banks to an EMAX-I via RS422 (*available if 1 or more banks have been selected)*
- [J] to upload the selected banks to an EMAX-II via RS422 (*available if 1 or more banks have been selected)*
- [R] to create a report of all presets per bank for all selected banks (*available if 1 or more banks have been selected)*

Since only 6 short cut keys can be displayed on the bottom line, the '+' (=More) key should be pressed to see the other available short cut keys.



4.5.2.2.6 Changing the appearance of file names and folder names in the overviews

On folder overview screens, the folder names are limited to 60 characters.
On file overview screens, the file names are limited to 30 characters because additional space is required for showing some important file attributes, like the bank name and number or presets and samples in each file.

The appearance of the folder and file names in these zones of 60 and 30 characters can be configured in the Look & Feel Preferences. E.g. you might prefer to see the names in upper case, or you might want to change the way EMXP displays file names which are longer than 30 characters in the overview screens.
This is explained in *section "10.4.5 Define appearance of file and folder overview screens"*.

4.5.2.3 Creating files

Most functionality explained in *section "4.5.2.2 Selecting files"* is also available when creating files instead of selecting files.
We will illustrate the use of the File Manager for *creating files* with two examples:

- Example 1: copying an EMAX-I EMX image file an EMAX-I bank file
- Example 2: copying an EMAX-II bank file to one or more EMAX-II EMX image files

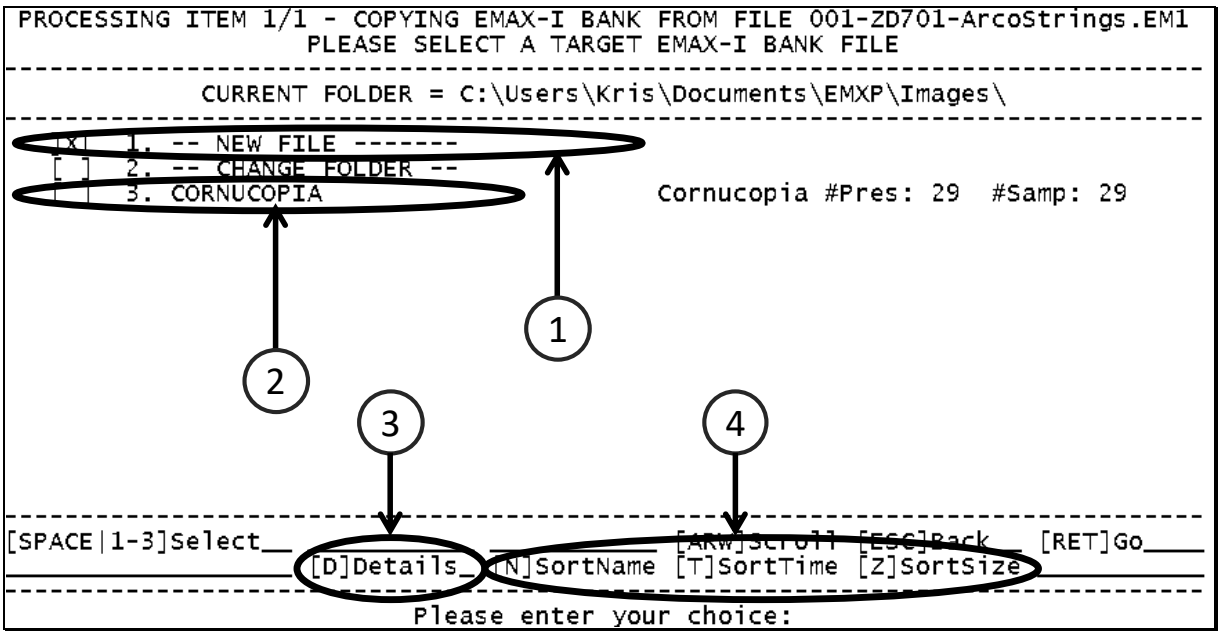
The difference between the two examples is that in the first example exactly *one* target file will be created from one source file, while in the second example *multiple* target files may be created from one source file.

Example 1

"1. Manage EMU Files and Disks" → "1. Manage EMU EMAX-I Files and Disks" → "2. Manage EMAX-I EMX Files" → (select an EMX file) → [press 'Y'] or [select "1. Copy to other EMAX-I File or Disk"] → "1. Copy to EMAX-I Bank File(s)" → (*) "2. No, User should have maximum control (MANUAL)" → (*) "1. Perform a normal copy from source to target" → (*) "1. Select target files and file names for storing banks yourself" and (*) "3. Always show a message or ask confirmation for solving the problem"

(*) These menu options are explained in detail in *chapter "6. USING EMXP: COPYING SOUND BANKS AND FILES"*. For the sake of our example, you should select the options as mentioned here, which will result in a fully manual copy process without any sound bank conversion involved.

In our example we have selected EMAX-I EMX file "001-ZD701-ArcoStrings" and will copy it to a bank file named "ArcoStrings bank 701". After having executed all steps as described before, the File Manager will be launched and will look like this:



Besides giving an overview of all existing EMAX-I Bank files in the current folder (here only the file CORNUCOPIA), the File Manager also offers the possibility to create a new file and to change the folder. In our example we won't change the folder, we will save the bank file in the \Images subfolder.

Just like in *source file overview* screens, the short cut keys for sorting files are available in *target file overview screens* as well (see [4]).
Note that in some cases there can be also some file type specific *short cut keys* available (see [3]) which can be used when you select one of the existing files in the overview before pressing ENTER.
The short cut keys in *target file overviews* are different and more limited than the ones in *source file overviews.* They allow you to check some basic details about an existing file before taking the decision to replace/overwrite the file. Typical examples are viewing the details of an existing target file or listening to an existing target WAV file

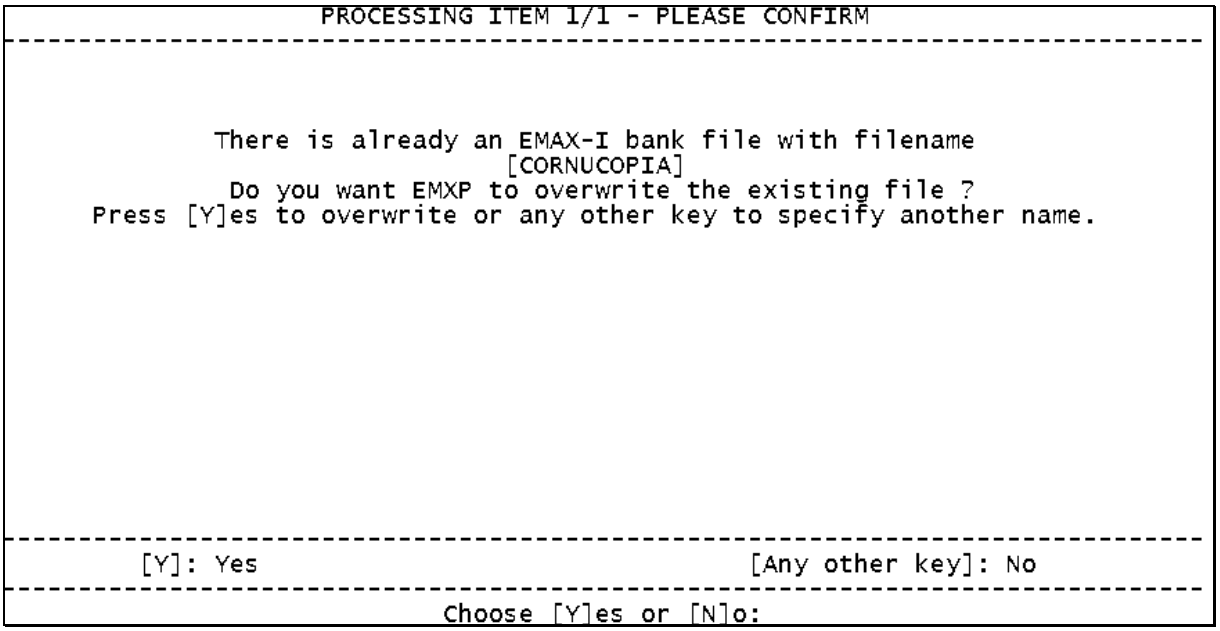
Let's now continue with selecting a file name for the target file that EMXP will create.
There are two ways to accomplish this:

- Select an existing file and overwrite it with the new file. See [2] on the previous picture.
- Provide a totally new file name. See [1] on the previous picture.

Whatever method you choose, EMXP will always ask you to confirm or change the file name.

Selecting an existing file

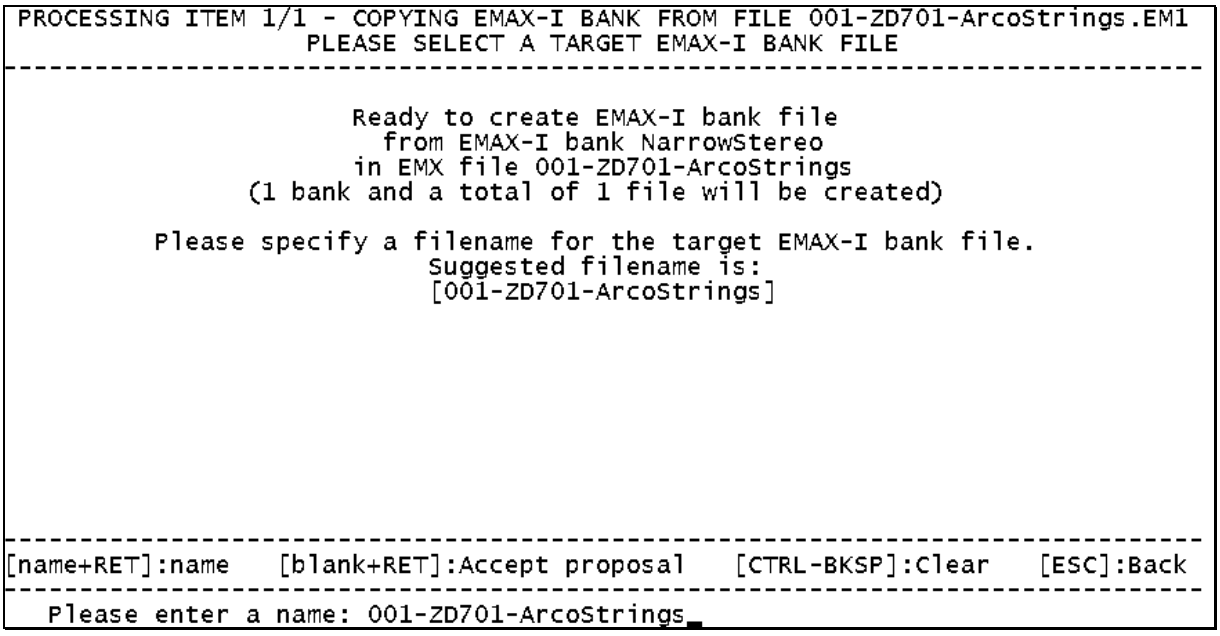
If you select an existing file, EMXP will ask you to confirm that the existing file can be overwritten:



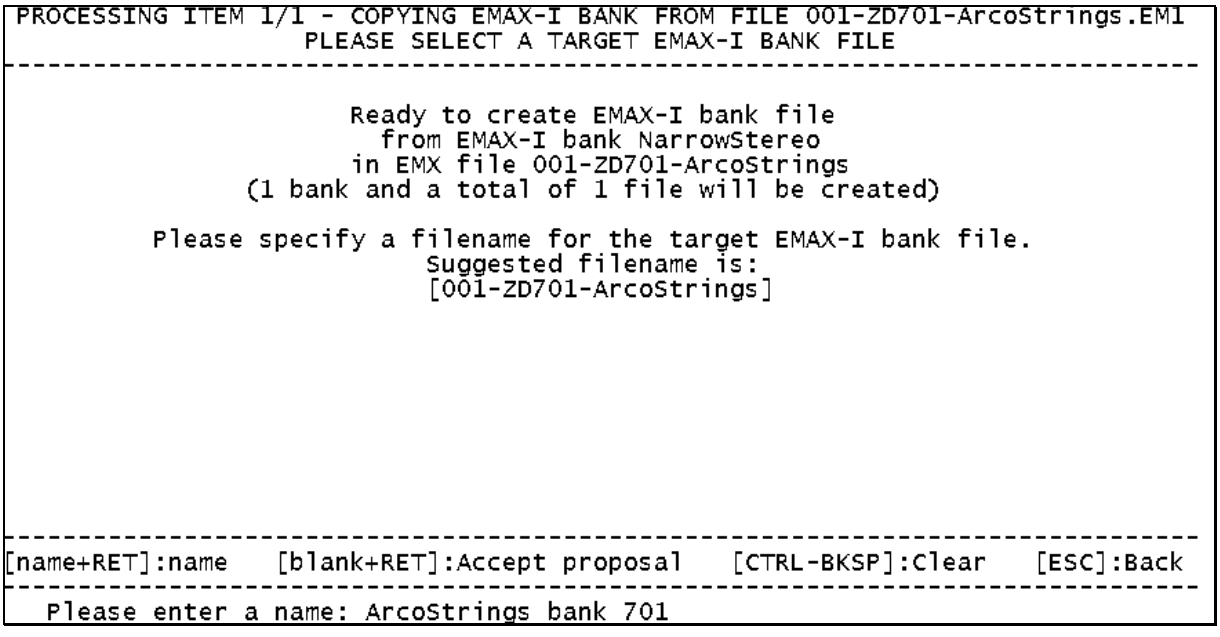
If you don't agree, EMXP will return to the File Manager and you will again have the option to select another file or to provide a new file name. If you agree, the existing file will be replaced by the new file.

Creating a new file

If you select the "`-- NEW FILE --`" item, a screen will appear in which you can enter a file name for the target file. EMXP will always propose a "suggested" target file name derived from the source object's characteristics. In our example the suggested name is derived from the source object's file name and is - not surprisingly - exactly the same: 001-ZD701-ArcoStrings. By choosing the same name, EMXP will not overwrite the source file because the file has another type: it will become a bank file (with file extension .EB1) instead of an EMX file (with file extension .EM1).



Note that it depends on the Look & Feel Preferences whether EMXP's suggested file name is pre-filled on the bottom line or not. See *section "10.4.6 Define if user response area should be pre-filled with suggested response"*. In our example, the pre-fill mode is enabled, so the suggested file name 001-ZD701-ArcoStrings is printed already and we change it now as we like.
Since we want to give the file a totally other file name, we can press CTRL-BACKSPACE to remove the suggested file name, and we enter the new file name "ArcoStrings bank 701":



EMXP will now save the file to the new file called "ArcoStrings bank 701".

If a file with the provided file name would already exist in the current folder, EMXP will give a warning and will ask you for confirmation.

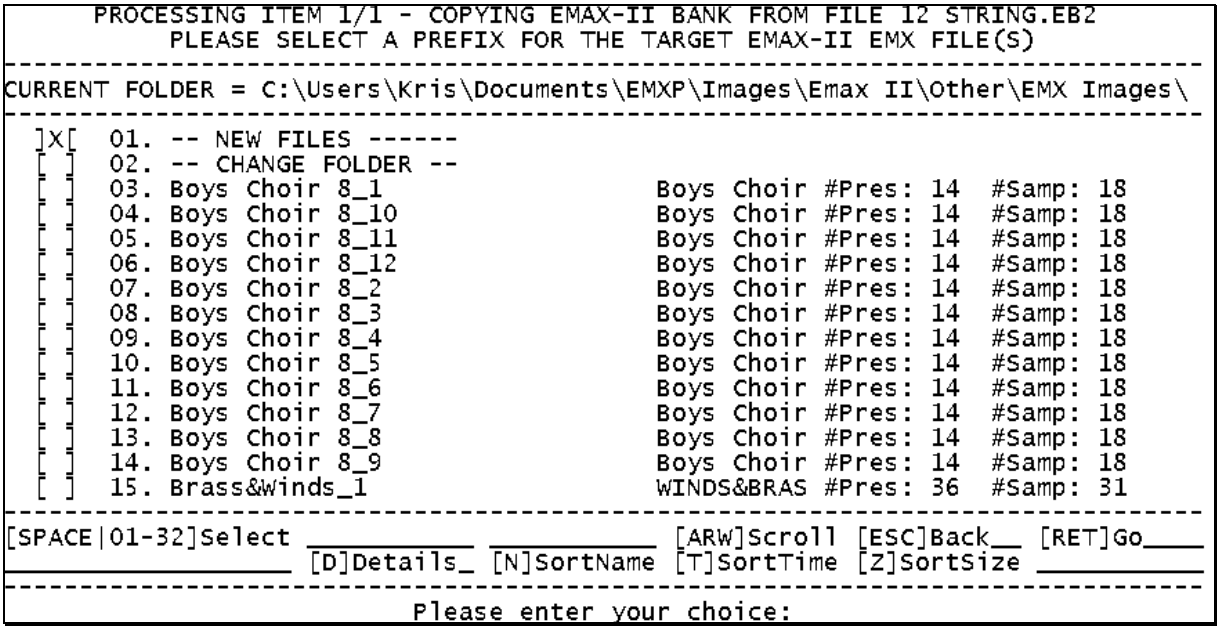
Example 2

In our second example we will select an EMAX-II bank file called "12 STRING" and we will copy it to EMAX-II EMX files. Since the 12 STRING bank is about 1MB in size, two EMX files will be generated. We will name them "12 String_1" and "12 String_2".

"1. Manage EMU Files and Disks" → "2. Manage EMU EMAX-II Files and Disks" → "1. Manage EMAX-II Bank Files" → (select a bank file) → [press 'Y'] or [select "1. Copy to other EMAX-I File or Disk"] → "2. Copy to EMAX-II EMX File(s)" → (*) "2. No, User should have maximum control (MANUAL)" → (*) "1. Perform a normal copy from source to target" → (*) "1. Select target files and file names for storing banks yourself" and (*) "3. Always show a message or ask confirmation for solving the problem"

(*) These menu options are explained in detail in *chapter "6. USING EMXP: COPYING SOUND BANKS AND FILES"*. For the sake of our example, you should select the options as mentioned here, which will result in a fully manual copy process without any sound bank conversion involved.

Just like in the first example, the File Manager will now show all existing EMAX-II EMX files in the current folder , and will offer the possibility to create new files and to change the folder. In our example we have already changed the folder to subfolder "\Images\Emax II\Other\EMX Images".



Remember that the copy process will result in *multiple files*. However EMXP will not ask for a file name for *each of the target files it will create.* EMXP will rather ask for a *prefix for these file names*, and will then create all files by assigning them file names based on the provided prefix and extended with a unique suffix.
This suffix consists of an underscore and a number ("_1", "_2", ...)

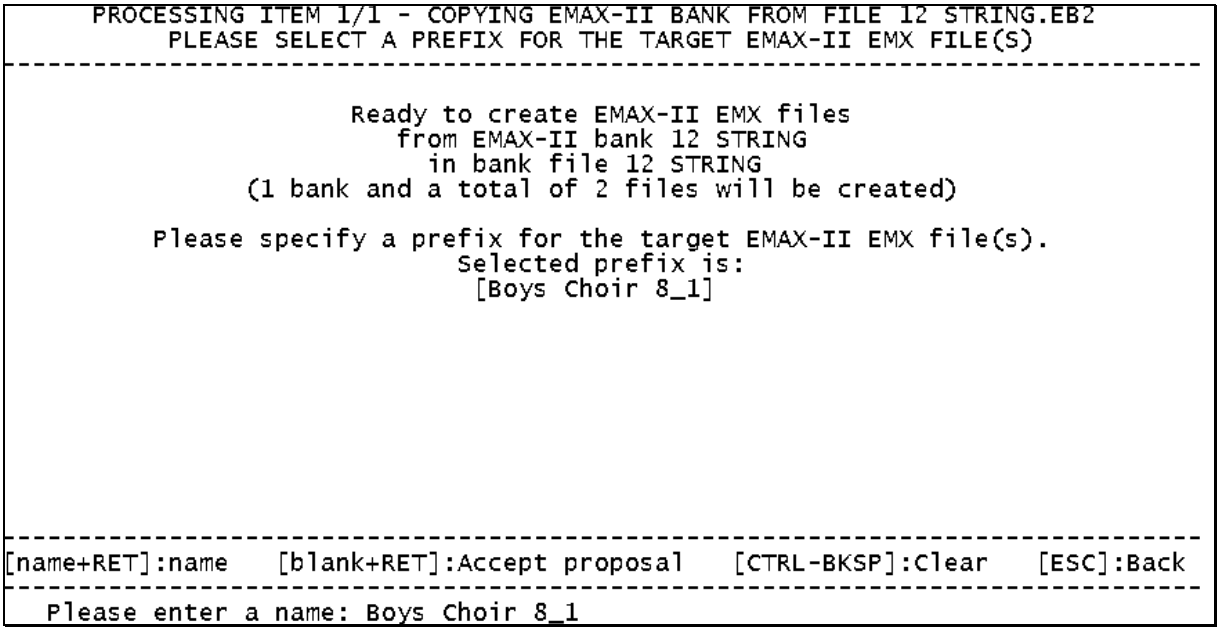
To select a prefix for the target file names, there are two possibilities:

- Select an existing file. Its file name will become the prefix for the new files. As opposed to the first example, the selected existing file will *not be overwritten*. Its file name is only be used as a prefix for the new file names.
- Provide a totally new prefix for the file names.

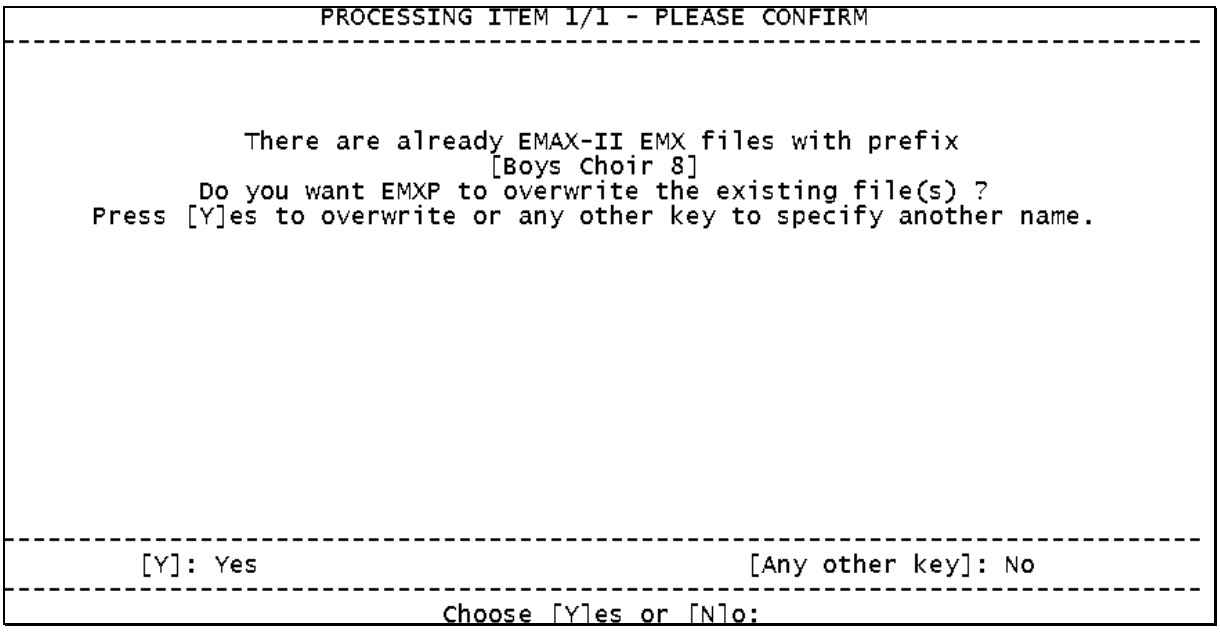
Whatever method you choose, EMXP will always ask you to confirm or change the prefix.

Selecting an existing file name as a prefix for the new files

When you select one of the existing files in the overview, its name will be used as a prefix for the file names of the target files EMXP will create. Suppose we select the existing EMX file "Boys Choir 8_1". EMXP will now ask for confirmation of the selected prefix. You can still adapt the prefix or enter another prefix.

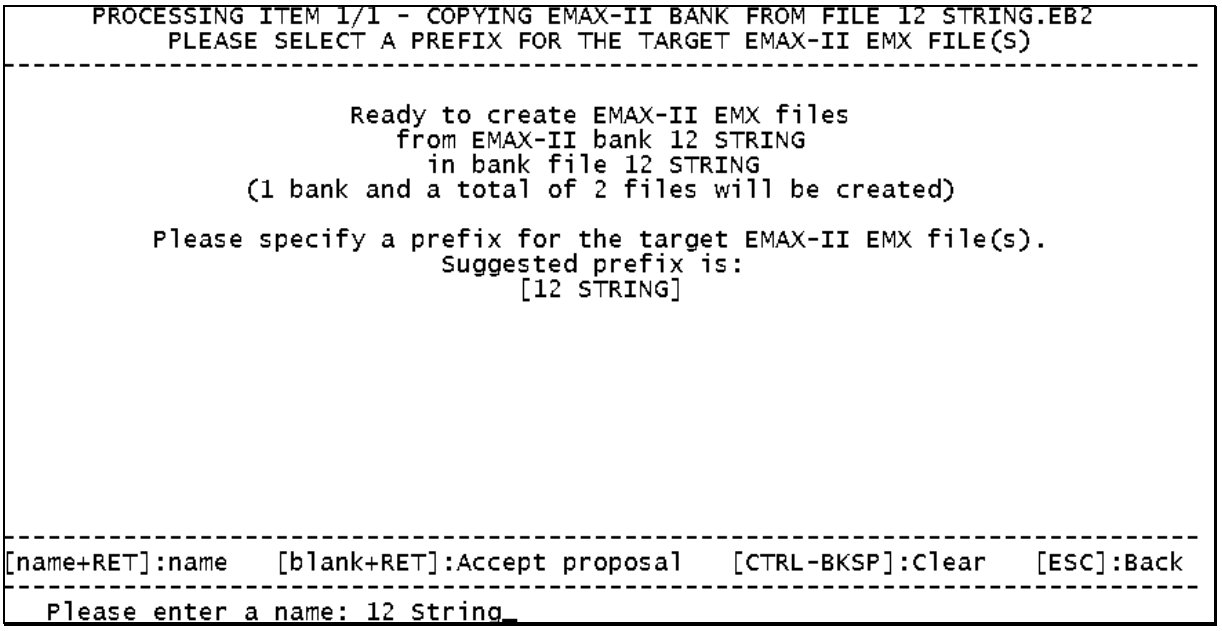


When you agree with the selected name " Boys Choir 8_1", the resulting EMX files will be named " Boys Choir 8_1_1" and " Boys Choir 8_1_2". Note that the original suffix "_1" which was already part of the prefix is preserved and that additional suffixes are used to make the file names unique.
If you would adapt the selected name by removing the original suffix "_1", you would actually be instructing EMXP to create EMX files with file names " Boys Choir 8_1" and " Boys Choir 8_2". However one or more of these files exist already, so EMXP would give a warning and ask for confirmation to replace these files. See picture below.



Providing a new prefix

If you select the "`-- NEW FILES --`" item in the File Manager, you can enter the prefix you like. Just like in the first example, EMXP will propose a "suggested" prefix, which you can either accept or adapt.
The suggested prefix is chosen by EMXP in such a way that all file names based on that suffix will still be unique and will not overwrite existing files. The suggested prefix is based on the source file's characteristics, e.g. its file name or its bank name.

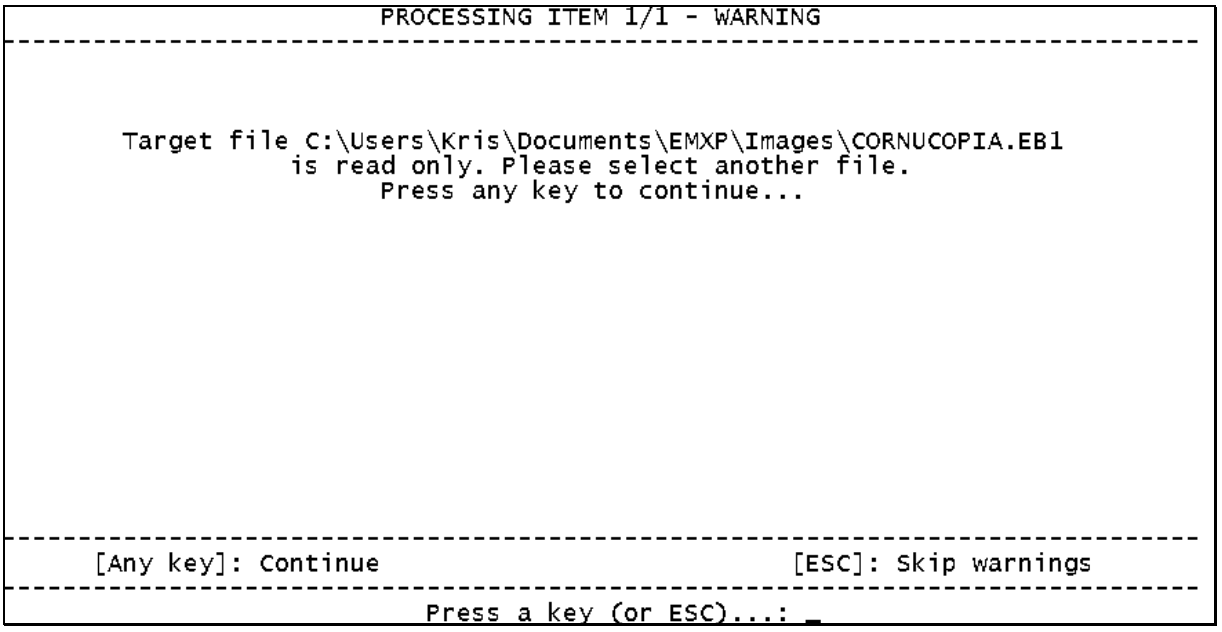


In our example we have replaced the suggested prefix by "12 String" (lower case instead of upper case).
As a result the EMAX-II EMX files created by EMXP will be called "12 String_1.EM2" and "12 String_2.EM2".

Read-only files, folders and disks

If the selected target disk, folder or file is read-only or write-protected, EMXP will give a warning and you will have to selected another disk, folder or file.

The following screen shows a "read-only" warning after having selected an existing target bank file CORNUCOPIA which seems to be read-only and hence can not be replaced...

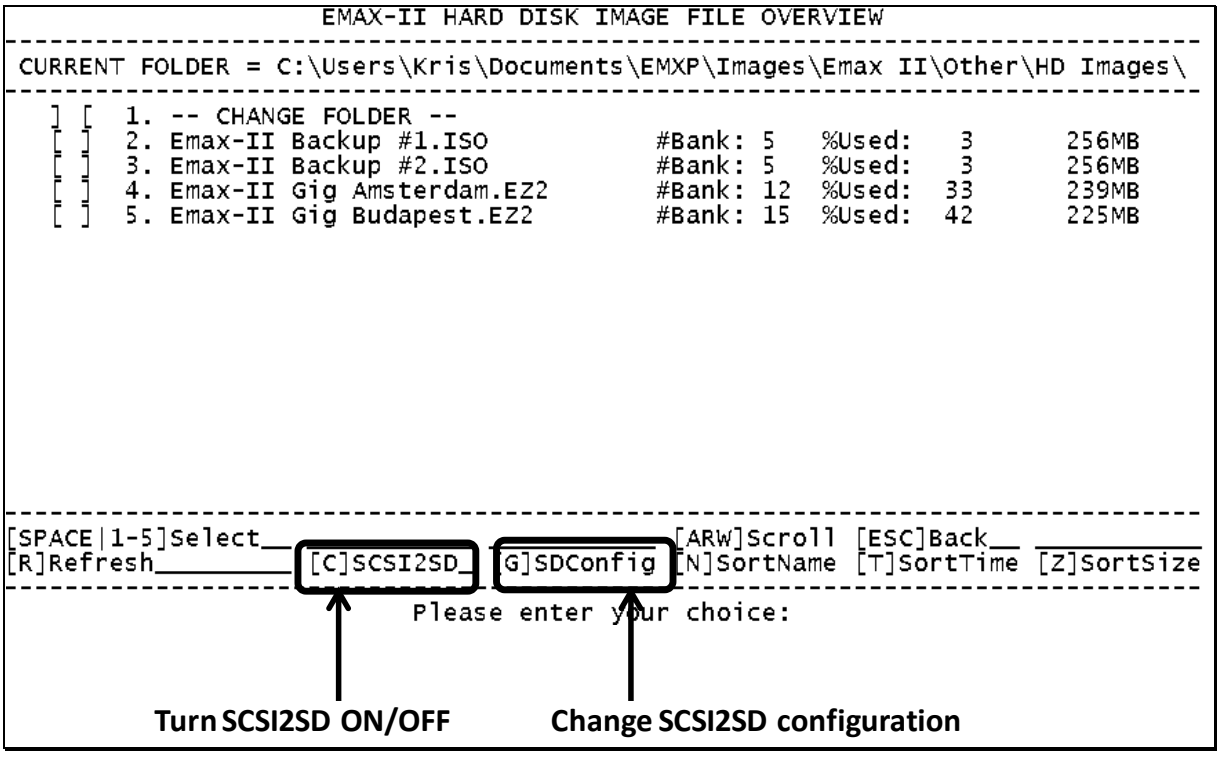


4.5.2.4 Using the File Manager with SCSI2SD hard disk image files

If the File Manager is being used to manage Emax-I, Emax-II or Emulator-III/X/ESI hard disk image files, some additional features are available for managing SCSI2SD partitioned hard disk image files (next to the normal, un-partitioned hard disk image files). These features are not available for Emulator-II hard disk image files.

Two additional shortcut keys will appear at the bottom of the file overview screen:

- `[C] SCSI2SD` : to switch ON and switch OFF the *SCSI2SD scanning mode.*
- `[G] SDConfig` : to change the SCSI2SD configuration that should be used by EMXP when scanning for SCSI2SD files



Default: SCSI2SD scan is OFF

By default the SCSI2SD scanning mode is always OFF when launching the File Manager.

In this mode, the overview only contains files that are accepted by EMXP as "normal un-partitioned" sampler hard disk image files.

This doesn't mean that the files are not partitioned, it only means that EMXP can handle the files as normal un-partitioned files.

E.g.

- the file "Emax-II Gig Amsterdam.EZ2" is a normal un-partitioned Emax-II hard disk image file
- the file "Emax-II Backup #1.ISO" however is a SCSI2SD partitioned file consisting of 4 *devices*. But since the first *device* (partition) in this file starts at the very beginning of the file (address 0), EMXP accepts the whole file as a normal, un-partitioned Emax-II hard disk image file. In this mode, EMXP will only have access to the first *device* (partition) and the other 3 *devices* will be ignored.
  The same is true for file "Emax-II Backup #2.ISO".

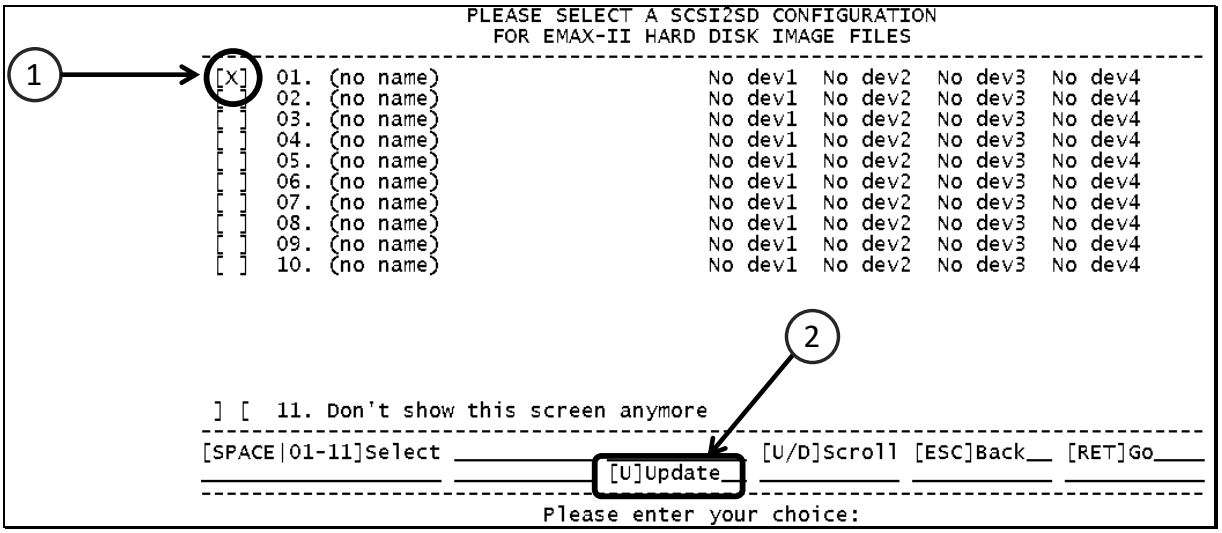
Turning SCSI2SD scan ON

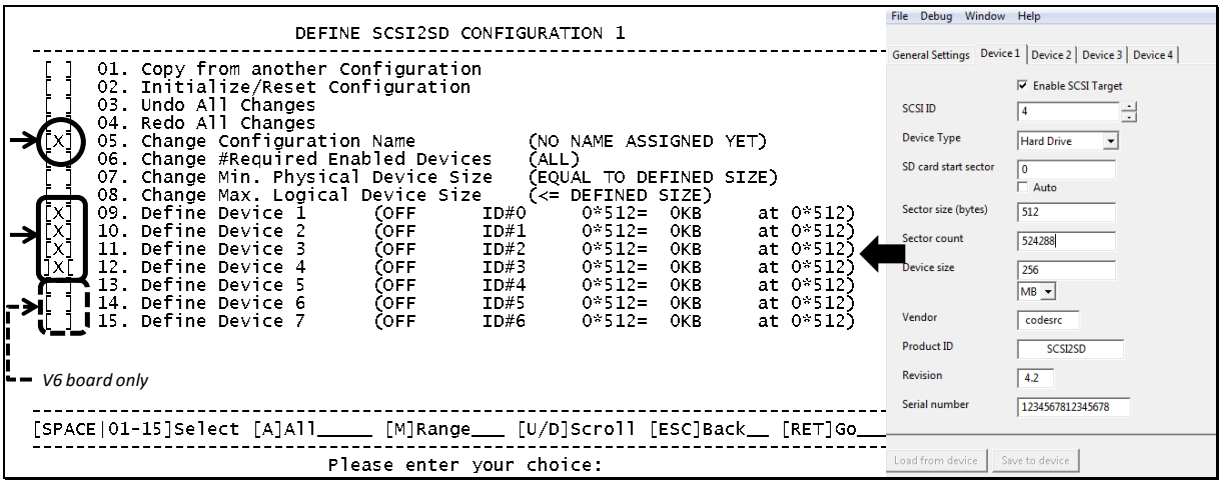
By pressing the [C] SCSI2SD shortcut key, you instruct the File Manager to search for SCSI2SD partitioned hard disk image files.

The File Manager needs to know *which specific SCSI2SD configuration* the hard disk image files should comply with. As explained in *section "4.5.1.2 SCSI2D support"* up to 10 SCSI2SD configurations can be defined in EMXP, but only of them can be used during a disk or file scan.

If no SCSI2SD configuration has been defined yet in EMXP, or no SCSI2SD configuration has been assigned yet as a default configuration for the sampler files you're looking for, the File Manager will first ask to select (or define) a SCSI2SD configuration, as illustrated in the two pictures below.

- If no SCSI2SD configuration has been defined yet, or if the configuration you'd like to use has not been defined yet, select one of the empty (available) slots and press the [U]pdate shortcut key to define a configuration.





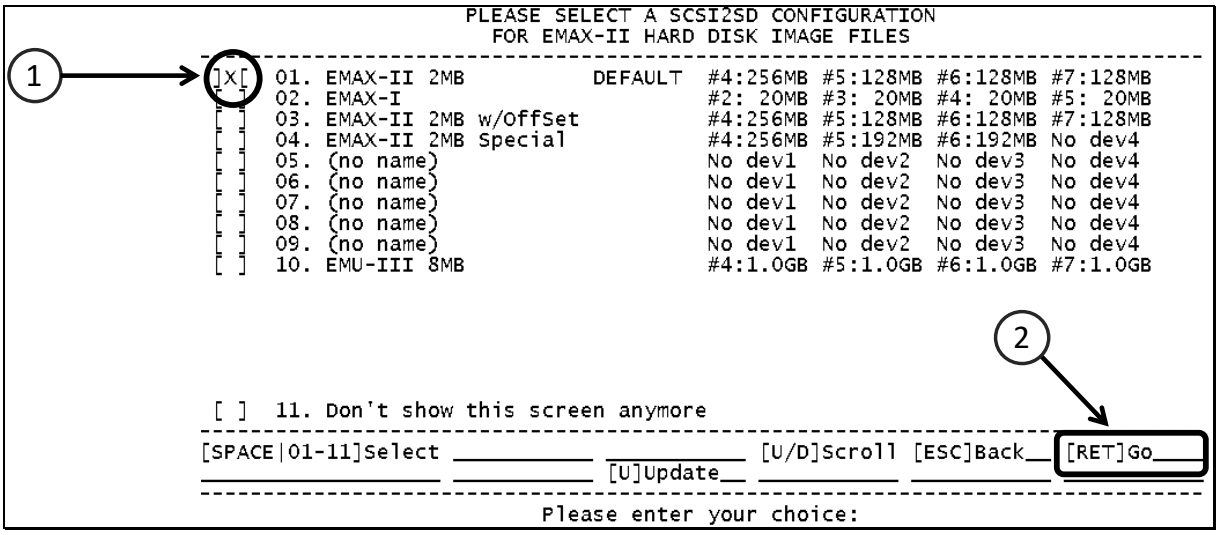
In the SCSI2SD configuration definition screen, use

- ***option 5*** to enter a name for the SCSI2SD configuration
- ***options 9 → 15*** to define each of the *devices* of the SCSI2SD configuration. The parameter values that you have to define here should be the same as the ones that were entered in the *scsi2sd-util* software[5] when configuring the SCIS2SD board in your sampler. If you have the v5 board of the SCSI2SD, you can define a max. of 4 *devices* (options 9 → 12) instead of 7

In normal use cases, options 6 → 8 can be ignored and their default settings should be used.
See *section "10.5.4.2 Define SCSI2SD device configurations"* for a detailed description how to define a SCSI2SD configuration.

After having defined/updated the SCSI2SD configuration, select the configuration you just defined and press Enter.

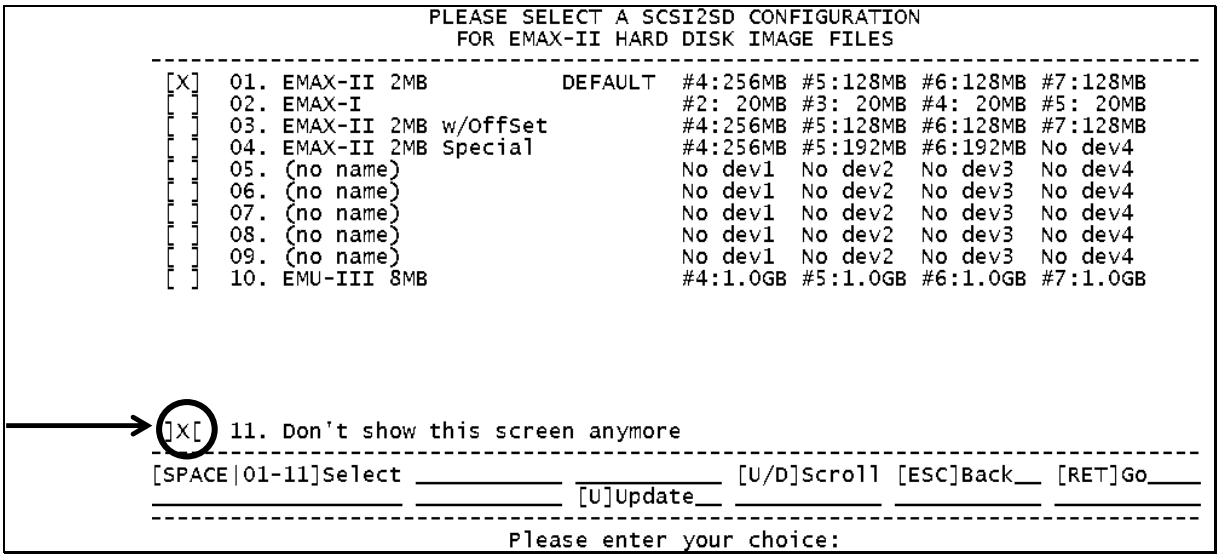
- If no SCSI2SD configuration has been assigned yet as a default for the sampler hard disk image files you're looking for, you should select one now and press Enter.



The selected SCSI2SD configuration automatically becomes the default configuration for the hard disk image files the File Manager is looking for. E.g. Emax-II hard disk image files can have a default SCSI2SD configuration which differs from the default SCSI2SD configuration for Emax-I or Emulator-III/X/ESI hard disk image files.

[5] the scsi2sd-util software can be downloaded from http://www.codesrc.com/

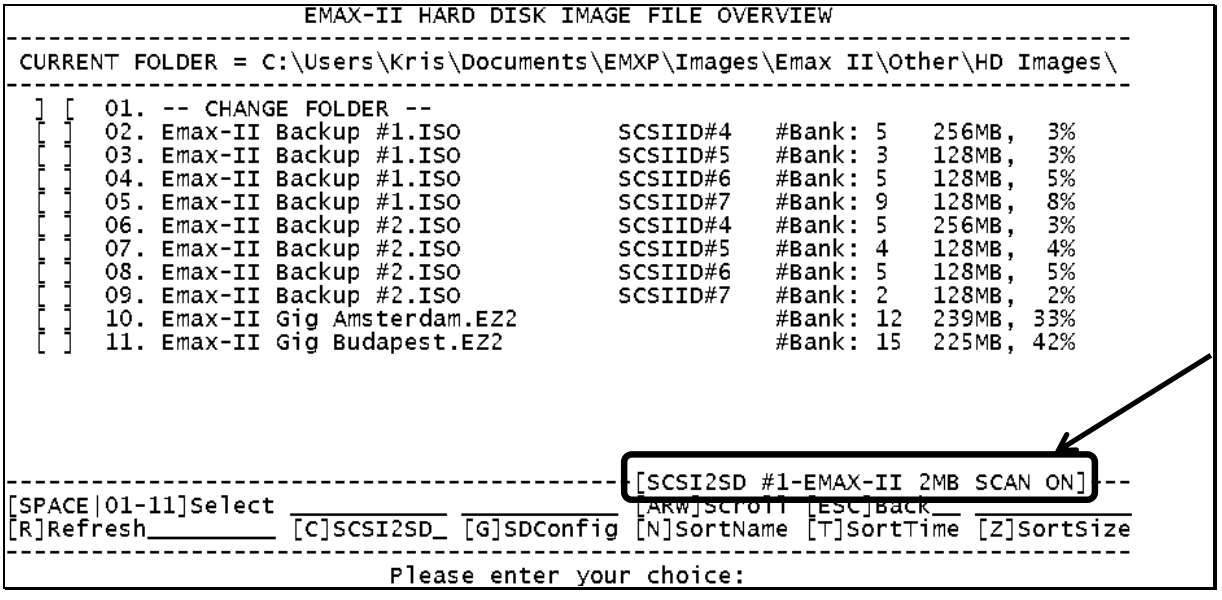
Hint: enable option 11 to avoid that the File Manager will show the above screens every time you press the [C]SCSI2SD shortcut key. This will turn this shortcut key in a simple ON/OFF switch.



At any time the [G]SDConfig shortcut key can be used if you want to change the default SCSI2SD configuration. This is explained later in this section.

And if you change your mind later and if you want the File Manager to always show this screen again when pressing the [C]SCSI2SD shortcut key, you can activate this "always ask" mode in the Preferences menu (see *section "10.5.4.3 Define SCSI2SD defaults per hard disk and hard disk image type").*

When the SCSI2SD scanning mode is turned ON, the File Manager will show a SCSI2SD scan status message at the bottom right of the screen, as illustrated below. The active SCSI2SD configuration is mentioned as well.



SCSI2SD scanning on all files or on a single file

The File Manager can perform a SCSI2SD scan on *all files in the current folder,* or just on a *single file:*

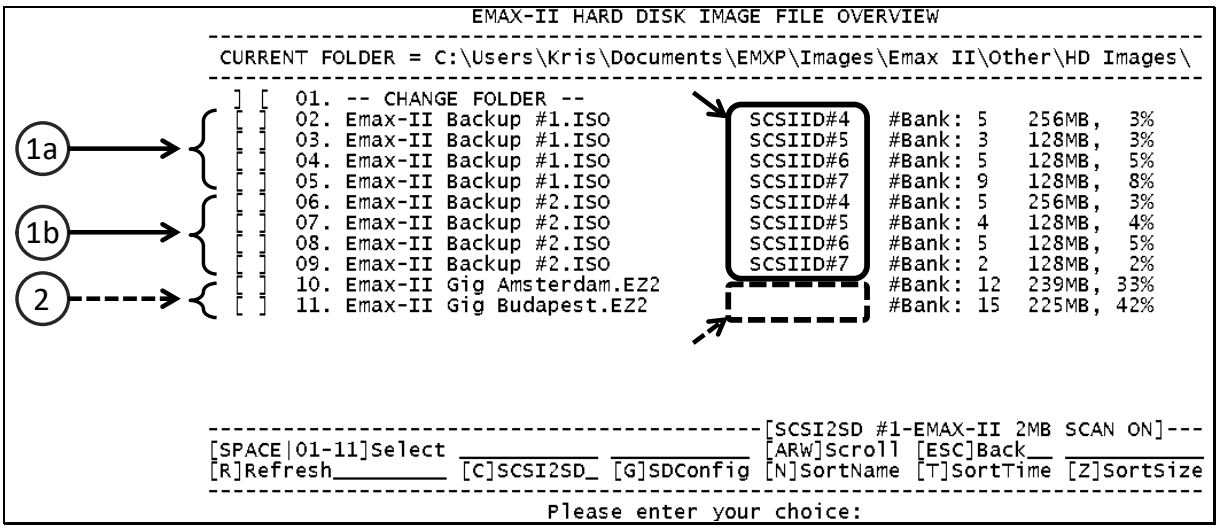
- to scan *all files,* make sure *no file has been selected in the overview screen* when pressing the [C]SCSI2SD shortcut key. All files in the current folder will be checked against the SCSI2SD configuration. If they don't comply, they will be treated as normal, un-partitioned files.

- to scan a *single file*, simply select *one of the files in the overview screen* before pressing the [C]SCSI2SD shortcut key. All other files in the current folder will be treated as normal, un-partitioned files.

Important: even when performing a SCSI2SD scan, hard disk image files which don't comply with the SCSI2SD configuration but which are valid normal un-partitioned hard disk image files will appear in the resulting overview as well.

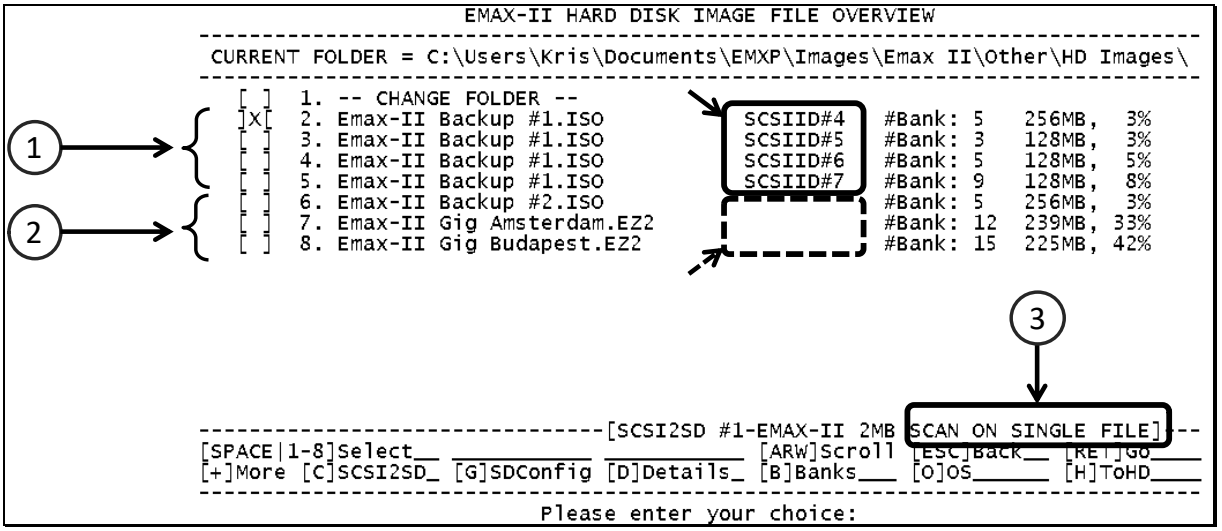
Whether a file is a normal hard disk image file or a SCSI2SD partitioned hard disk image file can be derived from the presence of a *device number or SCSI-ID number* in the second column of the overview. See pictures below.

- when a SCSI2SD scan has been performed on *all files*



In this example, files "Emax-II Backup #1.ISO" (1a) and "Emax-II Backup #2.ISO" (1b) were detected as being compliant with SCSI2SD configuration #1 named "EMAX-II 2MB". For each of these files, 4 enabled *devices* were detected which are formatted for EMAX-II. Their SCSI-ID# number is mentioned in the second column of the overview screen (here SCSI-ID# 4 → SCSI-ID#7).
The other two files "Emax-II Gig Amsterdam.EZ2" and "Emax-II Gig Budapest.EZ2" (2) were detected as normal un-partitioned Emax-II hard disk image files. The second column is blank for these files.

- when a SCSI2SD scan has been performed on a *single file*



In this example, a SCSI2SD scan has been performed only on file "Emax-II Backup #1.ISO" (1), and it has been detected as being compliant with SCSI2SD configuration #1 named "EMAX-II 2MB". For this file 4 enabled *devices* were detected which are formatted for EMAX-II. Their SCSI-ID# number is mentioned in the second column of the overview screen (here SCSI-ID# 4 → SCSI-ID#7).
The other three files "Emax-II Backup #2.ISO", "Emax-II Gig Amsterdam.EZ2" and "Emax-II Gig Budapest.EZ2" (2) were detected as normal un-partitioned Emax-II hard disk image files. The second column is blank for these files. As mentioned before, file "Emax-II Backup #2.ISO" is accepted as a normal un-partitioned file although it's actually a partitioned file. The reason is that its first *device* (partition) happens to be located at the very start of the file (address 0) and contains a valid Emax-II file system.

Note that the status bar explicitly mentions that the SCSI2SD scan has been performed on a single file (see (3) on the picture).

Turning SCSI2SD scan OFF

By pressing the [C] SCSI2SD shortcut key once more, you can disable the SCSI2SD scanning mode and instruct the File Manager to only search for normal, un-partitioned hard disk images.

Be cautious for false positives

The File Manager checks the file(s) against a particular SCSI2SD configuration schema. If multiple SCSI2SD configurations have *device* parameters in common, **a file may be accepted as being compliant with each of these SCSI2SD configurations**. But the number of detected devices will typically be different.

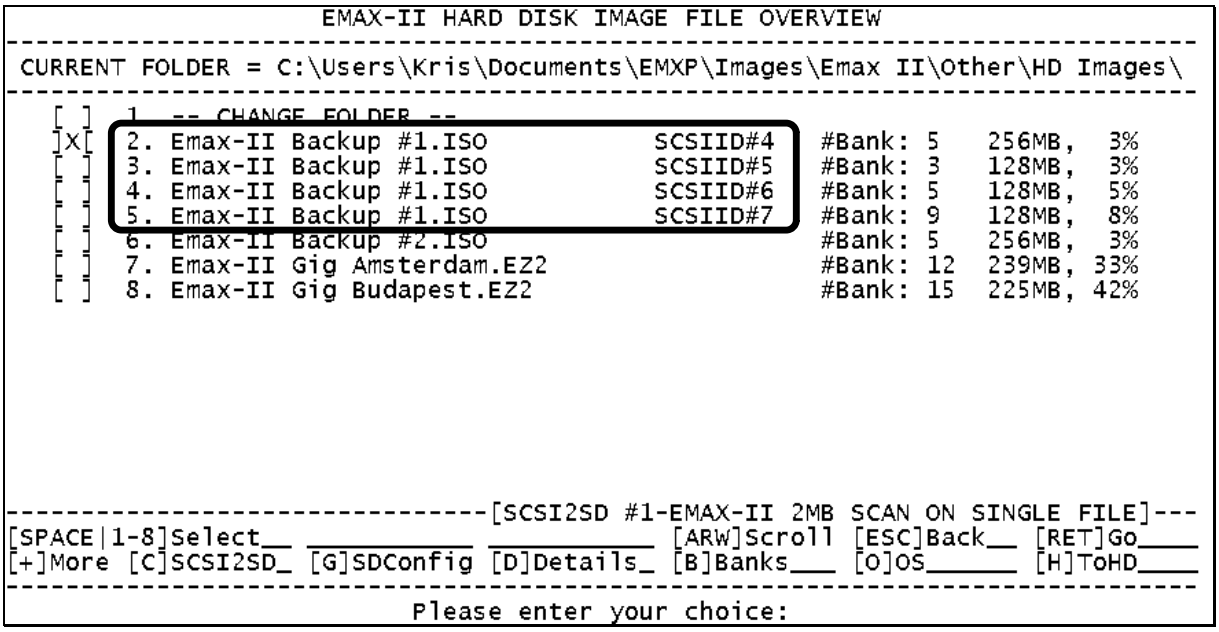
This is illustrated in the pictures below.

Assume that file "Emax-II Backup #1.ISO" is a SCSI2SD partitioned Emax-II hard disk image file which is compatible with configuration #1 named "EMAX-II 2MB". The following two pictures show the configuration and the result of the SCSI2SD scan based on this configuration.

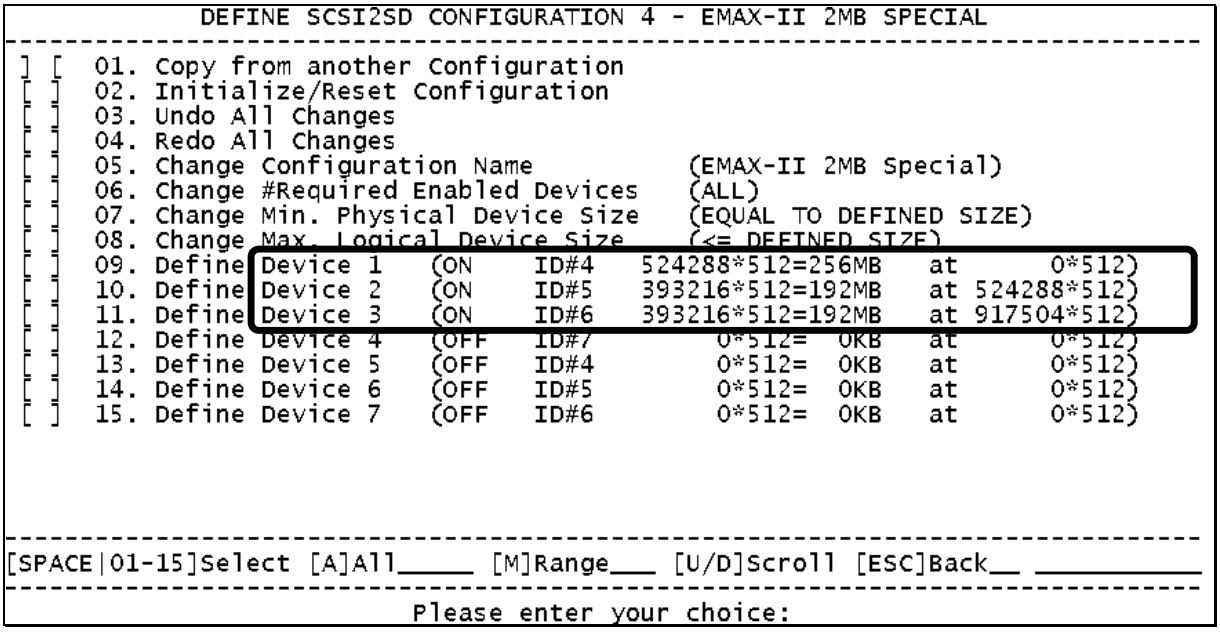
```
                DEFINE SCSI2SD CONFIGURATION 1 - EMAX-II 2MB
--------------------------------------------------------------------------------
] [  01. Copy from another Configuration
[ ]  02. Initialize/Reset Configuration
[ ]  03. Undo All Changes
[ ]  04. Redo All Changes
[ ]  05. Change Configuration Name          (EMAX-II 2MB)
[ ]  06. Change #Required Enabled Devices   (ALL)
[ ]  07. Change Min. Physical Device Size   (EQUAL TO DEFINED SIZE)
[ ]  08. Change Max. Logical Device Size    (<= DEFINED SIZE)
[ ]  09. Define Device 1   (ON    ID#4   524288*512=256MB  at       0*512)
[ ]  10. Define Device 2   (ON    ID#5   262144*512=128MB  at  524288*512)
[ ]  11. Define Device 3   (ON    ID#6   262144*512=128MB  at  786432*512)
[ ]  12. Define Device 4   (ON    ID#7   262144*512=128MB  at 1048576*512)
[ ]  13. Define Device 5   (OFF   ID#4     0*512=  0KB  at       0*512)
[ ]  14. Define Device 6   (OFF   ID#5     0*512=  0KB  at       0*512)
[ ]  15. Define Device 7   (OFF   ID#6     0*512=  0KB  at       0*512)

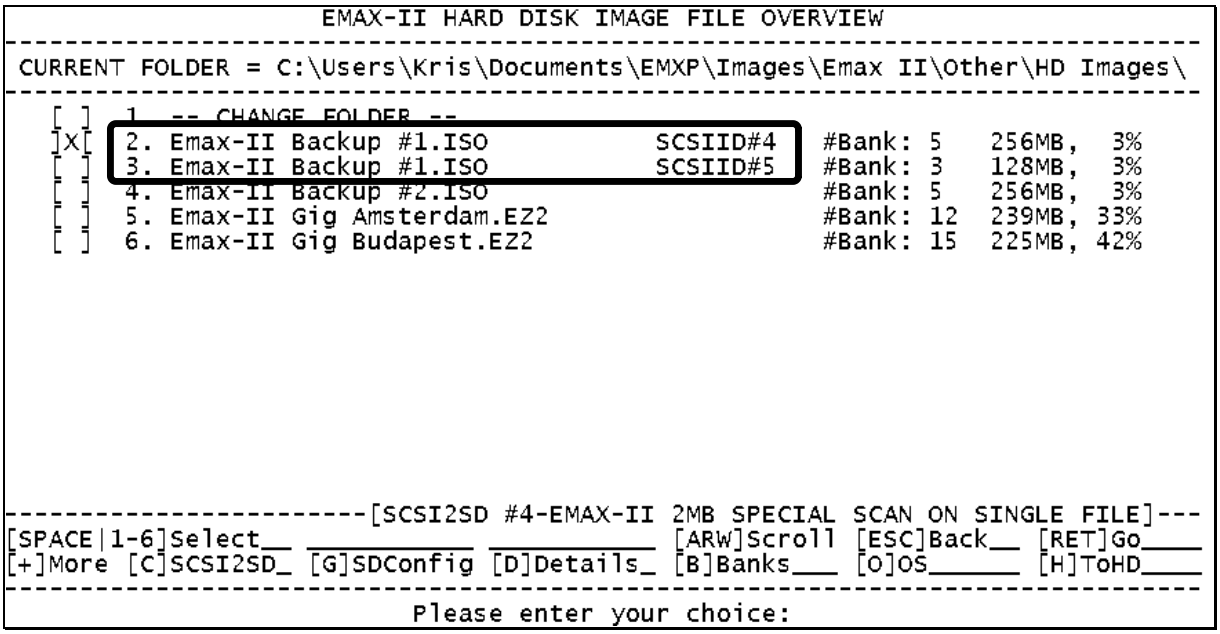



--------------------------------------------------------------------------------
[SPACE|01-15]Select [A]All_____ [M]Range___ [U/D]Scroll [ESC]Back__ ___________
--------------------------------------------------------------------------------
                          Please enter your choice:
```



Let's now do a SCSI2SD scan based on another configuration #4 named "EMAX-II 2MB Special". The following two pictures show the configuration and the result of the SCSI2SD scan based on this configuration.





While the same file is accepted as being compliant with configuration #4 EMAX-II 2MB Special as well, the number of available devices is only 2 !
Indeed: only 3 *devices* are defined in this configuration. The first 2 Emax-II partitions of file "Emax-II Backup #1.ISO" are compliant with the first 2 *devices* of SCSI2SD configuration #4, so they are shown as Emax-II devices with a SCSI-ID# in the overview. But on the location of the 3th *device* of SCSI2SD configuration #4, no Emax-II partition is found in file "Emax-II Backup #1.ISO", so this *device* can not be found in the overview.
The 2 remaining Emax-II partitions in file "Emax-II Backup #1.ISO" are not displayed: the File Manager didn't see them simply because the SCSI2SD configuration #4 did not say that these *devices* exist...

If the hard disk image files will only be used for reading or writing individual sound banks, there's no real risk involved in accepting a file with the "wrong" SCSI2SD configuration.

But if the hard disk image file will be used for

- **formatting one or more of its partitions**
- **for copying complete hard disk images to one or more of its partitions (backup/restore)**
- **for being copied as an entire partitioned hard disk image file to another file or disk (backup/restore)**

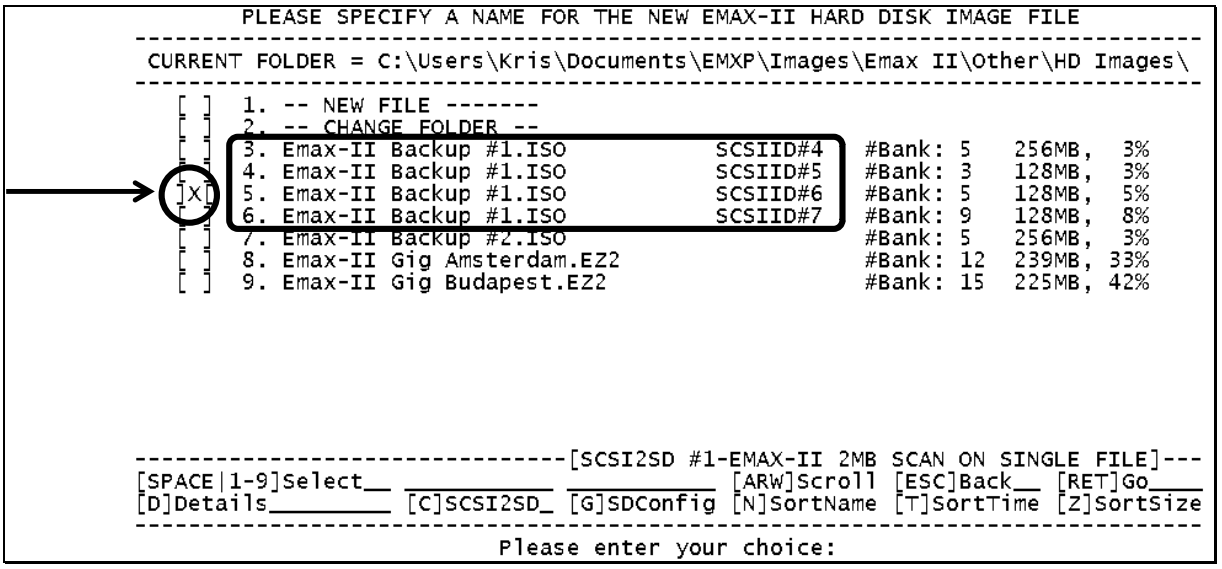
there's a risk that you will overwrite areas of the file which contain *valid partitions according to another SCSI2SD configuration.*

In this case it's very important that you use the correct SCSI2SD configuration in the File Manager !

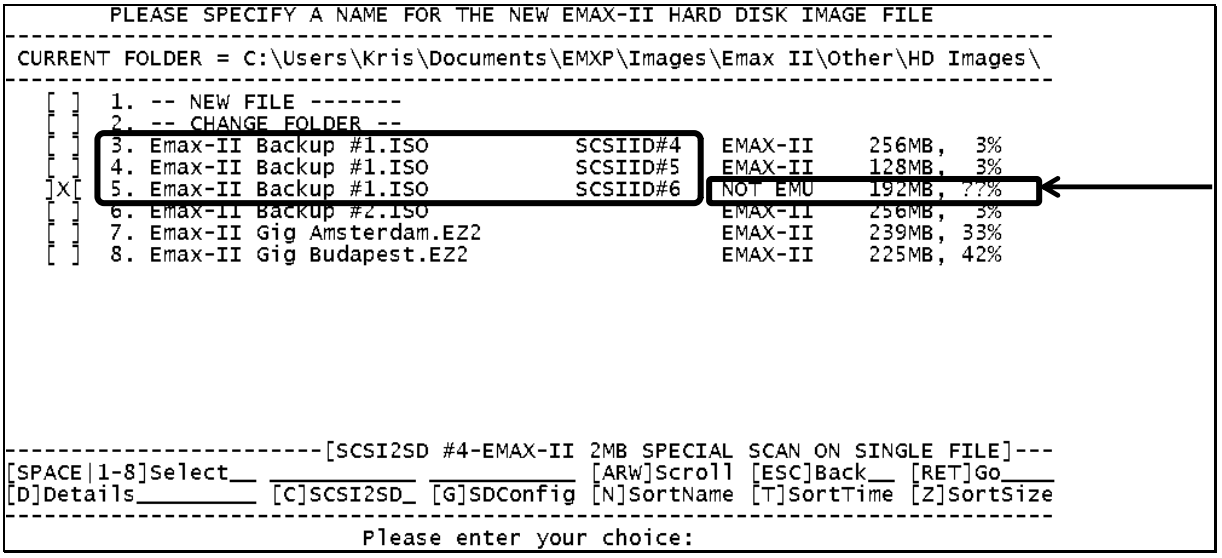
A typical (but not water-proof) sign that you might have scanned against a wrong SCSI2SD configuration is the presence of *devices* which are reported with a "NOT EMU" file system.

This is illustrated in the pictures below. We use the same file and the same two SCSI2SD configurations.
We want to format now *device 3* (partition with SCSI-ID#6) of file "Emax-II Backup #1.ISO", and during the format process the File Manager is launched to select the partition that should be formatted (see *section "9.1.3 Formatting EMAX-I, EMAX-II, Emulator-II, Emulator-III/IIIX/ESI* hard disks*"* and *section "9.2 GENERATING EMPTY HARD DISK IMAGES"* for more information about how to format disks and files).

- In the first picture, the correct SCSI2SD configuration (#1: EMAX-II 2MB) has been used during the SCSI2SD scan. All 4 devices are detected as Emax-II devices. We select the device with SCSI-ID#6 for being formatted.



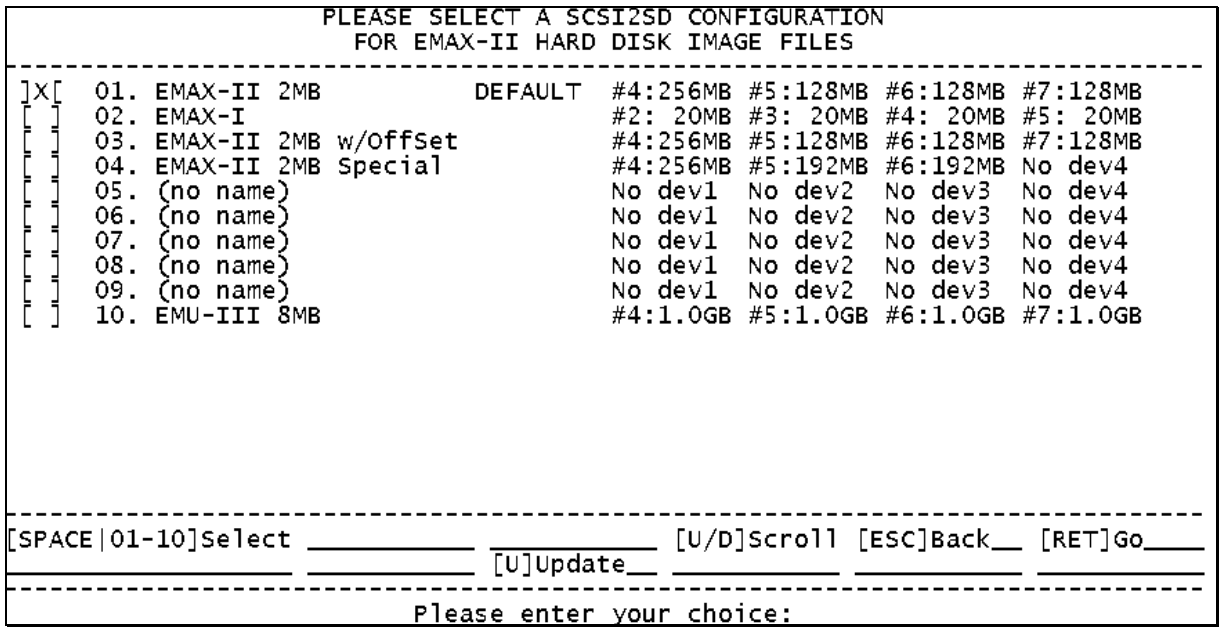
- In the second picture however, a wrong SCSI2SD configuration (#4: EMAX-II 2MB Special) has been used during the SCSI2SD scan. But the first part of the file happens to be compliant with the first part of this "wrong" SCSI2SD configuration, and moreover the total size of the file is also compliant with the total size of the "wrong" SCSI2SD configuration. As a consequence the file is accepted as being compliant with this "wrong" SCSI2SD configuration.



In this configuration, only 3 *devices* are defined. The first 2 Emax-II partitions of file "Emax-II Backup #1.ISO" are compliant with the first 2 *devices* of SCSI2SD configuration #4, so they are shown as Emax-II devices in the overview. But on the location of the 3th *device* of SCSI2SD configuration #4, no Emax-II partition is found in file "Emax-II Backup #1.ISO", so this *device* is shown as "NOT EMU" in the overview screen.
The 2 remaining Emax-II partitions in file "Emax-II Backup #1.ISO" are not displayed in this overview: the File Manager didn't see them simply because the SCSI2SD configuration #4 did not say that these *devices* exist...

Changing the SCSI2SD configuration

By pressing the [G]SDConfig shortcut key, you can select another (default) SCSI2SD configuration at any time.



If the SCSI2SD scanning mode was ON when pressing shortcut key [G]SDConfig, the File Manager will automatically perform a new scan immediately after having selected another SCSI2SD configuration. This can be verified by looking at the SCIS2SD status message at the bottom of the screen.

If the SCSI2SD scanning mode was OFF when pressing shortcut key [G]SDConfig, the File Manager will not perform a scan after having selected another SCSI2SD configuration. You explicitly have to start the SCSI2SD scan by pressing the [C]SCSI2SD shortcut key.

4.5.3 Using the Disk Manager

4.5.3.1 General description

The Disk Manager can either be launched from the File Manager (see *section "4.5.2 Using the File Manager"*), or when you want to view or process sampler hard disks or sampler floppy disks.
We will illustrate the use of the Disk Manager with the example of selecting an EMAX-II hard disk:

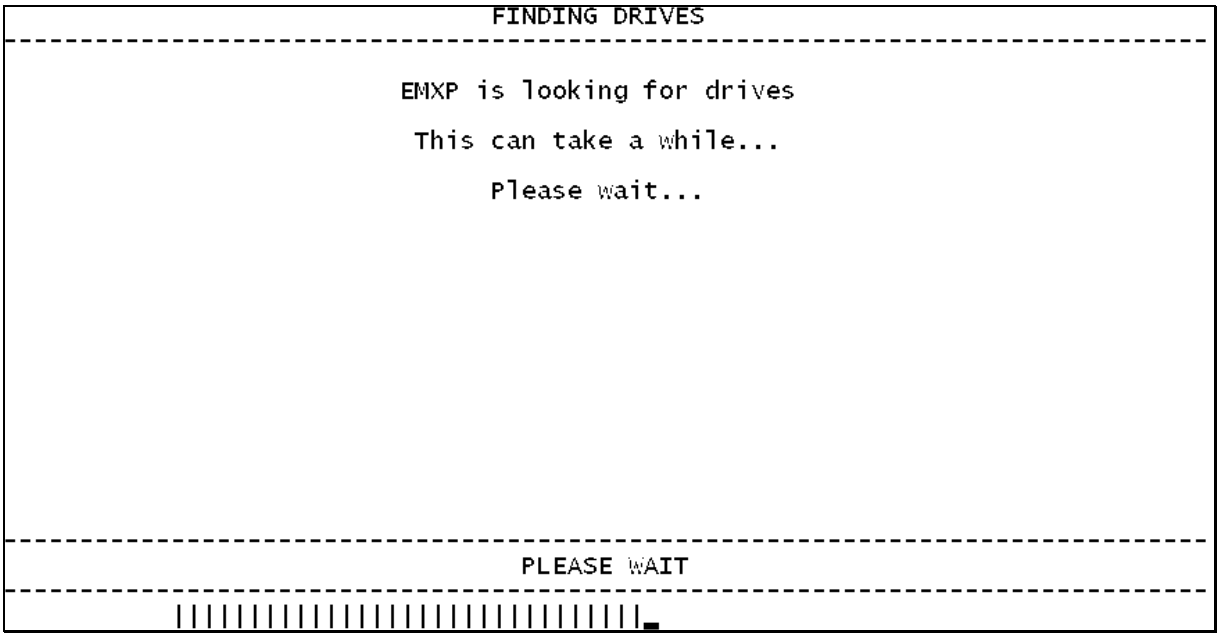
"1. Manage EMU Files and Disks" → "2. Manage EMU EMAX-II Files and Disks" → "5. Manage EMAX-II Hard Disks"

In this section we assume that the disks are normal, un-partitioned disks.

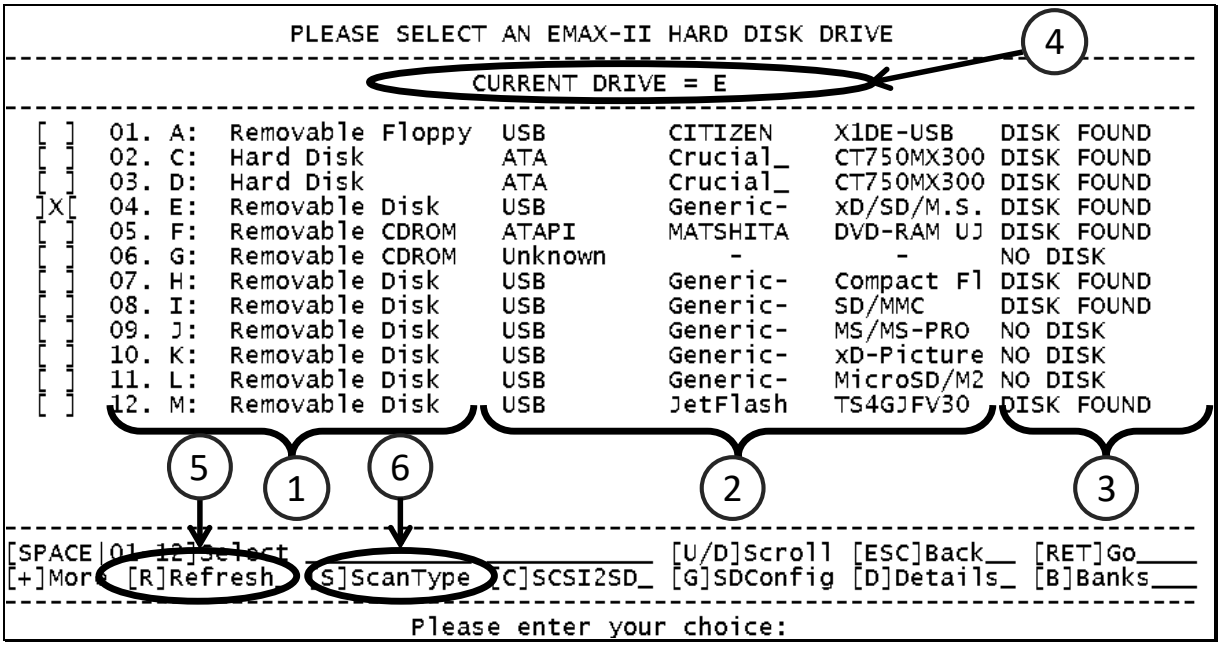
The way the Disk Manager deals with SCSI2SD partitioned sampler hard disks is explained in detail in the next section "4.5.3.2 Using Disk Manager with SCSI2SD hard disks (SD cards)".

Whenever you launch the Disk Manager, the first thing EMXP will do is scan your computer for all available drives. Only drives that have been assigned a drive letter (in the range A-Z) will be recognized by the Disk Manager.

Note 1: when running EMXP under Wine on macOS, EMXP will not detect any *proprietary (Emu/Akai) sampler disk drive*. This is normal behaviour. Wine does not support direct ("raw") access to these disks (yet). As a consequence it's not possible to select this type of disk drive in EMXP. Reading/writing external sampler disks (e.g. EMAX-II hard disk, Emulator-III CDROM, Akai S1000 floppy disk, ...) is not supported yet when using EMXP under Wine on macOS, but a work around is available by making and restoring *disk images* of these disks, and using these disk images in EMXP. More details can be found in the separate manual dedicated to using EMXP in Wine on macOS.
Note 2: when running EMXP in Wine on macOS, most available disks will be detected as "NTFS" drives in EMXP, even if they use another file system (like FAT32). This is normal behaviour and is caused by how Wine deals with disks in macOS. This behaviour does not affect the correct processing of files on these drives in EMXP.



Once the drive detection is finished, an overview of the available drives will appear:



Information displayed about the drives

The drive that is currently assumed to be the default drive for the requested disk type (here: EMAX-II hard disk) is mentioned at the top of the screen, see [4] on the previous picture.

It is possible that this drive is currently not found or not available on your computer. If that's true, no drive in the overview will be pre-selected. In our example however, drive E has been detected so it has already been pre-selected by the Disk Manager. This does not mean yet that the disk in that drive is valid; nor does it mean that there's even a disk in the drive. In our example however, there is actually a disk in drive E, as is indicated by the `DISK FOUND` label mentioned in column [3].

For each drive, following information is displayed in the drive overview:

- The drive letter and the type of drive (see [1]). *Additional information may appear if a SCSI2SD disk scan has been performed. See section "4.5.3.2 Using Disk Manager with SCSI2SD hard disks (SD cards)".*
- The type of drive bus (e.g. SATA, ATA, USB, ...) and the identification of the drive's brand and model (see [2]). The Disk Manager may not have been able to detect this information. In that case, a hyphen ("-") will be displayed in each column.
- Whether there's a disk in the drive (see [3]):
    - `DISK FOUND` will be displayed if there's a disk in the drive
    - `NO DISK` will be displayed if no disk is found in the drive

  For fixed drives, the `DISK FOUND` label will always be displayed.

Refreshing the screen

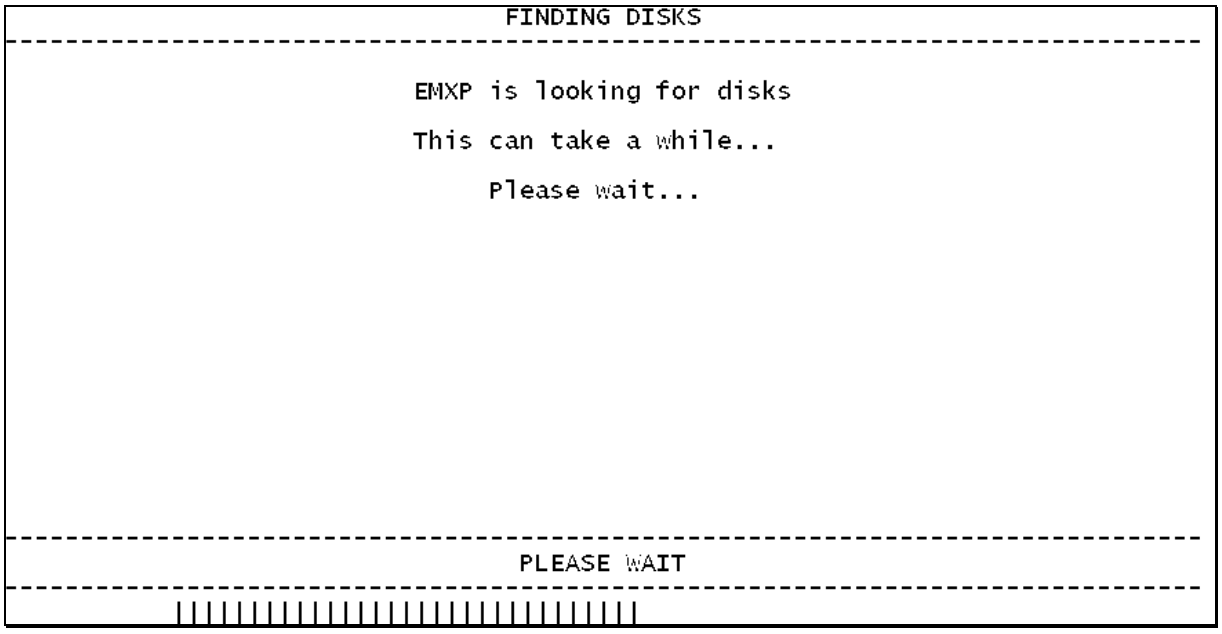
While using the EMXP Disk Manager, you may have added (connected) or removed (disconnected) drives to or from your computer, and you may have inserted removable disks like CF cards, ZIP disks and floppy disks in some of the drives. EMXP does not automatically refresh its drive overview screen, but you can ask to do so by pressing "R" which is a short cut key for refreshing the drive overview. See [5] on the previous picture.

Getting information about the type of disks in the drives

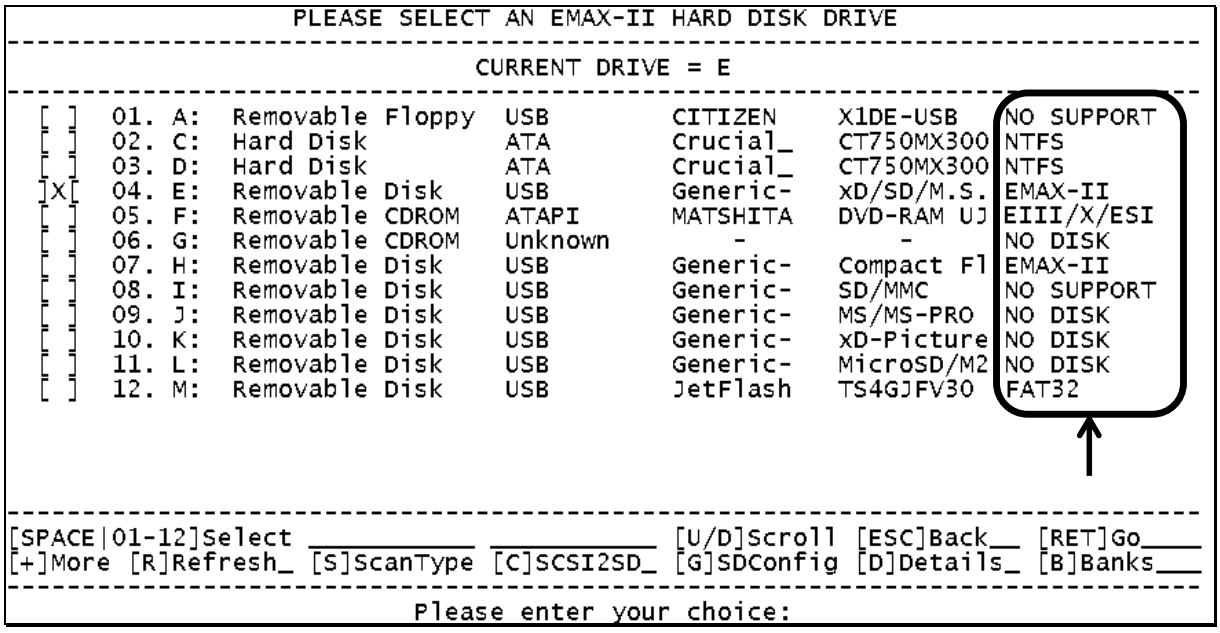
By pressing "S" (Scan Type) you can instruct the Disk Manager to scan all drives and to try to identify the type of *disk* that is currently inserted in each drive.
By default the Disk Manager is not displaying this information because it takes longer to derive the disk type than just to detect whether there's a disk in the drive or not.

When scanning the drives in this way, the Disk Manager is *not taking into account the possibility that some of the disks may be SCSI2SD partitioned disks.* If you want the Disk Manager to take into account SCSI2SD disks, you'll have to use the [C]SCSI2SD and [G]SDConfig shortcut keys (if available). This is explained in more detail in *section "4.5.3.2 Using Disk Manager with SCSI2SD hard disks (SD cards)".*

After pressing "S" the Disk Manager will start scanning the drives.



When the scan is finished, the drive overview screen is refreshed and the rightmost column is now mentioning what type of disk is found in the drive.

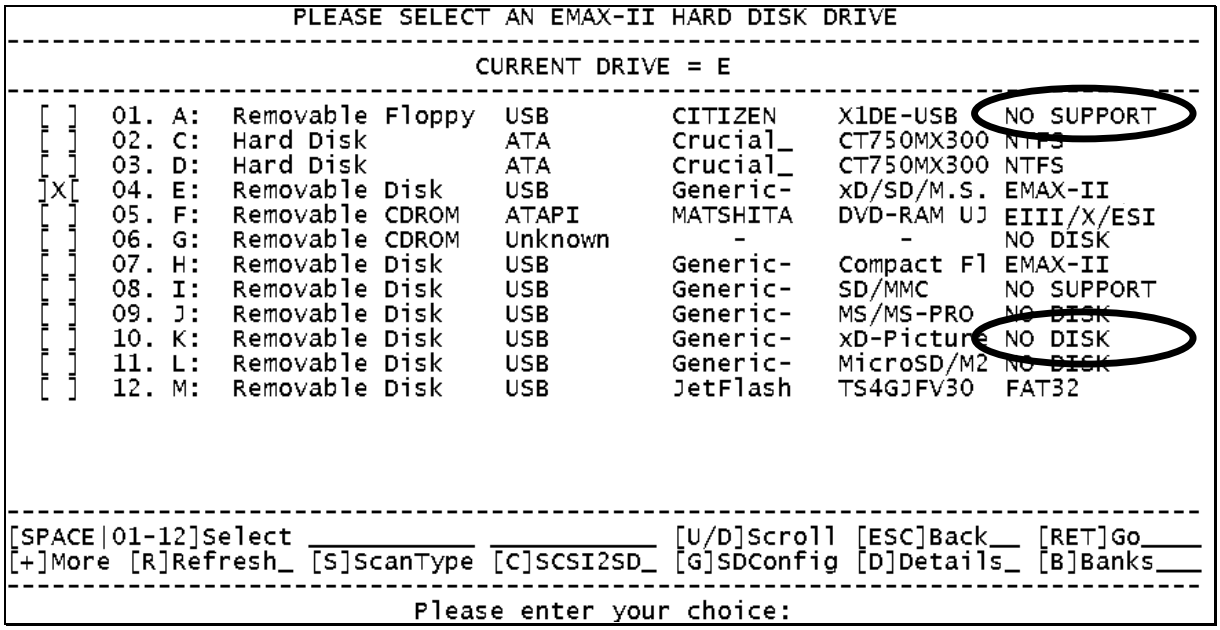


The following disk types will be recognized by EMXP:

Disk Type	For use with...
Any Windows compatible file system type (FAT, FAT16, FAT32, NTFS, CDFS, ...)	All file types supported by EMXP, see table 4.5.1 *Note: when using Wine on macOS, most disks will be recognized as NTFS disks, even if they are not. This can be ignored.*
AKAI	Akai S1000 floppy disks
EMAX	EMAX-I or EMAX-II floppy disks
EMAX-I	EMAX-I hard disks and cdroms
EMAX-II	EMAX-II hard disks and cdroms
EMU-II	EMULATOR-II hard disks
EIII/X/ESI	EMULATOR-III / IIIX /ESI hard disks and cdroms and operating system floppy disks

If no disk is found in the drive, "NO DISK" will be displayed in the rightmost column.

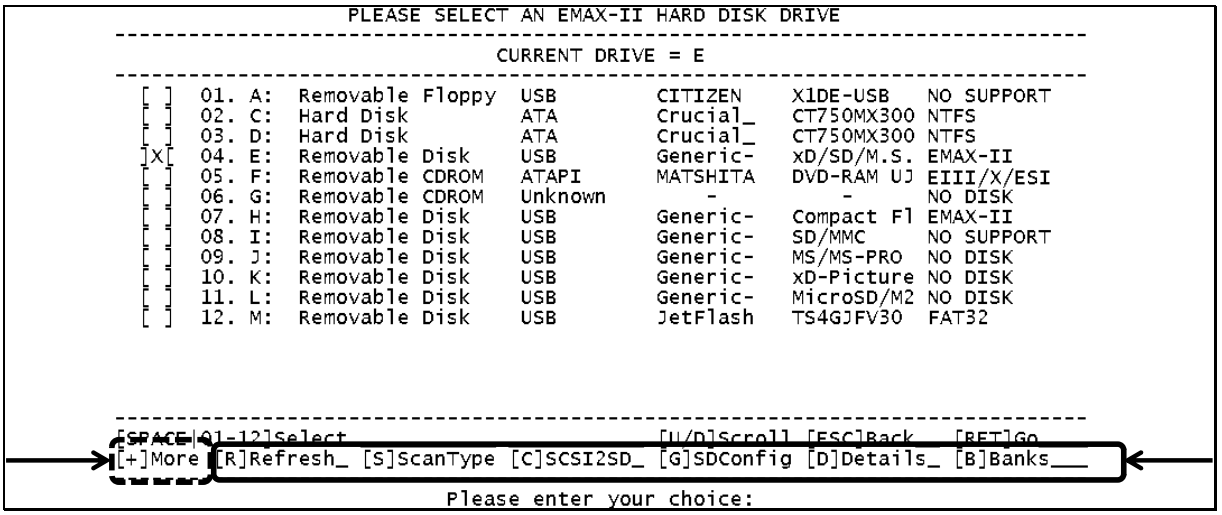
If a disk is found but not recognized by EMXP, "NO SUPPORT" will be displayed in the rightmost column. See the example below, where we have inserted a Prophet 2000 floppy disk in floppy drive A. This disk is not recognized.



The "NO SUPPORT" status is also shown for EMAX and AKAI floppy disks if the required OmniFlop driver has not been properly installed.

Disk type specific short cut keys

Just like on any other item overview screen, EMXP offers one or more short cut keys which can instruct EMXP to do something without first having to go to the next menu screen. The amount and meaning of the short cut keys depend on the requested disk type. E.g. the available options will differ between EMAX-I hard disks and Emulator-III/IIIX operating system floppy disks.
Except for the actions related to SCSI2SD and to refreshing or scanning the drive overview, all other short cut key actions can also be found as menu (or submenu) options if you would simply press ENTER.



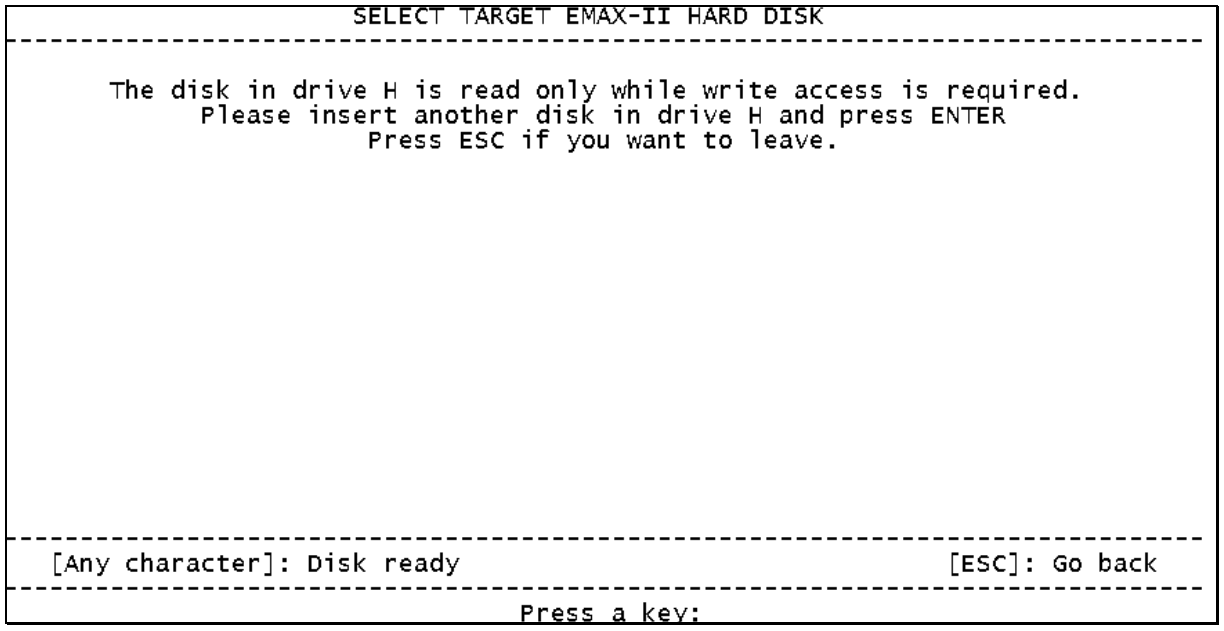
In our example of EMAX-II hard disks, the following disk type specific short cut keys are available:

- [D] to get some details about the disk
- [B] to get an overview of all banks on the disk
- [O] to get an overview of the operating systems on the disk
- [F] to format the disk
- [I] to make a full (raw) copy of the disk to a hard disk image file (=backup)
- [H] to make a full (raw) copy of the disk to another hard disk (=clone)

Since only 6 short cut keys can be displayed on the bottom line, the '+' (=More) key should be pressed to see the other available short cut keys.

Read-only disks

When the Disk Manager has been launched for selecting a *target* disk on which files or sound banks will be written, the selected disk should be write-enabled.
If the Disk Manager detects a write-protected or read-only disk in the drive (like a locked SD card, a write protected floppy disk or a read-only cdrom), a warning will be raised and you'll have to insert or select another disk.



Other possible issues and warnings

Depending on the requirements of the process EMXP is executing, the Disk Manager will always check if the selected disk is a valid and usable disk or not.
Following exceptions can occur, for which the Disk Manager will raise a warning and ask will ask you to either select/insert another disk, select another drive or leave/exit the current process:

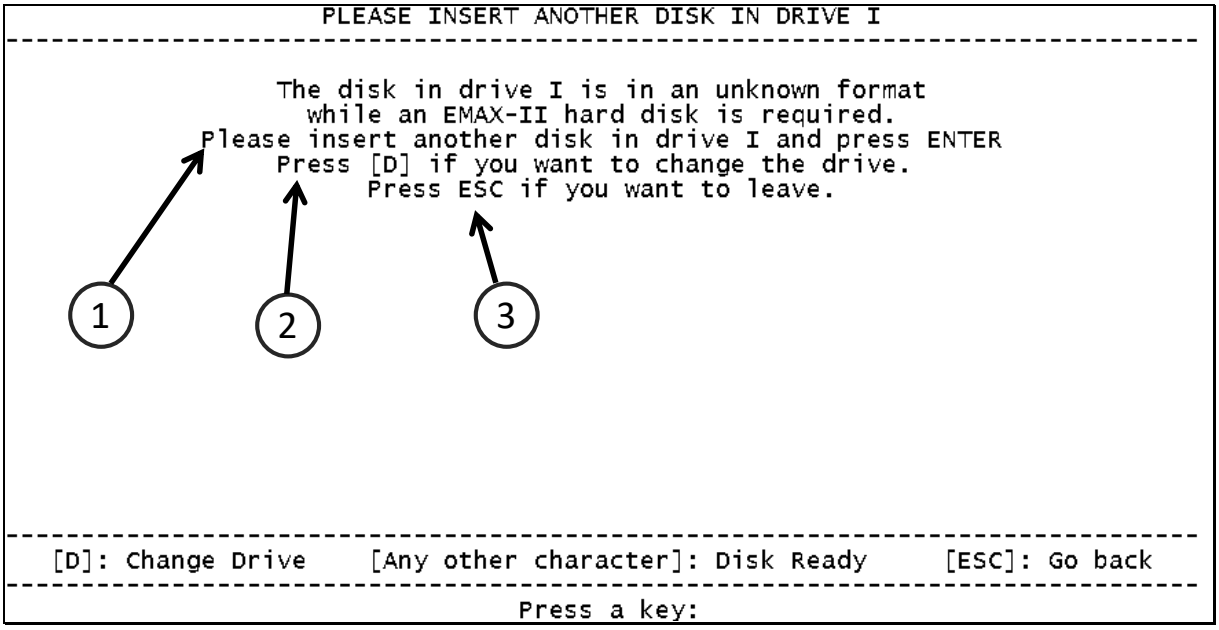
- Drive ... is not available or can not be found
- Drive ... is not supported by EMXP. Reasoncode is [*]
- Drive ... is not a Floppy Drive *(if a floppy drive would be required)*
- Drive ... is a Floppy Drive. Floppy Drives can't contain [...requested disk type...]
- Drive ... is read only while write access is required
- Drive ... is a USB Drive. USB Drives are not supported for accessing [... requested floppy disk type...] *(this warning will not be shown if you have enabled the "allow USB floppy drive" preference in the*

File/Drive Location Preferences. See section "10.5.6 Define whether USB floppy drives should be ignored or not".

- A specific OmniFlop driver must be installed in order to access [...requested disk type...] in drive ... Please install this driver first. *(see illustration below)*
- There's no disk in drive ... or the disk is not available.
- The disk in drive ... can not be recognized by EMXP. Reasoncode is [*]
- The disk in drive ... is in [...detected file system type...] format while [...requested file system type...] is required.
- The disk in drive ... is in [...detected file system type...] format while [...requested file system type...] is requested.
- The disk in drive ... is in an unknown format while [...requested file system type...] is required.
- The disk in drive ... has a sampler-specific [...detected file system type...] format. This disk can not contain [...requested file type...] files.
- The disk in drive ... is not [...requested file system type...]. It's in [...detected file system type..] format. Reasoncode is [*].
- The disk in drive ... is read only while write access is required
- The disk in drive ... is not supported by EMXP
- The disk in drive ... is not formatted for [...requested sampler...]
- The formatted size of the [...sampler...] disk in drive ... is too large
- The disk in drive ... does not contain a valid [...sampler specific...] file system
- The disk in drive ... does not contain a valid [...sampler...] bank
- The disk in drive ... is in an unknown format
- The disk in drive ... is in use by other software. Please close any program that may be using the disk (this can even be Windows Explorer...)
- The formatted size of the ... disk in drive ... is too large
- The disk in drive ... is an Emulator-II hard disk but the original disk geometry can't be derived. Please update the Emulator-II hard disk preferences.
- Drive ... is a SCSI2SD device, which is not supported by Emulator-II.
- There is a problem with disk drive .... Reasoncode is [*]
- Error 480. The physical size of the disk in drive ... is smaller than the formatted size. Reading and especially writing this disk can cause problems *(this warning will not be shown if you have explicitly asked EMXP not to do so in the File/Drive Location Preferences. See section "10.5.7.4 Define if warnings should be shown when incorrect HD sizes are detected". The warning means that a an image of a larger physical disk has been copied to a smaller physical disk. The image could fit on the smaller disk because it was not fully occupied with banks yet and had still available space. This "trick" has been used by some sample library producing companies when they created commercial cdroms from internal hard disks. If this warning is raised when using a cdrom, there's no danger at all. If however the warning is raised when using a (removable) hard disk be careful if you are planning to add/remove banks to it because addressing errors can occur while trying to write to the disk)*

The reasoncode [*] can have hundreds of possible values. It's beyond the scope of this manual to describe all of them. Please mention the value of the reasoncode to the author whenever you request support.

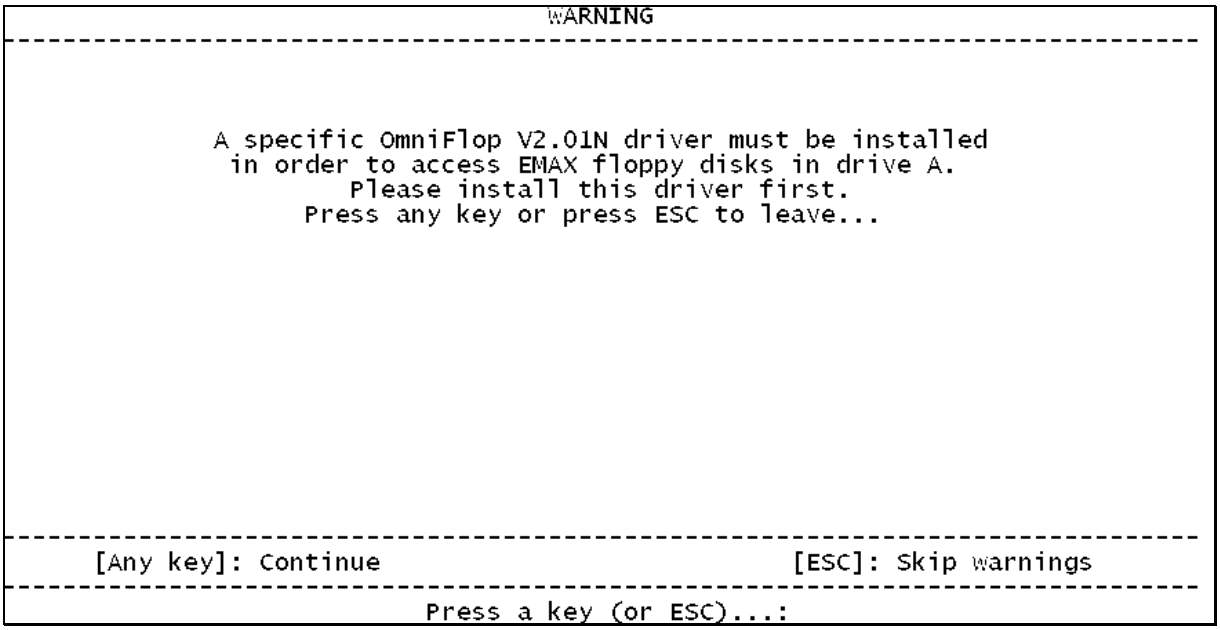
The following pictures illustrates two of the possible warnings raised by the Disk Manager:



In the above example, three possible actions can be taken when receiving this warning:

- [1] Insert another disk and press ENTER The Disk Manager will scan the new disk and check whether it's valid or not. If it's still not valid, a warning will be raised again.
- [2] Press "D" for launching the Disk Manager and getting an overview of all drives again. You can select another drive now, which may contain the disk you are looking for.
- [3] Press ESCape to leave the Disk Manager (and the process which was running when the Disk Manager was initially launched)

Below is another example of a warning message raised by the Disk Manager. In this example you only have the possibility to leave the process, since a driver installation should be done first before continuing using EMXP.



4.5.3.2 Using Disk Manager with SCSI2SD hard disks (SD cards)

This section is similar to section "4.5.2.4 Using the File Manager with SCSI2SD hard disk image files" which explains the use of the File Manager with SCSI2SD hard disk image files. But there are a few differences in behaviour between the File Manager and the Disk Manager.

For readability reasons, there's quite some redundancy between this section and the section related to SCS2SD in the File Manager.

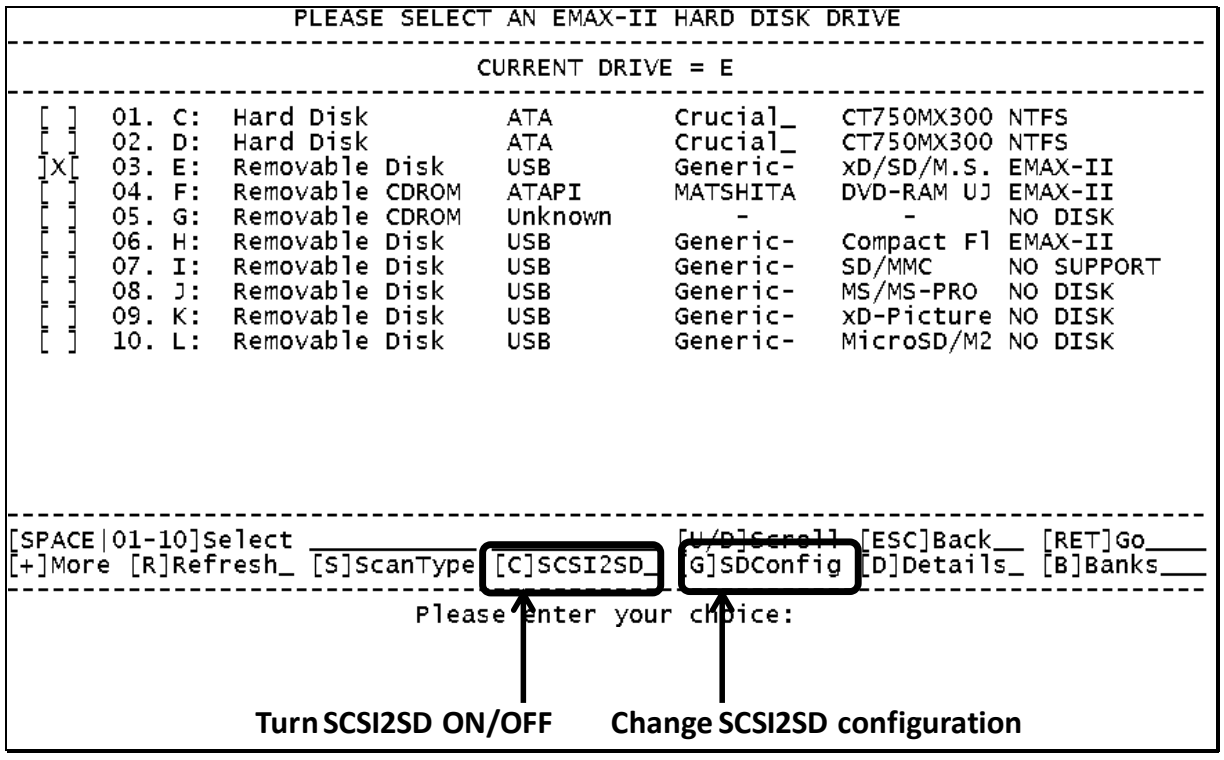
If the Disk Manager is being used to manage Emax-I, Emax-II or Emulator-III/X/ESI hard disks, some additional features are available for managing SCSI2SD partitioned hard disks (next to the normal, un-partitioned hard disk image files).

In practice, only SD memory cards can be used in the SCSI2SD, but EMXP supports the SCSI2SD partitioning features on *any type of disk.*

Two additional shortcut keys will appear at the bottom of the file overview screen:

- `[C] SCSI2SD` : to switch ON and switch OFF the *SCSI2SD scanning mode.*
- `[G] SDConfig` : to change the SCSI2SD configuration that should be used by EMXP when scanning for SCSI2SD files

These shortcut keys will also appear when using the Disk Manager to manage Emulator-II hard disks, but you won't be able to select a SCSI2SD partition as an Emulator-II hard disk. The reason why the shortcut keys are available anyway is that you can verify whether a disk has been formatted as a SCSI2SD card for a non-Emulator-II sampler already, and hence can avoid to format the SD card for Emulator-II by mistake, e.g. because the default disk scan simply reported "NO SUPPORT"...



In the above example shortcut key [S]ScanType has been pressed to scan the drives and to identify the file systems on each of the available disks in the drives.

Default: SCSI2SD scan is OFF

By default the SCSI2SD scanning mode is always OFF when launching the Disk Manager.

In this mode, EMXP considers the disks listed in the overview as being "normal un-partitioned" disks.

This doesn't mean that the disks are not partitioned, it only means that EMXP can handle the disks as normal un-partitioned disks.

E.g.

- the disk in (cdrom) drive F is a normal un-partitioned Emax-II hard disk (cdrom)
- the disk in (SD) drive E is a SCSI2SD partitioned disk consisting of 4 *devices*. But since the first *device* (partition) on this disk starts at the very beginning of the disk (address 0), EMXP accepts the whole disk as a normal, un-partitioned Emax-II hard disk (SD card). In this mode, EMXP will only have access to the first *device* (partition) and the other 3 *devices* will be ignored.

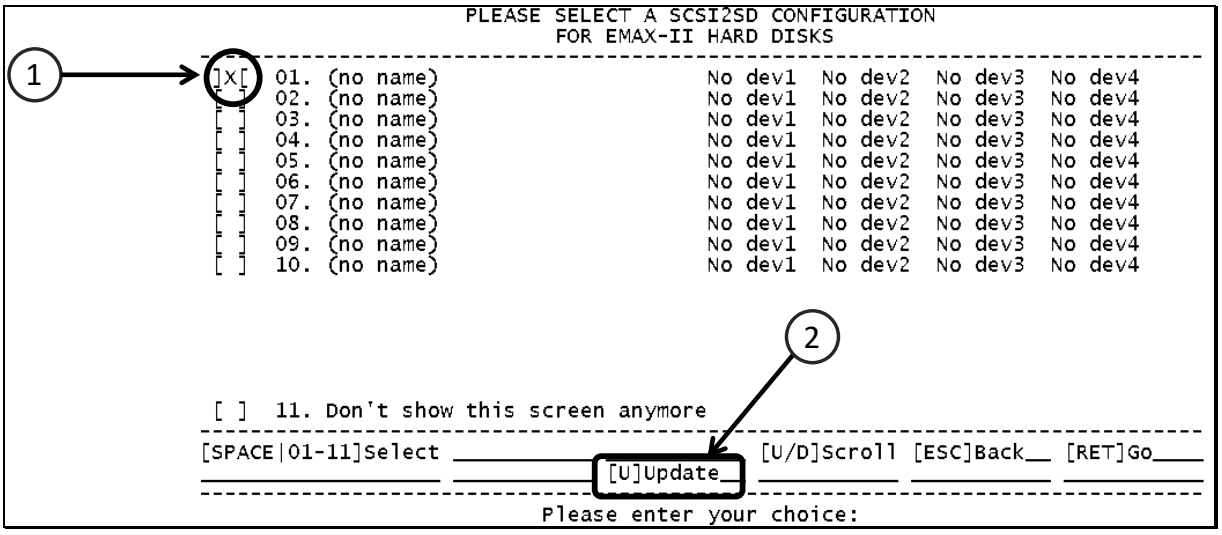
Turning SCSI2SD scan ON

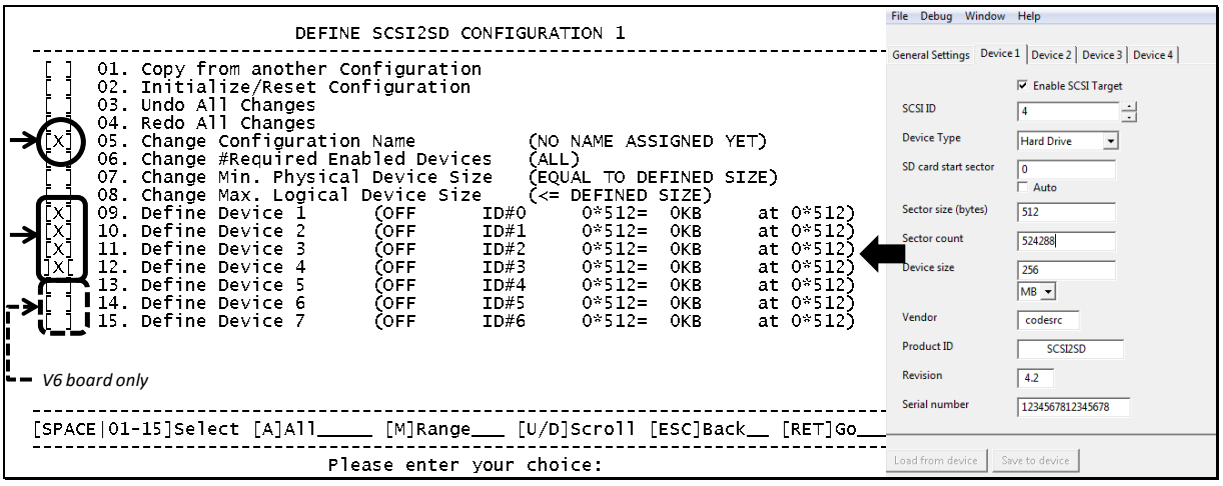
By pressing the [C] SCSI2SD shortcut key, you instruct the Disk Manager to search for SCSI2SD partitioned hard disks.

The Disk Manager needs to know *which specific SCSI2SD configuration* the hard disks should comply with. As explained in *section "4.5.1.2 SCSI2D support"* up to 10 SCSI2SD configurations can be defined in EMXP, but only of them can be used during a disk or file scan.

If no SCSI2SD configuration has been defined yet in EMXP, or no SCSI2SD configuration has been assigned yet as a default configuration for the sampler disks you're looking for, the Disk Manager will first ask to select (or define) a SCSI2SD configuration, as illustrated in the two pictures below.

- If no SCSI2SD configuration has been defined yet, or if the configuration you'd like to use has not been defined yet, select one of the empty (available) slots and press the [U]pdate shortcut key to define a configuration.





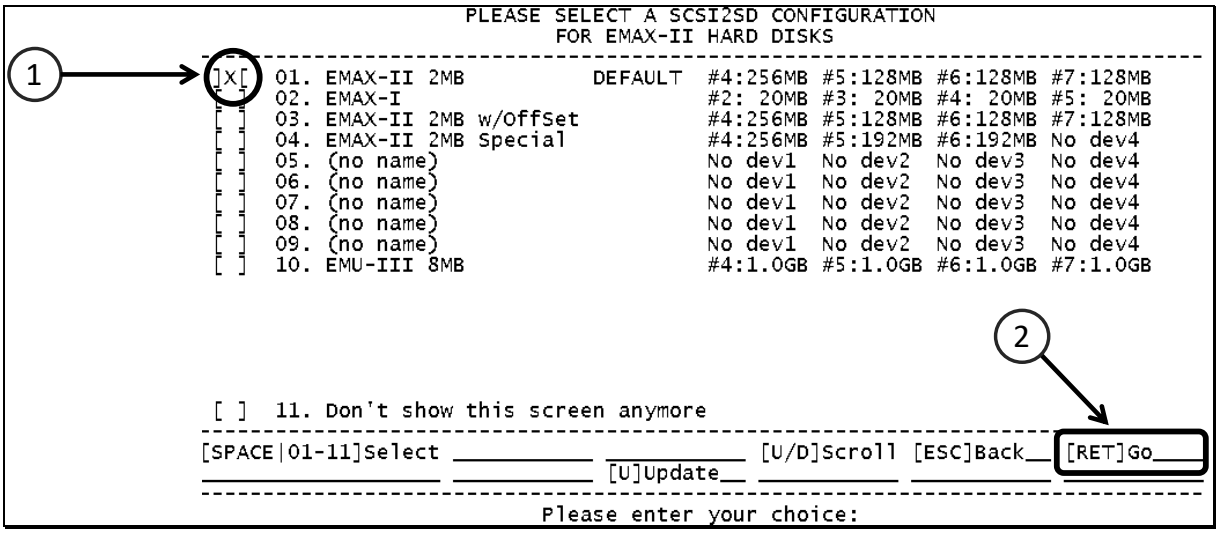
In the SCSI2SD configuration definition screen, use

- ***option 5*** to enter a name for the SCSI2SD configuration
- ***options 9 → 15*** to define each of the *devices* of the SCSI2SD configuration. The parameter values that you have to define here should be the same as the ones that were entered in the *scsi2sd-util* software[6] when configuring the SCIS2SD emulator in your sampler. If you have the v5 board of the SCSI2SD, you can define a max. of 4 *devices* (options 9 → 12) instead of 7

In normal use cases, options 6 → 8 can be ignored and their default settings should be used.
See *section "10.5.4.2 Define SCSI2SD device configurations"* for a detailed description how to define a SCSI2SD configuration.

After having defined/updated the SCSI2SD configuration, select the configuration you just defined and press Enter.

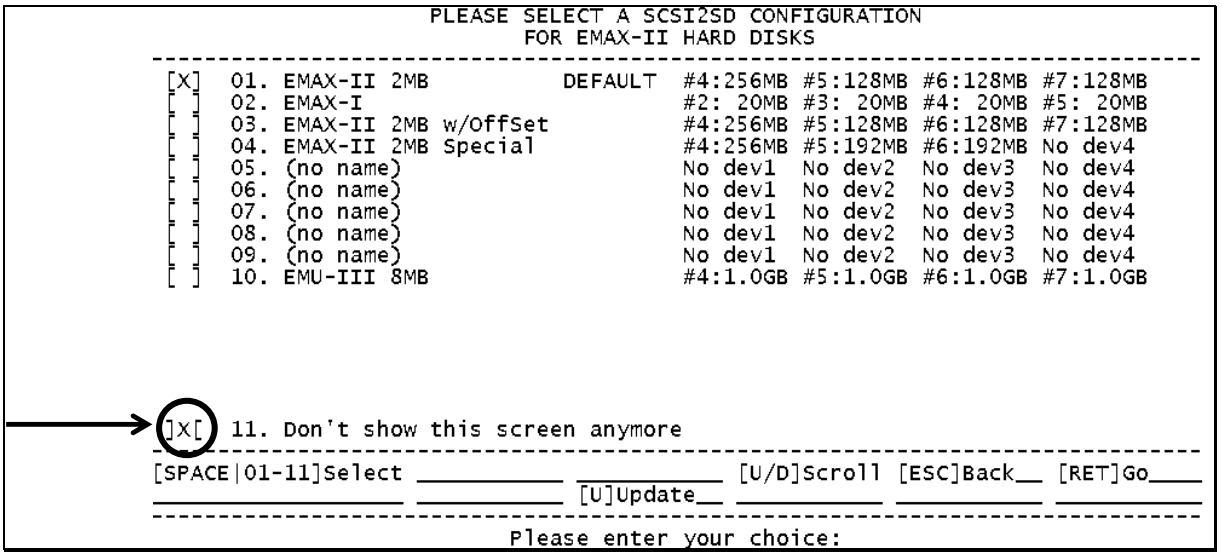
- If no SCSI2SD configuration has been assigned yet as a default for the sampler hard disks you're looking for, you should select one now and press Enter.



The selected SCSI2SD configuration automatically becomes the default configuration for the hard disks the Disk Manager is looking for. E.g. Emax-II hard disks can have a default SCSI2SD configuration which differs from the default SCSI2SD configuration for Emax-I or Emulator-III/X/ESI hard disks.

[6] the scsi2sd-util software can be downloaded from http://www.codesrc.com/

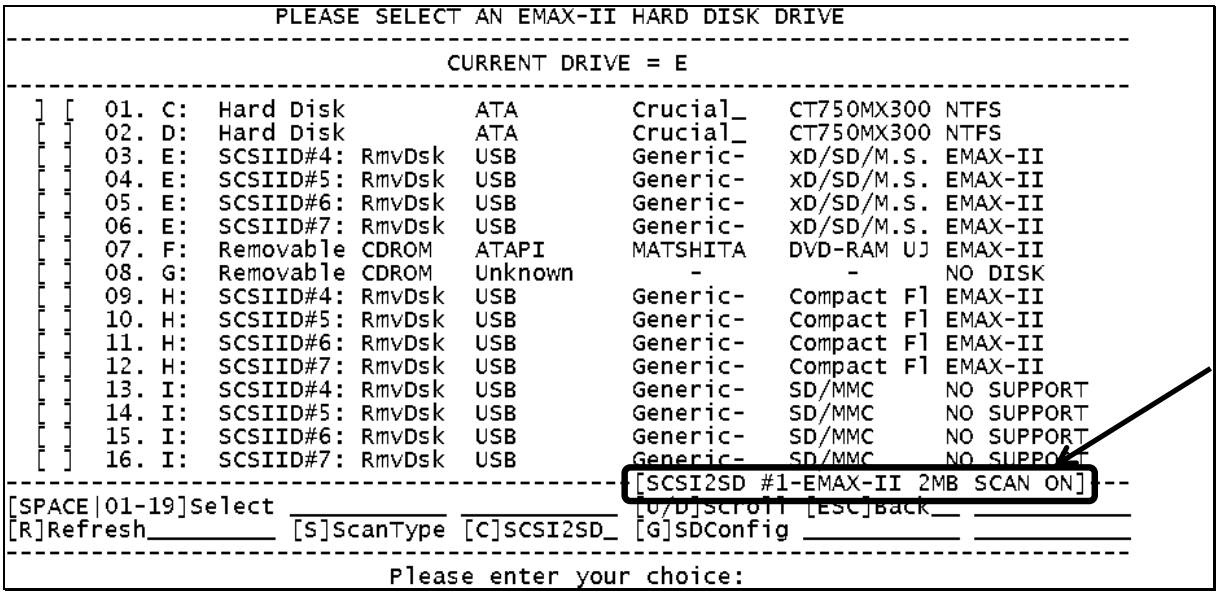
Hint: enable option 11 to avoid that the Dile Manager will show the above screens every time you press the [C]SCSI2SD shortcut key. This will turn this shortcut key in a simple ON/OFF switch.



At any time the [G]SDConfig shortcut key can be used if you want to change the default SCSI2SD configuration. This is explained later in this section.

And if you change your mind later and if you want the Disk Manager to always show this screen again when pressing the [C]SCSI2SD shortcut key, you can activate this "always ask" mode in the Preferences menu (see *section "10.5.4.3 Define SCSI2SD defaults per hard disk and hard disk image type").*

When the SCSI2SD scanning mode is turned ON, the Disk Manager will show a SCSI2SD scan status message at the bottom right of the screen, as illustrated below. The active SCSI2SD configuration is mentioned as well.



SCSI2SD scanning on all disks or on a single disk

The Disk Manager can perform a SCSI2SD scan on *all disks* or just on a *single disk:*

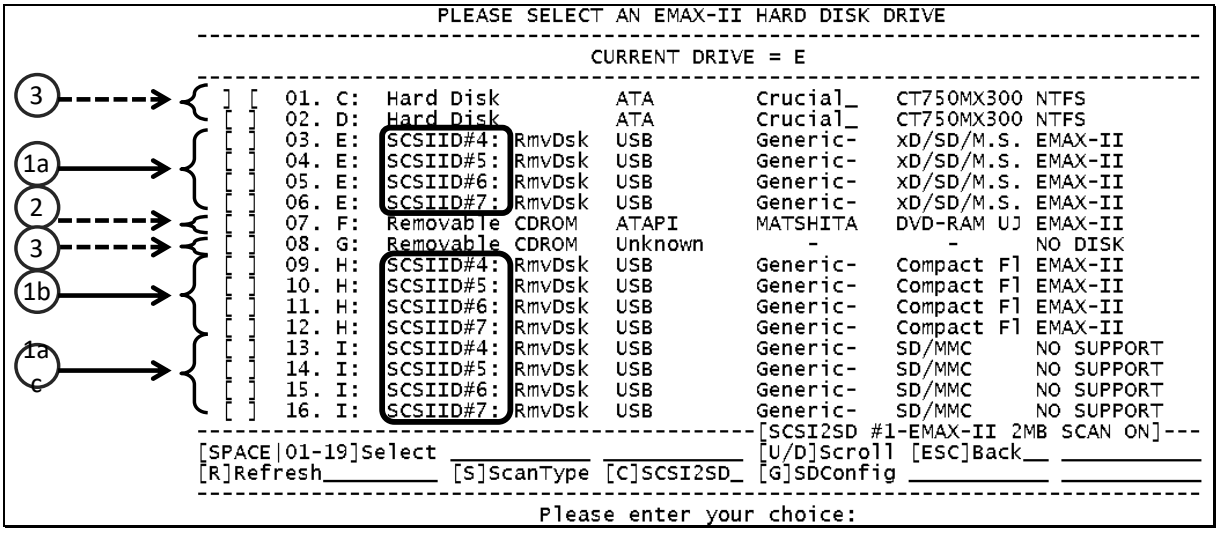
- to scan *all disks*, make sure *no disk/drive has been selected in the overview screen* when pressing the [C]SCSI2SD shortcut key. All disks will be checked against the SCSI2SD configuration. This can take a while however. If a disk doesn't comply, it will be treated as a normal, un-partitioned disk.

- to scan a *single disk*, simply select *one of disks in the overview screen* before pressing the [C]SCSI2SD shortcut key. All other disks will be treated as normal, un-partitioned disks. This mode works faster than scanning all disks.

Important: even when performing a SCSI2SD scan, hard disks which don't comply with the SCSI2SD configuration but which are valid normal un-partitioned hard disks will appear in the resulting overview as well.

Whether a disk is a normal hard disk or a SCSI2SD partitioned hard disk can be derived from the presence of a *device number or SCSI-ID number* after the drive letter in the overview screen. See pictures below.

- when a SCSI2SD scan has been performed on *all disks*

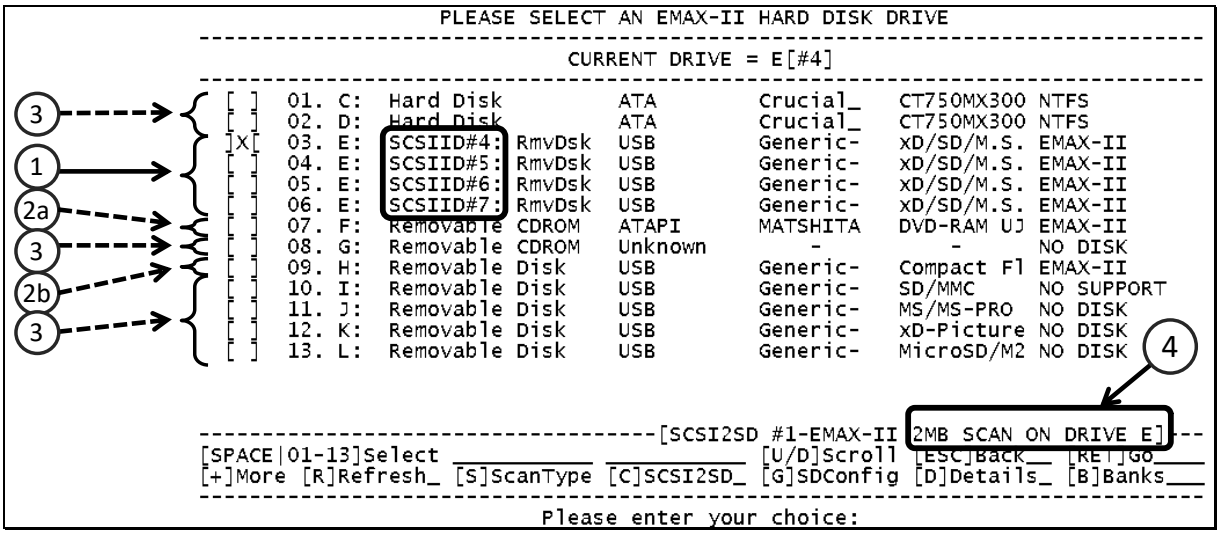


In this example, the disks in drives E (1a), H (1b) and I (1c) were detected as being compliant with SCSI2SD configuration #1 named "EMAX-II 2MB":

- For the disks in drives E and H, 4 enabled *devices* were detected which are formatted for EMAX-II.
- For the disk in drive I, 4 enabled *devices* were detected but they are not formatted for EMAX-II. The file system these devices are formatted for is unknown (NO SUPPORT). This may indicate that the disk is partitioned according to another SCSI2SD configuration than the currently selected one (#1 EMAX-II 2MB). *See paragraph "Be cautious for false positives" later* in this section.

The SCSI-ID# number of each detected *device* is mentioned just behind the drive letter (here SCSI-ID# 4 → SCSI-ID#7).
The disk in drive F (2) was detected as a normal un-partitioned Emax-II hard disk (cdrom). No SCSI-ID# number is mentioned.
The other disks (see (3)) were detected as normal NTFS disks or were not available (NO DISK).

- when a SCSI2SD scan has been performed on a *single disk*



In this example, a SCSI2SD scan has been performed only on the disk in drive E (1) and it has been detected as being compliant with SCSI2SD configuration #1 named "EMAX-II 2MB". For this disk 4 enabled *devices* were detected which are formatted for EMAX-II. Their SCSI-ID# number is mentioned just behind the drive letter.
The disks in drives F (2a) and H (2b) were detected as normal un-partitioned Emax-II hard disks. No SCSI-ID# number is mentioned for these disks. The disk in drive H is accepted as a normal un-partitioned disk although it's actually a partitioned disk. The reason is that its first *device* (partition) happens to be located at the very start of the disk (address 0) and contains a valid Emax-II file system.
All other disks (3) were detected as either normal disks not formatted for Emax-II or as not being available (NO DISK).

Note that the status bar explicitly mentions that the SCSI2SD scan has been performed on a single disk (see (4) on the picture).

Turning SCSI2SD scan OFF

By pressing the [C] SCSI2SD shortcut key once more, you can disable the SCSI2SD scanning mode and instruct the Disk Manager to only search for normal, un-partitioned hard disks.

Behaviour of the [R]efresh and [S]canType shortcut keys

When the SCSI2SD scanning mode is ON, the [R]efresh and [S]canType shortcut keys behave differently than when the SCSI2SD scanning mode is OFF:

- *SCSI2SD scan ON*: [R]efresh and [S]canType are identical and can be used to re-scan the disk(s) with the selected SCSI2SD configuration. The behaviour is the same as pressing [C]SCSI2SD *twice.*
- *SCSI2SD scan OFF*: [R]efresh scans the computer for drives without checking their formatted file system and without doing a SCSI2SD scan. [S]canType scans for the file systems the disks in each of the drives have been formatted for, without doing a SCSI2SD scan.

Be cautious for false positives

The Disk Manager checks the disk(s) against a particular SCSI2SD configuration schema. If multiple SCSI2SD configurations have *device* parameters in common, **a disk may be accepted as being compliant with each of these SCSI2SD configurations**. But the number of detected devices will typically be different.

This is illustrated in the pictures below.

Assume that the disk in drive E is a SCSI2SD partitioned Emax-II hard disk which is compatible with configuration #1 named "EMAX-II 2MB". The following two pictures show the configuration and the result of the SCSI2SD scan based on this configuration.

```
                DEFINE SCSI2SD CONFIGURATION 1 - EMAX-II 2MB
--------------------------------------------------------------------------------
 ] [  01. Copy from another Configuration
 [ ]  02. Initialize/Reset Configuration
 [ ]  03. Undo All Changes
 [ ]  04. Redo All Changes
 [ ]  05. Change Configuration Name          (EMAX-II 2MB)
 [ ]  06. Change #Required Enabled Devices   (ALL)
 [ ]  07. Change Min. Physical Device Size   (EQUAL TO DEFINED SIZE)
 [ ]  08. Change Max. Logical Device Size    (<= DEFINED SIZE)
 [ ]  09. Define Device 1   (ON    ID#4   524288*512=256MB  at       0*512)
 [ ]  10. Define Device 2   (ON    ID#5   262144*512=128MB  at  524288*512)
 [ ]  11. Define Device 3   (ON    ID#6   262144*512=128MB  at  786432*512)
 [ ]  12. Define Device 4   (ON    ID#7   262144*512=128MB  at 1048576*512)
 [ ]  13. Define Device 5   (OFF   ID#4        0*512=  0KB  at       0*512)
 [ ]  14. Define Device 6   (OFF   ID#5        0*512=  0KB  at       0*512)
 [ ]  15. Define Device 7   (OFF   ID#6        0*512=  0KB  at       0*512)



--------------------------------------------------------------------------------
[SPACE|01-15]Select [A]All_____ [M]Range___ [U/D]Scroll [ESC]Back__ ___________
--------------------------------------------------------------------------------
                          Please enter your choice:
```

```
                PLEASE SELECT AN EMAX-II HARD DISK DRIVE
--------------------------------------------------------------------------------
                              CURRENT DRIVE = E[#4]
--------------------------------------------------------------------------------
  [ ]  01. C:  Hard Disk          ATA        Crucial_   CT750MX300 NTFS
  [ ]  02. D:  Hard Disk          ATA        Crucial_   CT750MX300 NTFS
  ]X[  03. E:  SCSIID#4: RmvDsk   USB        Generic-   xD/SD/M.S. EMAX-II
  [ ]  04. E:  SCSIID#5: RmvDsk   USB        Generic-   xD/SD/M.S. EMAX-II
  [ ]  05. E:  SCSIID#6: RmvDsk   USB        Generic-   xD/SD/M.S. EMAX-II
  [ ]  06. E:  SCSIID#7: RmvDsk   USB        Generic-   xD/SD/M.S. EMAX-II
  [ ]  07. F:  Removable CDROM    ATAPI      MATSHITA   DVD-RAM UJ EMAX-II
  [ ]  08. G:  Removable CDROM    Unknown        -          -      NO DISK
  [ ]  09. H:  Removable Disk     USB        Generic-   Compact Fl EMAX-II
  [ ]  10. I:  Removable Disk     USB        Generic-   SD/MMC     NO SUPPORT
  [ ]  11. J:  Removable Disk     USB        Generic-   MS/MS-PRO  NO DISK
  [ ]  12. K:  Removable Disk     USB        Generic-   xD-Picture NO DISK
  [ ]  13. L:  Removable Disk     USB        Generic-   MicroSD/M2 NO DISK



-----------------------------------[SCSI2SD #1-EMAX-II 2MB SCAN ON DRIVE E]---
[SPACE|01-13]Select ___________ ___________ [U/D]Scroll [ESC]Back__ [RET]Go____
[+]More [R]Refresh_ [S]ScanType [C]SCSI2SD_ [G]SDConfig [D]Details_ [B]Banks___
--------------------------------------------------------------------------------
                          Please enter your choice:
```

Let's now do a SCSI2SD scan based on another configuration #4 named "EMAX-II 2MB Special". The following two pictures show the configuration and the result of the SCSI2SD scan based on this configuration.

```
            DEFINE SCSI2SD CONFIGURATION 4 - EMAX-II 2MB SPECIAL
--------------------------------------------------------------------------------
] [  01. Copy from another Configuration
[ ]  02. Initialize/Reset Configuration
[ ]  03. Undo All Changes
[ ]  04. Redo All Changes
[ ]  05. Change Configuration Name          (EMAX-II 2MB Special)
[ ]  06. Change #Required Enabled Devices   (ALL)
[ ]  07. Change Min. Physical Device Size   (EQUAL TO DEFINED SIZE)
[ ]  08. Change Max. Logical Device Size    (<= DEFINED SIZE)
[ ]  09. Define Device 1   (ON    ID#4   524288*512=256MB   at      0*512)
[ ]  10. Define Device 2   (ON    ID#5   393216*512=192MB   at 524288*512)
[ ]  11. Define Device 3   (ON    ID#6   393216*512=192MB   at 917504*512)
[ ]  12. Define Device 4   (OFF   ID#7     0*512=  0KB   at      0*512)
[ ]  13. Define Device 5   (OFF   ID#4     0*512=  0KB   at      0*512)
[ ]  14. Define Device 6   (OFF   ID#5     0*512=  0KB   at      0*512)
[ ]  15. Define Device 7   (OFF   ID#6     0*512=  0KB   at      0*512)



--------------------------------------------------------------------------------
[SPACE|01-15]Select [A]All_____ [M]Range___ [U/D]Scroll [ESC]Back__ ___________
--------------------------------------------------------------------------------
                          Please enter your choice:
```

```
                  PLEASE SELECT AN EMAX-II HARD DISK DRIVE
--------------------------------------------------------------------------------
                             CURRENT DRIVE = E[#4]
--------------------------------------------------------------------------------
  [ ]  01. C:  Hard Disk          ATA        Crucial_   CT750MX300 NTFS
  [ ]  02. D:  Hard Disk          ATA        Crucial_   CT750MX300 NTFS
  ]X[  03. E:  SCSIID#4: RmvDsk   USB        Generic-   xD/SD/M.S. EMAX-II
  [ ]  04. E:  SCSIID#5: RmvDsk   USB        Generic-   xD/SD/M.S. EMAX-II
  [ ]  05. E:  SCSIID#6: RmvDsk   USB        Generic-   xD/SD/M.S. NO SUPPORT
  [ ]  06. F:  Removable CDROM    ATAPI      MATSHITA   DVD-RAM UJ EMAX-II
  [ ]  07. G:  Removable CDROM    Unknown        -          -      NO DISK
  [ ]  08. H:  Removable Disk     USB        Generic-   Compact Fl EMAX-II
  [ ]  09. I:  Removable Disk     USB        Generic-   SD/MMC     NO SUPPORT
  [ ]  10. J:  Removable Disk     USB        Generic-   MS/MS-PRO  NO DISK
  [ ]  11. K:  Removable Disk     USB        Generic-   xD-Picture NO DISK
  [ ]  12. L:  Removable Disk     USB        Generic-   MicroSD/M2 NO DISK



----------------------------[SCSI2SD #4-EMAX-II 2MB SPECIAL SCAN ON DRIVE E]---
[SPACE|01-12]Select _____________ _____________ [U/D]Scroll [ESC]Back__ [RET]Go____
[+]More [R]Refresh_ [S]ScanType [C]SCSI2SD_ [G]SDConfig [D]Details_ [B]Banks___
--------------------------------------------------------------------------------
                          Please enter your choice:
```

While the same disk is accepted as being compliant with configuration #4 EMAX-II 2MB Special as well, the number of available devices is only 3, and only two of them are accepted as Emax-II *devices* !
Indeed: only 3 *devices* are defined in this configuration. The first 2 Emax-II partitions of the disk in drive E are compliant with the first 2 *devices* of SCSI2SD configuration #4, so they are shown as Emax-II devices with a SCSI-ID# in the overview. But on the location of the 3th *device* of SCSI2SD configuration #4, no Emax-II partition is found on the disk in drive E, so this *device* is listed as SCSI-ID#6 containing an unsupported file system (NO SUPPORT)
The 2 remaining Emax-II partitions on the disk in drive E are not displayed: the Disk Manager didn't see them simply because the SCSI2SD configuration #4 did not say that these *devices* exist...

If the hard disks will only be used for reading or writing individual sound banks, there's no real risk involved in accepting a disk with the "wrong" SCSI2SD configuration.

But if the hard disk will be used for

- **formatting one or more of its partitions**
- **for copying complete hard disks to one or more of its partitions (backup/restore)**
- **for being copied as an entire partitioned hard disk to another file or disk (backup/restore)**

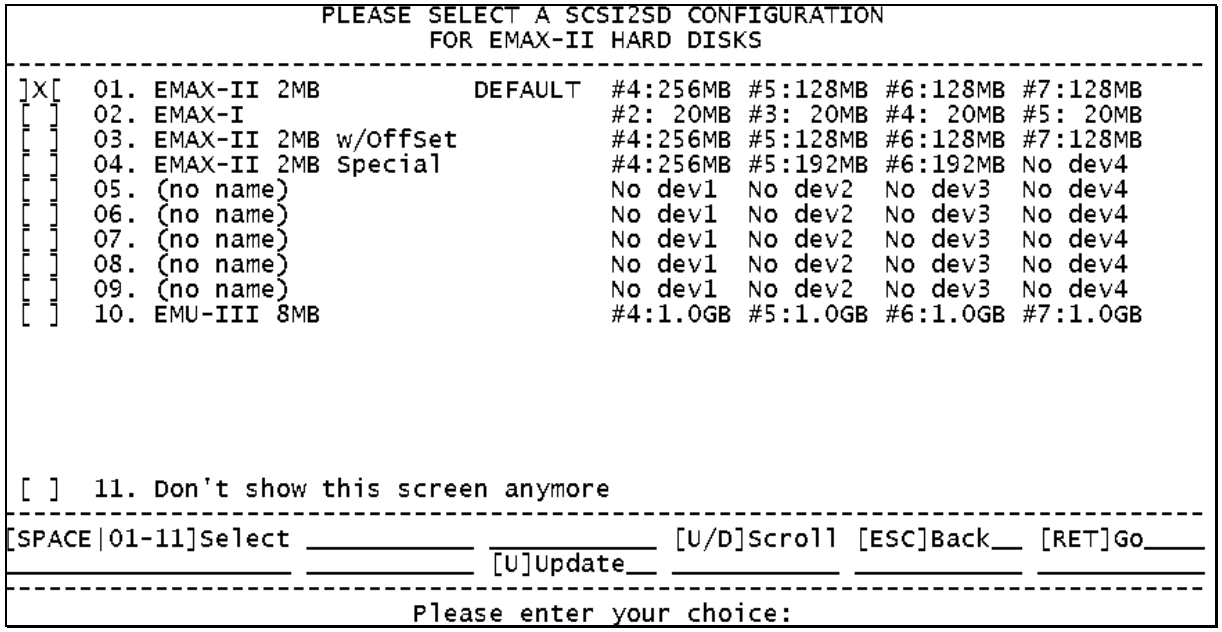
there's a risk that you will overwrite areas of the disk which contain *valid partitions according to another SCSI2SD configuration.*

In this case it's very important that you use the correct SCSI2SD configuration in the Disk Manager !

A typical (but not water-proof) sign that you might have scanned against a wrong SCSI2SD configuration is the presence of *devices* which are reported with "NO SUPPORT" in the last column of the disk overview.

Changing the SCSI2SD configuration

By pressing the [G]SDConfig shortcut key, you can select another (default) SCSI2SD configuration at any time.

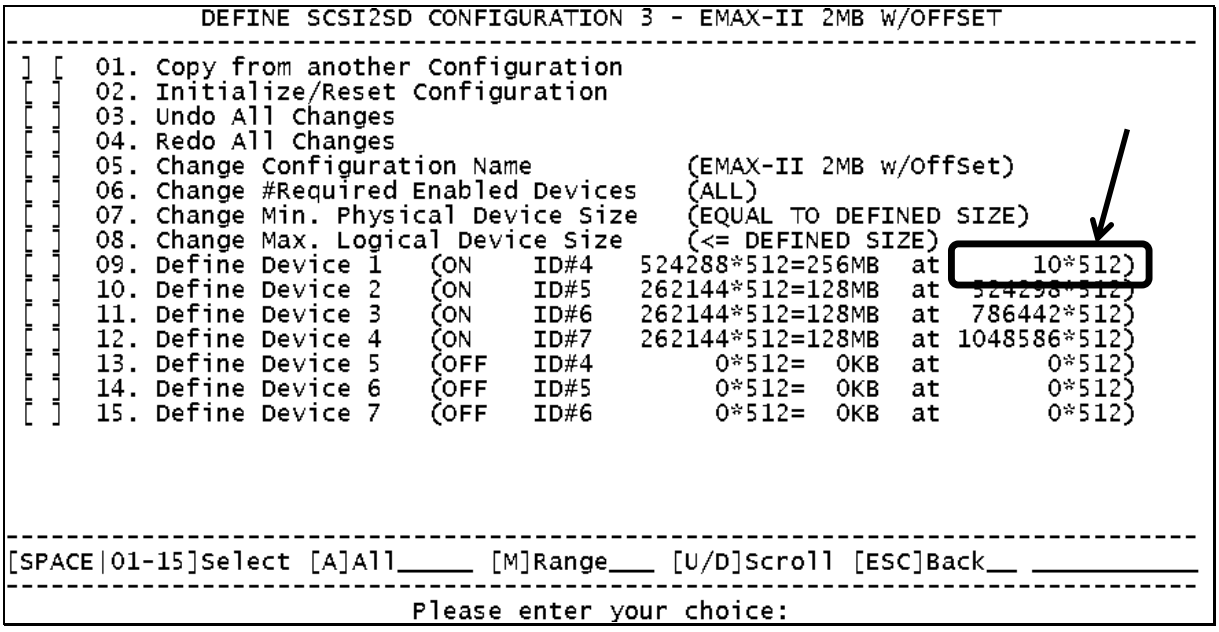


If the SCSI2SD scanning mode was ON when pressing shortcut key [G]SDConfig, the Disk Manager will automatically perform a new scan immediately after having selected another SCSI2SD configuration. This can be verified by looking at the SCIS2SD status message at the bottom of the screen.

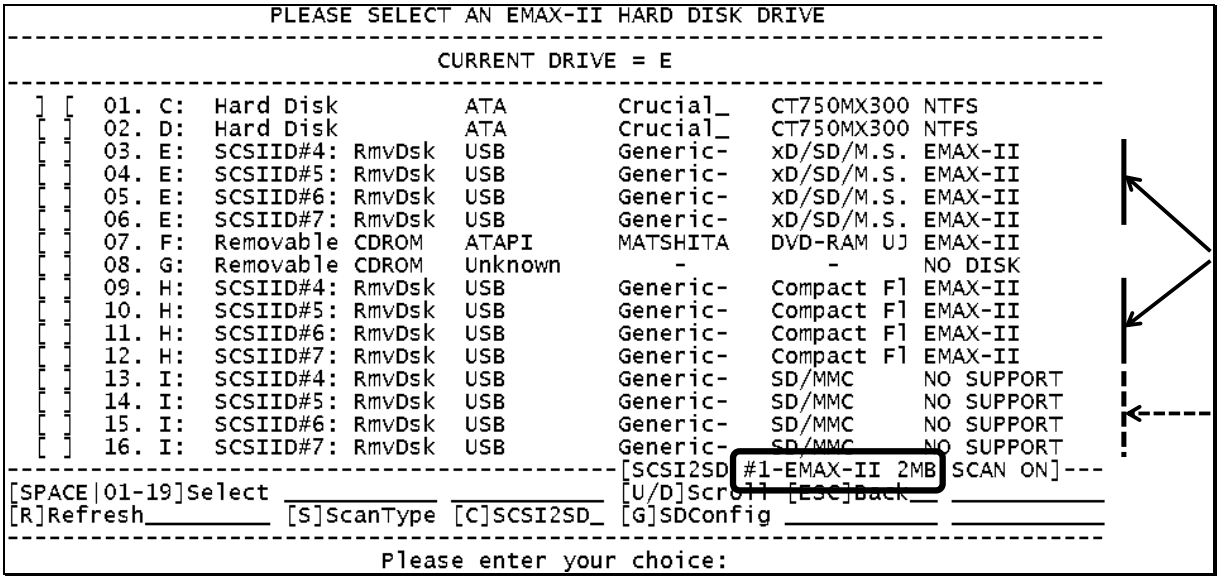
If the SCSI2SD scanning mode was OFF when pressing shortcut key [G]SDConfig, the Disk Manager will not perform a scan after having selected another SCSI2SD configuration. You explicitly have to start the SCSI2SD scan by pressing the [C]SCSI2SD shortcut key.

As a closing example, let's illustrate the impact of selecting the proper SCSI2SD configuration in the Disk Manager.
In this example 3 partitioned disks are connected to the computer:

- the disks in drive E and H are partitioned based on SCSI2SD configuration #1 named EMAX-II 2MB. The details of this configuration schema have been shown before already in this section.
- the disk in drive I is partitioned based on SCSI2SD configuration #3 named EMAX-II 2MB w/OffSet. The details of this configuration are shown in the picture below. In a nutshell, the configuration is identical to configuration #1 except for the *device* start addresses, which have moved with an offset of 10 sectors of 512 bytes. So the first *device* with SCSI-ID#4 and size 256MB does not start at address 0 (sector 0) but rather at address 5120 (sector 10).

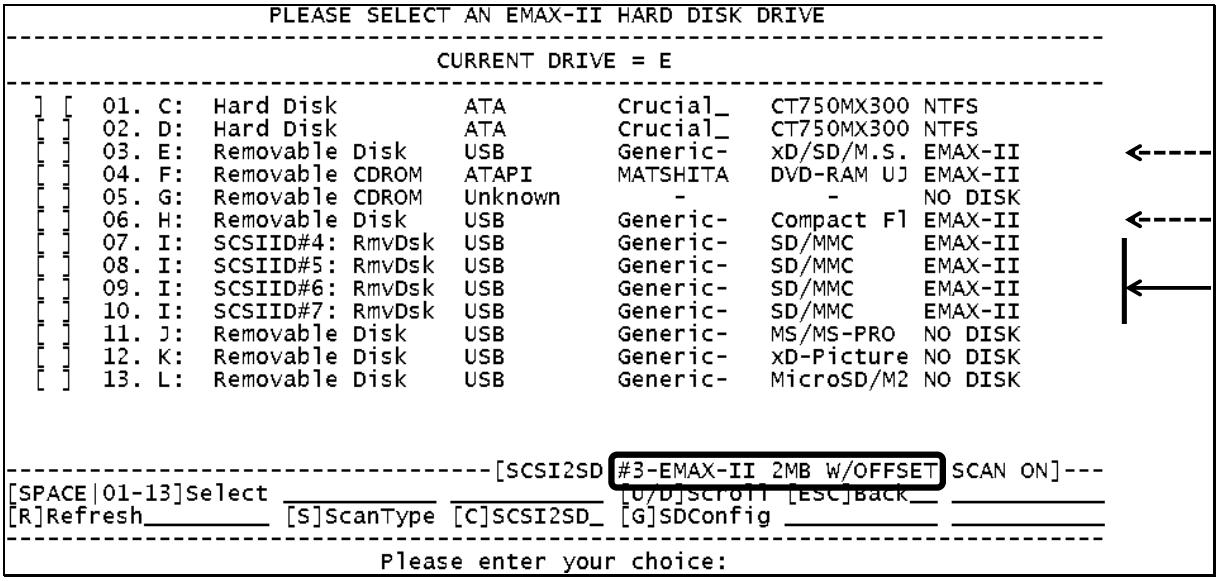


Here's the result of a SCSI2SD scan based on SCSI2SD configuration #1 EMAX-II 2MB:



Note that the disks in drives E and H are listed with 4 Emax-II *devices*, while the disk in drive I is listed with 4 unsupported *devices* (NO SUPPORT).

And here's the result of a SCSI2SD scan based on SCSI2SD configuration #3 EMAX-II 2MB w/OffSet:



Note that the disk in drive I is now listed with 4 Emax-II *devices*, while the disks in drives E and H are listed as normal un-partitioned Emax-II disks.
The reason that these disks are not listed with 4 unsupported *devices* is because the Disk Manager detected an Emax-II file system at the start of these disks (address 0). The Disk Manager gives higher priority to a normal un-partitioned disk with a detected/known file system than to a partitioned disk of which none of the devices have been identified with a detected/known file system.

If the Disk Manager is reporting devices with "NO SUPPORT" after having done a SCSI2SD scan, it's strongly recommended to try different SCSI2SD configurations before deciding to actually use (e.g. overwrite, format, ...) the disk !

4.6 SUPPORTED SAMPLER OBJECTS

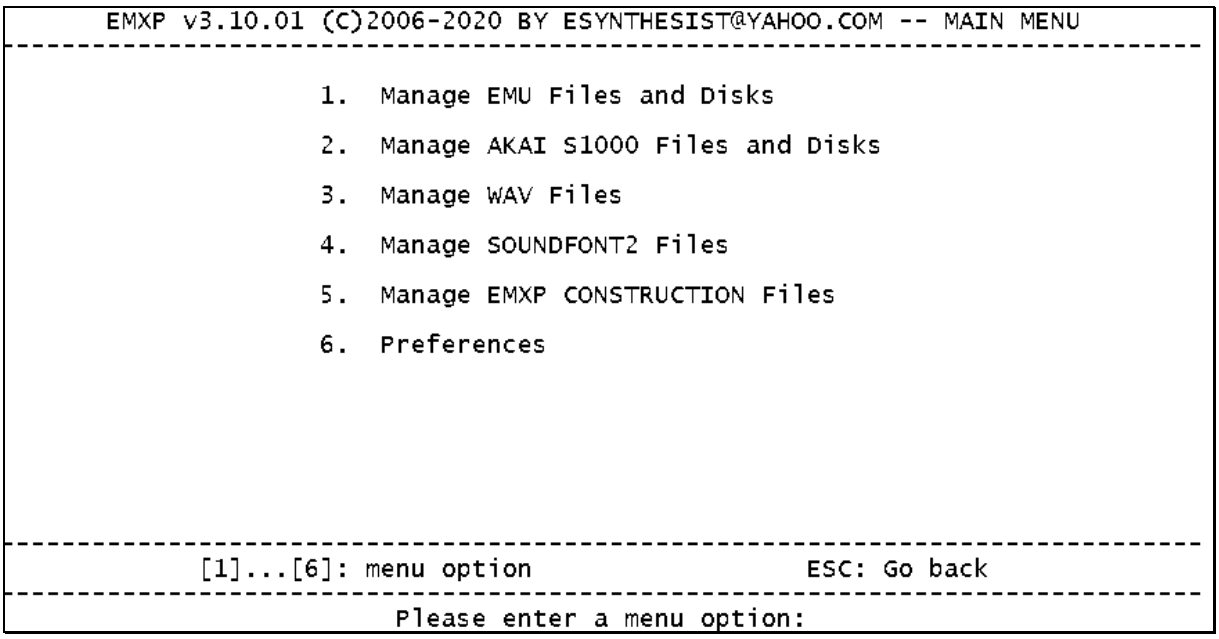
EMXP is “source object oriented”. This means that you have to choose one or more *source objects* first and then select what you want to do with the source object(s)[7].
This is the opposite of “target object oriented” where you first have to decide what objects or information you want to have and then select the sources from which the objects or information must be derived.

Let’s give an example. If you want to create some WAV files from specific EMAX-I samples, you first have to select the source bank. If the bank is on a hard disk, this means:

- You request an overview of the banks on a EMAX-I hard disk first
- You select one of the banks
- You request for an overview of the samples in that bank
- You select one or more samples
- You request to create WAV files from the samples

Because of the source object oriented approach, the high level menu screens of EMXP display all possible (sampler) object types you can perform actions on.

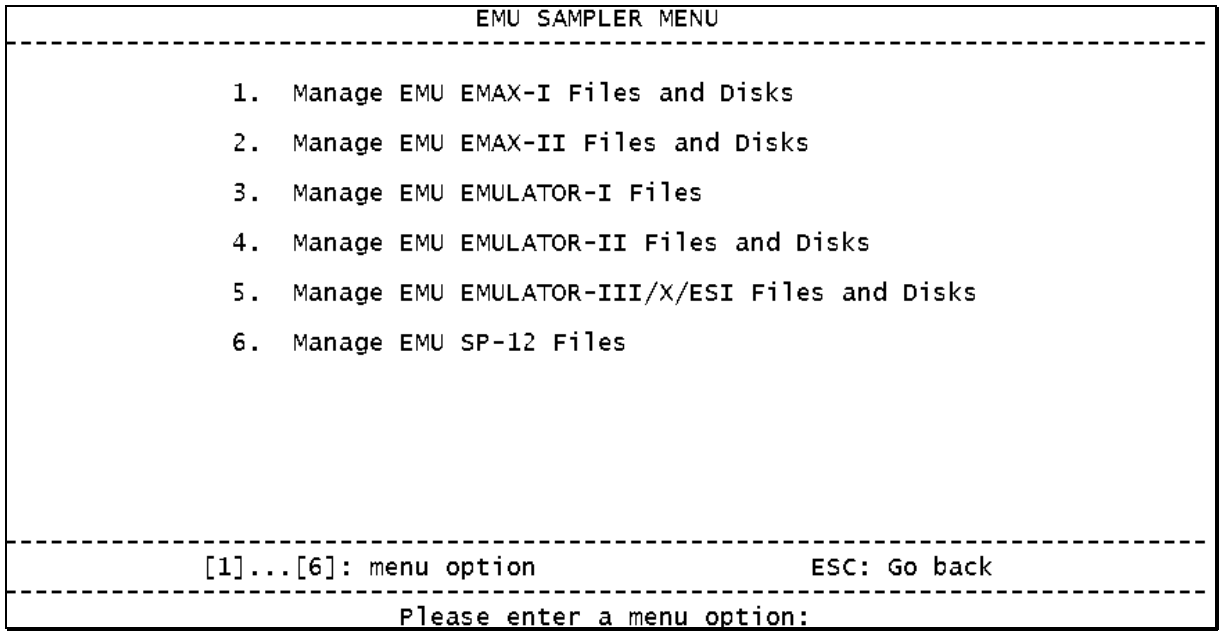
After launching EMXPN.EXE, you get the main menu of EMXP.



Currently you can choose to work with EMU files and disks (EMAX-I or EMAX-II disks/files, Emulator-I files, Emulator-II disks/files, Emulator-III, Emulator-IIIX or ESI disks/files, SP-12 files), Akai S1000 disks/files, WAV files, SoundFont2 files and EMXP construction files.
There is also a “preferences” menu which allows to change any default setting or configuration setting.

The EMAX-I or EMAX-II disks/files, Emulator-I files, Emulator-II files, Emulator-III, Emulator-IIIX or ESI disks/files and SP-12 files functions can be accessed by selecting **option 1** in the main menu. The following Emu Sampler Menu will appear:

[7] There is one exception on the "source oriented approach" in EMXP: if you want to replace the operating system of multiple floppy disk image files, multiple HxC floppy disk image files or multiple floppy disks, you don't select the new operating system first (=source oriented) and then select all target files/disks. For this function, you have to select the files or disk drive on which the operating systems should be replaced first (=target oriented), and then select the operating system file (=source) which should be copied to the target files/disks.



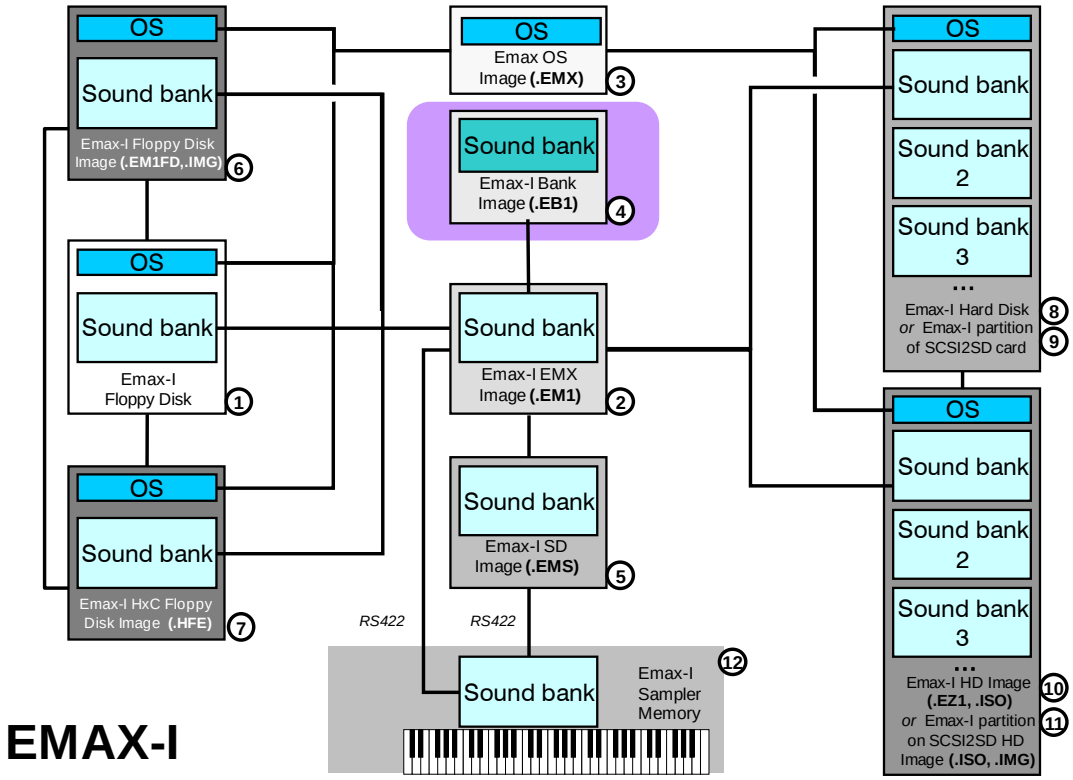
The other supported sampler objects (Akai S1000 files and disks, SoundFont2 files, WAV files and EMXP Construction files) can be accessed directly from the main menu.

In the next sections we give some more details about each of the supported objects.

The lines in each picture below indicate the "*natural relationship*" between the disk or file types mentioned in the picture. In addition to these relationships, EMXP is able to convert any possible disk or file type to any other disk or file type. See *chapter "6. USING EMXP: COPYING SOUND BANKS AND FILES"*.

4.6.1 EMAX-I objects

Following EMAX-I disks and files are supported by EMXP:

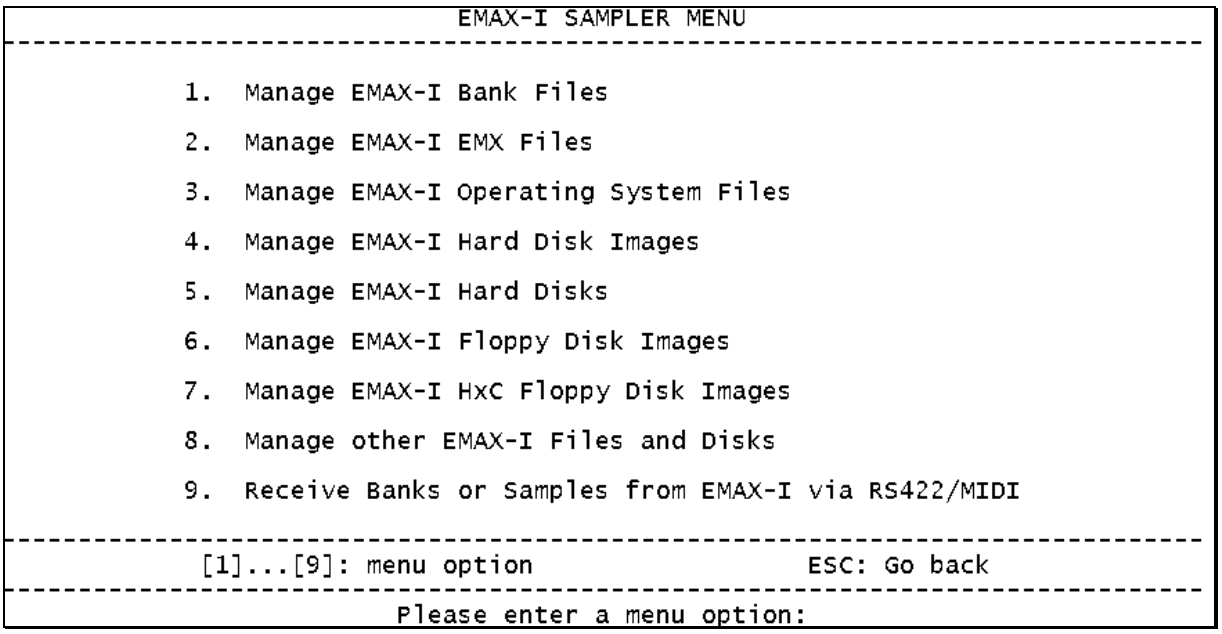


No	Disk/File type	File Extension	Short description
	EMAX-I:		
1	Floppy Disk	n/a	3.5” floppy disk, containing an operating system and/or a sound bank which is a dump of the EMAX-I sound bank memory
2	EMX Image	.EM1	File containing the sound bank data as it can be found in the EMAX-I RAM memory and on a floppy disk or on a hard disk/cdrom, extended with a short signature string
3	Operating System File	.EMX	File containing the operating system as it can be found on a floppy disk or on a hard disk/cdrom
4	Bank File	.EB1	File containing the sound bank data but from which empty (unused) sample space has been removed
5	SoundDesigner File	.EMS	File containing the sound bank in the same format as an EMX image but containing a few more bytes
6	Floppy Disk Image File	.EM1FD, .IMG(*)	Image file containing an exact copy of a floppy disk.
7	HxC Floppy Disk Image File	.HFE	Image file for use with an HxC Floppy Emulator, containing an exact copy of a floppy disk
8	Hard Disk/CDROM	n/a	Hard Disk, Memory Card, cdrom, etc containing zero or one operating systems and a maximum of 35 sound banks, each as a dump of the EMAX-I sound bank memory
9	Partition on SCSI2SD Card	n/a	A single partition on a SCSI2SD card. A SCSI2SD partition which behaves like a normal EMAX-I hard disk
10	Hard Disk Image File	.EZ1, .ISO, .IMG (*)	ISO Image file containing an exact copy of a normal EMAX-I hard disk/cdrom
11	Partition in SCSI2SD Hard Disk Image File	.ISO, .IMG (*)	A single partition in a SCSI2SD hard disk image file. A SCSI2SD partition behaves like a normal EMAX-I hard disk image file.
12	EMAX-I Sampler	n/a	The sampler itself can be accessed by EMXP through RS422 (for bank and sample transfer) and MIDI (sample transfer only). EMAX-II Samplers can also be accessed by EMXP for sample transfer, but for bank transfer only compressed EMAX-I banks can be transferred from computer to EMAX-II.

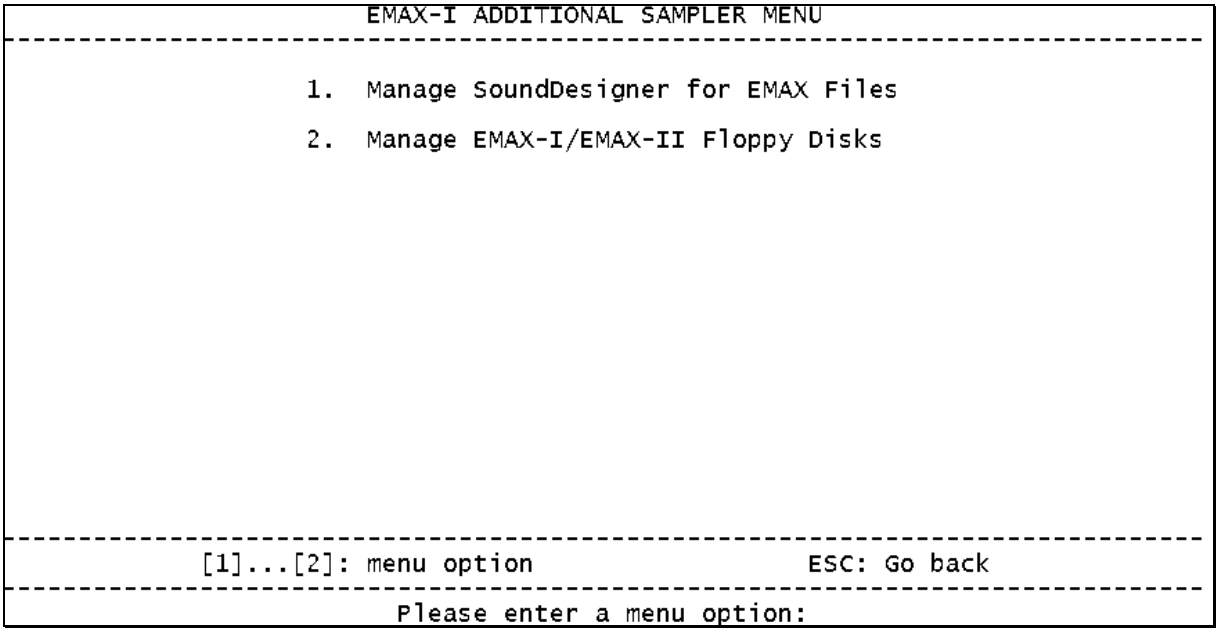
Note (*): see *section "4.5.1 Supported file and disk types"*.

The above diagrams show which EMAX-I objects are supported by EMXP, and the natural relationship between these objects. Objects and arrows in dotted lines are *not supported (directly)* by EMXP.

To get access to EMAX-I objects, you should select:
"1. Manage EMU Files and Disks" → "1. Manage EMU EMAX-I/EMAX-II Files and Disks" → "1. Manage EMU EMAX-I Files and Disks"



When selecting option 8, an additional menu with the remaining supported EMAX-I objects will appear:



These additional options are referred to as options 8.1 and 8.2 in the remainder of this chapter.

You can choose between 10 options.

Option 1 should be used if you want to "do something with":

- EMAX-I Bank files (.EB1)

"Doing something" here means:

- Selecting one or more of the files (banks)
- Copying the selected banks to another file or to a disk
- Converting the selected banks to any other sampler type or to WAV files
- Getting detailed information about the banks, presets, voices and samples stored in the selected file(s)
- Generating bank/preset overview reports in TXT or CSV format
- Converting EMAX-I banks to Akai S1000 samples and programs
- Sending the bank to an EMAX-I or EMAX-II sampler via RS422
- Listening to all samples in the EMXP audio player
- …

Options 2, 4, 6, 7 and option 8.1 should be used if you want to "do something with":

- EMAX-I EMX files (.EM1)
- Hard disk image files which are copies of or can be copied to EMAX-I hard disks / CD-ROMs (.EZ1, .ISO)
- EMAX-I partitions on SCSI2SD hard disk image files (.ISO, .IMG)
- EMAX-I Floppy Disk Image files (.EM1FD, .IMG)
- EMAX-I HxC Floppy Disk image files (.HFE)
- EMAX-I Sound Designer for EMAX files (.EMS)

"Doing something" here means:

- Selecting one or more of the files (or one or more banks in the selected hard disk image file)
- Copying the selected banks to another file or to a disk
- Converting the selected banks to any other sampler type or to WAV files
- Getting detailed information about the banks, presets, voices and samples stored in the selected file(s)
- Generating bank/preset overview reports in TXT or CSV format
- Extracting an operating system from a floppy disk image file or hard disk image file
- Sending the bank to an EMAX-I or EMAX-II sampler via RS422
- Listening to all samples (of the selected bank(s)) in the EMXP audio player.
- …

HFE files and EM1 files are compatible with the HxC floppy emulator. HFE files can directly be used in the HxC floppy emulator. EM1 can be converted to HFE files in EMXP or by using the HxCFloppyEmulator software as follows:

- .EM1 files can be converted to .HFE files using the HxCFloppyEmulator conversion software (on condition that an operating system file named EMAXOS.EMX is in the same folder as the .EM1 files before doing the conversion with the HxCFloppyEmulator software)
- .HFE files can be converted to .EM1FD files (with file extension .IMG).

Since EMXP natively supports .HFE files as well, so in practice the HxCFloppyEmulator software is not required.
See *section "13.2 HXC FLOPPY EMULATOR DEVICE"*.

Option 3 should be used if you want to copy an EMAX-I Operating System to a floppy disk, to a floppy disk image file, to an HxC floppy disk image file, to a hard disk image file, to a partition in a SCSI2SD hard disk image file, to a hard disk or to a partition on a SCSI2SD hard disk.

Option 5 and option 8.2 should be used if you want to "do something" with the contents of a floppy disk, a hard disk / CD-ROM or a partition on a SCSI2SD hard disk.

"Doing something" here means almost the same as for options 1, 2, 4, 6, 7 and 8.1:

- Selecting one or more banks
- Copying the selected banks to another disk or to a file

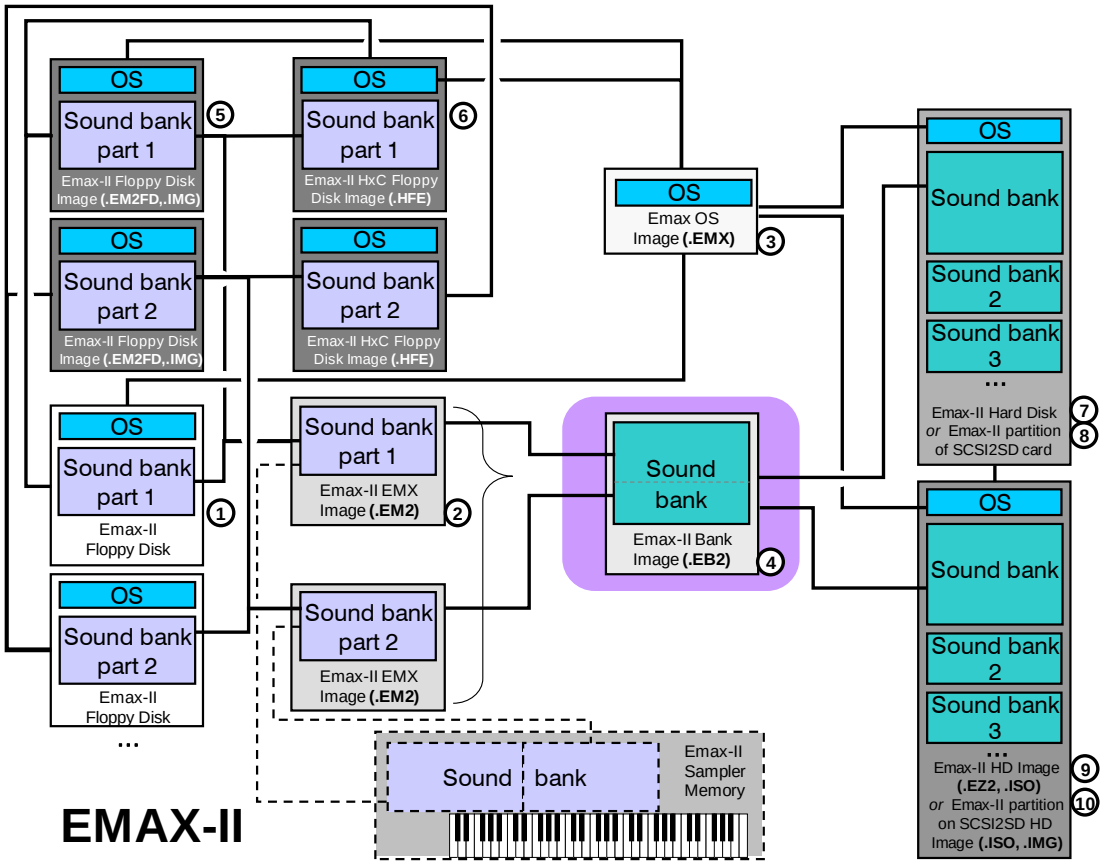
- Converting the selected banks to any other sampler type or to WAV files
- Getting detailed information on the banks, presets, voices and samples stored on the disk
- Generating bank/preset overview reports in TXT or CSV format
- Extracting an operating system from a disk
- Backing up a (SCSI2SD partition on a) hard disk to a (SCSI2SD partition on a) hard disk image file or a floppy disk to a floppy disk image file
- Sending the bank to an EMAX-I or EMAX-II sampler via RS422 *(not from floppy disk)*
- Listening to the samples (of the selected bank(s)) in the EMXP audio player.
- …

Option 8.2 gives access to both EMAX-I and EMAX-II floppy disks.

Option 9 allows for downloading EMAX-I banks from an EMAX-I sampler and for downloading samples from an EMAX-I sampler via RS422 or MIDI. You should have a compatible RS422 port and/or MIDI interface installed on your computer. See also *section "9.6 TRANSFERRING BANKS VIA RS422 WITH EMXP"* and *section "9.8 TRANSFERRING WAV FILES TO/FROM EMAX VIA RS422 OR MIDI"* later in this document.
The downloaded banks can be stored either as a Sound Designer for EMAX file, as an EMX file or as a bank file.
The downloaded samples will be stored as WAV files.

4.6.2 EMAX-II objects

Following EMAX-II disks and files are supported by EMXP:

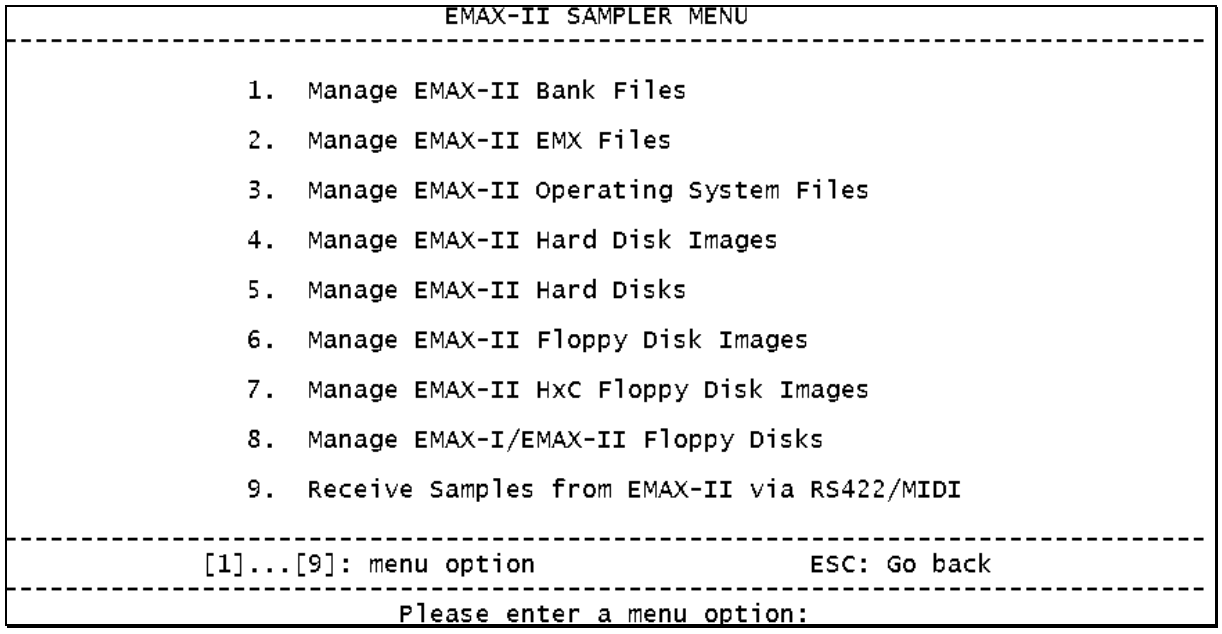


No	Disk/File type	File Extension	Short description
	EMAX-II:		
1	Floppy Disk	n/a	3.5” floppy disk, containing an operating system and/or a part of (or a full) sound bank which is a (part of a) dump of the EMAX-II sound bank memory. Since the EMAX-II memory can be 8MB, up to 16 diskettes may be required, each containing a part of the sound bank
2	EMX File	.EM2	File containing the part of the sound bank data as it can be found in the EMAX-II RAM memory and on a floppy disk, extended with a short signature string
3	Operating System File	.EMX	File containing the operating system as it can be found on a floppy disk or on a hard disk/cdrom
4	Bank File	.EB2	File containing the complete sound bank data but from which empty (unused) sample space has been removed. A bank file should be considered a concatenation of all EM2 files which make up the sound bank. It has exactly the same format as the sound banks that can be found on EMAX-II hard disks/cdroms
5	Floppy Disk Image File	.EM2FD, .IMG (*)	Image file containing an exact copy of a floppy disk
6	HxC Floppy Disk Image File	.HFE	Image file for use with an HxC Floppy Emulator, containing an exact copy of a floppy disk
7	Hard Disk/CDROM	n/a	Hard Disk, Memory Card, cdrom, etc containing zero or one operating systems and a maximum of 100 sound banks (in the same format as EMAX-II bank images).
8	Partition on SCSI2SD Card	n/a	A single partition on a SCSI2SD card. A SCSI2SD partition which behaves like a normal EMAX-II hard disk
9	Hard disk image file	.EZ2, ISO, .IMG (*)	ISO Image file containing an exact copy of a hard disk/cdrom.
10	Partition in SCSI2SD Hard Disk Image File	.ISO, .IMG (*)	A single partition in a SCSI2SD hard disk image file. A SCSI2SD partition behaves like a normal EMAX-II hard disk image file.

Note (*): see *section "4.5.1 Supported file and disk types"*.

The above diagrams show which EMAX-II objects are supported by EMXP, and the natural relationship between these objects. Objects and arrows in dotted lines are *not supported (directly)* by EMXP.

To get access to EMAX-II objects, you should select:
"1. Manage EMU Files and Disks" → "1. Manage EMU EMAX-I/EMAX-II Files and Disks" → "2. Manage EMU EMAX-II Files and Disks"



You can choose between 8 options.

Option 1 should be used if you want to "do something with":
- EMAX-II Bank files (.EB2)

"Doing something" here means:
- Selecting one or more of the files (banks)
- Copying the selected banks to another file or to a disk
- Converting the selected banks to any other sampler type or to WAV files
- Getting detailed information about the banks, presets, voices and samples stored in the selected file(s)
- Generating bank/preset overview reports in TXT or CSV format
- Converting EMAX-II banks to Akai S1000 samples and programs
- Listening to all samples in the EMXP audio player.
- …

Options 2, 4, 6 and 7 should be used if you want to "do something with":
- EMAX-II EMX files (.EM2)
- Hard disk image files which are copies of or can be copied to EMAX-II hard disks / CD-ROMs (.EZ2, .ISO)
- EMAX-II partitions on SCSI2SD hard disk image files (.ISO, .IMG)
- EMAX-II floppy disk image files (.EM2FD, .IMG)
- EMAX-II HxC floppy disk image files (.HFE)

"Doing something" here means:
- Selecting one or more of the files (or one or more banks in the selected hard disk image file)
- Copying the selected banks to another file or to a disk
- Converting the selected banks to any other sampler type or to WAV files
- Getting detailed information about the banks, presets, voices and samples stored in the selected file(s)

- Generating bank/preset overview reports in TXT or CSV format
- Extracting an operating system from a floppy disk image file or hard disk image file
- Listening to all samples (of the selected bank(s)) in the EMXP audio player.
- …

HFE files and EM2 files are compatible with the HxC floppy emulator. HFE files can directly be used in the HxC floppy emulator. EM2 can be converted to HFE files in EMXP or by using the HxCFloppyEmulator software as follows:

- .EM2 files can be converted to .HFE files using the HxCFloppyEmulator conversion software (on condition that an operating system file named EMAXOS.EMX is in the same folder as the .EM2 files before doing the conversion with the HxCFloppyEmulator software)
- .HFE files can be converted to .EM2FD files (with file extension .IMG).

Since EMXP natively supports .HFE files as well, so in practice the HxCFloppyEmulator software is not required.
See *section "13.2 HXC FLOPPY EMULATOR DEVICE"*.

Option 3 should be used if you want to copy an EMAX-II Operating System to a floppy disk, to a floppy disk image file, to an HxC floppy disk image file, to a hard disk image file, to a partition in a SCSI2SD hard disk image file, to a hard disk or to a partition on a SCSI2SD hard disk.

Options 5 and 8 should be used if you want to "do something" with the contents of a floppy disk, a hard disk / CD-ROM or a partition on a SCSI2SD hard disk.

"Doing something" here means almost the same as for options 1, 2 and 4:

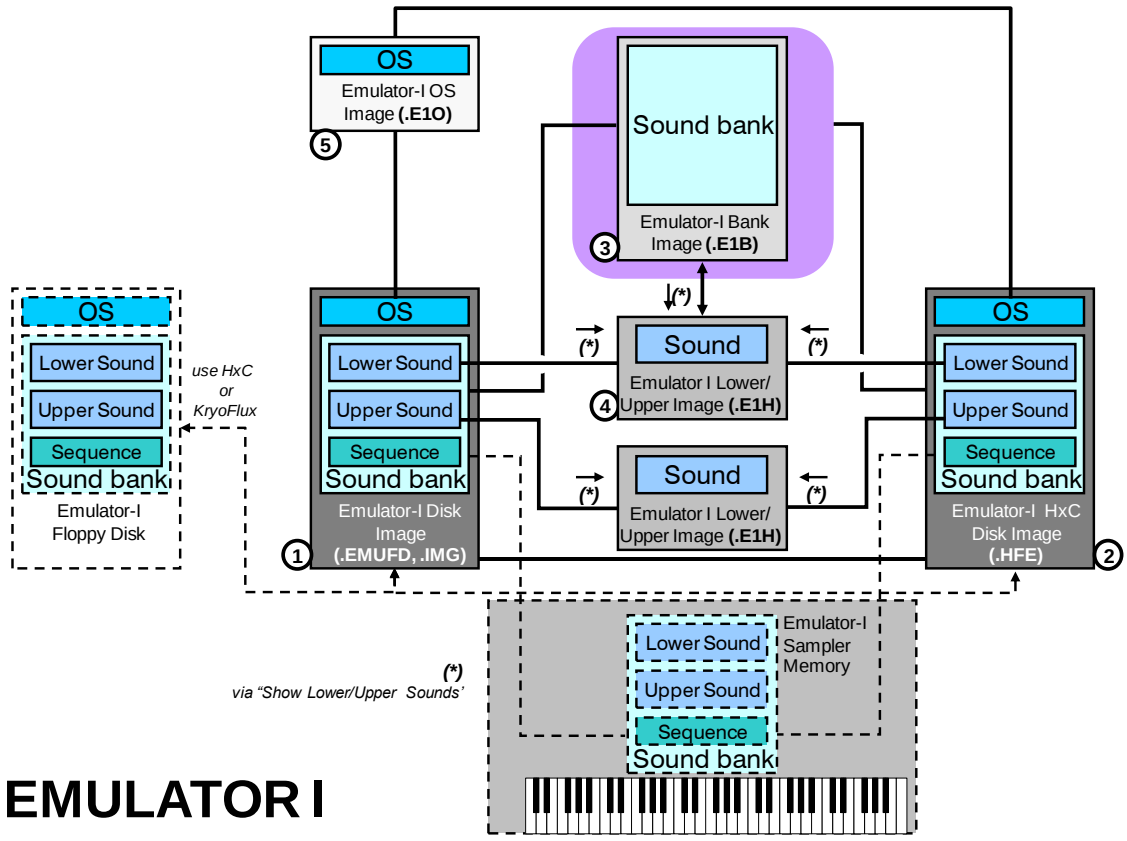
- Selecting one or more banks
- Copying the selected banks to another disk or to a file
- Converting the selected banks to any other sampler type or to WAV files
- Getting detailed information on the banks, presets, voices and samples stored on the disk
- Generating bank/preset overview reports in TXT or CSV format
- Extracting an operating system from a disk
- Backing up a (SCSI2SD partition on a) hard disk to a (SCSI2SD partition on a) hard disk image file or a floppy disk to a floppy disk image file
- Listening to all samples (of the selected bank(s)) in the EMXP audio player.
- …

Option 8 gives access to both EMAX-I and EMAX-II floppy disks.

Option 9 allows for downloading samples from an EMAX-II sampler via RS422 or MIDI. You should have a compatible RS422 port and/or MIDI interface installed on your computer. See also *section "9.8 TRANSFERRING WAV FILES TO/FROM EMAX VIA RS422 OR MIDI"* later in this document.
The downloaded samples will be stored as WAV files.

4.6.3 Emulator-I objects

Following Emulator-I files are supported by EMXP:



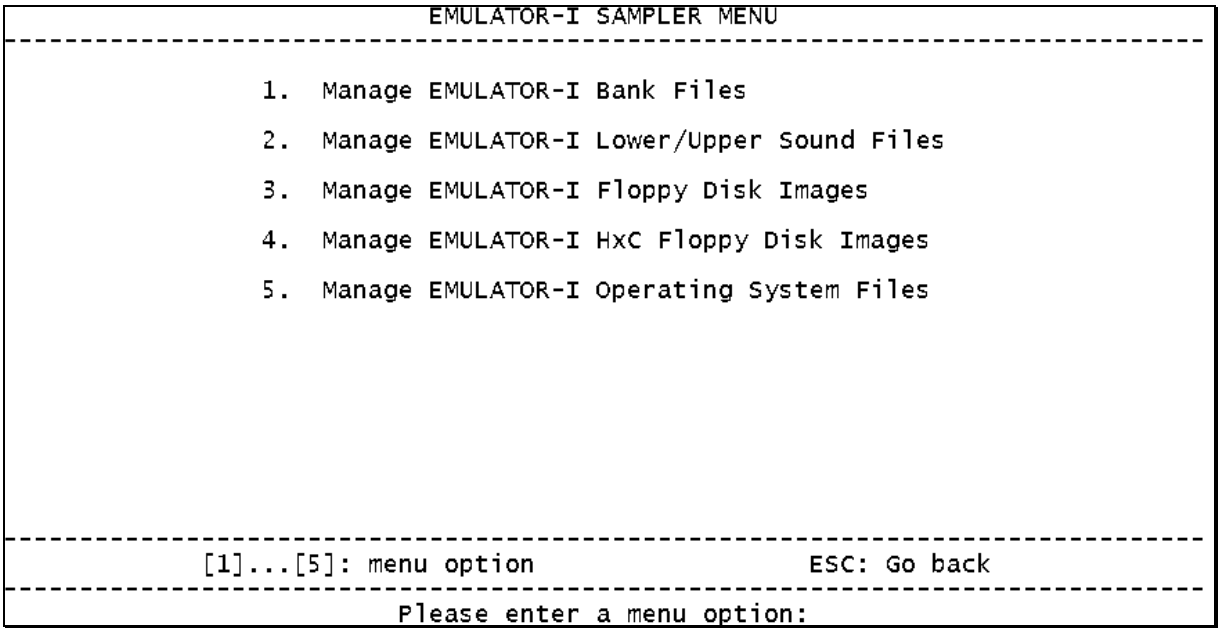
The above diagrams show which Emulator-I objects are supported by EMXP, and the natural relationship between these objects. Objects and arrows in dotted lines are *not supported (directly)* by EMXP.

No	Disk/File type	File Extension	Short description
	Emulator-I:		
1	Floppy Disk Image File	.EMUFD, .IMG (*)	File containing an exact copy of an Emulator-I floppy disk. It contains an operating system and (optionally) a sound bank which is a dump of the Emulator-II sound bank memory. The sound bank consists of a lower and upper sound and sequences.
2	HxC Floppy Disk Image File	.HFE	Image file for use with an HxC Floppy Emulator, containing an exact copy of a floppy disk
3	Operating System File	.E1O	File containing the operating system as it can be found on a floppy disk or on a disk image.
4	Bank File	.E1B	File containing the sound bank data in exactly the same format as it can be found on floppy disk or in the Emulator-I memory.
5	Lower/Upper File (Half File)	.E1H	File containing exactly one sound. This sound – which covers half of the Emulator-I keyboard and can consist of up to 6 samples – can be either the lower or the upper sound of a bank or a disk image, floppy disk, or Emulator-I sound memory.

Note (*): see *section "4.5.1 Supported file and disk types"*.

Emulator-I floppy disks can not be directly accessed by EMXP. It is however possible to read these floppy disks with a special disk controller (KryoFlux), or to copy data from/to these floppy disks on an Emulator-I in which an HxC floppy emulator device has been installed.
See *chapter "13. USING HXC AND KRYOFLUX"*.

To get access to Emulator-I objects, you should select:
"1. Manage EMU Files and Disks" → "3. Manage EMU EMULATOR-I Files"



Option 1, 2, 3 and 4 can be used if you want to "do something with" Emulator-I Bank, Floppy disk image, HxC floppy disk image and Lower/Upper sound files.

"Doing something" here means:

- Getting detailed information on the bank, sounds and samples stored in the selected file(s)
- Copying the selected banks/sounds to another file or to a disk
- Converting the selected banks/sounds to any other sampler type or to WAV files
- Listening to all samples in the EMXP audio player
- …

If **option 3 or 4** has been selected, it's also possible to:

- Extract an operating system from the floppy disk image file or HxC floppy disk image file
- Change the boot rom number on the floppy disk image file or HxC floppy disk image file. Ideally each disk used on an Emulator-I should contain the same boot rom number as the one of the boot rom installed on the main digital board of the Emulator-I. Each Emulator-I has a unique boot rom number. If the boot rom number is different, disks may not be usable of you own an early Emulator-I sampler.[8]
- Make raw copies between floppy disk image files and HxC floppy disk image files

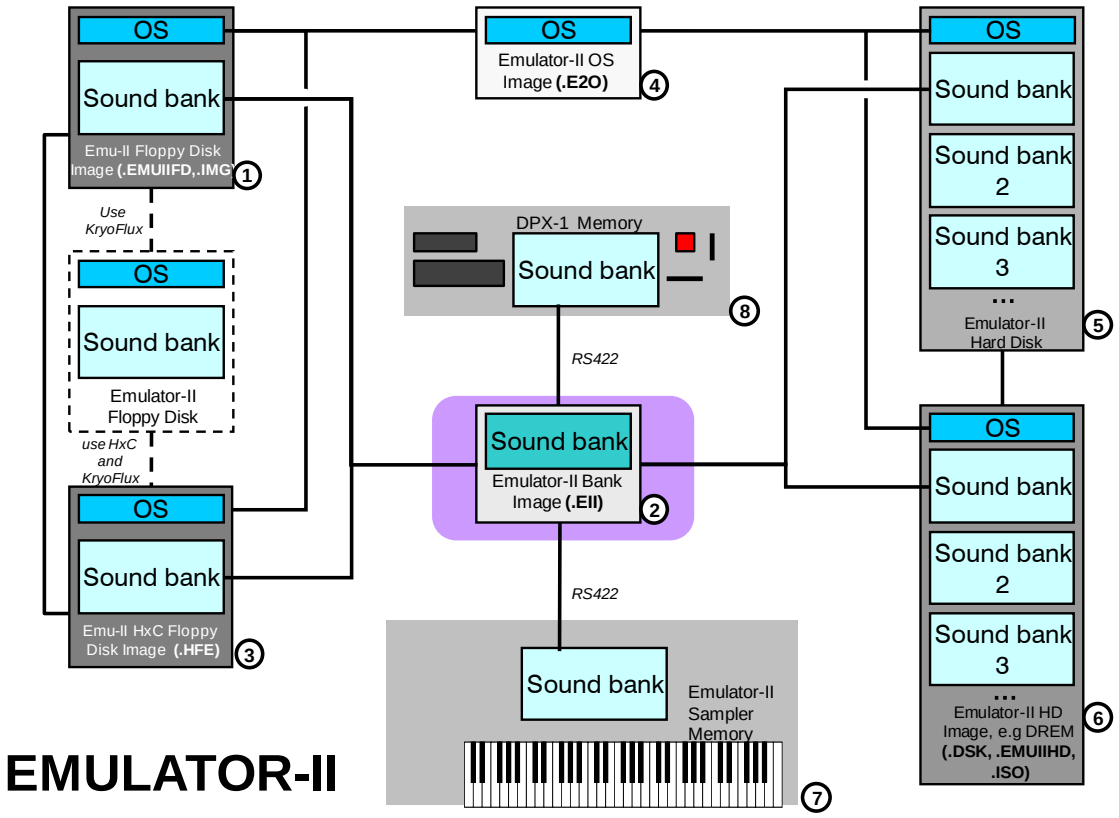
Floppy disk image files and HxC floppy disk image files are compatible with the HxC floppy emulator. HxC floppy disk image files can directly be used in the HxC floppy emulator. Floppy disk image files can be converted to .HFE files in EMXP or by using the HxCFloppyEmulator conversion software. See *section "13.2 HXC FLOPPY EMULATOR DEVICE"*.

Option 5 should be used if you want to copy an Emulator-I Operating System to a floppy disk image file or HxC floppy disk image file, or if you want to generate a bootable Emulator-I floppy disk image file or HxC floppy disk image file (e.g. for use with the HxC installed in the Emulator-II). It's also possible to change the boot rom number of the OS file (see option 3 an 4 for more information).

[8] For more information, see separate document which can be found on www.emxp.net

4.6.4 Emulator-II objects

Following Emulator-II files are supported by EMXP:



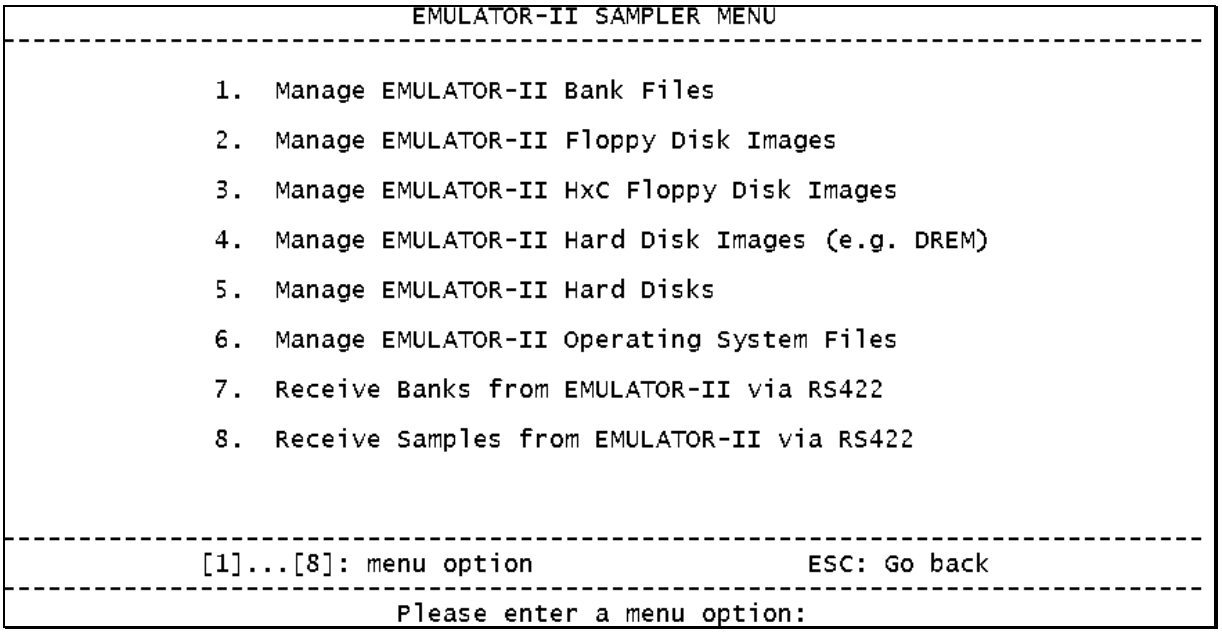
The above diagrams show which Emulator-II objects are supported by EMXP, and the natural relationship between these objects. Objects and arrows in dotted lines are *not supported (directly)* by EMXP.

No	Disk/File type	File Extension	Short description
	Emulator-II:		
1	Floppy Disk Image File	.EMUIIFD, .IMG (*)	File containing an exact copy of an Emulator-II *performance* floppy disk. It contains an operating system and (optionally) a sound bank which is a dump of the Emulator-II sound bank memory.
2	Bank File	.EII	File containing the sound bank data in exactly the same format as it can be found on floppy disk or in the Emulator-II memory. A bank image is the same as a Sound Designer for EII file. It can be used with that software too.
3	HxC Floppy Disk Image File	.HFE	Image file for use with an HxC Floppy Emulator, containing an exact copy of a floppy disk
4	Operating System File	.E2O	File containing the operating system as it can be found on a floppy disk or on a disk image.
5	Hard Disk	n/a	Hard Disk containing zero or one operating systems and a maximum of 46 sound banks, each as a dump of the Emulator-II sound bank memory
6	Hard disk image file	.DSK, .EMUIIHD, ISO, .IMG (*)	Image file containing an exact copy of a hard disk, optionally extended with additional metadata for use in DREM emulator.
7	Emulator-II Sampler	n/a	The sampler itself can be accessed by EMXP through RS422 for bank and sample transfers.
8	Oberheim DPX-1 Sample Player	n/a	EMXP can transfer banks to the DPX-1 sample player through RS422

Note (*): see *section "4.5.1 Supported file and disk types"*.

Emulator-II floppy disks can not be directly accessed by EMXP. It is however possible to read these floppy disks with a special disk controller (KryoFlux), or to copy data from/to these floppy disks on an Emulator-II in which an HxC floppy emulator device has been installed.
See *chapter "13. USING HXC AND KRYOFLUX"*.

To get access to Emulator-II objects, you should select:
"1. Manage EMU Files and Disks" → "4. Manage EMU EMULATOR-II Files and Disks"



Options 1, 2, 3 and 4 can be used if you want to "do something with" Emulator-II Bank, Floppy Disk Image files, HxC Floppy Disk Image files and hard disk image files like DREM files.

"Doing something" here means:

- Getting detailed information on the bank, presets, voices and samples stored in the selected file(s)
- Generating bank/preset overview reports in TXT or CSV format
- Copying the selected banks to another file or disk
- Converting the selected banks to any other sampler type or to WAV files
- Sending the bank to an Emulator-II sampler or Oberheim DPX-1 sample player via RS422
- Converting between disk and bank files
- Extracting an operating system from a (HxC) floppy or hard disk image file
- Restoring a hard disk image file to a hard disk
- Listening to all samples in the EMXP audio player
- …

The files in option 1, 2 and 3 are compatible with the HxC floppy emulator. HxC floppy disk image files can directly be used in the HxC floppy emulator. Bank and floppy disk image files can be converted to .HFE files in EMXP or by using the HxCFloppyEmulator conversion software. See *section "13.2 HXC FLOPPY EMULATOR DEVICE"*.

Option 5 should be used if you want to "do something" with the contents of an Emulator-II hard disk.

Important note: while Emulator-II hard disk support has been added to EMXP, there is currently no method known to connect an original Emulator-II hard disk to a computer. There's currently also no hard disk emulator available of which the memory cards are a raw clone of an Emulator-II hard disk.
The SD cards used in the DREM hard disk emulator are not raw clones of an Emulator-II hard disks: they are formatted with file system FAT32, behave as the internal hard drive of the DREM computer itself, and should be filled with one or more hard disk image files (.DSK files).
Use option 4 for using DREM files in EMXP.

"Doing something" here means almost the same as for options 1 → 4:

- Selecting one or more banks
- Copying the selected banks to another disk or to a file
- Converting the selected banks to any other sampler type or to WAV files
- Getting detailed information on the banks, presets, voices and samples stored on the disk
- Generating bank/preset overview reports in TXT or CSV format
- Extracting an operating system from a disk
- Backing up a hard disk to a hard disk image file
- Listening to all samples (of the selected bank(s)) in the EMXP audio player.
- …

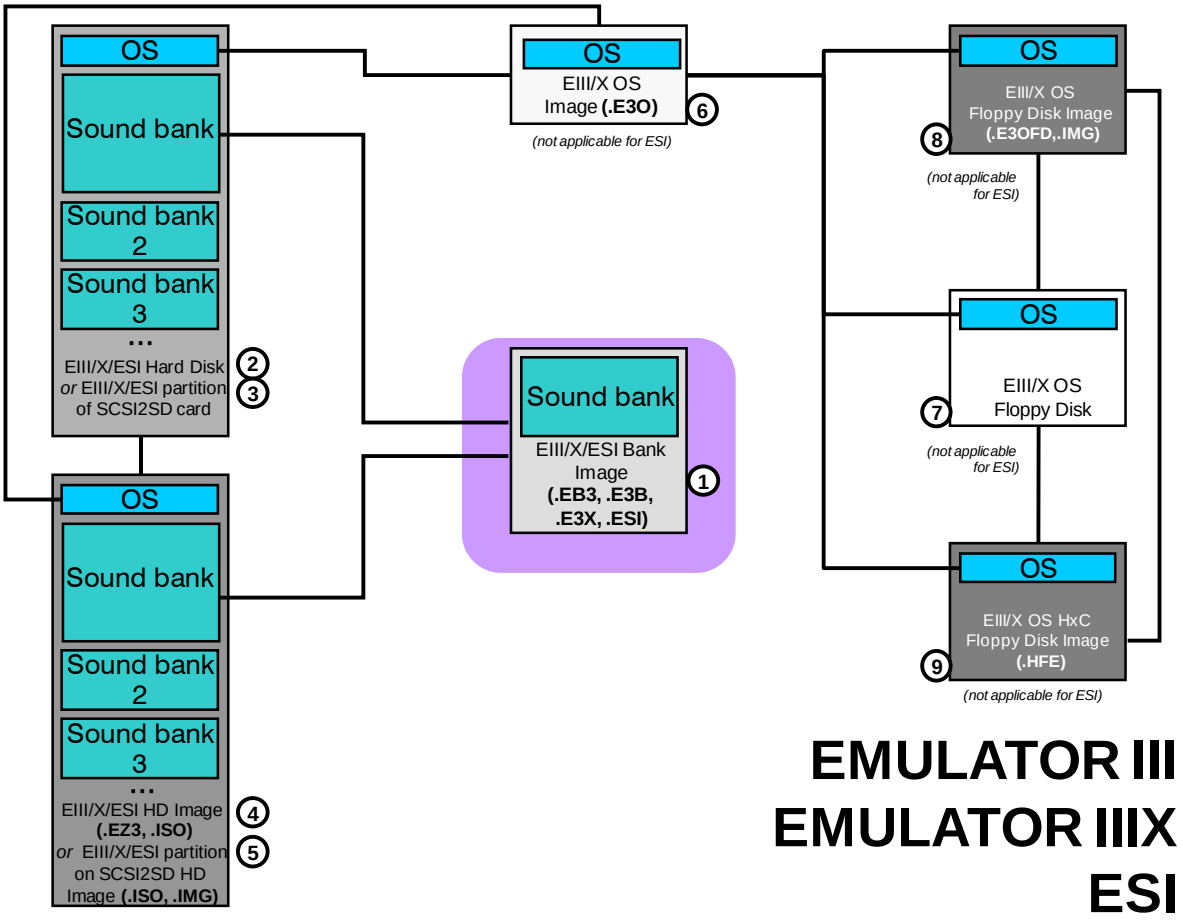
Option 6 should be used if you want to copy an Emulator-II Operating System to a (HxC) floppy disk image file, to a hard disk or or to a hard disk image file (like a DREM file), or if you want to generate a bootable Emulator-II floppy disk image file or HxC floppy disk image file (e.g. for use with the HxC installed in the Emulator-II).

Option 7 allows for downloading Emulator-II banks from an Emulator-II sampler. You should have a compatible RS422 port installed on your computer. See also *section "9.6 TRANSFERRING BANKS VIA RS422 WITH EMXP"* later in this document.

Option 8 allows for downloading samples from an Emulator-II sampler via RS422. You should have a compatible RS422 port installed on your computer. See also *section "9.9 TRANSFERRING WAV FILES TO/FROM EMULATOR-II VIA RS422"* later in this document.
The downloaded samples will be stored as WAV files.

4.6.5 Emulator-III, Emulator-IIIX and ESI objects

Following Emulator-III, Emulator-IIIX and ESI files are supported by EMXP:

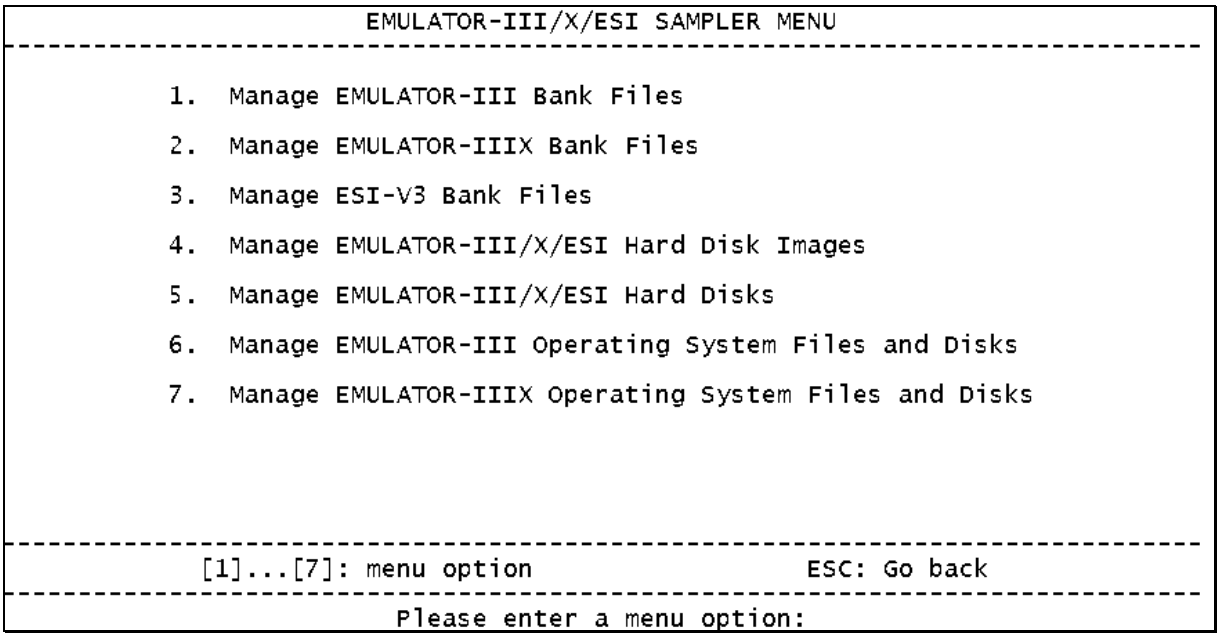


The above diagrams show which Emu-III, Emu-IIIX and ESI objects are supported by EMXP, and the natural relationship between these objects. Objects and arrows in dotted lines are *not supported (directly)* by EMXP.

No	Disk/File type	File Extension	Short description
	Emu-III, Emu-IIIX, ESI:		
1	Bank File	.EB3, .E3B, .E3X, .ESI	File containing the complete sound bank data but from which empty (unused) sample space has been removed. It has exactly the same format as the sound banks that can be found on Emu-III, Emu-IIIX or ESI hard disks/cdroms. ESI banks are ESI-v3 banks; ESI-v2 banks are treated as Emu-IIIX banks.
2	Hard Disk/CDROM	n/a	Hard Disk, Memory Card, CDROM, etc containing zero or one operating systems and a maximum of 100 sound banks (in the same format as Emu-III, Emu-IIIX or ESI-v3 bank images).
3	Partition on SCSI2SD Card	n/a	A single partition on a SCSI2SD card. A SCSI2SD partition which behaves like a normal Emulator-III/IIIX/ESI hard disk
4	Hard Disk Image File	.EZ3, .ISO, .IMG (*)	ISO Image file containing an exact copy of a hard disk/cdrom.
5	Partition in SCSI2SD Hard Disk Image File	.ISO, .IMG (*)	A single partition in a SCSI2SD hard disk image file. A SCSI2SD partition behaves like a normal Emulator-III, Emulator-IIIX or ESI hard disk image file
6	Operating System File	.E3O	File containing the Emu-III or Emu-IIIX operating system as it can be found on a floppy disk or on a hard disk/cdrom
7	OS Floppy Disk (**)	n/a	3.5” floppy disk, containing an Emu-III or Emu-IIIX operating system
8	OS Floppy Disk Image File (**)	.E3OFD, .IMG (*)	Image file containing an exact copy of an Emu-III or Emu-IIIX operating system floppy disk
9	OS HxC Floppy Disk Image File (**)	.HFE	Image file for use with an HxC Floppy Emulator, containing an exact copy of an Emu-III or Emu-IIIX OS floppy disk

Note (*): see *section "4.5.1 Supported file and disk types" (**): see below*

To get access to Emulator-III, Emulator-IIIX and ESI objects, you should select:
"1. Manage EMU Files and Disks" → "5. Manage EMU EMULATOR-III/X/ESI Files and Disks"



Option 1, 2 and 3 should be used if you want to "do something with" Emulator-III, Emulator-IIIX or ESI-v3 Bank Files.

"Doing something" here means:

- Selecting one or more of the images
- Copying the selected banks to another file or disk
- Converting the selected banks to any other sampler type or to WAV files
- Getting detailed information about the banks, presets, voices and samples stored in the selected file(s)
- Generating bank/preset overview reports in TXT or CSV format
- Listening to all samples in the EMXP audio player
- …

Option 4 should be used if you want to "do something with" hard disk images which are copies of or can be copied to Emulator-III, Emulator-IIIX or ESI hard disks. Individual Emulator-III, Emulator-IIIX or ESI partitions on a SCSI2SD hard disk image file are supported as well.

"Doing something" here means:

- Selecting one or more banks in the selected image
- Copying the selected banks to another disk or file
- Converting the selected banks to any other sampler type or to WAV files
- Getting detailed information about the banks, presets, voices and samples stored in the selected file(s)
- Extracting an operating system from the selected image
- Generating bank/preset overview reports in TXT or CSV format
- Restoring the complete (SCSI2SD partition of an) image file to a (SCSI2SD partition on a) hard disk
- Listening to all samples of the selected bank(s) in the EMXP audio player
- …

Option 5 should be used if you want to "do something" with the contents of an Emulator-III, Emulator-IIIX or ESI hard disk or CD-ROM. Individual Emulator-III, Emulator-IIIX or ESI partitions on a SCSI2SD card are supported as well.
"Doing something" here means almost the same as for option 3:

- Selecting one or more banks
- Copying the selected banks to another file
- Converting the selected banks to any other sampler type or to WAV files
- Getting detailed information about the banks, presets, voices and samples stored on the disk

- Extracting an operating system from the disk
- Generating bank/preset overview reports in TXT or CSV format
- Backing up a (SCSI2SD partition on a) disk to a (SCSI2SD partition in a) hard disk image file.
- Listening to all samples of the selected bank(s) in the EMXP audio player
- …

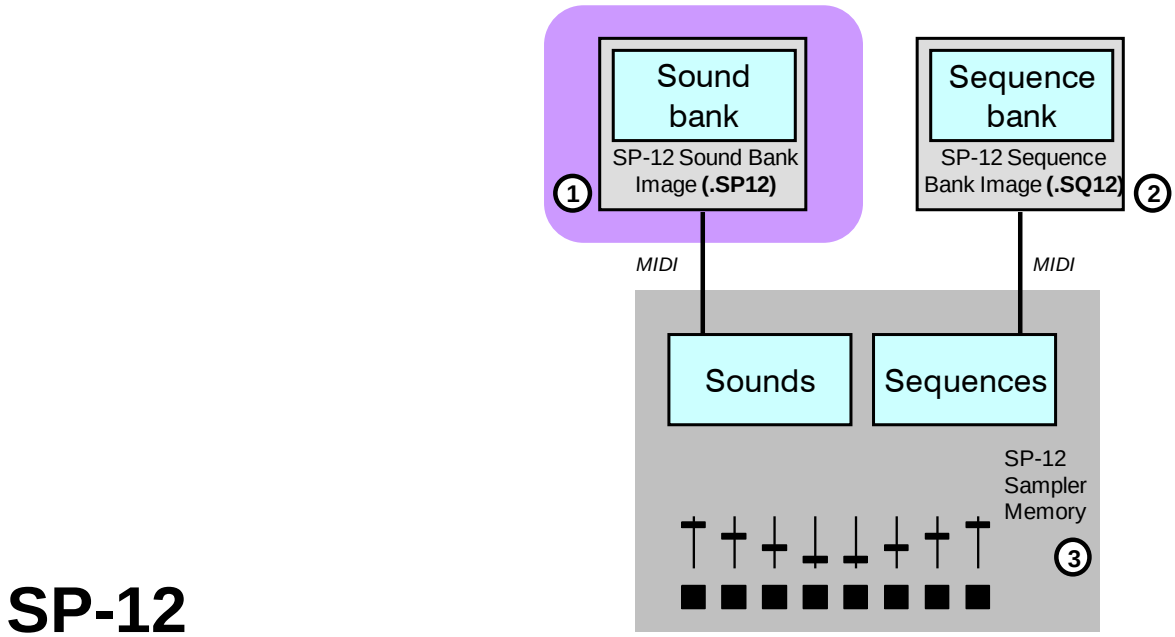
Option 6 should be used if you want to copy an Emulator-III Operating System between an operating system file, a floppy disk, a floppy disk image file or an HxC floppy disk image file. It's also possible to copy an Emulator-III operating system to a hard disk image file, to a partition in a SCSI2SD hard disk image file, to a hard disk or to a partition on a SCSI2SD hard disk.

Option 7 is similar to option 6 but should be used for Emulator-IIIX Operating Systems.

Note (**): Emulator-III and Emulator-IIIX floppy disks, floppy disk image files and HxC floppy disk image files are only supported for operating systems. Emulator-III, Emulator-IIIX and ESI Floppy disks and (HxC) floppy disk image files that contain sound bank data are not supported by EMXP.

4.6.6 SP-12 objects

Following SP-12 files are supported by EMXP:

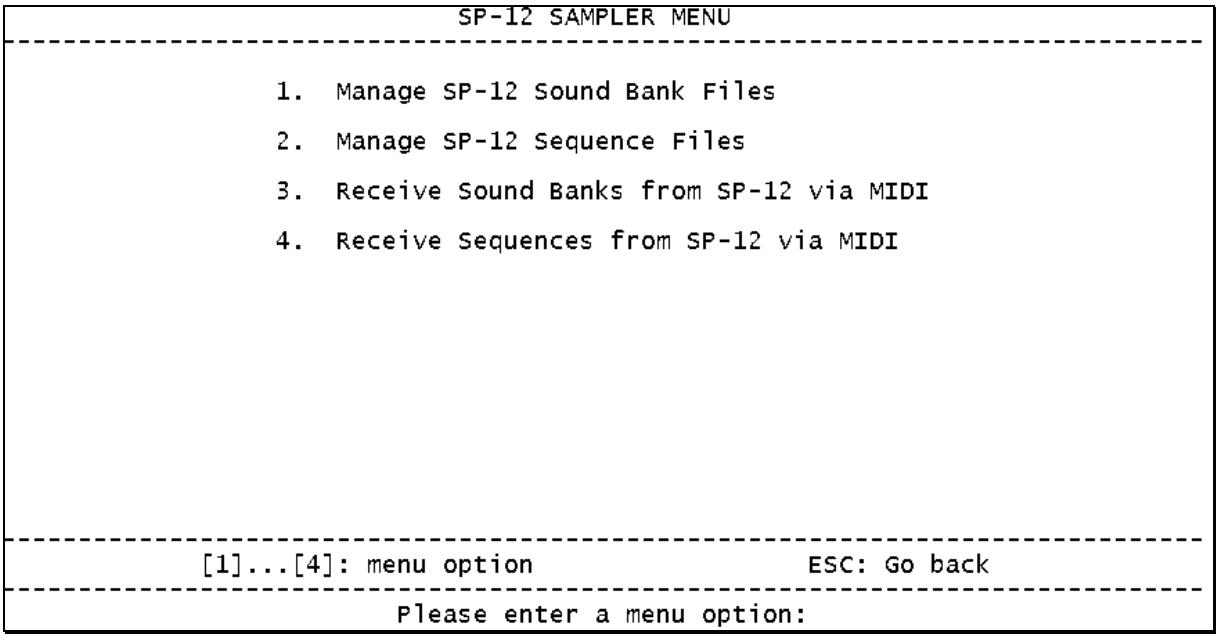


The above diagrams show which SP-12 objects are supported by EMXP, and the natural relationship between these objects.

No	Disk/File type	File Extension	Short description
	SP-12:		
1	Sound Bank File	.SP12	File containing all sounds (parameters and audio data) in the same format as they can be found in the SP-12 sound RAM memory. SP-12 ROM audio data is *not* stored in these files, but their parameters are. An SP-12 sound bank file should be compatible with SP-12 Librarian sound files and should be usable with that software too.
2	Sequence File	.SQ12	File containing all segments, songs and mixes in the same format as they can be found in the SP-12 sequence RAM memory. An SP-12 sequence bank file should be compatible with SP-12 Librarian sequence files and should be usable with that software too.
3	SP-12 Sampling Percussion Instrument	n/a	The sampler/drum computer itself can be accessed by EMXP through MIDI for bank and sample transfers.

SP-12 floppy disks can not be accessed by EMXP.

To get access to SP-12 objects, you should select:
"1. Manage EMU Files and Disks" → "6. Manage EMU SP-12 Files"



Option 1 can be used if you want to "do something with" SP-12 Sound Bank files.

"Doing something" here means:

- Getting detailed information on the bank, sounds and samples stored in the selected file(s)
- Generating bank/sound overview reports in TXT or CSV format
- Copying the selected banks to another file
- Converting the selected banks to any other sampler type or to WAV files
- Sending the bank or its individual sounds to an SP-12 sampler via MIDI
- Assigning user defined names to SP-12 sounds
- Listening to all samples in the EMXP audio player
- …

Option 2 can be used if you want to "do something with" SP-12 Sequence files.

"Doing something" here means:

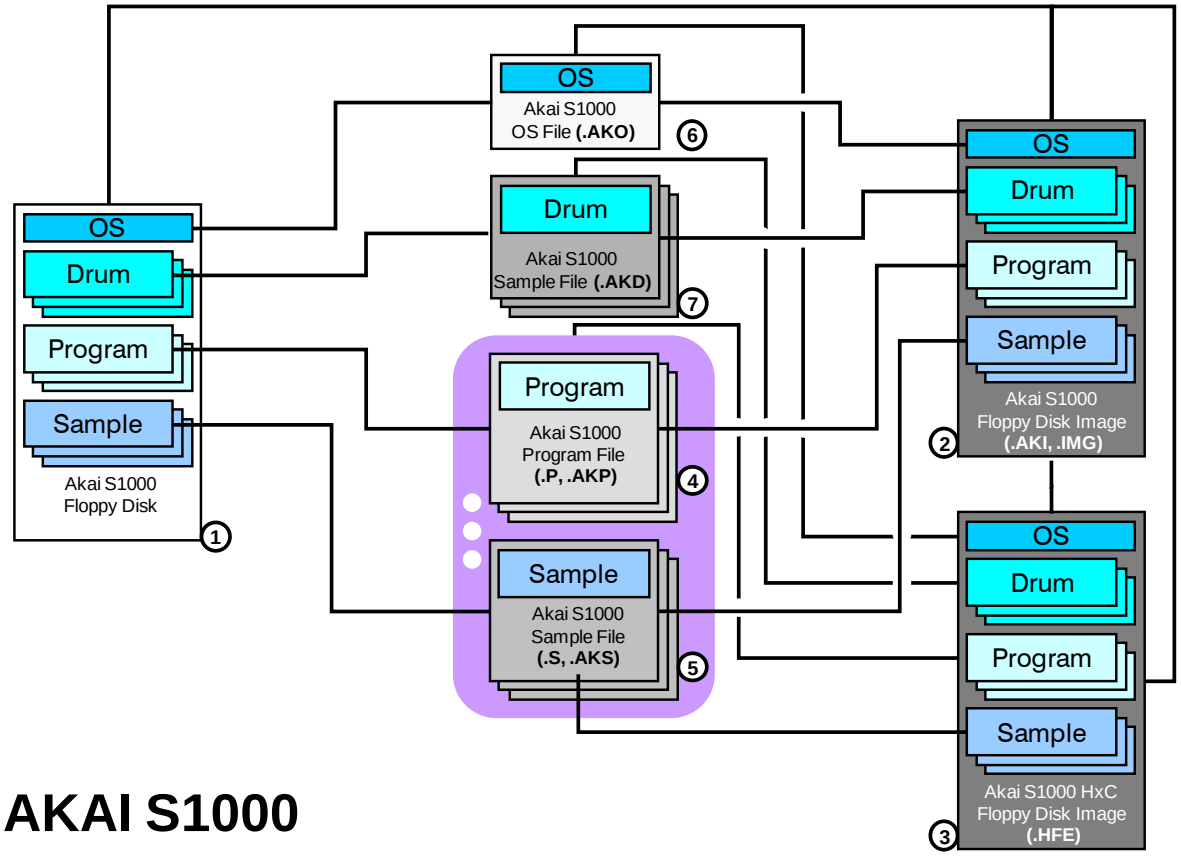
- Getting detailed information on the sequence banks and the songs, segments and mixes stored in the selected file(s)
- Generating bank/segment&song overview reports in TXT or CSV format
- Sending the sequence file or its individual segments to an SP-12 sampler via MIDI
- Assigning user defined names to SP-12 segments and songs
- …

Option 3 allows for downloading SP-12 sound banks from an SP-12. You should have a MIDI port installed on your computer. See also *section "9.7 TRANSFERRING SOUNDS AND SEQUENCES TO/FROM SP-12 VIA MIDI"* later in this document.

Option 4 allows for downloading SP-12 sequences from an SP-12. You should have a MIDI port installed on your computer. See also *section "9.7 TRANSFERRING SOUNDS AND SEQUENCES TO/FROM SP-12 VIA MIDI"* later in this document.

4.6.7 Akai S1000 objects

Following Akai S1000 files are supported by EMXP:

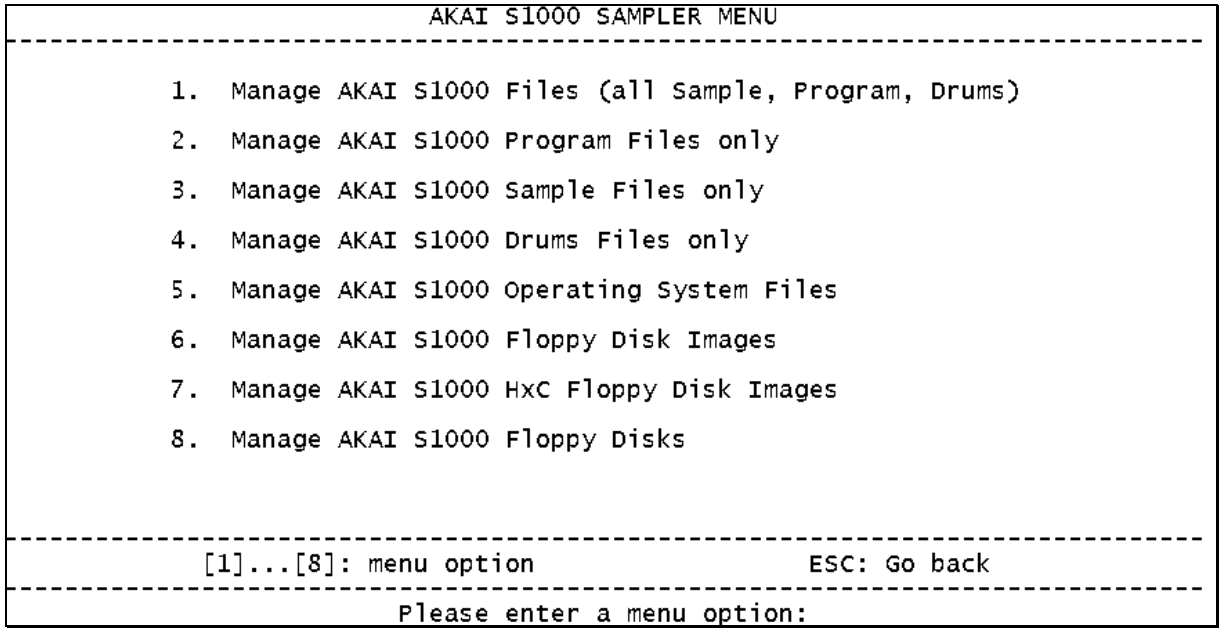


The above diagrams show which Akai S1000 objects are supported by EMXP, and the natural relationship between these objects.
Hard disks and CDROMs are not supported, nor are conversions to any other sampler format. Only conversions from EMAX-I/EMAX-II to Akai S1000 are supported by EMXP.

No	Disk/File type	File Extension	Short description
	Emulator-I:		
1	Floppy Disk	n/a	3.5” (DS or HD) floppy disk, containing an operating system and/or program files and/or sample files and/or drum files.
2	Floppy Disk Image File	.AKI, .IMG (*)	File containing an exact copy of an Akai S1000 floppy disk.
3	HxC Floppy Disk Image File	.HFE	Image file for use with an HxC Floppy Emulator, containing an exact copy of a floppy disk
4	Program File	.P (or .AKP)	File containing a program, i.e. a preset with its parameters (no sample/sound included). A program file refers to one or more sample files (max. 4)
5	Sample File	.S (or .AKS)	File containing a sample, i.e. the actual sound bytes of one sample and its parameters. A sample file can be in use by one or more program files.
6	Operating System File	.AKO	File containing the operating system as it can be found on a floppy disk or on a disk image.
7	Drum File	.AKD	File containing drum input settings

Note (*): see *section "4.5.1 Supported file and disk types"*.

If you select **option 2** on the main menu**,** you get all possible Akai S1000 source objects:



Option 1 can be used to get an overview of Akai S1000 files, except for the operating system files.
From this list, you can either choose to copy files to a floppy disk, floppy disk image or HxC floppy disk image.

Option 2 and 3 give a subset of the view from option 1. From the generated overview, you can again choose to copy files.
In addition, if you select option 3 you will also be able to convert Akai S1000 samples to WAV files.

Option 4 and 5 have the same function as option 1, but limited to either Akai S1000 drum files or Akai S1000 operating system files.

With **option 6** it is possible to browse the files within an Akai S1000 floppy disk image file. You can choose to extract on or more of these files. It's also possible to restore this file to a floppy disk or to copy it to an HxC floppy disk image file. Option 6 also offers the possibility to generate empty Akai S1000 floppy disk images.

With **option 7** it is possible to browse the files within an Akai S1000 HxC floppy disk image file. You can choose to extract on or more of these files. It's also possible to restore this file to a floppy disk or to copy it to a floppy disk image file. Option 7 also offers the possibility to generate empty Akai S1000 HxC floppy disk images.

Akai S1000 floppy disk image files (.AKI, .IMG) and Akai S1000 HxC floppy disk image files (.HFE) are compatible with the HxC floppy emulator. HxC floppy disk image files can directly be used in the HxC floppy emulator. Floppy disk image files can be converted to .HFE files in EMXP or by using the HxCFloppyEmulator conversion software. See *section "13.2 HXC FLOPPY EMULATOR DEVICE"*.

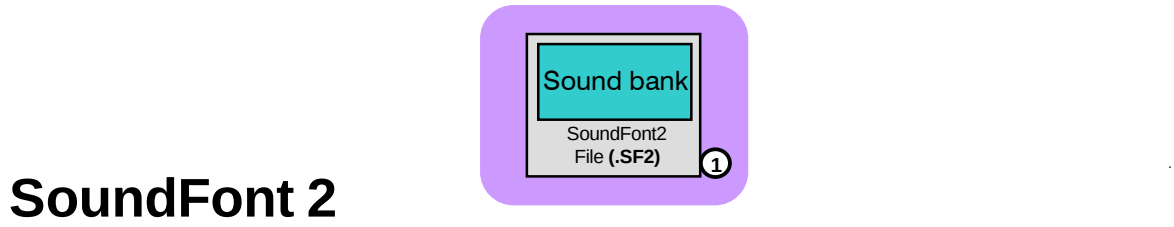
Option 8 can be used to manage Akai S1000 floppy disks. Functions available are: formatting disks, copying individual Akai S1000 files from floppy disk to the computer, and making backups of floppy disks (to either floppy disk image files or HxC floppy disk image files)

NOTE: while testing EMXP it seemed that formatting Double Density Akai S1000 disks does not always result in usable disks. However, EMXP can still read and write the contents of Akai S1000 DD disks formatted by the Akai S1000 sampler itself.

By default the names assigned by EMXP to Akai S1000 mono samples, programs and drum files don't exceed 10 characters (although the technical limit is 12 characters). This limit is used to guarantee full compatibility with the S950 sampler, which can read Akai S1000 files/disks as well but which can only handle file names of up to 10 characters. For more details, see *section "10.3.9.3 Define maximum size of Akai S1000 file names on floppy or floppy image"*.

4.6.8 SoundFont2 objects

Following SoundFont2 files are supported by EMXP:



No	Disk/File type	File Extension	Short description
	SoundFont2:		
1	Bank File	.SF2	File containing a sound bank (presets, instruments, samples). SoundFont versions 2.00 → 2.04 are supported. The maximum supported bank file size is 2GB.

If you select **option 4** on the main menu**,** you get immediate access to the SoundFont2 files, on which (after selecting one or more files) following actions are possible:

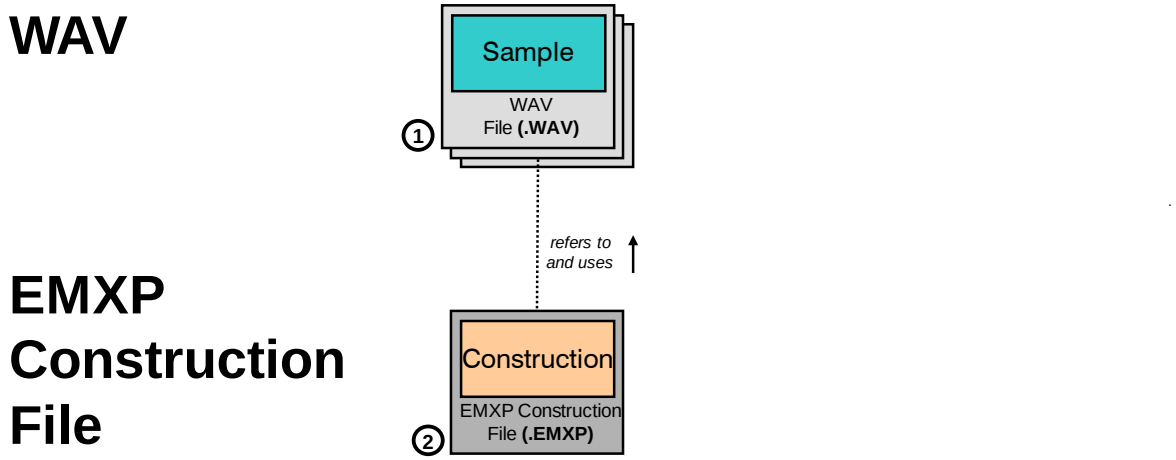
- Getting detailed information on the bank, presets, instruments, zones and samples stored in the selected file(s)
- Generating bank/preset overview reports in TXT or CSV format
- Converting the selected files to any other sampler type or to WAV files
- Listening to all samples in the EMXP audio player
- ...

Please note that original SoundFont “version 1” files can not be processed by EMXP.
Only SoundFont2 files are supported. All known SoundFont2 versions, from v2.00 to v2.04, are supported, but when using v2.04 files only the 16 bit portion of the 24 bit sound data is processed.

4.6.9 WAV and EMXP construction file objects

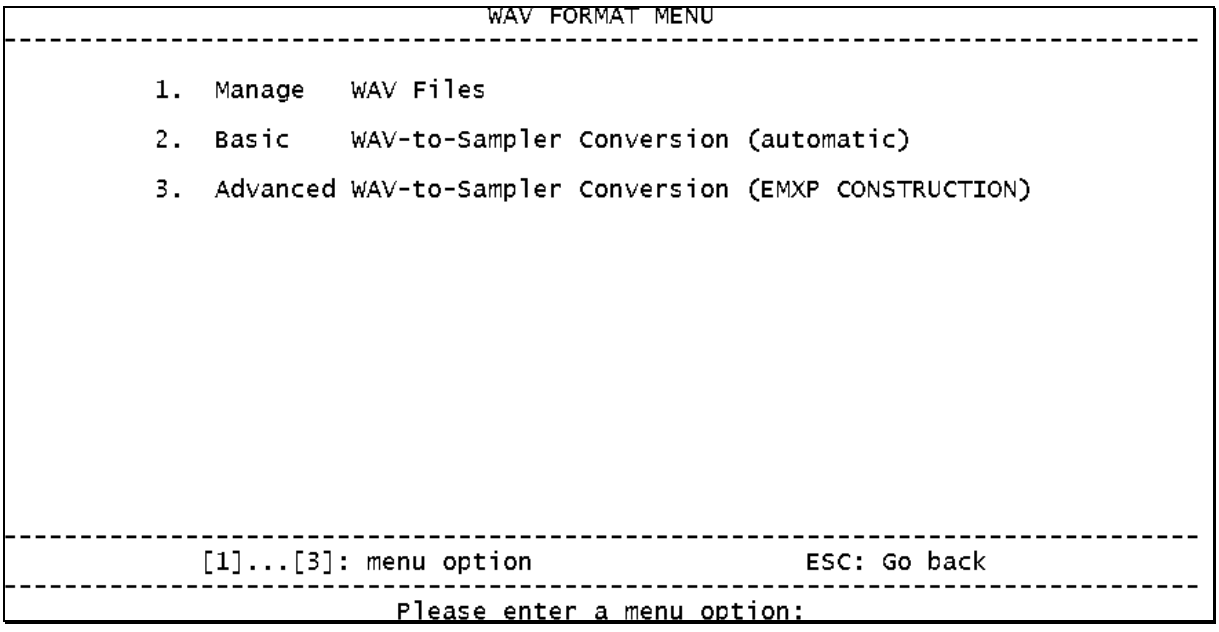
EMXP supports 16 bit mono and stereo WAV files, which can automatically be merged and converted into sampler sound banks.

There's also a basic construction option in EMXP, in which you can manually assign WAV files to portions of a sampler's keyboard in one or more presets.



No	Disk/File type	File Extension	Short description
	WAV:		
1	WAV file	.WAV	File containing one sample and some of its basic parameters (like sample rate, number of channels, loops). These are standard WAV files. However, only 16 bit files are supported, either mono or stereo. The maximum supported WAV size is 2GB.
	Construction file:		
2	Construction file	.EMXP	File containing WAV-to-keyboard assignments for one or more presets of a specific sampler type. These files do not include the actual audio data – there are only references to WAV files.

If you select **option 3** on the main menu**,** you get following menu:



Option 1 can be used to select one or more WAV files and automatically merge them together into sampler banks or convert them to Akai S1000 samples.

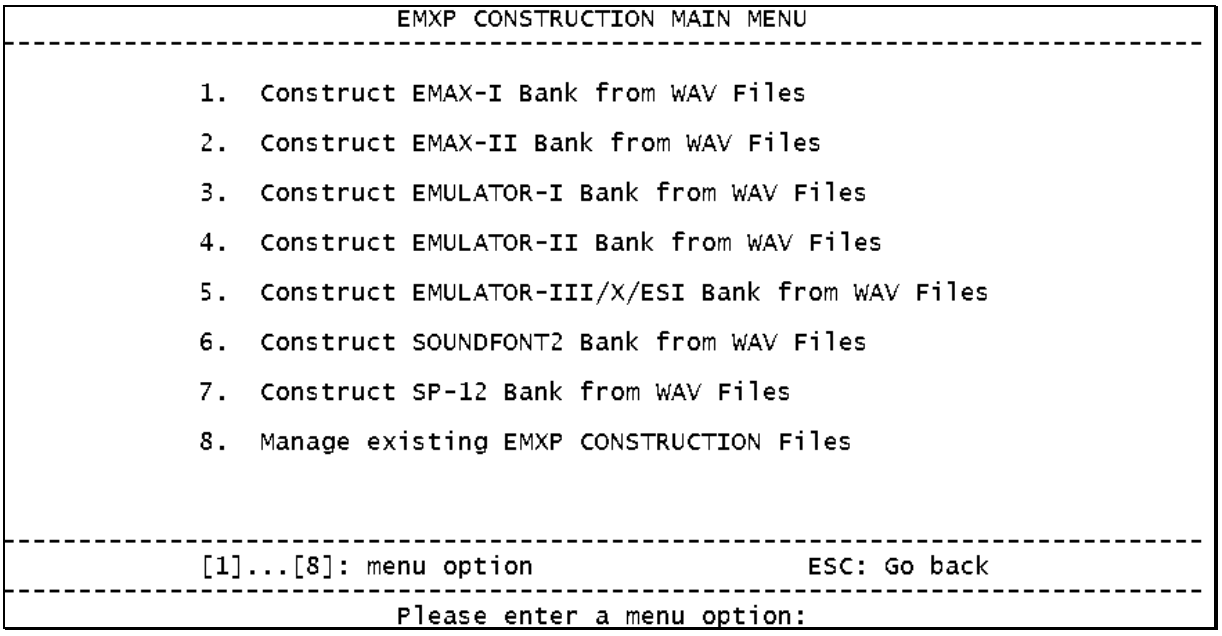
It is also possible to upload WAV files to an EMAX-I or EMAX-II sampler via RS422 or MIDI, to an Emulator-II sampler via RS422 and to an SP-12 via MIDI.
You should have a compatible RS422 port and/or MIDI interface installed on your computer. See also *section "9.8 TRANSFERRING WAV FILES TO/FROM EMAX VIA RS422 OR MIDI", section "9.9 TRANSFERRING WAV FILES TO/FROM EMULATOR-II VIA RS422"* and *section "9.10 TRANSFERRING WAV FILES TO SP-12 VIA MIDI"* later in this document.

You can also listen to the selected WAV files in the EMXP audio player.

Option 2 is the same as option 1, but limited to the possibility of automatically converting WAV files to sampler files.

Option 3 allows for manual construction of sampler files, by assigning WAV files to specific keyboard areas (either as primary or secondary voice) and setting their original pitch. Multiple presets can be created if this is supported by the target sampler.
Option 3 also allows for editing or generating existing construction files.
More information on constructing sampler files based on WAV files can be found in *chapter "8. USING EMXP: CONSTRUCTIONS"*.

If you select **option 5** on the main menu**,** you get following menu:



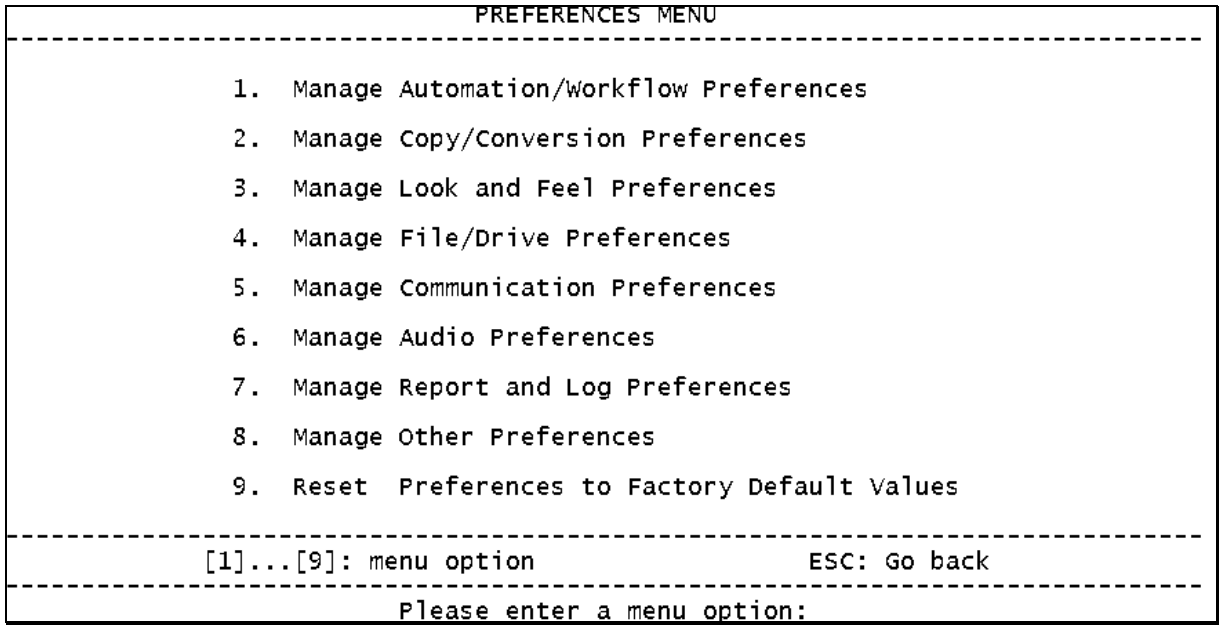
This is the same menu as the one that appears after selecting option 3 in the "3. Manage WAV files" menu option.

Options 1 → 7 should be used for manual construction of sampler files of the sampler type mentioned in the menu option. This can be done by assigning WAV files to specific keyboard areas (either as primary or secondary voice) and setting their original pitch. Multiple presets can be created if this is supported by the target sampler. When selecting option 5, an additional menu screen will appear in which you can select whether you cant to construct an Emulator-III sound bank, an Emulator-IIIX sound bank or an ESI-v3 sound bank.

Option 8 can be used to edit or generate existing construction files.

4.7 PREFERENCES

The preferences section of EMXP allows you to define some common used settings in EMXP.



More details can be found *in chapter "10. PREFERENCES".*

4.8 CORRUPT BANKS AND VALIDATION RULES

4.8.1 About EMXP validation rules

EMXP applies strong validation rules to the banks and files it is processing.

File validation

The **disk and file validation** layer checks things like:

- Is a floppy formatted for EMAX, Akai 1000 ?
- Is a hard disk or a partition on a SCSI2SD hard disk formatted for EMAX or Emulator-III ?
- Is an HxC floppy image file encoded (formatted) for EMAX, Akai S1000 ?
- Is an EMX file "EMX-signed" and does it have the correct size ?
- Does a WAV file have an encoding schema supported by EMXP (linear/PCM) ?
- …

If this validation fails EMXP will display an warning message (unless you explicitly requested EMXP not to do so, see *section "10.5.7.1 Define if warnings should be shown when invalid files are detected"* and *section "10.5.3.3 Define what to do with incompatible files with a generic file extension"*).
Invalid files are never included in file overview screens and hence you will not be able to use these file(s).
Invalid disks are refused by EMXP and you will have to insert another (valid) disk.

If the file or disk validation is successful you will be able to get at least an overview of banks and/or operating systems on the file/disk, or to write banks and operating systems to the file/disk.

Note that whenever EMXP encounters a disk or file error, your sampler will not be able to process this invalid disk or file neither !

Bank validation

Bank validation is independent of disk and file validation. It only occurs for EMXP functions that need access to the actual content of the bank.
(Un)fortunately a lot of features of EMXP need the values of the **bank parameters**:

- Of course this is true for all "show detail" and reporting functions, as these functions print the values of those parameters to the screen.
- Also all overview (list) screens of presets, samples, voices and key areas depend on some parameter values.
- The copy/conversion functions need these parameters as well.

Bank parameter validation within EMXP is set up in **two levels**:

- Level 1: limited bank parameter validation. This is the validation of parameters like Number Of Disks, Disk Number, EMAX type (I or II) or Emulator type, Number Of Sequences, etc. The preset and sequence addressing scheme and some other global addresses are validated on level 1 as well.
- Level 2: validation of all preset, sample, key area and voice parameters. This also includes detailed addressing schemes of the voices, key areas and samples.

Some functions of EMXP only require level-1 validation. But other functions require level-2 validation. The examples at the beginning of this paragraph all require level-2 validation.

If EMXP encounters a bank error, your sampler might still be able to load the corrupt bank. However it is pretty sure that the sampler will crash while using the bank, especially if you try to use the invalid preset/sample/voice which caused the bank to be corrupt…

4.8.2 How EMXP handles corrupt banks

Showing parameter details

EMXP validates each individual parameter stored in a bank. If EMXP encounters a corrupt parameter, it will put a "*corrupt flag"* on the object containing the wrong parameter.
E.g. if a preset contains 10 voices, and voice 3 contains an invalid parameter, voice 3 gets a "corrupt" indicator and its detailed parameters can not be shown by EMXP. However all other voices and the preset parameters themselves can still be displayed by EMXP.

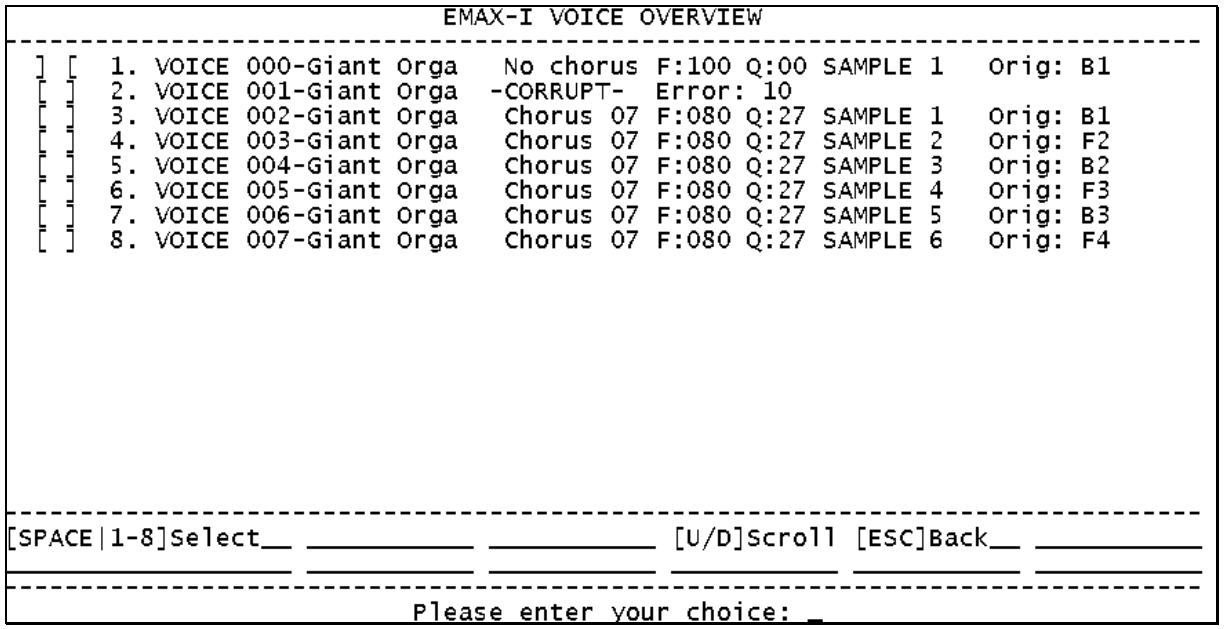
Note: one of the common problems found in corrupt EMAX banks is that parameters are simply missing. E.g. a preset contains 10 voices, but all data of the last 4 voices is missing and only half of the parameters of the 5th voice is present. The bytes that should contain these parameters are often filled with (a copy of) parameters of another object (preset, voice, …). This problem is probably caused by reading EMX bank images from 800K floppies using 720K file routines (i.e. ignoring the every 10th sector of the EMAX disks).

The example below shows the contents of a corrupt bank found on the internet (EMU Factory Bank ZD775):

```
                          EMAX-I PRESET OVERVIEW
------------------------------------------------------------------------------
  ] [  01. P00  ANALOG GIANT     #Voice:8   Arpeg off  A-1->C7    (no stack)
  [ ]  02. P01  Giant Organ      #Voice:8   Arpeg off  A-1->C7    (no stack)
  [ ]  03. P02                   -CORRUPT-  Error: 0
  [ ]  04. P03                   -CORRUPT-  Error: 18
  [ ]  05. P04                   -CORRUPT-  Error: 4
  [ ]  06. P05                   -CORRUPT-  Error: 6
  [ ]  07. P06                   -CORRUPT-  Error: 23
  [ ]  08. P07                   -CORRUPT-  Error: 17
  [ ]  09. P08                   -CORRUPT-  Error: 23
  [ ]  10. P09                   -CORRUPT-  Error: 2
  [ ]  11. P10                   -CORRUPT-  Error: 6
  [ ]  12. P11                   -CORRUPT-  Error: 0
  [ ]  13. P12                   -CORRUPT-  Error: 0
  [ ]  14. P13                   -CORRUPT-  Error: 23
  [ ]  15. P14  Snare/Toms       #Voice:2   Arpeg off  A-1->C7    (no stack)
  [ ]  16. P15  BreathingTom     #Voice:5   Arpeg off  A-1->C7    (no stack)
  [ ]  17. P16  Dbl Drums        #Voice:11  Arpeg off  A-1->C7    (no stack)
  [ ]  18. P17  Mono Drums       #Voice:11  Arpeg off  A-1->C7    (no stack)
------------------------------------------------------------------------------
[SPACE|01-18]Select _____ _____ [U/D]Scroll [ESC]Back__ _____
_____ _____ _____ _____ _____ _____ _____ _____ _____ _____
------------------------------------------------------------------------------
                          Please enter your choice:
```

In this example, a lot of presets contain invalid parameters. For each corrupt preset EMXP shows a "CORRUPT" flag and an error code which explains what parameter causes the (first) error. A list of possible errors can be found at the end of this chapter.

If we select the P01 preset in the example above, and request an overview of the voices in that preset, we get the results below:



As you can see, even this “valid” preset contains corrupt data: voice 001 seems to be invalid.

To correct these errors, we recommend to load the bank into your sampler, try to load the parameters and change the values. Save the bank and copy it back to your computer.

Copying/converting corrupt banks

EMXP will **not** disable the image copy and conversion functions for banks which are corrupt on the second level (e.g. invalid presets). Banks which are corrupt on the first level **can not be processed by EMXP.**

When converting between EMAX and EMAX-II with the "native" conversion engine:
When using the native conversion engine instead of the EMXP generic conversion engine, corrupt EMAX-I banks can be converted to EMAX-II and the other way around. The errors will be copied as well.
Only if one of the **sample parameters** is corrupt, copying EMAX-I/EMAX-II banks with the native engine will not be possible anymore. This is due to the fact that EMXP needs the sample addressing scheme to create or copy the files. But even when the sample parameter area seems to be OK, the actual addresses can be wrong. As a consequence, the copied bank or generated WAV file can contain (part of the) sound data of two different samples of the bank at the same time.

When doing any other type of conversion - with the EMXP generic conversion engine - (e.g. between EMAX-I/ EMAX-II – Emulator-I - Emulator-II – Emulator-III – Emulator-IIIX – ESI-v3 - SP12 - SoundFont2):
Objects that refer to or depend on an invalid object will not be converted. In practice this means that any *preset* which refers to at least one invalid voice, key area, sample, ... will be disqualified for conversion. E.g. if an Emulator-II bank contains 10 presets and 20 samples, and (only) one of the samples is invalid but is being used by all 10 presets, none of the presets will be converted.

Converting or playing invalid samples

If a sample is invalid, it will be disqualified for being played in the EMXP audio player and for being converted to a WAV file.

Empty samples

Empty samples (having a size of zero sample points) are treated by EMXP as being invalid for conversion and audio playing processes. But empty samples are not reported with a flag "CORRUPT" in the sample overview list screens of EMXP. The invalidity code 98 (indicating an empty sample) is shown in the Sample Details screens, so you can still view the different parameters of an empty sample.

4.8.3 Overview of validation error codes

4.8.3.1 EMAX-I and EMAX-II error list

This paragraph gives the list of possible errors causing a corrupt file, bank, preset, voice, key area or sample.

File errors:

2: unspecified error
10: invalid disk image number
11: invalid preset address area
12: unsupported data related to recently used presets, sequences, ...
13: invalid sequence address area
14: invalid sample parameter address
15: invalid total sample size
16: incompatible number of required disk images
17: incompatible file size for EMX or bank file
18: incompatible file size for hard disk image file
19: corrupt EMAX-II disk header
20: corrupt addressing scheme, it exceeds the total disk image capacity
21: invalid checksum
22: invalid cluster map header
23: invalid bank number in disk image catalogue
24: invalid bank backup status in disk image catalogue
26: wrong EMAX type (EMAX-I versus EMAX-II)
27→29: see *section "4.8.3.9 File or disk errors related to SCSI2SD cards or SCSI2SD disk image files"*
100→350: see *section "4.8.3.8 File errors related to HxC floppy disk image files"*

Bank level 1 errors:

1: disk number
2: recent preset or sequence
3: sequence address
4: sample parameter address
5: total sample size
6: number of required floppy disks

Preset parameter errors:

0-7: real time controls
MIDI:
8: midi channel
9-16: midi switch on/off parameters
17: midi left wheel
18: midi right wheel
19: midi pressure
20: midi pedal
21: midiA
22: midiB
ARPEGGIATOR:
23: arpeg tempo
24-26: 3 arpeg on off switches: on/off, cruz, glissando
27: key repeats
28: arpeg resolution
29: latch
30: mode
31: interval
32: extensions
33: velocity
34: high key

35: low key
36: harmony 1
37: harmony 2
OTHER:
38: pitch wheel range
39: stacked presets
40: master velocity curve
41: number of voicegroups in preset
42: number of voices in preset
43: number of key areas in preset
44: inconsistent number of key areas

Key area parameter errors:

4: crossfade loop type

Voice parameter errors:

0-4: VCA envelope AHDSR
5-9: VCF envelope AHDSR
10: LFO rate
11: LFO delay
12: LFO variation
13-16: LFO to VCA, LFO to filter, LFO to pitch, to panning
17: voice tune
18-24: velo to panning, to VCA attack, to VCF attack, to level, to filter cutoff, to pitch, to Q
25-32: routing controls
33: chorus value
34: chorus on off
35: cutoff frequency
36: resonance
37: filter envelope amount
38: keyboard solo
39: keyboard transpose
40: filter tracking
41: panning
42: voice delay
43: voice attenuation
44: original sample note
45: sample number
46: output channel to
47: output channel from (only EMAX 1)

Sample parameter errors:

2: Loop on/off switch
3: Start address
4: End address
5: Sample rate
6: Sustain loop address
7: Release loop address
98: Size, empty sample

4.8.3.2 Emulator-I error list

This paragraph gives the list of possible errors causing a corrupt file, preset, voice or sample.

File errors:

74: invalid Emulator-I file size
75: invalid preset (upper/lower) detected
100→350: see *section "4.8.3.8 File errors related to HxC floppy disk image files"*

Bank errors:

1: Lower and upper sound are corrupt – bank is invalid

Lower/Upper sound parameter errors:

1: Sound mode (different from: normal, solo and non-transposed)
2: Wrong initial internal parameter (generic)
3: Number of voices in sound
4: Number of key areas in sound
5: Wrong reserved internal parameter (generic)
6: *not used*
7: Wrong single sample mode initial parameters (generic)
8: All samples are invalid
9: Addresses of samples are overlapping

Sample parameter errors:

V1: Filter cutoff
V2: Tuning
V3: Invalid sample settings (generic - see S… error code which is provided too)
S1: Sample start address
S2: Sample end address
S3: Loop start address
S4: Loop length
S5: Sample addressing (generic)
S6: Sample addressing (generic)
S98: Size, empty sample

4.8.3.3 Emulator-II error list

This paragraph gives the list of possible errors causing a corrupt file or disk, preset, voice or sample.

File or disk errors:

60: invalid Emulator-II current preset
61: invalid Emulator-II preset address
62: invalid Emulator-II voice address
63: invalid Emulator-II sequence address
64: invalid Emulator-II main address and size
65: invalid Emulator-II sample address
66→69: invalid or incompatible geometry parameters in default or matching physical format/configuration which is used for accessing an Emulator-II hard disk or hard disk image
100→350: see *section "4.8.3.8 File errors related to HxC floppy disk image files"*

Bank level 1 errors:

1: current preset
2: preset addresses
3: voice addresses
4: sequence addresses
5: main addresses and size
6: number of samples

Preset parameter errors:

2: Real time controller
3: Preset name
4: MIDI channel
5: MIDI switches/parameters
6: Arpeggiator mode & on/off
7: Arpeggiator extensions
8: Arpeggiator tempo
9: Arpeggiator resolution/note
10: Crossfade settings
11: Consistency between key areas and voices

Voice parameter errors:

1: addressing information
2: tuning
3: LFO delay
4: LFO rate
5: LFO variation
6: filter keyboard tracking
7: checksum parameters (1)
8: filter envelope amount
9: vibrato depth (LFO to pitch)
10: LFO to VCF
11: LFO to VCA
12: VCF Sustain
13: VCF Cutoff
14: Velocity to VCF Cutoff
15: Voice attenuation
16: Velocity to Level
17: VCF Attack
18: VCA Attack
19: VCF Decay
20: checksum parameter (2)
21: checksum parameter (3)
22: checksum parameter (4)
23: checksum parameter (5)

24: VCF Release
25: checksum parameter (6)
26: VCA Decay
27: checksum parameter (7)
28: VCA Sustain
29: checksum parameter (8)
30: checksum parameter (9)
31: VCA Release
32: checksum parameter (10)
33: Voice name
34: loop data settings
35: addressing data
36: addressing data
37: addressing data
38: addressing data
39: addressing data
40: addressing data
41: checksum parameters (11)
42: VCF Resonance
43: Velocity to resonance

Sample parameter errors:

1: sample addressing
98: size, empty sample

4.8.3.4 Emulator-III, Emulator-IIIX and ESI-v3 error list

This paragraph gives the list of possible errors causing a corrupt file, bank, preset, voice, key area or sample.

File errors:

18: incompatible file size for hard disk image file
19: corrupt Emulator-III/IIIX/ESI disk header
20: corrupt addressing scheme, it exceeds the total disk image capacity
21: invalid checksum
22: invalid cluster map header
23: invalid bank number in disk image catalogue
24: invalid bank backup status in disk image catalogue
26: wrong EMU3 type
27→29: see *section "4.8.3.9 File or disk errors related to SCSI2SD cards or SCSI2SD disk image files"*
30: invalid disk header
31: invalid disk image number
32: invalid number of required disk images
33: invalid recent preset
34: invalid recent sample
35: invalid bank name
36: incompatible file size

Bank level 1 errors:

1: sampler type
2: disk number
3: number of required floppy disks
4: recent preset
5: recent sample
6: bank name

Sample parameter errors:

1: sample rate
2: sample name
3-4: sample addressing
5: loop addressing
98: size, empty sample

Preset parameter errors:

1: real time controllers 1→6
2: real time controllers 7→8
3: MIDI channel
4: MIDI parameters
5: Arpeggiator tempo
6: Arpeggiator velocity
(7: Arpeggiator cruz/glissando conflict: not applicable anymore - if both are enabled, cruz will be ignored)
8: Arpeggiator resolution
9: Arpeggiator clock
10: Pitch wheel range
11: Velocity curve
12: Arpeggiator echo amount
13: Arpeggiator echo counts
14: MIDI footswitches
15: Velocity switch level
16: Number of zones
17: Zone error
18: Number of voices
19: Voice/Zone inconsistency

20: FX A processor type
21: FX A decay time
22: FX A HF damping
23: FX A FXB->FXA amount
24: FX A amount sent to mains
25: FX A amount sent to sub1
26: FX A amount sent to sub2
27: FX A amount sent to sub3
28: FX B processor type
29: FX B feedback
30: FX B LFO
31: FX B delay
32: FX B amount sent to mains
33: FX B amount sent to sub1
34: FX B amount sent to sub2
35: FX B amount sent to sub3
36: PRI voice velocity range LOW
37: PRI voice velocity range HIGH
38: SEC voice velocity range LOW
39: SEC voice velocity range HIGH

Error codes 3→9 and 12→14 are only applicable for Emulator-III and Emulator-IIIX sound banks
Error code 11 is only applicable for Emulator-III sound banks
Error codes 20→39 are only applicable for ESI-v3 sound banks

Voice parameter errors:

1: Sample original key
2: Sample reference inconsistency
3-4: Output channels
5-9: VCA envelope stage
10: LFO Rate
11: LFO Delay
12: LFO Variation
13: Filter cutoff
14-18: VCF envelope stage
19-22, 33: AUX envelope stage
23: AUX envelope destination
24-27: LFO destination
28: VCA level
29: Voice tuning
30: Panning
31: LFO Waveform
32: Sample channel disable
33: AUX envelope stage
34: Filter type

Error code 34 is only applicable for ESI-v3 sound banks

4.8.3.5 SP-12 error list

This paragraph gives the list of possible errors causing a corrupt file, bank, sound, sample, segment or song.

File errors:

40: invalid file size - too big
41: invalid file size - too small
42: invalid file header - file size indicator is too big
43: invalid file header - file size indicator is wrong
44: invalid file header - file size indicator is too small
45: memory size inconsistency
46: file size inconsistency

Bank level 1 errors:

1: reserved
2: inconsistent total sample size
3: inconsistent total sample size
4: recent sound
5: unknown file content type
6: segment address out of range
7: inconsistent total segment size
8: song address out of range
9: inconsistent total song size
10: at least one sound's sample is not available

Sample parameter errors:

1: reserved
2: invalid memory segment
3: sample size out of range
4: sample size too small
5: sample size out of range
6: invalid sample truncation start
7: invalid sample truncation size
8: loop size too small
9: loop size out of range
10: inconsistent loop address
11: invalid loop start
98: size, empty sample

Sound parameter errors:

1: reserved
2: tune/decay amount

Segment parameter errors:

0: Segment too small
1: General segment data
2: Swing amount
3: Time signature
4: Duration (pulses)
5: Duration (bars)
6: Duration (beats)
7: Segment end

Song parameter errors:

1: Song end
2: Song too small
3-4: Tempo
5: Invalid initial step
6: Tempo change
7-8: Incomplete step
9: Initial step out of range

4.8.3.6 SoundFont2 error list

This paragraph gives the lists of possible errors causing a corrupt file bank, preset, instrument, zone or sample.

File errors:

70: invalid file size - too big or too small (> 2GB or < 48 bytes)
71: unsupported SoundFont2 version (only 2.00-->2.04 is supported)
72: invalid RIFF structure - missing chunks
73: inconsistency in chunk sizes

Preset errors:

1: preset's zones are not found
2: invalid number of preset zones

Instrument errors:

1: instrument's zones are not found
2: invalid number of instrument zones

Sample errors:

1: invalid start and/or end address
3: invalid loop start and/or loop end address
4: linked sample not found (e.g. other channel of stereo sample is missing…)
8: unsupported sample type (different from mono, left, right, linked, …)
9: unsupported sound source (different from ROM, sample, …)
98: size, empty sample

Zone errors:

1: zone's generators can not be found
2: zone's modulators can not be found
3: zone's generators and modulator can both not be found
4: empty zone (no single generator and modulator has been defined)
5: zone's instrument or sample can not be found

Generator and modulator errors:

If a generator or modulator is corrupt, this will be shown on the zone's "details" screen with a flag "(corrupt)" at the end of the generator's or modulator's data.

A generator is corrupt if its value(s) are out of the supported value range defined by the SoundFont2 standard. Note however that for conversion purposes, EMXP will correct these corrupt values automatically to the nearest supported amount.

A modulator is corrupt

- If its amount is out of the supported value range defined by the SoundFont2 standard. Note however that for conversion purposes, EMXP will correct these corrupt values automatically to the nearest supported amount.
- If the base source controller, the amount source controller, the transform controller or the target generator or target modulator are not supported by the SoundFont2 standard.

4.8.3.7 Akai S1000 error list

This paragraph gives the lists of possible errors causing a corrupt Akai S1000 (floppy disk image) file.

File errors:

50: invalid file size
51: invalid filename in index
52: invalid filler area in index
53: invalid file type in index
54: invalid file length in index
55: invalid address in index
56: invalid volume name
57: invalid address in map
58: invalid sample or program file (general)
100→350: see *section "4.8.3.8 File errors related to HxC floppy disk image files"*

4.8.3.8 File errors related to HxC floppy disk image files

If there's a specific problem with the format/encoding of an HxC floppy disk image file for EMAX-I, EMAX-II, Emulator-I, Emulator-II, Emulator-III OS, Emulator-IIIX OS or Akai S1000, the following errors can be returned:

File errors:

100, 200: general error
103, 203: header too small
104, 204: wrong HFE signature
105, 205: wrong number of tracks
106, 206: wrong number of disk sides
107, 207: wrong bitrate
108, 208: wrong LUT offset
109, 209: wrong step value
110, 210: wrong alternative encoding for track 0 side 0
111, 211: wrong alternative encoding for track 0 side 1
112, 212: header too small for LUT
113, 213: schema version not supported
114, 214: wrong encoding type
115, 215: wrong disk interface type
116, 216: wrong track index offset or length
117, 217: wrong number of data bytes in use
300: Track or sector header not found
301, 302: Track or sector data not found
303: Track or sector data CRC error

4.8.3.9 File or disk errors related to SCSI2SD cards or SCSI2SD disk image files

If there's a specific problem with a partitioned SCSI2SD card or hard disk image file, the following errors can be returned:

File/disk errors:

27: start address of a SCSI2SD device/partition is not compatible with the sector size
28: no SCSI2SD devices/partitions found, the disk/file is not a SCSI2SD disk/file
29: valid SCSI2SD device/partition but no valid EMU file system detected

5. USING EMXP: VIEWING FILES AND DISKS

5.1 INTRODUCTION

EMXP offers the possibility to explore and navigate the contents of any sound bank supported by EMXP, except for Akai S1000 objects. It's also possible to navigate the contents of any SP-12 sequence bank (as opposed to sequence information of other samplers).

E.g. you can

- select a sound bank and get an overview of all presets and all samples contained in that bank (EMU, SoundFont2)
- select a preset and get an overview if its key areas and its voices (EMU)
- select a preset and get an overview of its zones and instruments (SoundFont2)
- select a key area and get an overview of the voices assigned to the key area's layers (EMU)
- select a voice and get the sample(s) assigned to that voice (EMU)
- select an instrument and get the sample(s) used by that instrument (SoundFont2)
- select a song and get the segments and mixes used in that song (SP-12)
- ...

This navigation is done

- by selecting one of the "Show *XYZ*" menu options after having selected an item in an overview screen and having pressed ENTER.
  E.g. after having selected an EMAX-I sound bank, a menu will appear which will offer a "Show Presets" option and a "Show Samples" option (amongst other things).
- or by using one of the *short cut keys* which allow to jump directly to the child member overviews, e.g. 'P' for jumping to the preset overview, 'S' for jumping to the sample overview, ...

Moreover EMXP can also show *any parameter* of *any item* (preset, voice, sample, instrument, ...) of a sound bank, as well as any parameter of any item of an SP-12 sequence bank.
These parameters are shown on two levels:

- *overview level*: in any overview screen typically three of the most important (or interesting...) parameters of each item are displayed, e.g. in the EMAX-I bank file overview screen, the bank name and number of presets and samples of each EMAX-I bank file are displayed.
- *detailed level:* after having selected an item in any of the overview screens you can choose one of the available "Show *[Item]* Details" menu options or press the corresponding *short cut key* directly from the overview screen. These options will generate an on-screen report containing *all parameters* of the selected item. E.g. after having selected an EMAX-I voice and having selected the "Show Voice Details" menu option (or having pressed the 'D' short cut key), a report containing the voice's envelope settings, filter settings, tuning settings, and other settings will be displayed.

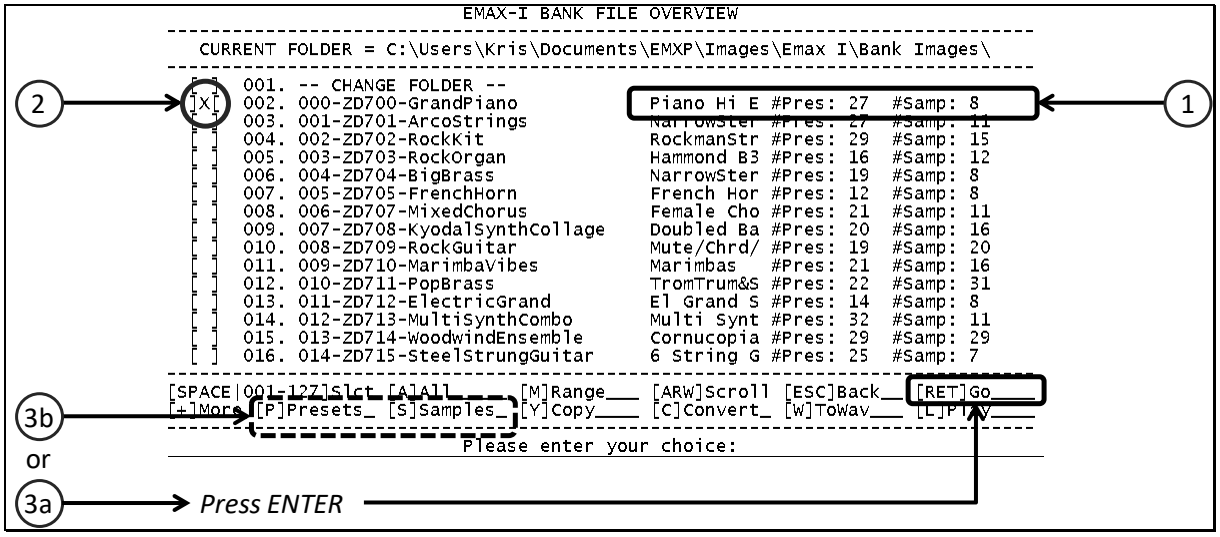
For Akai S1000 files and WAV files parameters are only shown on the *overview level* - no detailed reports are available for these objects.
Detailed information about sequences in EMAX-I, EMAX-II, Emulator-I, Emulator-II or Emulator-III can not be displayed (as opposed to SP-12).

If you navigate to an overview of *samples*, you can also *listen* to these samples with the EMXP audio player. This can typically be done with the 'L' shortcut key in the sample overview screen, or by selecting the "Play selected [sampler] Samples" menu option. A similar option is available when navigating to an overview of WAV-files.
Listening to *all samples* of a selected sound bank, file or floppy disk is possible as well.
For more details, see *chapter "9.5 PLAYING SAMPLES AND WAV-FILES"*.

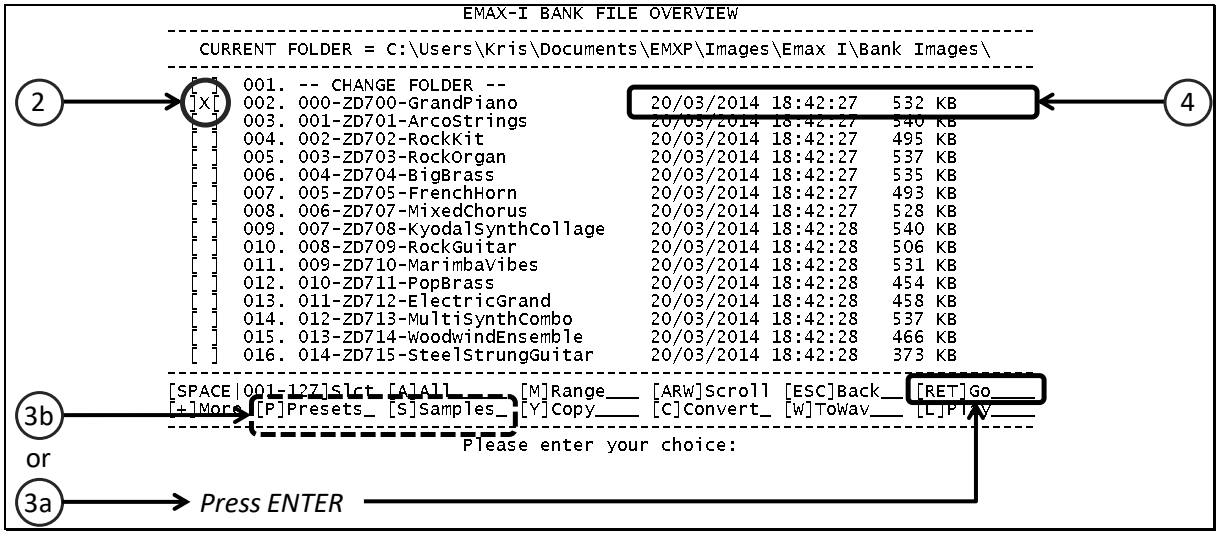
5.2 EXAMPLE

Let's have a quick look on how to explore the contents of a sound bank. In the example below we will navigate to the sample of a selected voice, which in turn has been selected from a key area of one of the presets of an EMAX-I bank.

In the EMAX-I bank file overview screen, EMXP shows a list of all available EMAX-I bank files in the current folder. Besides the file names, the overview also contains following information per bank: *bank name, number of presets, number of samples.* See (1) on the picture below.

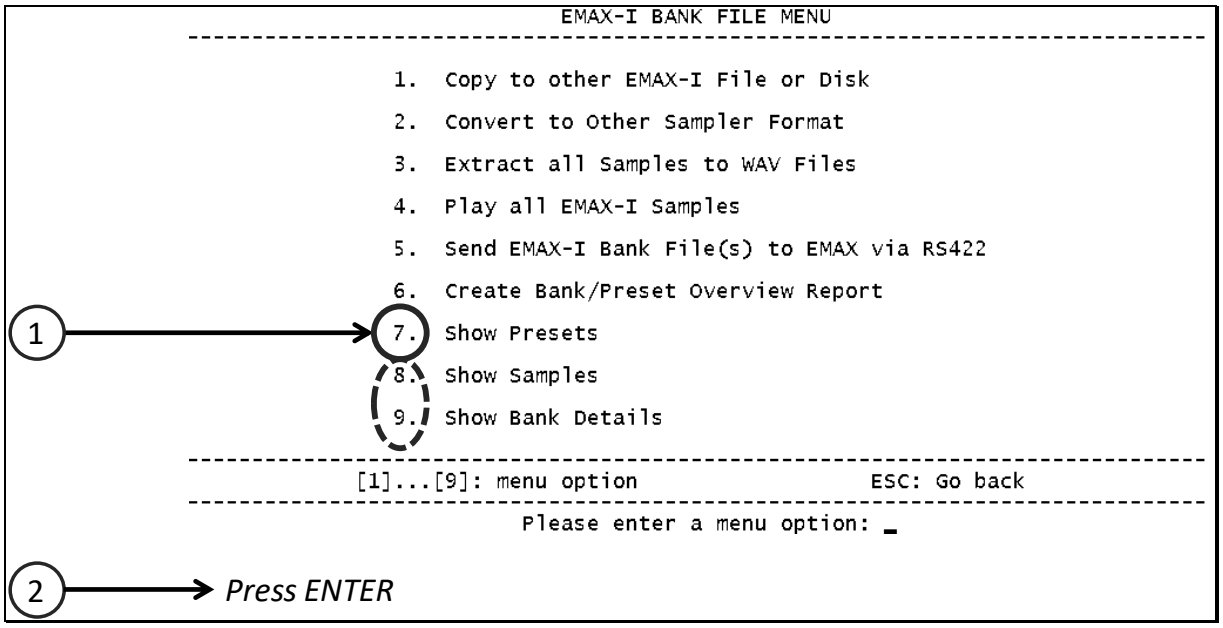


Since this is a *file* overview screen, it's also possible to display the *file size* and *'last modified' date and time* of each bank file by pressing the RIGHT arrow key. See (4) on the picture below.

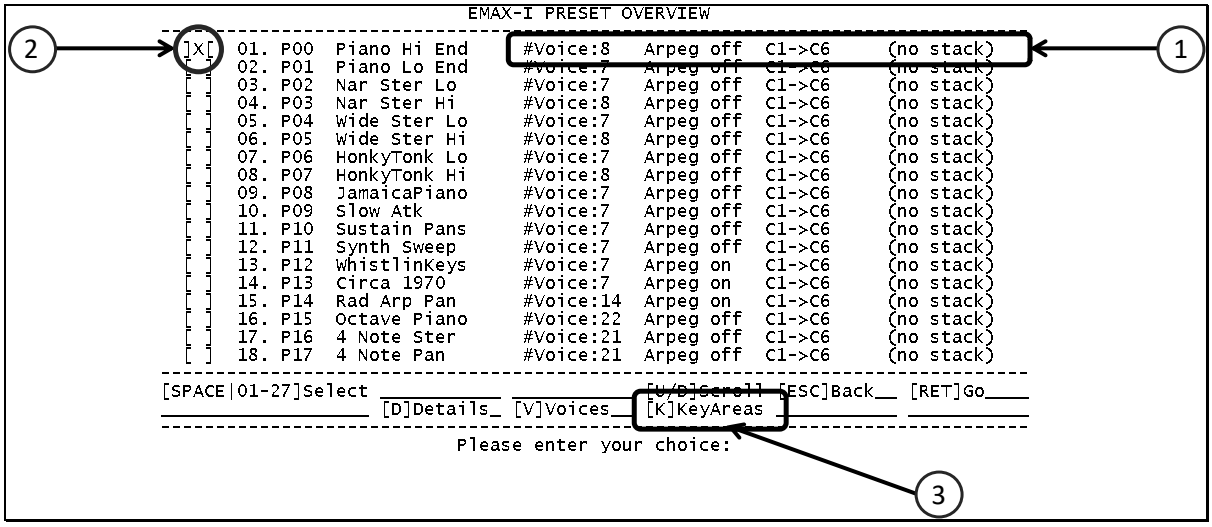


We select a bank on the EMAX-I bank file overview screen (2) and press ENTER (3a). Alternatively we can also immediately press 'P' or 'S' to get the preset overview or sample overview of the bank (3b).

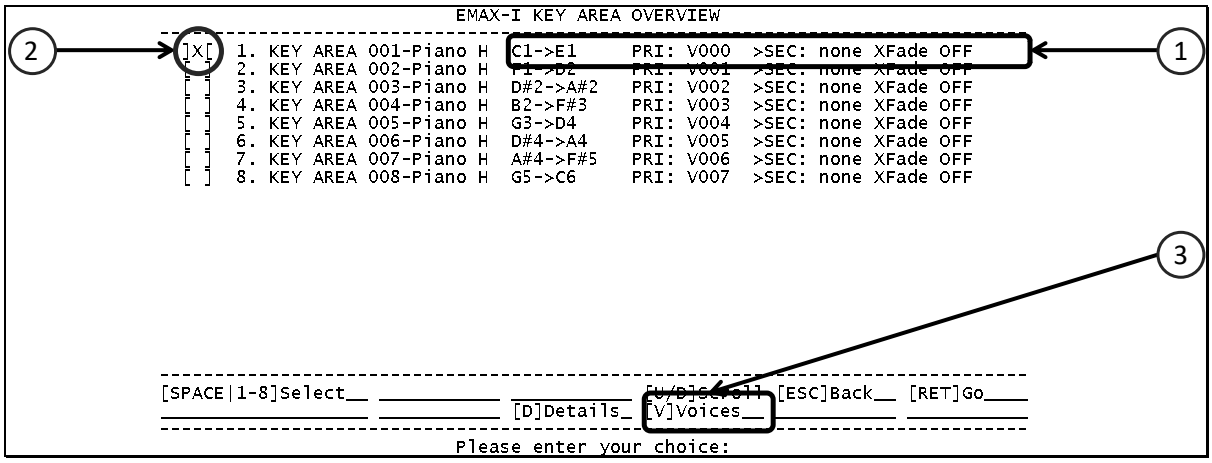
If ENTER has been pressed (3a), a menu will appear which offers the possibility to navigate to the bank's presets and samples, by selecting *7. Show Presets* and *8. Show Samples*. It's also possible to get a report containing all parameters that are defined on a *bank level*, by selecting *9. Show Bank Details.* We go for option 7. Show Presets (see (1)) and press ENTER (2).



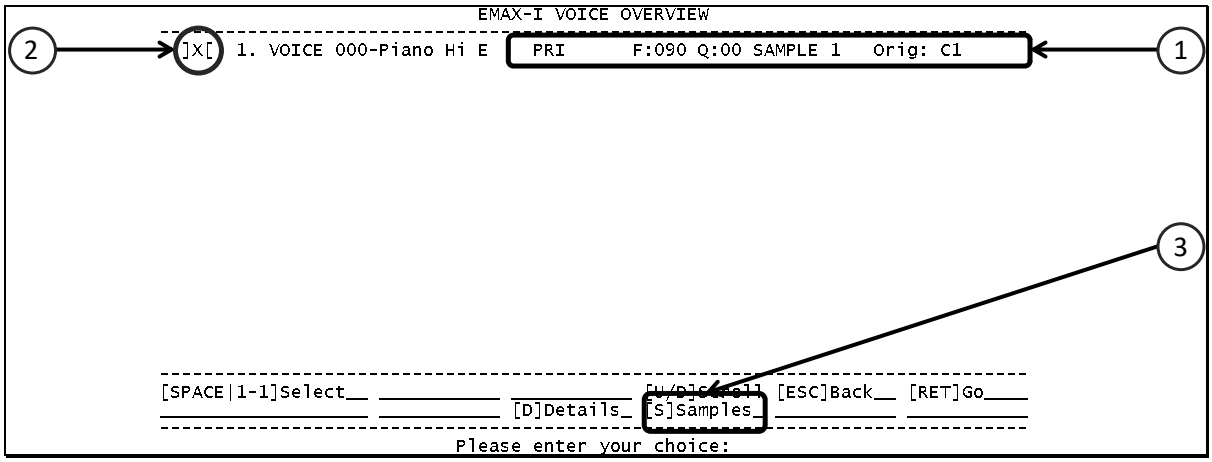
The preset overview contains all presets of the selected bank file. For each preset, following parameters are shown as well: *number of voices, whether the arpeggiator is enabled, the keyboard section in use* and *whether the preset is stacked on other presets (and if so, on which one).* See (1) on the picture below.
We select the first preset (see (2)), and we press the short cut key 'K' to get an overview of all defined key areas (zones) in the preset (3). Pressing ENTER and selecting the "2. Show Key Areas" menu option is possible as well.



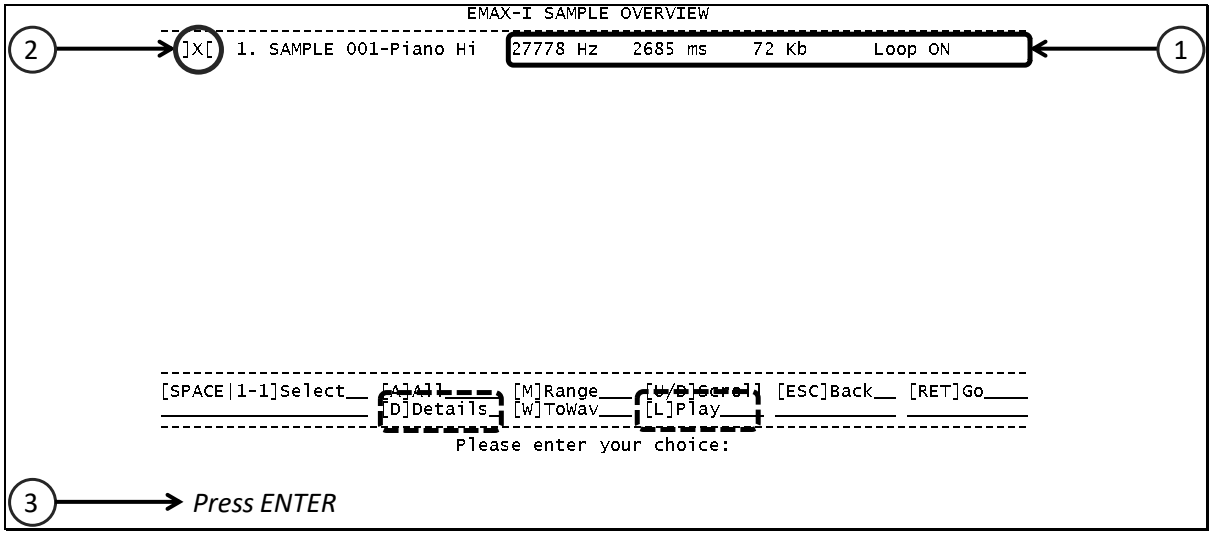
The key area overview shows all defined key areas, including following parameters: *start and end key of the key area, the PRImary voice number, whether the PRI voice is on top of the SEC voice ('>') or the other way around ('<'), the SECondary voice number* (here none has been assigned) and *whether cross-fade/cross-switch is On or Off.* See (1) on the picture below.
We select the first key area (see (2)) and press the short cut key 'V' to get an overview of all voices assigned to the key area (3).



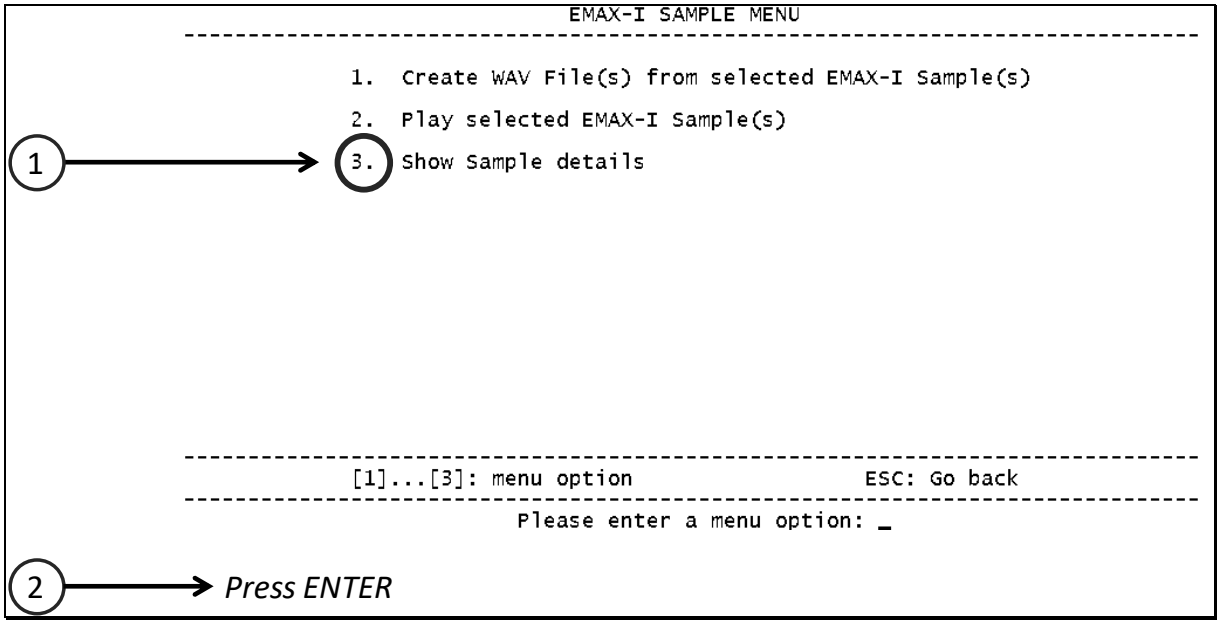
The voice overview screen shows the voices assigned to the selected key area and also displays following information per voice: *whether it's the PRI or SEC voice, the Filter Cutoff frequency, the Filter Resonance, the sample number assigned to the voice, and the original key of the sample in this voice.* See (1) in the picture below. We select the first (and only) voice (see (2)) and press the short cut key 'S' to get an overview of the samples in this voice (3).



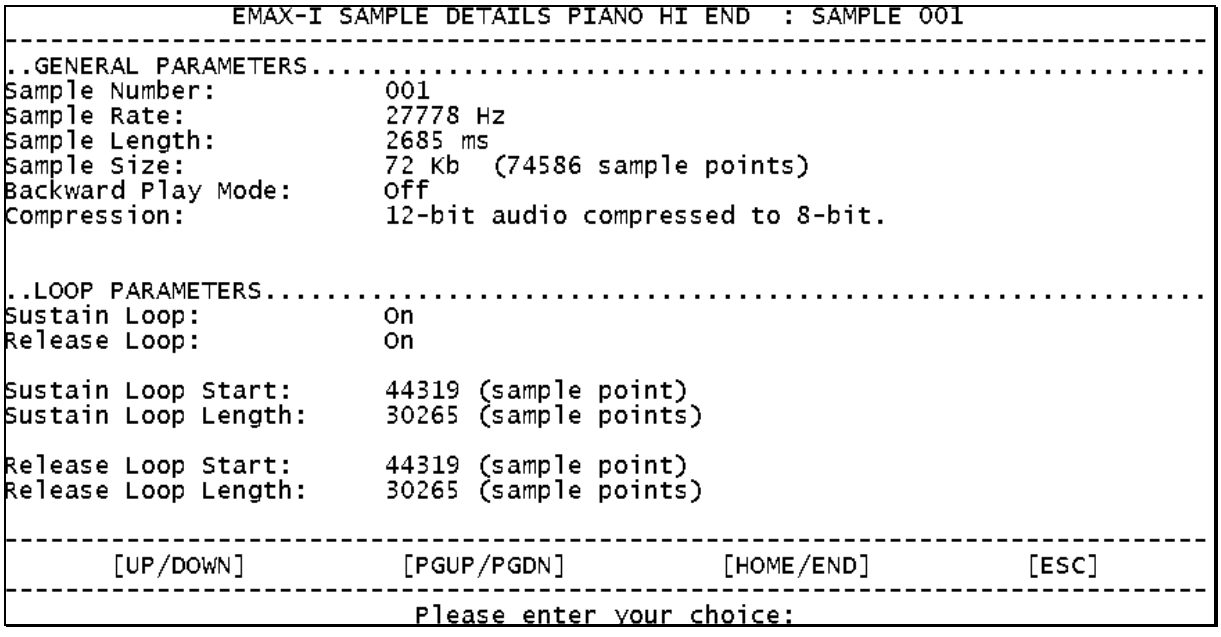
The sample overview screen shows following information for each sample: *the sample rate (frequency), the length in milliseconds, the size in kilobytes* and *whether a loop is defined or not.* See (1) in the picture below. We select the first (and only) sample (see (2)) and press ENTER (3) to get the sample menu (as an alternative, we can also press the short cut key 'D' to get immediate access to the sample details; and by pressing 'L' you can listen to the sample).



One of the options offered in this sample menu is *3. Show Sample details*. See (1) on the picture below.
We select this option and pressing ENTER (2).



After having pressed ENTER, an on-screen report is displayed containing all parameters defined for this sample.
See picture below.



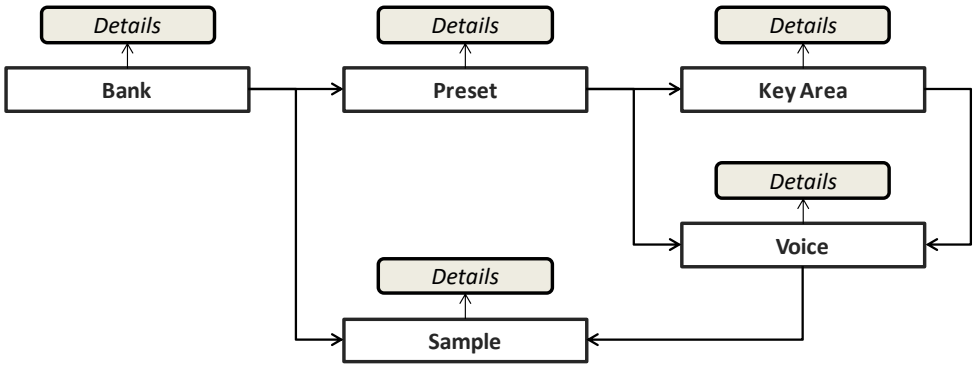
5.3 NAVIGATION FLOWS

The schemas below explain the different *paths* that can be followed in EMXP to navigate through the content of

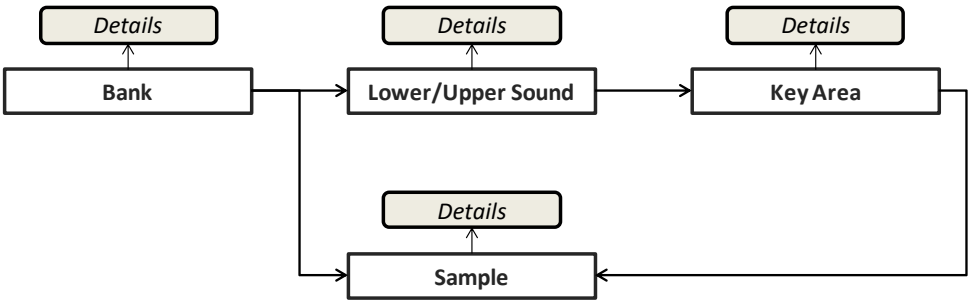
- EMAX-I and EMAX-II sound banks
- Emulator-I sound banks
- Emulator-II sound banks
- Emulator-III, Emulator-IIIX and ESI-v3 sound banks
- SoundFont2 sound banks
- SP-12 sound banks
- SP-12 sequence banks

Although these paths somehow explain the "data model" from the different samplers as well, the schemas shouldn't be interpreted as the exact sampler's data models because they aren't: it's perfectly possible to navigate from one "entity" to another by skipping one or more intermediary "entities"...

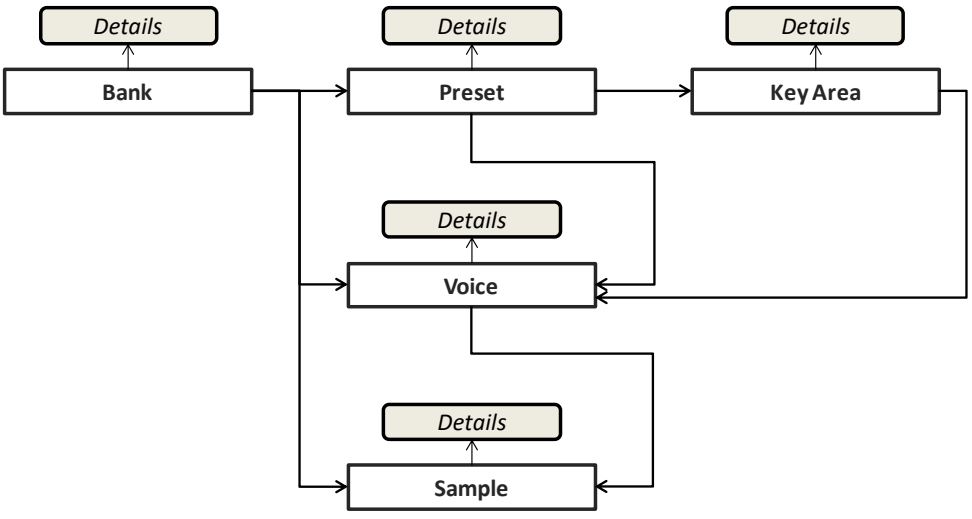
EMAX-I
EMAX-II



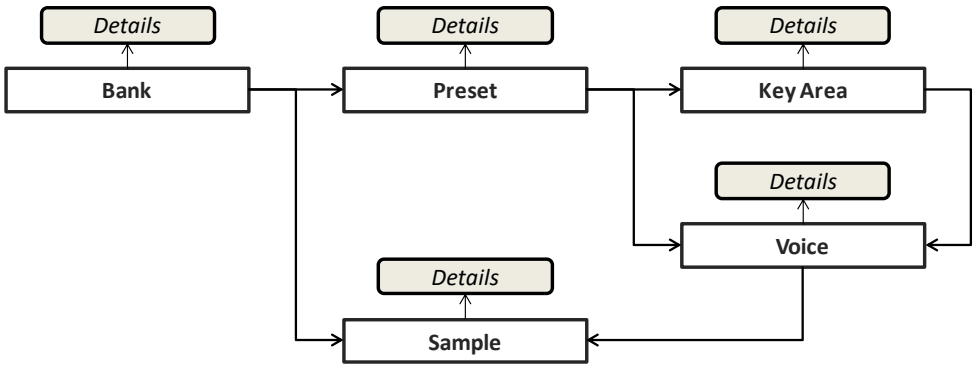
Emulator-I



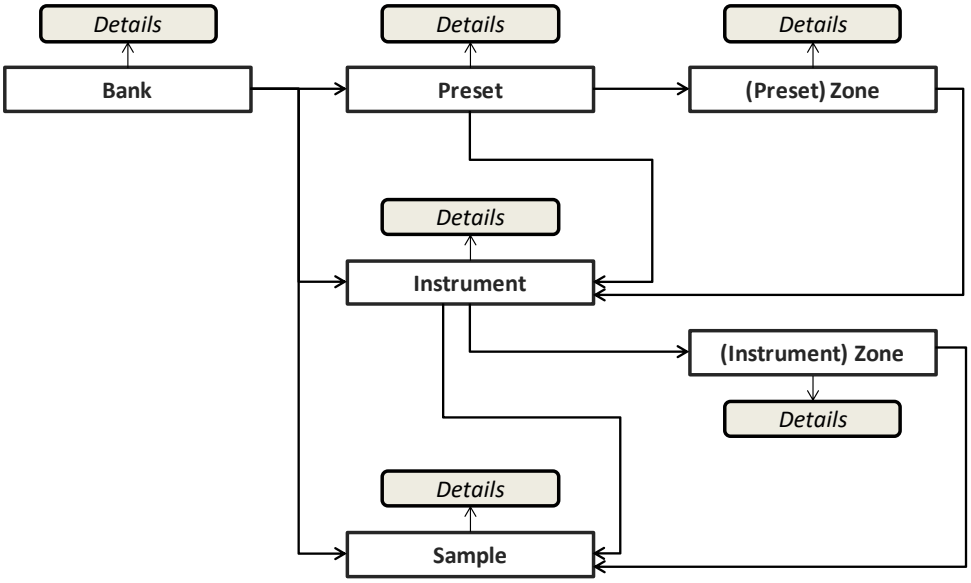
Emulator-II



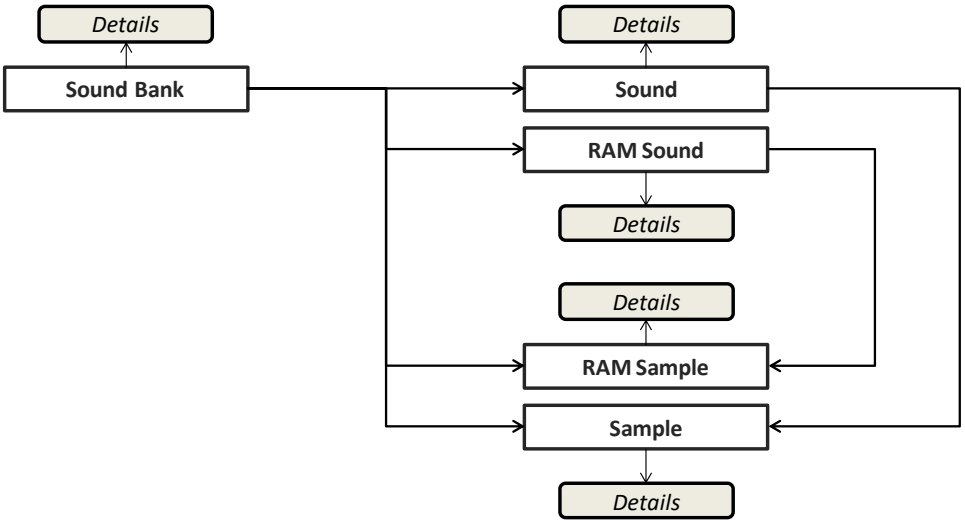
Emulator-III
Emulator-IIIX
ESI-v3

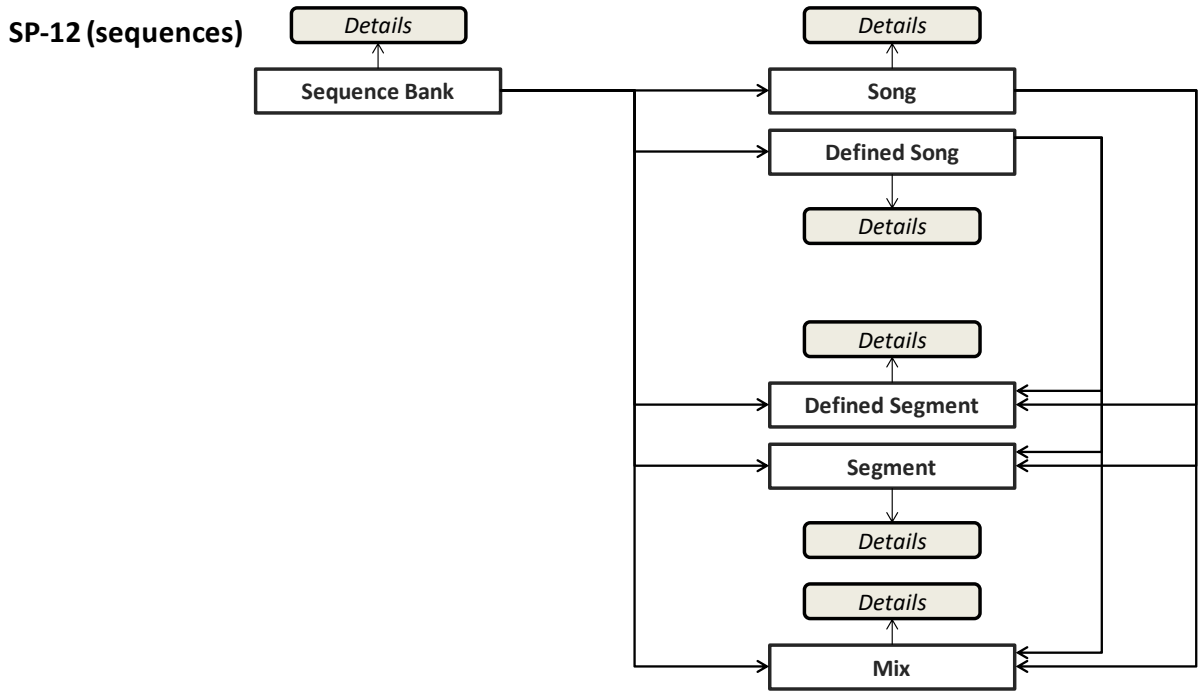


SoundFont2



SP-12 (sounds)





5.4 DESCRIPTION OF PARAMETERS IN OVERVIEW SCREENS

The table below explains which parameters are shown in each of the *overview screens.*
An overview screen can hold a maximum of 4 parameters per item, besides the item names themselves and besides the additional 3 file attributes (date, time and size) that can be displayed for file overviews by using the LEFT and RIGHT arrow keys.
Since no actual column name is displayed for the columns in overview screens, we give an overview of these columns here.
The detailed on-screen reports are *not explained* in this manual - this is beyond the scope of the manual.
We refer to the user manuals and specification documents of the various samplers for more details.

Some footnote references can be found in the table. These are explained below:

(*) For Emax-I, Emax-II and Emulator-II banks, you can configure whether parameter 4 should be displayed or not. This can be done by changing a look & feel preference, see *section "10.4.8 Define alternative bank list screen view for some samplers"*.

(**) For SCSI2SD partitions, the partition identifier displayed depends on a preference setting. Either the SCSI2SD device number can be used, or the SCSI-ID# number that has been assigned to that device. *See section "10.5.4.7 Define SCSI2SD device identifier to be displayed in EMXP"*.

(***) For file overview screens, 3 additional parameters can be displayed by pressing the RIGHT arrow key. These parameters are

- the 'last modified' date of the file
- the 'last modified' time of the file
- the size of the file

Overview	Item name	Parameter 1	Parameter 2	Parameter 3	Parameter 4	5→7 (***)
EMAX-I and EMAX-II						
Bank files	File name	Bank name	Number of presets	Number of samples	[Number of sequences (*)]	Y
EMX files	File name	Bank name	Number of presets	Number of samples	[Number of sequences (*)]	Y
Sound designer files	File name	Bank name	Number of presets	Number of samples	[Number of sequences (*)]	Y
Floppy disk image files	File name	Bank name	Number of presets	Number of samples	[Number of sequences (*)]	Y
HxC floppy disk image files	File name	Bank name	Number of presets	Number of samples	[Number of sequences (*)]	Y
Operating system files	File name	EMAX sampler type	Version number	"UNVERIFIED" if operating system is not recognized	-	Y
Hard disk image files (if overview does not contain SCSI2SD partitions)	File name	Number of banks	Used space in pct	Maximum usable size	-	Y
Hard disk	Drive letter, partition ID (if applicable) and drive type	Drive bus type	Brand name of drive	Model type of drive	Whether disk is found in drive OR file system on disk	N
Floppy disk	Drive letter and drive type	Drive bus type	Brand name of drive	Model type of drive	Whether disk is found in drive OR file system on disk	N
Hard disk image files or partitions (if overview contains at least one SCSI2SD partition)	File name	- (if normal HD image file) *or* SCSI2SD partition ID (**) (if SCSI2SD partition)	Number of banks *or* Sampler type (if the overview contains SCSI2SD partitions for different samplers)	Maximum usable size (N/A will be displayed instead in case of a SCSI2SD partition not formatted for EMU)	Used space in pct (N/A will be displayed instead in case of a SCSI2SD partition not formatted for EMU)	Y
Bank on hard disk	Bank number and name	EMAX-I or EMAX-II	Number of presets	Number of samples	Bank size in kilobytes	N
Bank on hard disk image file	Bank number and name	EMAX-I or EMAX-II	Number of presets	Number of samples	Bank size in kilobytes	N
Bank on floppy disk	Bank name	EMAX-I or EMAX-II	Number of presets	Number of samples	Disk number / total number of disks	N
Presets	Preset number and name	Number of voices	Arpeggiator on/off	Keyboard section used	Preset(s) on which preset is stacked	N
Samples	Sampler number (and bank name)	Sample rate	Length (time)	Size	Loop on/off	N
Key areas	Key area number (and preset name)	Start and end key	Primary voice number	>: PRI on top of SEC <: SEC on top of PRI Secondary voice number	Cross fade / switch mode	N
Voices	Voice number (and preset name)	PRI or SEC voice (if selected from key area overview) Chorus on/off (if selected from preset overview)	Filter Cutoff frequency	Filter resonance	Original note	N
Operating system on floppy disk, floppy disk image, HxC floppy disk image, hard disk or hard disk image file	Operating system name	EMAX sampler type	Version number	"UNVERIFIED" if operating system is not recognized	-	N

Emulator-I						
Bank files	File name	Number of lower sounds	Number of upper sounds	Number of sequences	-	Y
Lower/upper files	File name	Whether the sound is a simple or a multi sample	Number of key areas	Number of samples	-	Y
Floppy disk image files	File name	Number of lower sounds	Number of upper sounds	Number of sequences	-	Y
HxC floppy disk image files	File name	Number of lower sounds	Number of upper sounds	Number of sequences	-	Y
Operating system files	File name	Emulator-I sampler type	Version number	"UNVERIFIED" if operating system is not recognized	-	Y
Operating system on floppy disk image file or HxC floppy disk image file	Operating system name	Emulator-I sampler type	Version number	"UNVERIFIED" if operating system is not recognized	-	N
Lower/Upper sounds	"LOWER" or "UPPER"	Whether the sound is a simple sample or a multi sample	Number of key areas	Number of samples	Keyboard section used	N
Samples	Sample number	Sample size	Sample length (time)	Whether loop is on or off	Filter Cutoff frequency	N
Key areas	Key area number	Sound to which key area belongs: "LOWER" or "UPPER"; empty if lower/upper file	Start and end key	Original note	Sample number of sample in key area	N
Emulator-II						
Bank files	File name	Bank name	Number of presets	Number of samples	[Number of sequences (*)]	Y
Floppy disk image files	File name	Bank name	Number of presets	Number of samples	[Number of sequences (*)]	Y
HxC floppy disk image files	File name	Bank name	Number of presets	Number of samples	[Number of sequences (*)]	Y
Operating system files	File name	Emulator-II sampler type	Version number	"UNVERIFIED" if operating system is not recognized	-	Y
Presets	Preset number and name	Number of voices	Arpeggiator on/off	Keyboard section used	Midi mode	N
Hard disk image files	File name	Number of banks	Used space in pct	Maximum usable size	-	Y
Hard disk	Drive letter and drive type	Drive bus type	Brand name of drive	Model type of drive	Whether disk is found in drive OR file system on disk	N
Bank on hard disk	Bank number and name	EMU-II	Number of presets	Number of samples	Bank size in kilobytes	N
Bank on hard disk image file	Bank number and name	EMU-II	Number of presets	Number of samples	Bank size in kilobytes	N
Samples	Sampler number (and bank name)	Sample rate	Length (time)	Size in kilobytes	Loop on/off	N
Key areas	Key area number (and preset name)	Start and end key	Primary voice number	>: PRI on top of SEC <: SEC on top of PRI Secondary voice number	Cross fade / switch mode	N
Voices	Voice number and voice name	PRI or SEC voice (if selected from key area overview) LFO on/off (if selected from preset overview)	Filter Cutoff frequency	Filter resonance	Attenuation amount	N

Operating system on floppy disk, floppy disk image, HxC floppy disk image, hard disk or hard disk image file	Operating system name	Emulator-II sampler type	Version number	"UNVERIFIED" if operating system is not recognized	-	N
Emulator-III, Emulator-IIIX and ESI-v3				*(*) not for ESI-v3*		
Bank files	File name	Bank name	Number of presets	Number of samples	-	Y
Operating system files (*)	File name	Emulator-III sampler type	Version number	"UNVERIFIED" if operating system is not recognized	-	Y
OS Floppy disk image files (*)	File name	Emulator-III sampler type	Version number	"UNVERIFIED" if operating system is not recognized	-	Y
OS HxC floppy disk image files (*)	File name	Emulator-III sampler type	Version number	"UNVERIFIED" if operating system is not recognized	-	Y
Hard disk image files (if overview does not contain SCSI2SD partitions)	File name	Number of banks	Used space in pct	Maximum usable size	-	Y
Hard disk image files or partitions (if overview contains at least one SCSI2SD partition)	File name	- (if normal HD image file) *or* SCSI2SD partition ID (**) (if SCSI2SD partition)	Number of banks *or* Sampler type (if the overview contains SCSI2SD partitions that are formatted for different samplers)	Maximum usable size (N/A will be displayed instead in case of a SCSI2SD partition not formatted for EMU)	Used space in pct (N/A will be displayed instead in case of a SCSI2SD partition not formatted for EMU)	Y
Hard disk	Drive letter, partition ID (if applicable) and drive type	Drive bus type	Brand name of drive	Model type of drive	Whether disk is found in drive OR file system on disk	N
Operating System Floppy disk (*)	Drive letter and drive type	Drive bus type	Brand name of drive	Model type of drive	Whether disk is found in drive OR file system on disk	N
Banks on hard disk or hard disk image file	Bank number and name	EMU-III, EMU-IIIX or ESI-V3	Number of presets	Number of samples	Bank size in kilobytes	N
Presets	Preset number and name	Number of voices	Arpeggiator on/off (EIII/X) *or* FX on/off (ESI): master FX (=off), FX A on, FX B on, FX A+B on	Keyboard section used	Preset to which preset is linked	N
Samples	Sample number and name	Sample rate	Length (time)	Mono or stereo	-	N
Key areas	Key area number (and preset name)	Start and end key	Primary voice number	>: PRI on top of SEC <: SEC on top of PRI Secondary voice number	Cross fade / switch mode	N
Voices	Voice number (and preset name)	PRI or SEC voice (if selected from key area overview) Chorus on/off (if selected from preset overview)	Filter Cutoff frequency	Filter resonance	Original note	N

Operating system on floppy disk, floppy disk image, HxC floppy disk image, hard disk or hard disk image file (*)	Operating system name	Emulator-III sampler type	Version number	"UNVERIFIED" if operating system is not recognized	-	N
SP-12 Sound banks						
Bank files	File name	Size	Number of sounds X+Y where X = RAM sounds where Y = ROM sounds	Number of RAM samples	-	Y
Sound *(or RAM Sound)*	User defined sound name (factory name if no user defined name available)	Sample type and sample number ROM = ROM sample *RAM = RAM sample	Length (time)	Tuned or Decayed and Tune/Decay amount	Factory sound name (=label on SP-12)	N
Sample *(or RAM Sample)*	Sample name (derived from name of first sound using this sample; suffix "+" means multiple sounds use the sample)	Sample type and sample number ROM = ROM sample *RAM = RAM sample	Length (time)	Whether loop is on or off	Sample rate	N
SP-12 Sequence banks						
Bank files	File name	Size	Number of defined/ recorded songs	Number of defined/ recorded segments	-	Y
Song *(or Defined Song)*	User defined song name (factory name if no user defined name available)	Number of steps (EMPTY if not recorded)	Number of segments used in song (N/A if not recorded)	Tempo (beats per minute) (N/A if not recorded)	Factory song name (Song 00 → 99)	N
Segment *(or Defined Segment)*	User defined segment name (factory name if no user defined name available)	Number of events (EMPTY if not recorded)	Length (bars/beats) (N/A if not recorded)	Time signature (numerator/denominator) (N/A if not recorded)	Factory segment name (Segment 00 → 99)	N
Mix	Mix name (Mix 1 → 8)	Uniqueness (unique or identical with some or all other mixes)	-	-	-	N
SoundFont2						
Bank files	File name	Bank name	Number of presets	Number of samples	-	Y
Presets	Preset name	Preset number	Number or zones in preset	Keyboard section used	Whether a global zone is available in the preset or not	N
Samples	Sample name	Sample number	Length (time)	Mono, stereo or linked If stereo, L(eft) or R(ight) channel	Linked sample number (if stereo or other linked sample)	N
Instruments	Instrument name	Instrument number	Number of zones in instrument	Keyboard section used	Whether instrument is global or not	N

Preset zones	Instrument name or "Global zone" (if global)	Start and end key	"#Filtering" (fixed text as prefix for next 2 parameters)	Number of filtering generators in zone	Number of filtering modulators in zone	N
Instrument zones	Sample name or "Global zone" (if global)	Start and end key	"#Filtering" (fixed text as prefix for next parameters)	Number of filtering generators in zone	Number of filtering modulators in zone	N
Akai S1000						
Any file	File name	Program name or sample name or drum file name	Type of file: program, sample or drums	Size in bytes or kilobytes	-	Y
Program files	File name	Program name	"PROGRAM"	Size in bytes or kilobytes	-	Y
Sample files	File name	Sample name	"SAMPLE"	Size in bytes or kilobytes	-	Y
Drum files	File name	Drum file name	"DRUM"	Size in bytes or kilobytes	-	Y
Floppy disk	Drive letter and drive type	Drive bus type	Brand name of drive	Model type of drive	Whether disk is found in drive OR file system on disk	N
Floppy disk volume	"FLOPPY DISK"	Volume name	Disk density (low/high)	Number of presets	Number of samples	N
Floppy disk image files	File name	Volume name	Disk density (low/high)	Number of presets	Number of samples	Y
HxC floppy disk image files	File name	Volume name	Disk density (low/high)	Number of presets	Number of samples	Y
Operating system files	File name	Akai S1000 sampler type	Version number	"UNVERIFIED" if OS is not recognized	-	N
Operating system on floppy disk, floppy disk image file or HxC floppy disk image file	Operating system name	Akai S1000 sampler type	Version number	"UNVERIFIED" if OS is not recognized	-	N
Any file on floppy disk, floppy disk image file or HxC floppy disk image file	Program name or sample name or drum file name or operating system name	Akai S1000 sampler type	Type of file: program, sample, drums or OS	File size	File size in kilobytes	N
Program on floppy disk, floppy disk image file or HxC floppy disk image file	Program name	Akai S1000 sampler type	"PROGRAM"	File size	File size in kilobytes	N
Sample on floppy disk, floppy disk image file or HxC floppy disk image file	Sample name	Akai S1000 sampler type	"SAMPLE"	File size	File size in kilobytes	N
Drum file on floppy disk, floppy disk image file or HxC floppy disk image file	Drums file name	Akai S1000 sampler type	"DRUMS"	File size	File size in kilobytes	N
WAV						
WAV files	File name	Length (time)	Frequency	Mono or stereo	Indicator if one or more loops have been defined in the WAV file: Lp>: one forward loop Lp<: one backward loop Lp~: one alternating loop Lps: multiple loops	Y

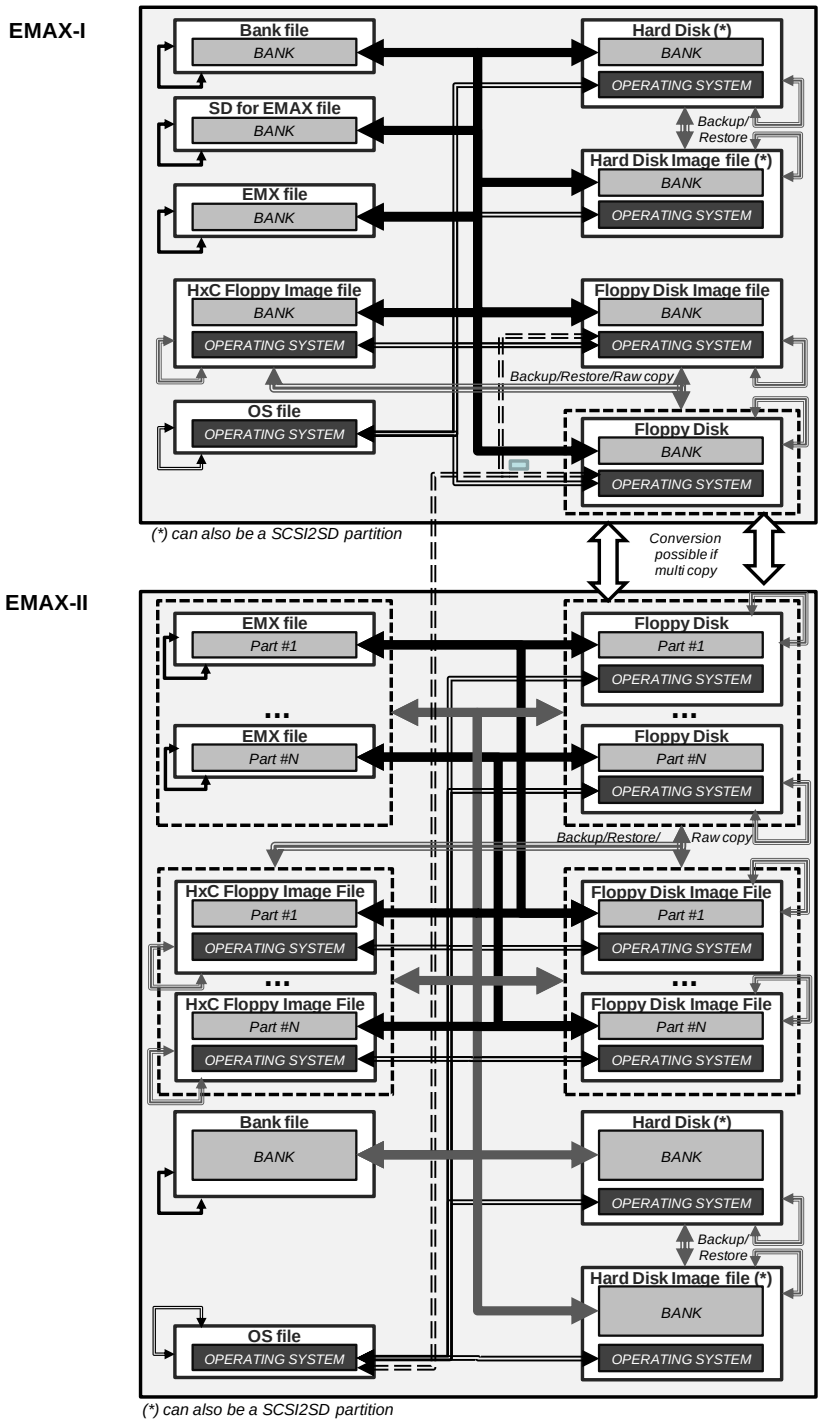
EMXP Construction						
Construction files	File name	Target sampler type	Number of presets	Number of samples	-	Y
Presets	Preset number and name	Keyboard section used	Number of key areas	Number of samples	Whether PRImary, SECondary or both layers are used	N
Key areas	Key name and visual	Key area number	Primary layer WAV assignment: 1/ 'P' or 'p': 'p' means that the other channel of the SEC layer's stereo WAV file is used in the PRI layer 2/ Original note 3/ WAV file name	Secondary layer WAV assignment: 1/ 'S' or 's': 's' means that the other channel of the PRI layer's stereo WAV file is used in the SEC layer 2/ Original note 3/ WAV file name	-	N
SCSI2SD partitioned image files						
SCSI2SD partitioned image files	File name	Number of enabled devices (partitions)	Number of devices (partitions) that is formatted for Emax-I, Emax-II or Emulator-III(X)	Partition identifier of the first enabled partition (**) *and* the EMU file system of the first enabled partition Possible values are EMAX-I, EMAX-II, EIII/X/ESI and NOT EMU	-	Y
Other (non-sampler)						
Any other file	File name	File size	Modification date	Modification time	-	Y

6. USING EMXP: COPYING SOUND BANKS AND FILES

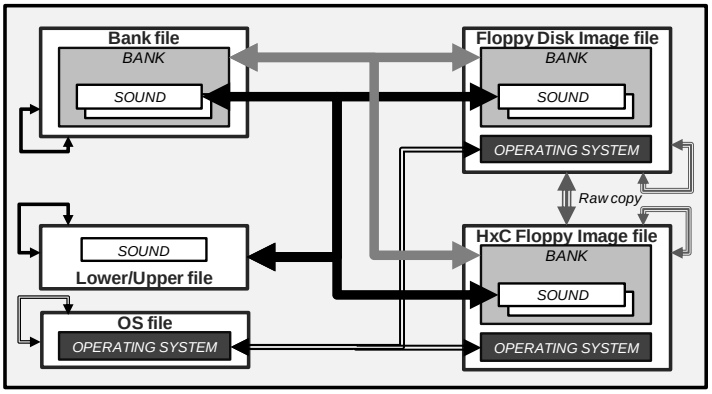
6.1 OVERVIEW

As explained in *section "4.6 SUPPORTED SAMPLER OBJECTS"* many of the sampler families have different types of files and disks which can hold sound related data and operating systems.
E.g. within the EMAX sampler family EMXP supports bank files, EMX files, Sound Designer files, (banks on) floppy disks, floppy disk images, HxC floppy disk images, (banks on) hard disks, (banks on) hard disk images, operating system files, ...

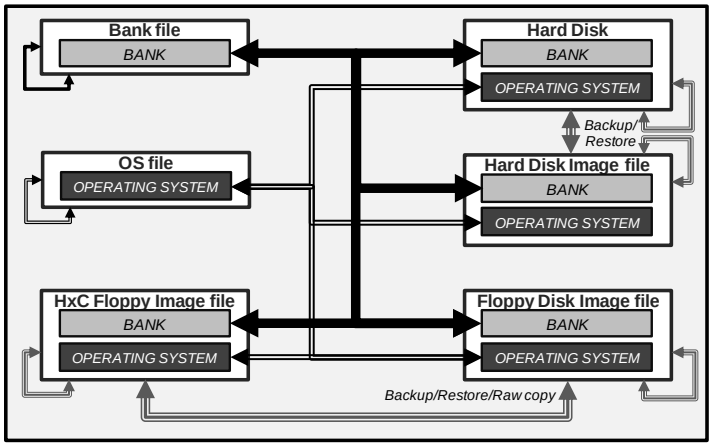
EMXP allows you to copy sound related data and operating systems between (almost) all of the known file and disk types within each sampler family. The following pictures illustrate all copy flows supported by EMXP.



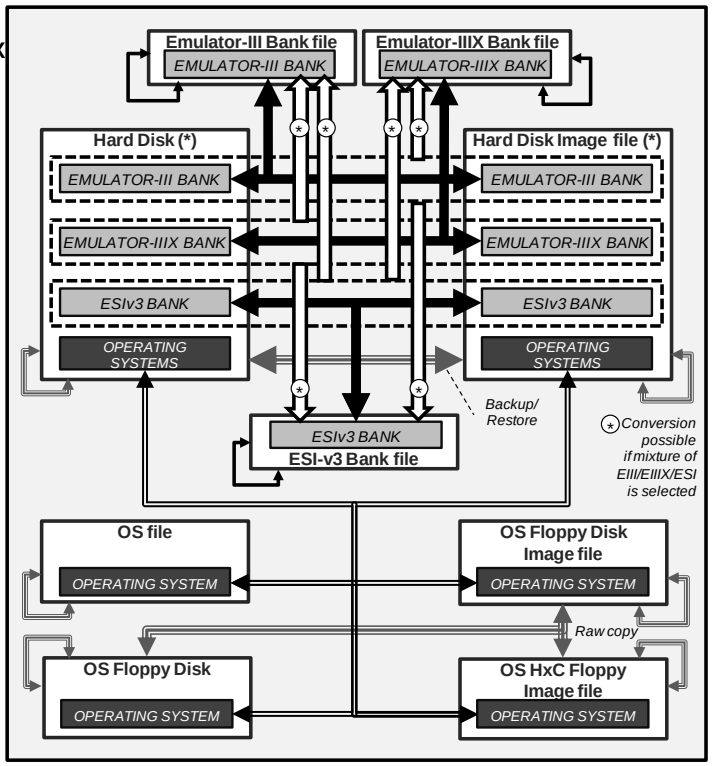
Emulator-I



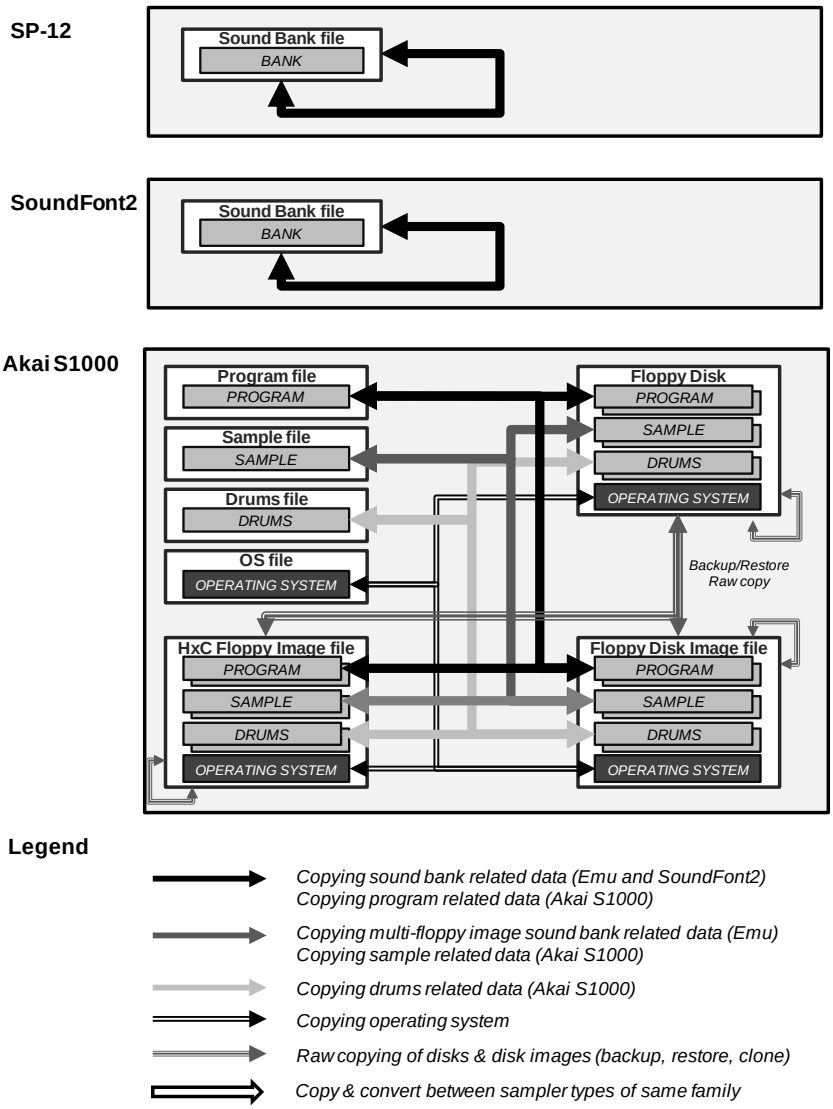
Emulator-II



Emulator-III
Emulator-IIIX
ESI-v3



(*) can also be a SCSI2SD partition



Copying sound related data

Except for the Akai S1000 sampler family, EMXP allows you to copy sound related data from *any disk or file type* to *any other disk or file type.*
E.g.

- you can copy an EMAX-I EMX file to an EMAX floppy disk,
- you can copy EMULATOR-III bank files to an EMULATOR-III/X hard disk
- you can copy a set of 4 EMAX-II floppy disks (making up a 2MB EMAX-II bank) to an EMAX-II partition on a SCSI2SD hard disk image file
- ...

Within the AKAI S1000 sampler family, EMXP supports almost all possible copy flows.
E.g.

- you can copy the program files, sample files and drum files from an AKAI S1000 floppy disk, an AKAI S1000 floppy disk image file or an AKAI S1000 HxC floppy disk image file to individual files on your computer
- you can copy individual program files, sample files and drum files to an AKAI S1000 floppy disk, to an AKAI S1000 floppy disk image file or to an AKAI S1000 HxC floppy disk image file
- ...

However EMXP does not allow you to copy files directly *between* an AKAI S1000 floppy disk image file, an AKAI S1000 HxC floppy disk image file and an AKAI S1000 floppy disk (except for backing up, restoring and cloning complete disk/images). You will have to copy the files to the computer's hard disk first before copying them to (another) floppy disk, floppy disk image or HxC floppy disk image.

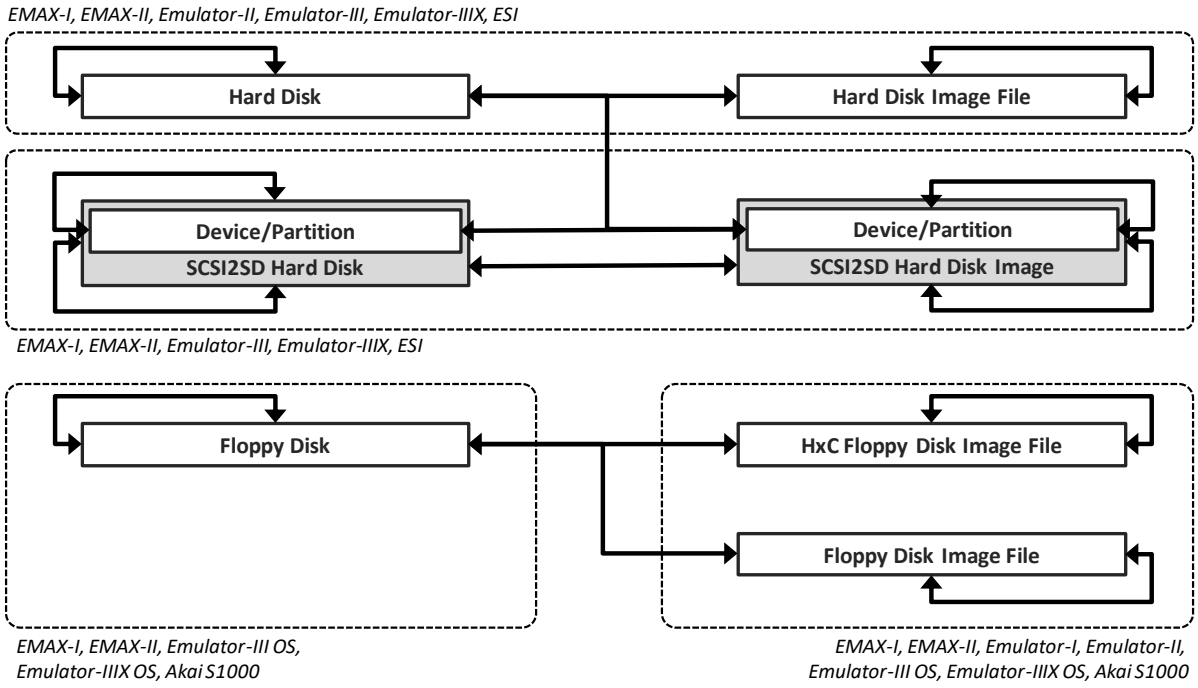
Copying operating systems

EMXP also supports copying operating systems between the different file and disk types *that are capable of holding an operating system.*

Within the EMU sampler families, all possible copy flows related to operating systems are supported.
Within the AKAI S1000 sampler family, almost all copy flows related to operating systems are supported, except for copying operating systems directly between an AKAI S1000 floppy disk image file, an AKAI S1000 HxC floppy disk image file and an AKAI S1000 floppy disk.

Copying complete disks and disk images: backup, restore and clone

Besides copying individual sound related files, EMXP also supports *raw copying* of complete disks and disk images.This can be useful for backup and restore purposes, and for cloning disks or disk images.



Copying disks and disk images is supported for:

- EMU hard disks and hard disk images
- EMU partitions on SCSI2SD hard disks (SD cards) and SCSI2SD hard disk images
- Entire SCSI2SD hard disks (SD cards) and SCSI2SD hard disk images if they contain at least one EMU partition
- EMAX-I/EMAX-II floppy disks, floppy disk images and HxC floppy disk images
- Emulator-III/Emulator-IIIX operating system floppy disks, floppy disk images and HxC floppy disk images
- AKAI S1000 floppy disks, floppy disk images and HxC floppy disk images

Copying hard disks or partitions on SCIS2SD hard disks can be done either directly to other hard disks or partitions on SCSI2SD hard disks, or to hard disk *image files* or partitions on SCSI2SD hard disk image files. The same is true for the reverse direction (starting from hard disk image files or partitions on SCSI2SD hard disk image files).

SCSI2SD is not supported for Emulator-II hard disks and hard disk images, because the SCSI2SD device is not supported by the Emulator-II+HD. The Emulator-II+HD supports the DREM device, which uses Emulator-II hard disk images with a file extension of .DSK. These files are supported by EMXP.

Raw copying of Emulator-I and Emulator-II floppy disks is not supported, because they can not be accessed by EMXP. As explained before these disks can only be accessed by means of a special floppy controller created by Kryoflux.

Raw copying of Emulator-III/IIIX floppy disks, floppy disk images and HxC floppy disk images containing *sound bank data* is not supported. Only disks and images containing an *operating system* are supported for raw copying.

Copying sequencer data

Since the sequencer data is included in the sound banks of all supported Emu sampler formats (except for SP12), these data are copied as well when performing a copy of the sound bank. When a conversion is requested as part of the copy process however (see later), the sequencer data will *not be copied* to the target sound bank.
SP-12 sequencer data is stored in a separate type of file (.SQ12 sequencer files). These files can't be copied in EMXP.

Interchangeability of floppy disks between EMAX-I/EMAX-II and EMULATOR-III/IIIX

The physical format of EMAX-I, EMAX-II, EMULATOR-III and EMULATOR-IIIX floppy disks is almost identical. As a result, it's possible to replace the operating system and sound bank data of an EMAX-I/EMAX-II floppy disk by an operating system for the EMULATOR-III/IIIX (and vice versa).

Whenever EMXP detects that you will overwrite a floppy disk belonging to another sampler, a warning will be given and you will be asked for confirming the write operation.

Copying sound banks to the same hard disk or hard disk image

It's perfectly possible to copy sound banks on a hard disk to another bank location *on the same hard disk*. Simply select the same target hard disk (or SCSI2SD partition on the hard disk) as the source hard disk. It is however not possible to *overwrite* banks that have been selected themselves for being copied.

The same is true for hard disk images.

This chapter explains the 3 types of copy processes:

- *Section 6.2* explains how to copy sound banks within the Emu sampler family
- *Section 6.3* explains how to copy Akai S1000 program and sample files
- *Section 6.4* explains how to copy operating systems
- *Section 6.5* explains how to copy entire disks and disk images

6.2 COPYING EMU SAMPLER SOUND DATA

6.2.1 How to start copying sound related data

Following steps will bring you to the Emu sampler copy functions of EMXP:

EMAX-I

To copy EMAX-I bank files:
"1. Manage EMU Files and Disks" → "1. Manage EMU EMAX-I Files and Disks" → "1. Manage EMAX-I Bank Files" → [select one or more files] → [press 'Y'] or [select "1. Copy to other EMAX-I File or Disk"]

To copy EMAX-I EMX files:
"1. Manage EMU Files and Disks" → "1. Manage EMU EMAX-I Files and Disks" → "2. Manage EMAX-I EMX Files" → [select one or more files] → [press 'Y'] or [select "1. Copy to other EMAX-I File or Disk"]

To copy SoundDesigner for EMAX files:
"1. Manage EMU Files and Disks" → "1. Manage EMU EMAX-I Files and Disks" → "8. Manage other EMAX-I Files and Disks"→ "1. Manage SoundDesigner for EMAX Files" → [select one or more files] → [press 'Y'] or [select "1. Copy to other EMAX-I File or Disk"]

To copy banks from an EMAX-I hard disk image file or an EMAX-I partition in a SCSI2SD hard disk image file:
"1. Manage EMU Files and Disks" → "1. Manage EMU EMAX-I Files and Disks" → "4. Manage EMAX-I Hard Disk Images" → "1. Manage existing EMAX-I Hard Disk Images" → [select one hard disk image file or scan for SCSI2SD and select one partition] → [press 'B'] or [select "1. Manage Banks on EMAX-I Hard Disk Image"] → [select one or more banks] → [press 'Y'] or [select "1. Copy to other EMAX-I File or Disk"]

To copy banks from an EMAX-I hard disk or an EMAX-I partition on a SCSI2SD hard disk
"1. Manage EMU Files and Disks" → "1. Manage EMU EMAX-I Files and Disks" → "5. Manage EMAX-I Hard Disks" → [select a hard disk or scan for SCSI2SD and select a partition] → [press 'B'] or [select "1. Manage Banks on EMAX-I Hard Disk"] → [select one or more banks] → [press 'Y'] or [select "1. Copy to other EMAX-I File or Disk"]

To copy banks from EMAX-I floppy disk image files:
"1. Manage EMU Files and Disks" → "1. Manage EMU EMAX-I Files and Disks" → "6. Manage EMAX-I Floppy Disk Images" → [select one or more files] → [press 'Y'] or [select "1. Copy Bank to other EMAX-I File or Disk"]

To copy banks from EMAX-I HxC floppy disk image files:
"1. Manage EMU Files and Disks" → "1. Manage EMU EMAX-I Files and Disks" → "7. Manage EMAX-I HxC Floppy Disk Images" → [select one or more files] → [press 'Y'] or [select "1. Copy Bank to other EMAX-I File or Disk"]

To copy a bank from an EMAX-I floppy disk (=single bank copy mode):
"1. Manage EMU Files and Disks" → "1. Manage EMU EMAX-I Files and Disks" → "8. Manage other EMAX-I Files and Disks" → "2. Manage EMAX-I/EMAX-II Floppy Disks" → [select a floppy drive] → [press 'B'] or [select "1. Manage Banks on Floppy Disk"] → [insert a disk if not inserted yet] → [select the bank] → [press 'Y'] or [select "1. Copy to other EMAX-I File or Disk"]

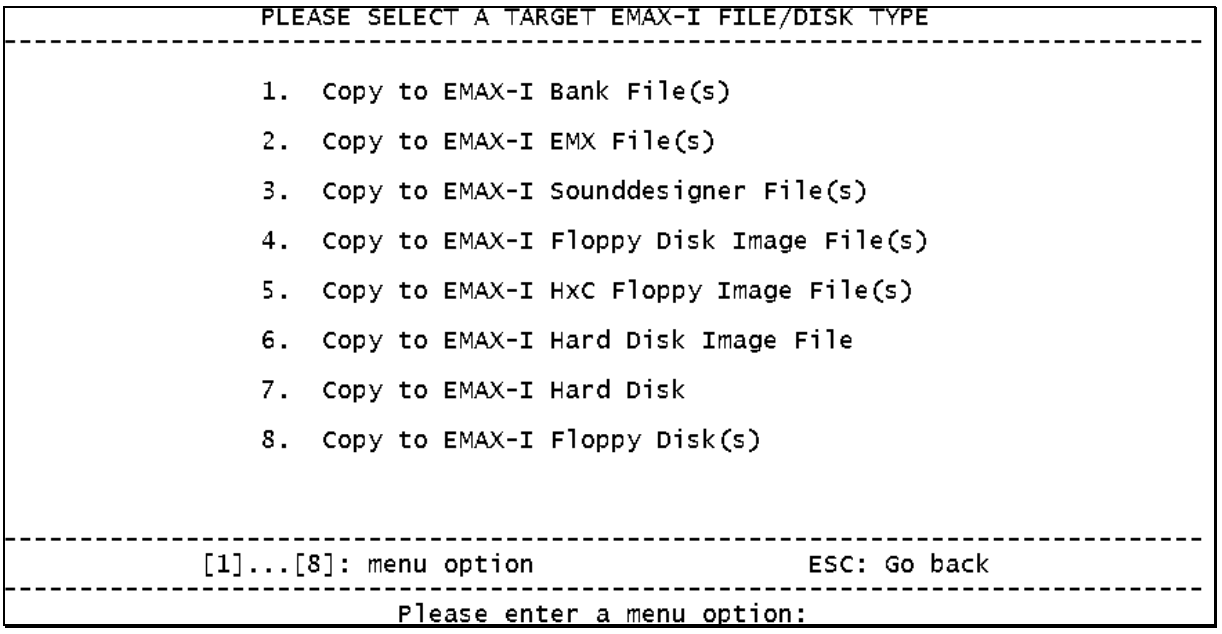
To copy banks from a series of EMAX-I floppy disks (=multi bank copy mode):
"1. Manage EMU Files and Disks" → "1. Manage EMU EMAX-I Files and Disks" → "8. Manage other EMAX-I Files and Disks" → "2. Manage EMAX-I/EMAX-II Floppy Disks" → [select a floppy drive] → [press 'Y'] or [select "4. Copy Banks of Floppy Disk(s) to Other EMAX File(s) or Disk(s)"]

Next to creating backups directly from EMAX-I floppy disks to floppy disk image files or to HxC floppy disk image files (see *section "6.5 COPYING ENTIRE FLOPPY DISK (IMAGE)S AND HARD* DISK (IMAGE)S*"),* EMXP supports two modes for copying sound banks from EMAX-I floppy disks:

- *Single bank* copy mode: in this mode, only the bank of the current floppy disk will be copied
- *Multi bank* copy mode: in this mode, EMXP will keep asking for floppy disks and keep copying the banks from these floppy disks until you cancel the loop by pressing ESC. This mode is useful if you have a lot of floppy disks to be copied and if you would like to speed up the copy process.

Once you have selected the menu option for copying EMAX-I objects, you will have to specify to what target file type or disk type you would like to copy the items.

If you are not in *multi bank floppy disk copy mode*, following target file and disk types can be selected:



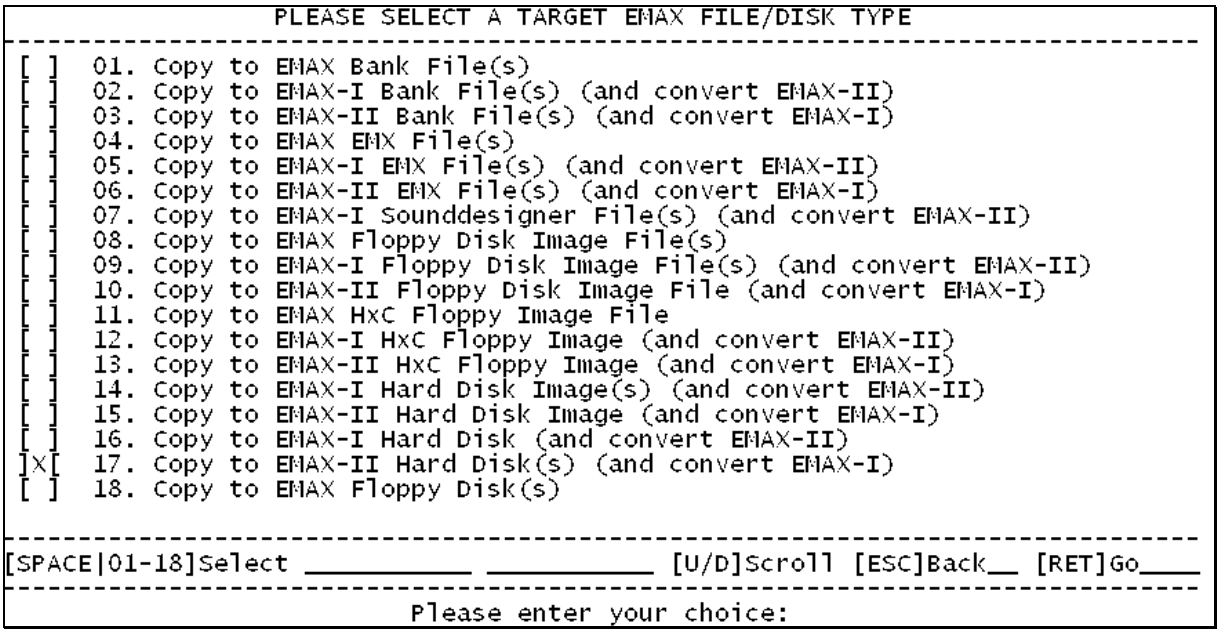
If you are in *multi bank floppy disk copy mode*, more possibilities are available.

The reason for this is that EMXP does not know yet if you will be inserting only EMAX-I disks or perhaps also EMAX-II disks.

If you have chosen to copy a series of multiple floppy disks instead of a single floppy disk, it's possible that you will first insert an EMAX-I floppy disk, then one or more EMAX-II floppy disks, then again an EMAX-I floppy disk, and so on.

In the particular event that a mixture of EMAX-I and EMAX-II floppy disks will be copied, EMXP offers many possibilities regarding preserving the EMAX-I or EMAX-II nature during the copy process, or rather converting the nature from EMAX-I to EMAX-II or from EMAX-II to EMAX-I.

All copy alternatives can be found in the picture below.



The difference between options 1, 2 and 3 is:

- when selecting option 1, EMAX-I floppy banks will be copied to EMAX-I bank files and EMAX-II floppy banks will be copied to EMAX-II bank files.
- when selecting option 2, EMAX-I floppy banks will be copied to EMAX-I bank files and EMAX-II floppy banks *will be converted* in order to obtain EMAX-I bank files as well.
- when selecting option 3, EMAX-II floppy banks will be copied to EMAX-II bank files and EMAX-I floppy banks *will be converted* in order to obtain EMAX-II bank files as well.

The same is true for options 4, 5 and 6, for options 8, 9 and 10 and for options 11, 12 and 13.

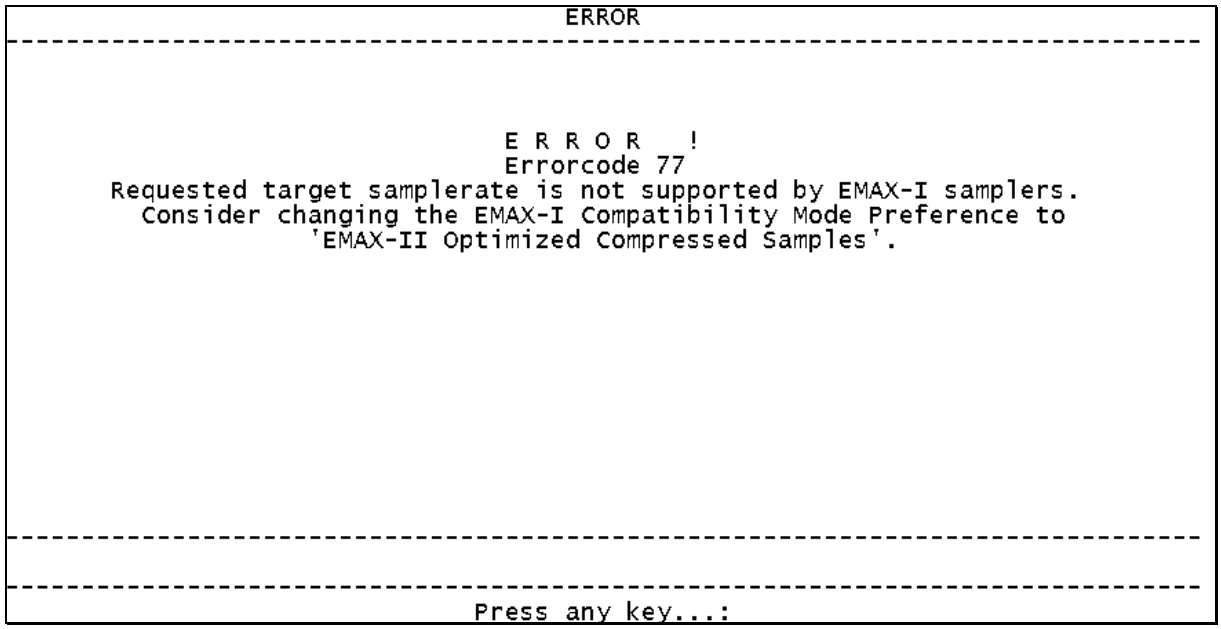
When selecting option 7, EMAX-I floppy banks will be copied to SoundDesigner file while EMAX-II floppy banks *will be converted* to EMAX-I format, because the SoundDesigner file type only supports EMAX-I.

When selecting option 14 or 16, the same is true: EMAX-I floppy banks will simply be copied, while EMAX-II floppy banks *will be converted* because EMAX-I hard disks can only hold EMAX-I banks.
The same reasoning is true for option 15 and 17, but now from the perspective of EMAX-II hard disks.

Finally, when selecting option 18, EMAX-I floppy banks will be copied to EMAX-I floppy banks and EMAX-II floppy banks will be copied to EMAX-II floppy banks (no conversion will be done).

Remark regarding copying EMAX-I banks containing 39063 Hz samples

Normally EMAX-I banks never contain samples with a sample rate of 39063 Hz because this sample rate is not supported by the EMAX-I. However after having converted EMAX-II sound banks to EMAX-I sound banks - either with EMXP or by saving the bank *as a compressed bank* on the EMAX-II sampler, the resulting EMAX-I bank *can contain 39063 Hz samples.*
If you want to copy such EMAX-I sound bank (in a file or on a hard disk) to another EMAX-I sound bank (in a file or on a hard disk), the copy process will only succeed if the *EMAX-I Compatibility Mode* in menu option 9.2.1.1. of the Preferences menu has been set to *EMAX-II Optimized Compressed Samples.* If not, an error will occur as illustrated in the picture below.



EMAX-II

To copy EMAX-II bank files:
"1. Manage EMU Files and Disks" → "2. Manage EMU EMAX-II Files and Disks" → "1. Manage EMAX-II Bank Files" → [select one or more files] → [press 'Y'] or [select "1. Copy to other EMAX-II File or Disk"]

To copy EMAX-II EMX files:
"1. Manage EMU Files and Disks" → "2. Manage EMU EMAX-II Files and Disks" → "2. Manage EMAX-II EMX Files" → [select one or more files] → [press 'Y'] or [select "1. Copy to other EMAX-II File or Disk"]

To copy banks from an EMAX-II hard disk image file or an EMAX-II partition in a SCSI2SD hard disk image file
"1. Manage EMU Files and Disks" → "2. Manage EMU EMAX-II Files and Disks" → "4. Manage EMAX-II Hard Disk Images" → "1. Manage existing EMAX-II Hard Disk Images" → [select one hard disk image file or scan for SCSI2SD and select one partition] → [press 'B'] or [select "1. Manage Banks on EMAX-II Hard Disk Image"] → [select one or more banks] → [press 'Y'] or [select "1. Copy to other EMAX-II File or Disk"]

To copy banks from an EMAX-II hard disk or an EMAX-II partition on a SCSI2SD hard disk:
"1. Manage EMU Files and Disks" → "2. Manage EMU EMAX-II Files and Disks" → "5. Manage EMAX-II Hard Disks" → [select a hard disk or scan for SCSI2SD and select a partition] → [press 'B'] or [select "1. Manage Banks on EMAX-II Hard Disk"] → [select one or more banks] → [press 'Y'] or [select "1. Copy to other EMAX-II File or Disk"]

To copy banks from EMAX-II floppy disk image files:
"1. Manage EMU Files and Disks" → "2. Manage EMU EMAX-II Files and Disks" → "6. Manage EMAX-II Floppy Disk Images" → [select one or more files] → [press 'Y'] or [select "1. Copy Bank to other EMAX-II File or Disk"]

To copy banks from EMAX-II HxC floppy disk image files:
"1. Manage EMU Files and Disks" → "2. Manage EMU EMAX-II Files and Disks" → "7. Manage EMAX-II HxC Floppy Disk Images" → [select one or more files] → [press 'Y'] or [select "1. Copy Bank to other EMAX-II File or Disk"]

To copy a bank from an EMAX-II floppy disk:
"1. Manage EMU Files and Disks" → "2. Manage EMU EMAX-II Files and Disks" → "8. Manage EMAX-I/EMAX-II Floppy Disks" → [select a floppy drive] → [press 'B'] or [select "1. Manage Banks on Floppy Disk"] → [insert a disk if not inserted yet] → [select the bank] → [press 'Y'] or [select "1. Copy to other EMAX-II File or Disk"]

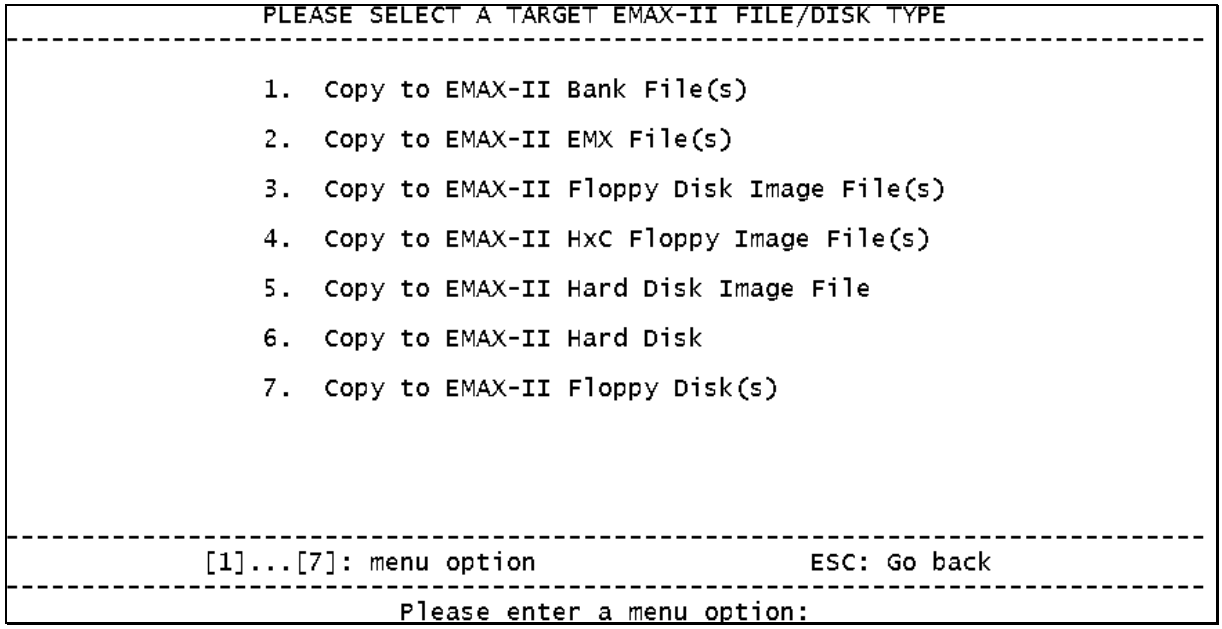
To copy banks from a series of EMAX-II floppy disks:
"1. Manage EMU Files and Disks" → "2. Manage EMU EMAX-II Files and Disks" → "8. Manage EMAX-I/EMAX-II Floppy Disks" → [select a floppy drive] → [press 'Y'] or [select "4. Copy Banks of Floppy Disk(s) to Other EMAX File(s) or Disk(s)"]

Just like for the EMAX-I, next to creating backups directly from EMAX-II floppy disks to floppy disk image files or to HxC floppy disk image files (see *section "6.5 COPYING ENTIRE FLOPPY DISK (IMAGE)S AND HARD* DISK (IMAGE)S*"),* EMXP supports two modes for copying sound banks from EMAX-II floppy disks:

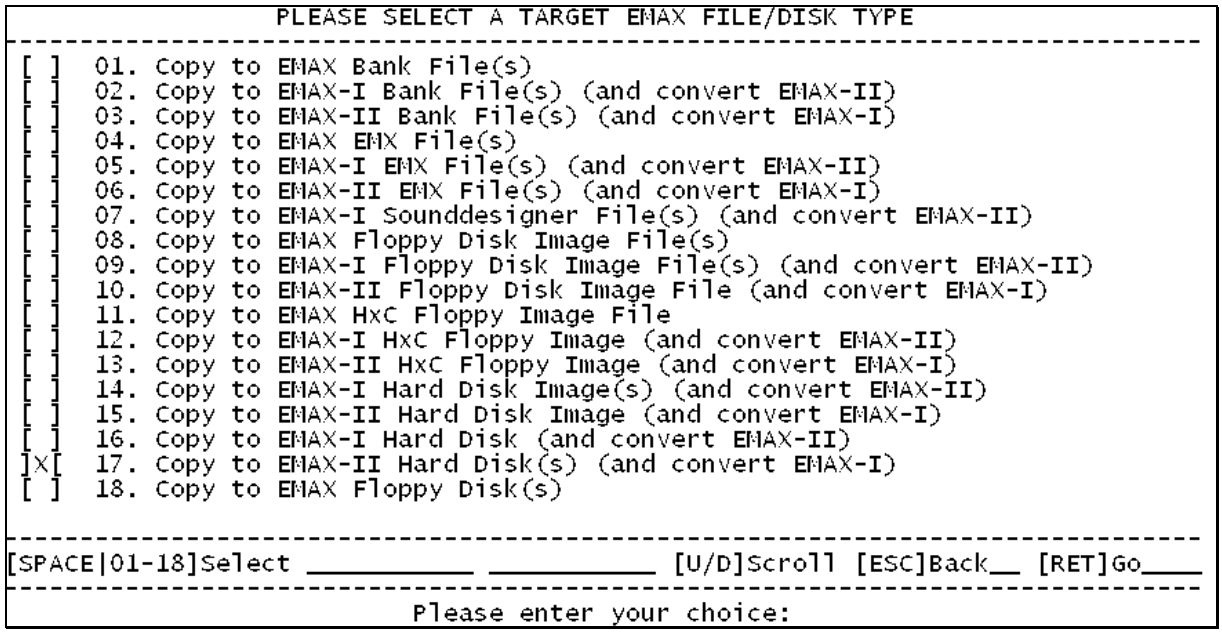
- *Single bank* copy mode: in this mode, only the bank of the current floppy disk will be copied
- *Multi bank* copy mode: in this mode, EMXP will keep asking for floppy disks and keep copying the banks from these floppy disks until you cancel the loop by pressing ESC. This mode is useful if you have a lot of floppy disks to be copied and if you would like to speed up the copy process.

Once you have selected the menu option for copying EMAX-II objects, you will have to specify to what target file type or disk type you would like to copy the items.

If you are not in *multi bank floppy disk copy mode*, following target file and disk types can be selected:



If you are in *multi bank floppy disk copy mode*, more possibilities are available.
The reason for this has been explained already in the previous paragraph which was related to copying EMAX-I objects.
Just like for EMAX-I floppy disks, the copy alternatives will look like the picture below.



For more information we refer to the previous paragraph about copying EMAX-I objects.
If *banks* are being copied from EMAX-II EMX files, floppy disk images files, HxC floppy disk image files or floppy disks, the banks may be spread across multiple EMX files, floppy disk image files, HxC floppy disk image files or floppy disks. If this is true, EMXP will ask for the other files or disks later *during the actual process of copying* the EMAX-II files/disks.

Emulator-I

To copy Emulator-I bank files:
"1. Manage EMU Files and Disks" → "3. Manage EMU EMULATOR-I Files" → "1. Manage EMULATOR-I Bank Files" → [select one or more files] → [press 'Y'] or [select "1. Copy to other EMULATOR-I File"]

To copy Emulator-I lower/upper sound files:
"1. Manage EMU Files and Disks" → "3. Manage EMU EMULATOR-I Files" → "2. Manage EMULATOR-I Lower/Upper Sound Files" → [select one or more files] → [press 'Y'] or [select "1. Copy to other EMULATOR-I File"]

To copy banks from Emulator-I floppy disk image files:
"1. Manage EMU Files and Disks" → "3. Manage EMU EMULATOR-I Files" → "3. Manage EMULATOR-I Floppy Disk Images" → [select one or more files] → [press 'Y'] or [select "1. Copy to other EMULATOR-I File"]

To copy banks from Emulator-I HxC floppy disk image files:
"1. Manage EMU Files and Disks" → "3. Manage EMU EMULATOR-I Files" → "4. Manage EMULATOR-I HxC Floppy Disk Images" → [select one or more files] → [press 'Y'] or [select "1. Copy to other EMULATOR-I File"]

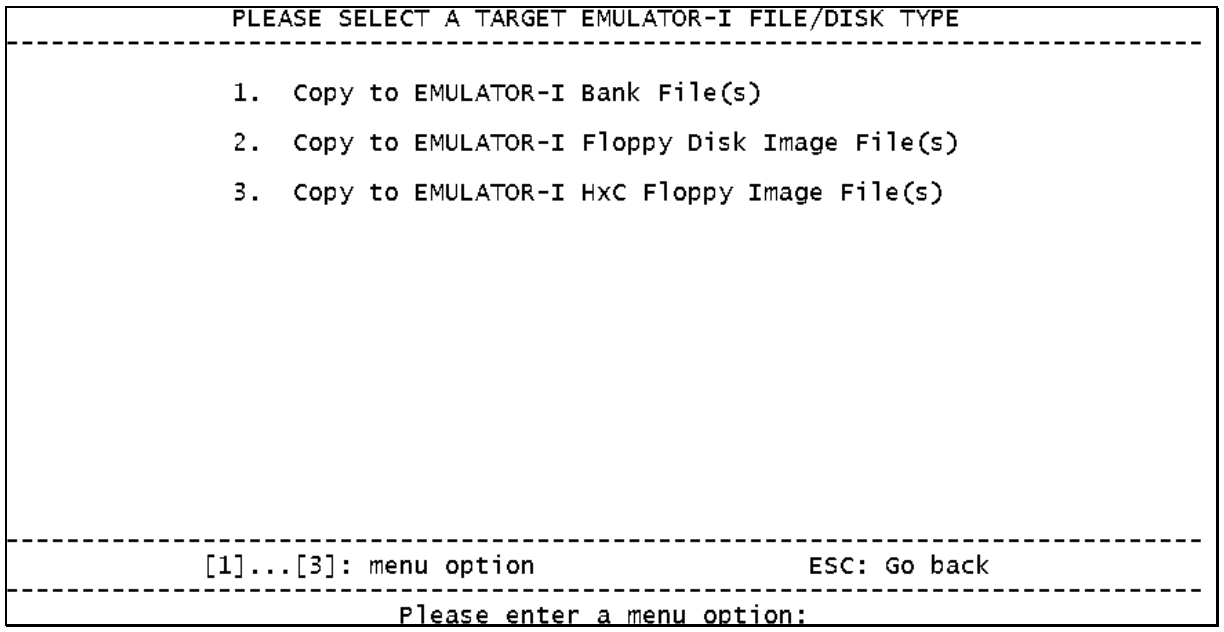
To copy individual sounds from Emulator-I bank files:
"1. Manage EMU Files and Disks" → "3. Manage EMU EMULATOR-I Files" → "1. Manage EMULATOR-I Bank Files" → [select one file] → [press 'U'] or [select "5. Show Lower/Upper Sounds"] → [select the lower and/or upper sound'] → [press 'Y'] or [select "1. Copy to other EMULATOR-I File"]

To copy individual sounds from Emulator-I floppy disk image files:
"1. Manage EMU Files and Disks" → "3. Manage EMU EMULATOR-I Files" → "3. Manage EMULATOR-I Floppy Disk Images" → [select one file] → [press 'U'] or [select "9. Show More details" followed by "1. Show Lower/Upper Sounds"] → [select the lower and/or upper sound'] → [press 'Y'] or [select "1. Copy Sounds to other EMULATOR-I File"]

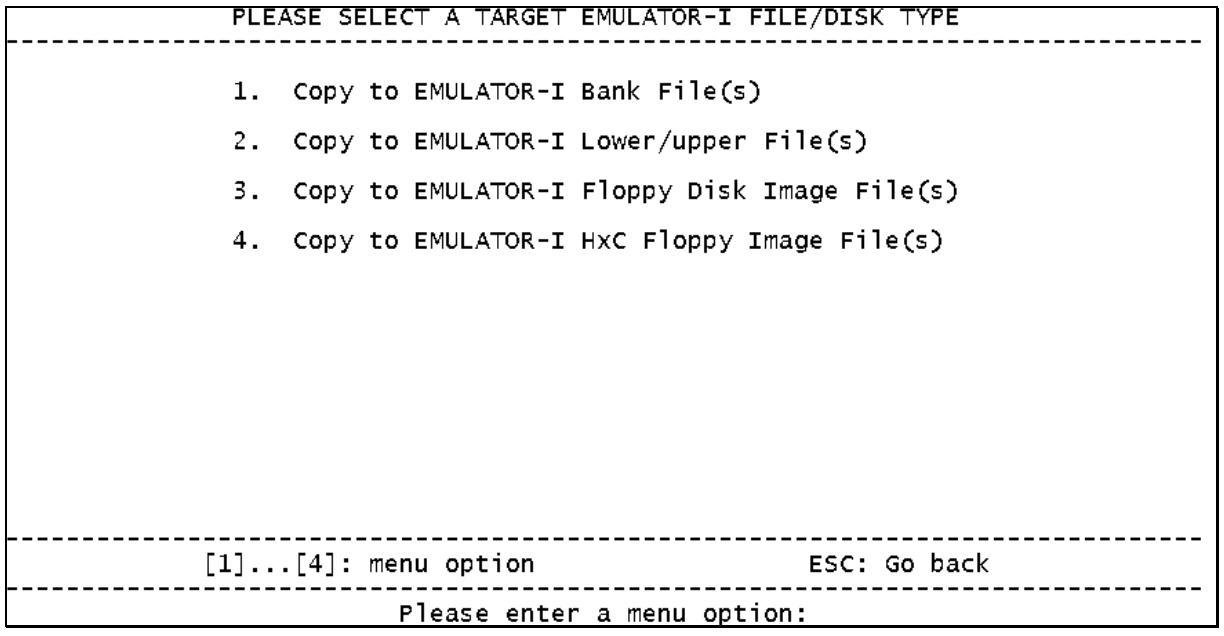
To copy individual sounds from Emulator-I HxC floppy disk image files:
"1. Manage EMU Files and Disks" → "3. Manage EMU EMULATOR-I Files" → "4. Manage EMULATOR-I HxC Floppy Disk Images" → [select one file] → [press 'U'] or [select "9. Show More details" followed by "1. Show Lower/Upper Sounds"]→ [select the lower and/or upper sound'] → [press 'Y'] or [select "1. Copy Sounds to other EMULATOR-I File"]

Once you have selected the menu option for copying Emulator-I objects, you will have to specify to what target file type you would like to copy the items.

If you are copying *complete banks* from Emulator-I bank files, floppy disk image files or HxC floppy disk image files, the following target file types are available:



If you are copying *individual sounds* from Emulator-I bank files, floppy disk image files or HxC floppy disk image files, or if you are copying *lower/upper sound files*, the following target file types are available:



Emulator-II

To copy Emulator-II bank files:
"1. Manage EMU Files and Disks" → "4. Manage EMU EMULATOR-II Files and Disks" → "1. Manage EMULATOR-II Bank Files" → [select one or more files] → [press 'Y'] or [select "1. Copy to other EMULATOR-II File of Disk"]

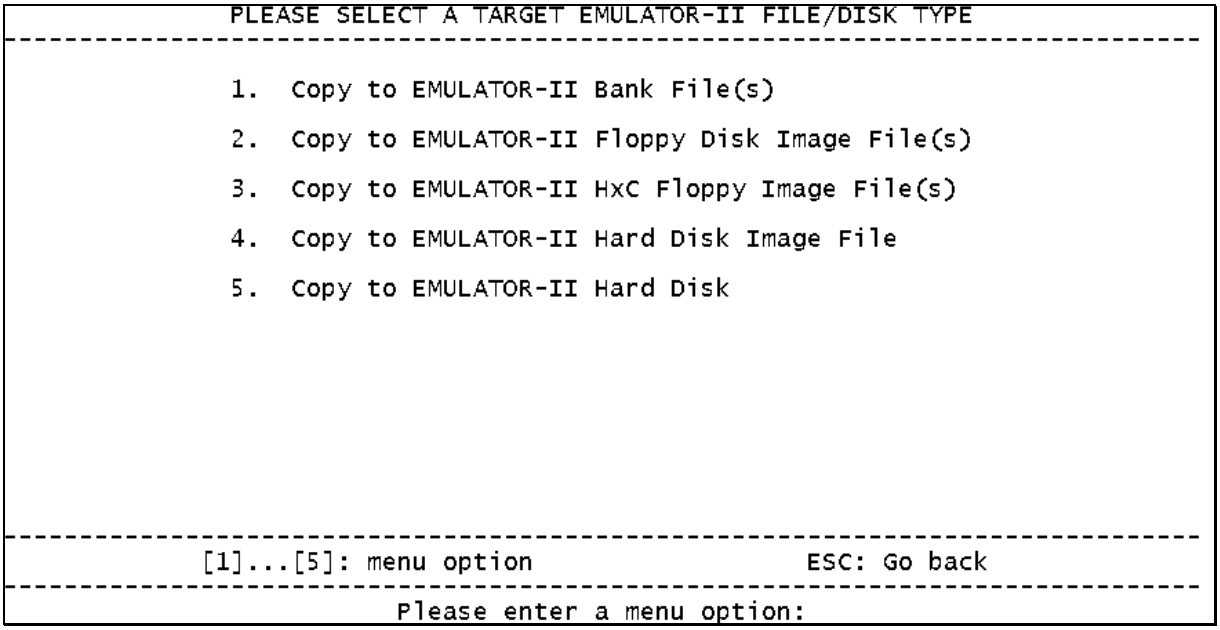
To copy banks from an Emulator-II hard disk image file (e.g. DREM DSK file)
"1. Manage EMU Files and Disks" → "2. Manage EMU EMULATOR-II Files and Disks" → "4. Manage EMULATOR-II Hard Disk Images (e.g. DREM)" → "1. Manage existing EMULATOR-II Hard Disk Images" → [select one hard disk image file] → [press 'B'] or [select "1. Manage Banks on EMULATOR-II Hard Disk Image"] → [select one or more banks] → [press 'Y'] or [select "1. Copy to other EMULATOR-II File or Disk"]

To copy banks from an Emulator-II hard disk:
"1. Manage EMU Files and Disks" → "2. Manage EMU EMULATOR-II Files and Disks" → "5. Manage EMULATOR-II Hard Disks" → [select a hard disk] → [press 'B'] or [select "1. Manage Banks on EMULATOR-II Hard Disk"] → [select one or more banks] → [press 'Y'] or [select "1. Copy to other EMULATOR-II File or Disk"]

To copy banks from Emulator-II floppy disk image files:
"1. Manage EMU Files and Disks" → "4. Manage EMU EMULATOR-II Files and Disks" → "2. Manage EMULATOR-II Floppy Disk Images" → [select one or more files] → [press 'Y'] or [select "1. Copy Bank to other EMULATOR-II File or Disk"]

To copy banks from Emulator-II HxC floppy disk image files:
"1. Manage EMU Files and Disks" → "4. Manage EMU EMULATOR-II Files and Disks" → "3. Manage EMULATOR-II HxC Floppy Disk Images" → [select one or more files] → [press 'Y'] or [select "1. Copy Bank to other EMULATOR-II File or Disk"]

Once you have selected the menu option for copying Emulator-II objects, you will have to specify to what target file type you would like to copy the items. The following target file types are available:



Emulator-III, Emulator-IIIX and ESI-v3

To copy Emulator-III bank files:
"1. Manage EMU Files and Disks" → "5. Manage EMU EMULATOR-III/X/ESI Files and Disks" → "1. Manage Emulator-III Bank Files" → [select one or more files] → [press 'Y'] or [select "1. Copy to other Emulator-III File or Disk"]

To copy Emulator-IIIX bank files:
"1. Manage EMU Files and Disks" → "5. Manage EMU EMULATOR-III/X/ESI Files and Disks" → "2. Manage Emulator-IIIX Bank Files" → [select one or more files] → [press 'Y'] or [select "1. Copy to other Emulator-IIIX File or Disk"]

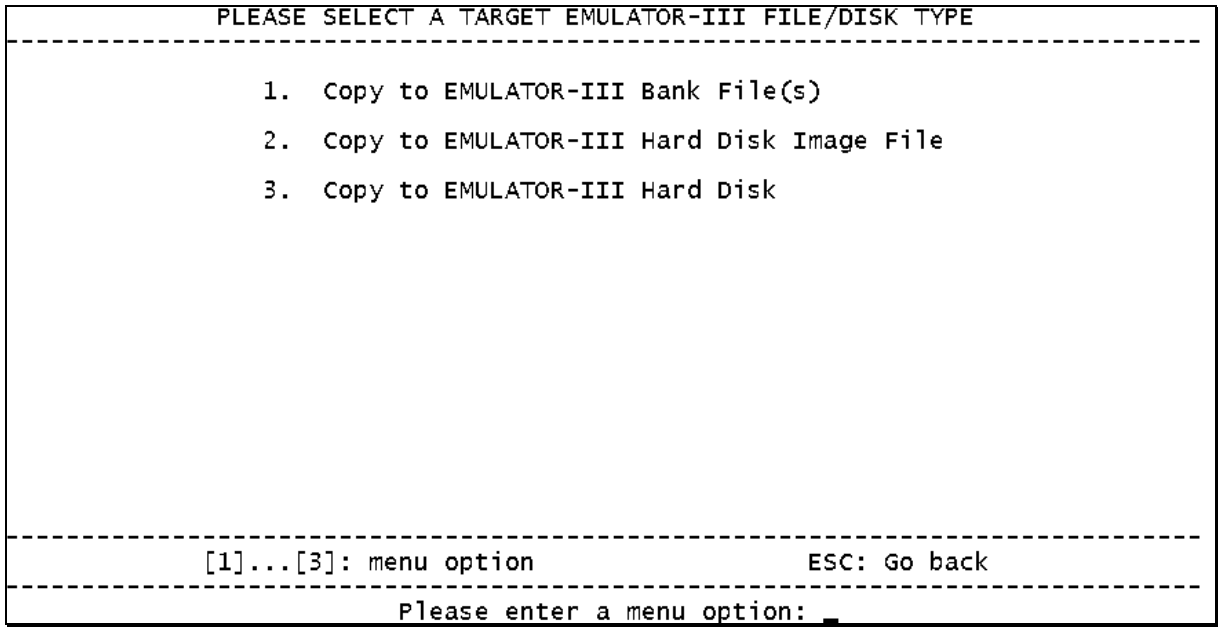
To copy ESI-v3 bank files:
"1. Manage EMU Files and Disks" → "5. Manage EMU EMULATOR-III/X/ESI Files and Disks" → "3. Manage ESI-V3 Bank Files" → [select one or more files] → [press 'Y'] or [select "1. Copy to other ESI-V3 File or Disk"]

To copy banks from an Emulator-III/IIIX/ESI hard disk image file or an Emulator-III/IIIX/ESI partition in a SCSI2SD hard disk image file:
"1. Manage EMU Files and Disks" → "5. Manage EMU EMULATOR-III/X/ESI Files and Disks" → "4. Manage Emulator-III/X/ESI Hard Disk Images" → "1. Manage existing Emulator-III/X/ESI Hard Disk Images" → [select one hard disk image file or scan for SCSI2SD and select one partition] → *to see all banks* [press 'B'] or [select "1. Manage all Banks on EMULATOR-III/X/ESI Hard Disk Image"]; *to see only Emulator-III banks* [press 'E'] or [select "2. Manage EMULATOR-III Banks only on Hard Disk Image"]; *to see only Emulator-IIIX banks* [press 'X'] or [select "3. Manage EMULATOR -IIIX Banks only on Hard Disk Image"]; *to see only ESI-v3 banks* [press 'J'] or [select "4. Manage ESI-V3 Banks only on Hard Disk Image"] → [select one or more banks] → [press 'Y'] or [select "1. Copy to other EMULATOR -III/X/ESI File or Disk"]

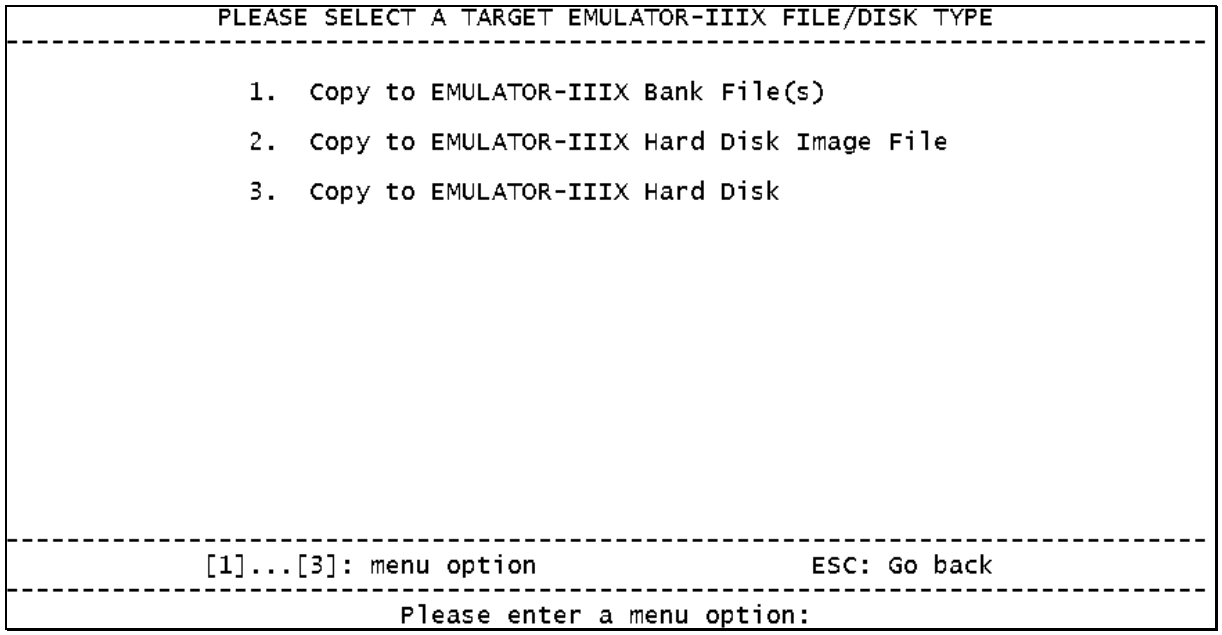
To copy banks from an Emulator-III/IIIX/ESI hard disk or an Emulator-III/IIIX/ESI partition on a SCSI2SD hard disk:
"1. Manage EMU Files and Disks" → "5. Manage EMU EMULATOR-III/X/ESI Files and Disks" → "5. Manage EMULATOR-III/X Hard Disks" → [select a hard disk or scan for SCSI2SD and select a partition] → *to see all banks* [press 'B'] or [select "1. Manage all Banks on EMULATOR-III/X Hard Disk"]; *to see only Emulator-III banks* [press 'E'] or [select "2. Manage EMULATOR-III Banks only on Hard Disk"]; *to see only Emulator-IIIX banks* [press 'X'] or [select "3. Manage EMULATOR-IIIX Banks only on Hard Disk"]; *to see only ESI-v3 banks* [press 'X'] or [select "4. Manage ESI-V3 Banks only on Hard Disk"] → [select one or more banks] → [press 'Y'] or [select "1. Copy to other EMULATOR-III/X File or Disk"]

Once you have selected the menu option for copying Emulator-III/IIIX/ESIobjects, you will have to specify to what target file type or disk type you would like to copy the items.

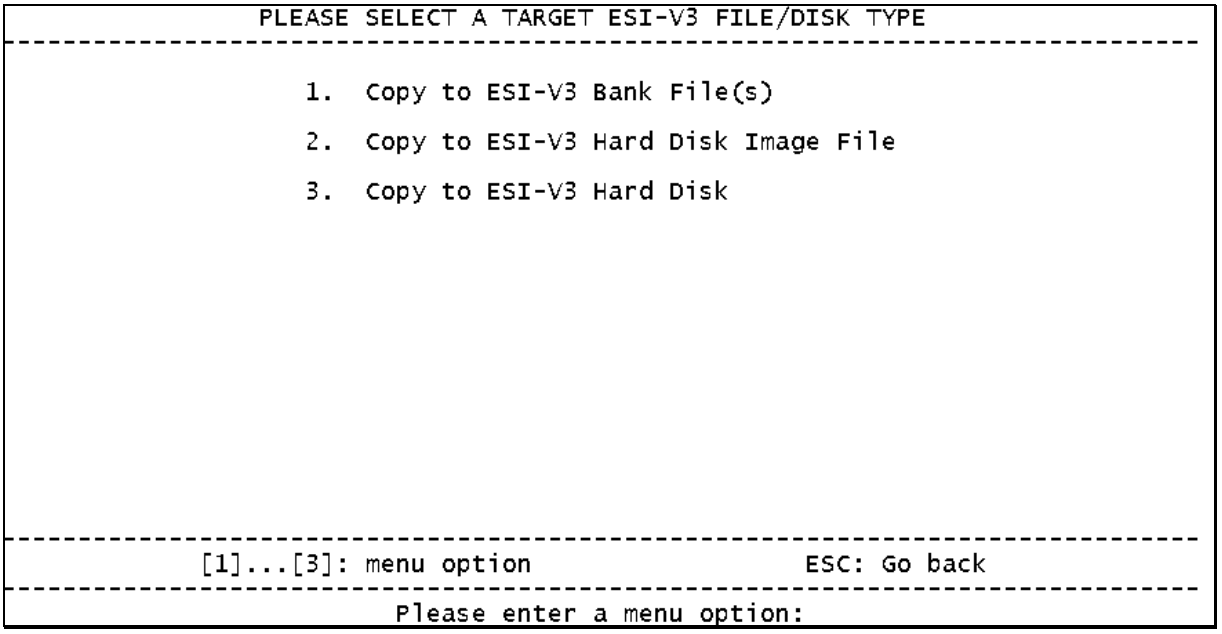
If you have selected Emulator-III banks but no Emulator-IIIX or ESI-v3 banks, the following target file types and disk type are available:



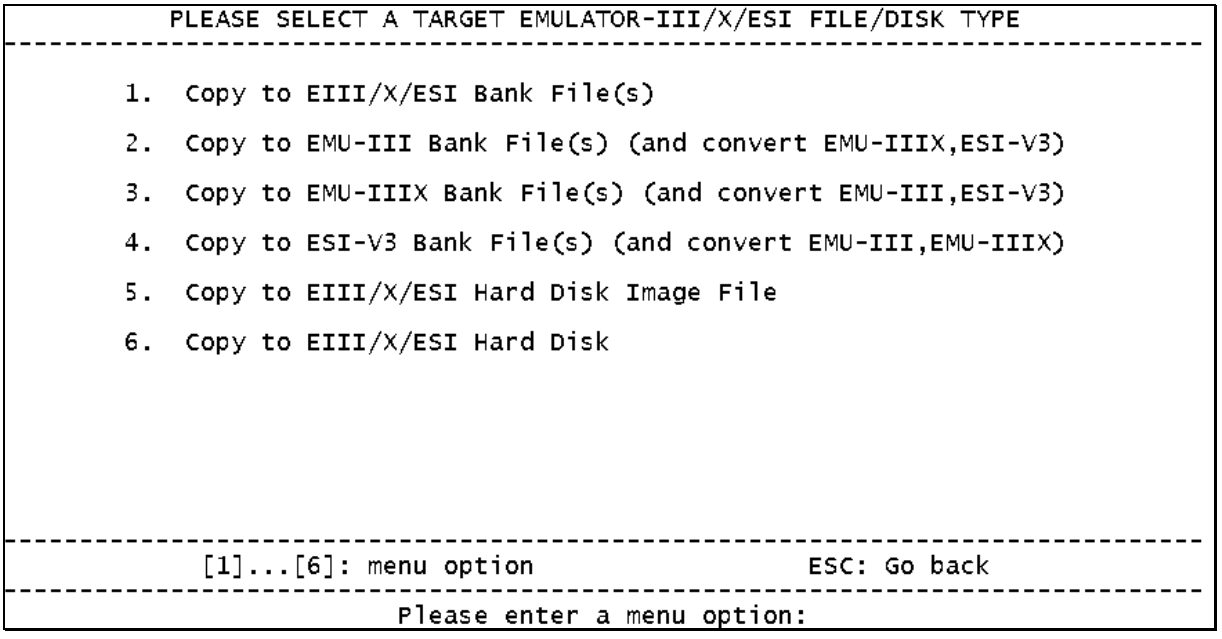
If you have selected Emulator-IIIX banks but no Emulator-III or ESI-v3 banks, the following target file types and disk type are available:



If you have selected ESI-v3 banks but no Emulator-III or Emulator-IIIX banks, the following target file types and disk type are available:



If you have selected a mixture of Emulator-III, Emulator-IIIX and/or ESI-v3 banks, some additional options are available, as illustrated below. This can only occur when selecting banks from hard disks or from hard disk image files.



The difference between options 1, 2, 3 and 4 is:

- when selecting option 1, Emulator-III banks will be copied to Emulator-III banks, Emulator-IIIX banks will be copied to Emulator-IIIX banks and ESI-v3 banks will be copied to ESI-V3 banks.
- when selecting option 2, Emulator-III banks will be copied to Emulator-III banks. Emulator-IIIX banks and ESI-v3 banks *will be converted* in order to obtain Emulator-III banks.
- when selecting option 3, Emulator-IIIX banks will be copied to Emulator-IIIX banks. Emulator-III banks and ESI-v3 banks *will be converted* in order to obtain Emulator-IIIX banks.
- when selecting option 4, ESI-v3 banks will be copied to ESI-v3 banks. Emulator-III banks and Emulator-IIIX banks *will be converted* in order to obtain ESI-v3 banks.

SP-12

To copy SP-12 sound bank files:
"1. Manage EMU Files and Disks" → "6. Manage EMU SP-12 Files" → "1. Manage SP-12 Sound Bank Files" → [select one or more files] → [press 'Y'] or [select "1. Copy to other SP-12 File"]

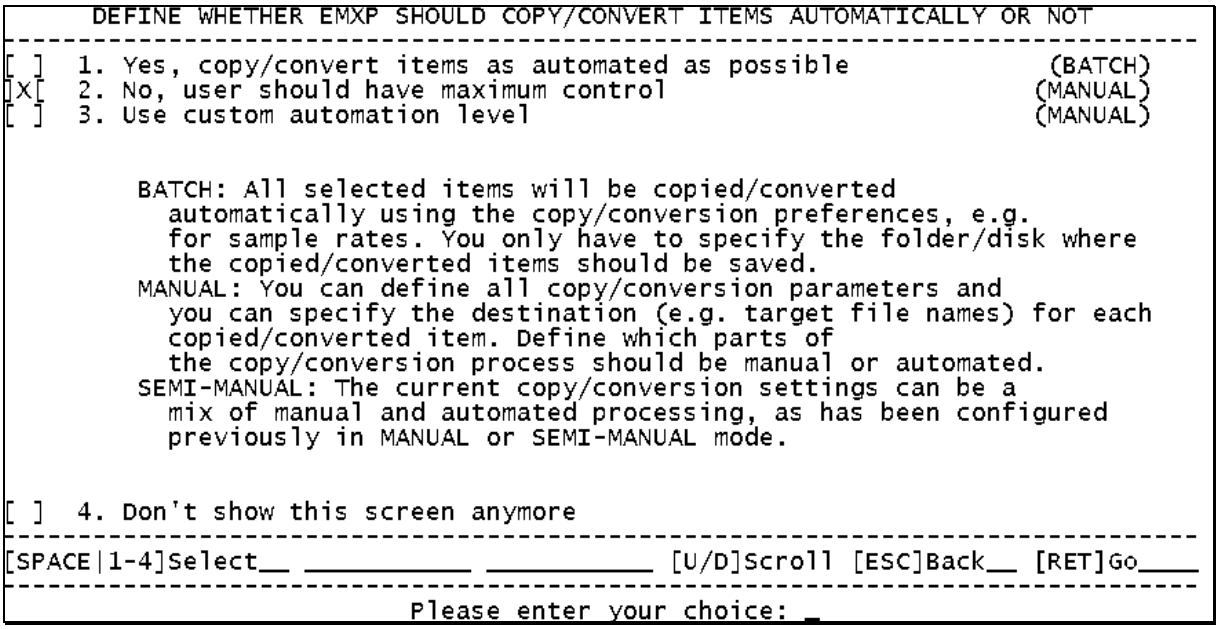
SP-12 Sequence files can not be copied in EMXP - for copying this type of files, simply use the Windows Explorer copy function.

6.2.2 Batch or manual copy process (not for AKAI S1000)

Except for the AKAI S1000 sampler family, copying sound related data (like sound banks) can be done

- *in batch mode*, which allows for a fully automated copy of many files/banks at once
- *in manual mode*, which allows for a fully manually controlled file-per-file copy process
- *in semi-manual mode*, which allows for a customized copy process which can be partially automated and partial manually controlled. The degree of automation can be defined by the user.

After having performed the steps described in *section "6.2.1 How to start copying sound related data"* and after having selected the target file or disk type, EMXP will ask in what mode you would like to copy the selected items.



EMXP will *always show this screen* unless you explicitly ask EMXP not to do so by enabling "`4. Don't show this screen anymore`". In that case EMXP will choose the mode that you have selected the last time when copying or converting items.
You can always change the mode afterwards in the Automation/Workflow Preferences. See *section "10.2 AUTOMATION AND WORKFLOW PREFERENCES"*.

- By selecting 1, the copy process will be done in a fully automated mode with minimal user intervention. The only user interventions that are required are:
  - selecting the target folder or target disk to which the selected items should be copied
  - if applicable, selecting the operating system that should be copied to the target file or disk as well
  - if applicable, selecting to which section of the target bank's preset the selected Emulator-I source sounds should be copied

  For all other settings that can influence the copy process, the Preferences settings will be used. See *chapter "10. PREFERENCES"*.
- By selecting 2, the copy process can be done in a fully manually controlled mode. You will have the possibility to intervene in every step of the copy process, but you will also have the possibility to let EMXP perform some steps in an automated way while keeping manual control over the other steps. If you ask EMXP to perform one or more steps in an automated way, the resulting mode is called SEMI-MANUAL instead of MANUAL and the configured semi-automated process can be re-used later by selecting option 3.
- By selecting 3, you can define the level of automation yourself. In this custom automation level mode, you have the same possibilities as in a fully manual mode, but *you can configure which of the parameter request screens should be displayed and which should be skipped.* E.g. if you never want to

be "bothered" with having to define the OS handling parameters, but you always want to be able to choose between the possibility to select target files/banks yourself and the possibility that EMXP determines the target files/banks automatically, you can configure the workflow of EMXP in such way that this expected behaviour is taken into account. Hence the purpose of the custom automation level mode is to make the copy/conversion workflow more comfortable and to tune it to your needs.

6.2.2.1 BATCH Mode

As already explained, when selecting BATCH mode the only user interventions that are still required are:

- selecting the target folder or target disk to which the selected items should be copied
- only if applicable: selecting the operating system that should be copied to the target file or disk as well
- only if applicable: defining to which section of the target bank's preset keyboard the selected Emulator-I source sounds should be copied. If this parameter is required, it will be the first one that EMXP will prompt for (see below)

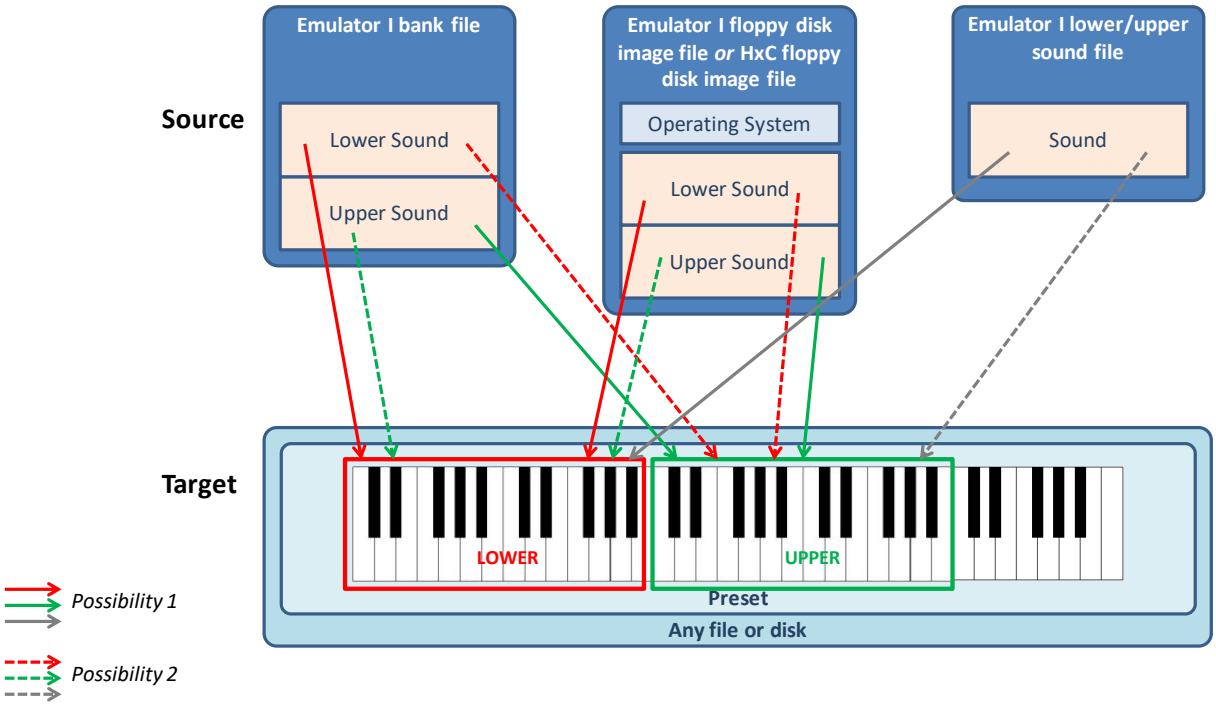
A. Defining the target location for Emulator-I sounds (only if applicable)

If the source items are

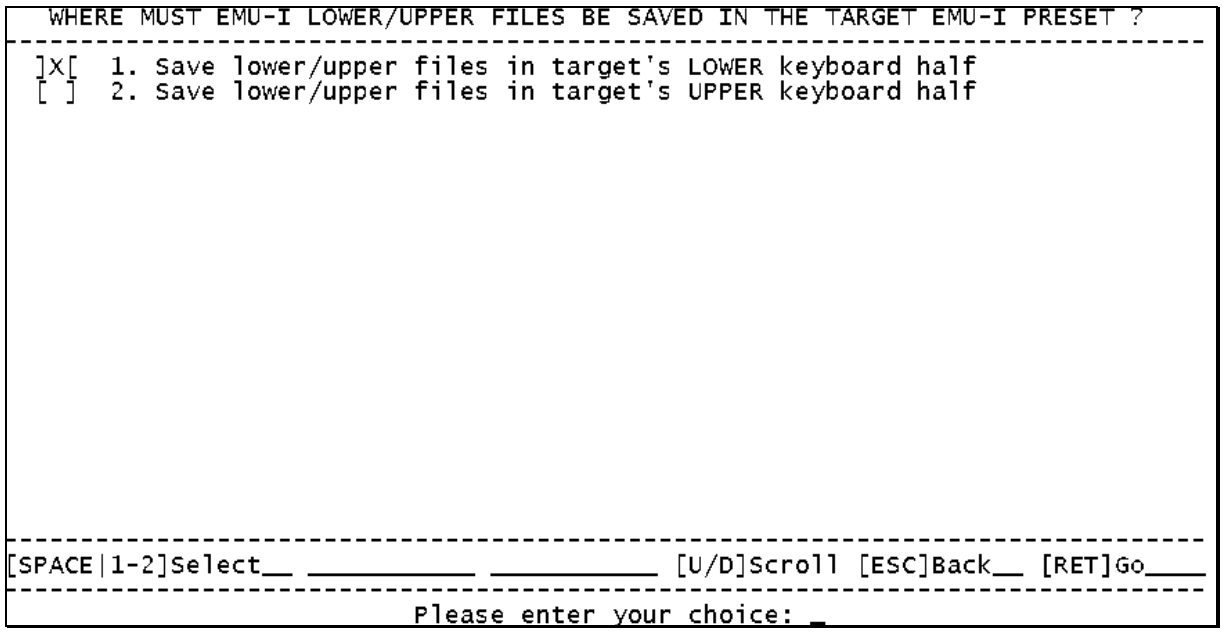
- either *Emulator-I Lower/Upper sound files (.E1H)*
- or the *Lower and/or Upper sound of an Emulator-I bank*

and you are copying them to any type of file or disk except for Emulator-I Lower/Upper sound files, you should tell EMXP where to put the selected sounds.

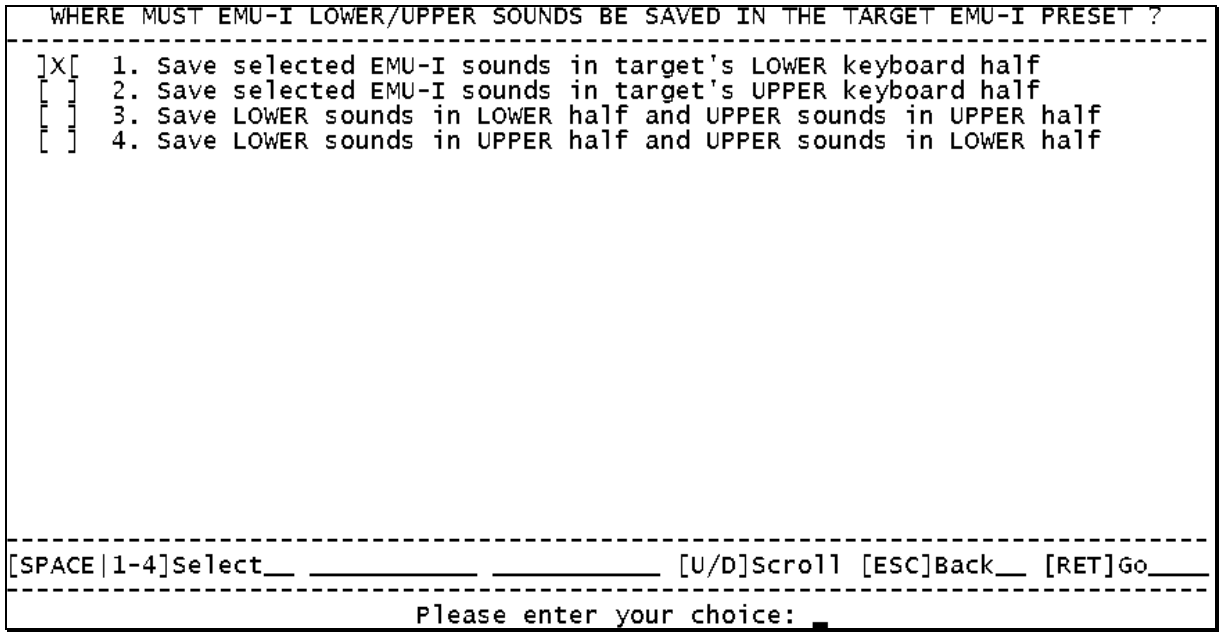
Lower/Upper sounds consist of only 2 keyboard octaves, while the target preset consists of at least 4 keyboard octaves. This means that you can save each selected sound to either the lower or the upper half of the target bank's preset.



If the source items are Emulator-I Lower/Upper sound files, the screen in which you have to select the target keyboard section looks as depicted below. Each target bank's single preset will always have one side of the keyboard being empty and one side which is filled with the selected source sound.



If the source items are Upper or Lower sounds selected in an Emulator-I bank file, an Emulator-I floppy disk image file or an Emulator-I HxC floppy disk image file, the screen in which you have to select the target keyboard section looks as depicted below.



Whatever option (1 → 4) you choose, each target bank will only have one preset which in turn will only have one sound. So if both the lower and upper sound of the source bank have been selected to be copied, the copy process will always result in 2 target files.

If you want to copy both lower and upper sound of the source bank to one single target bank, there are 2 possibilities:

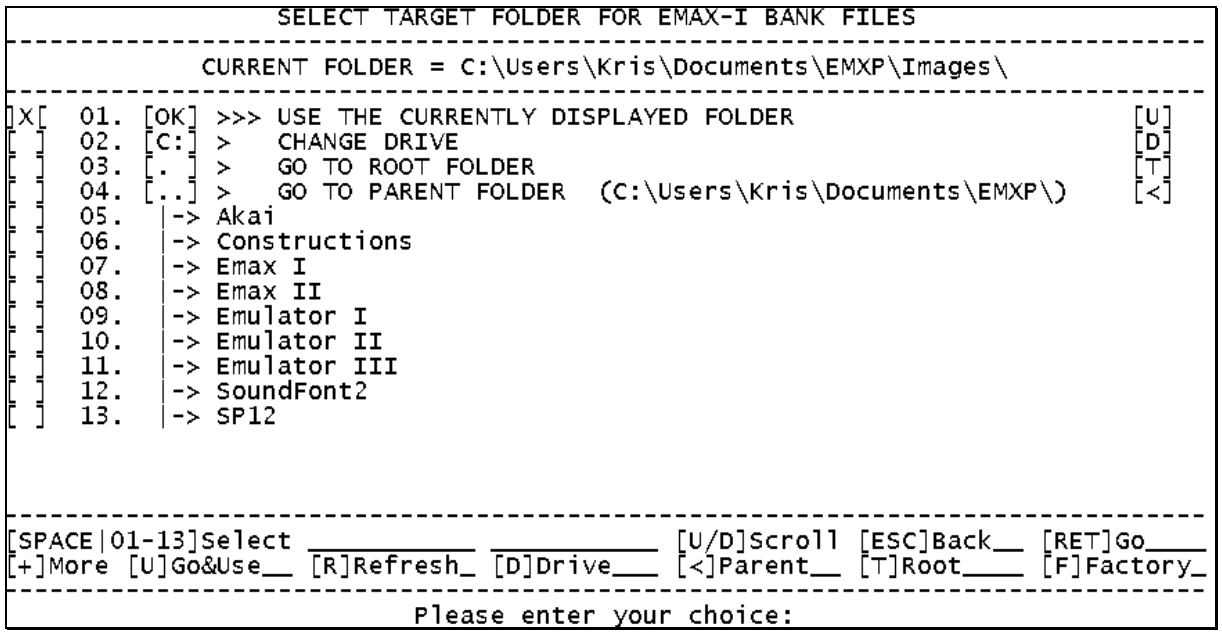
- Select the whole source bank/file instead of selecting its individual sounds. The target bank's preset will have the lower source sound on the lower section of the keyboard, and the upper source sound on the upper section of the keyboard.

- Don't let EMXP generate the target files itself. If you select the MANUAL mode and if you specify the target files yourself, you can select the *same* target file for both selected source sounds, and for each source sound EMXP will ask to which section of the target preset's keyboard the source sound should be copied. In this mode, you will be able to swap the lower and upper sound to the upper and lower section of the keyboard (as an example...)

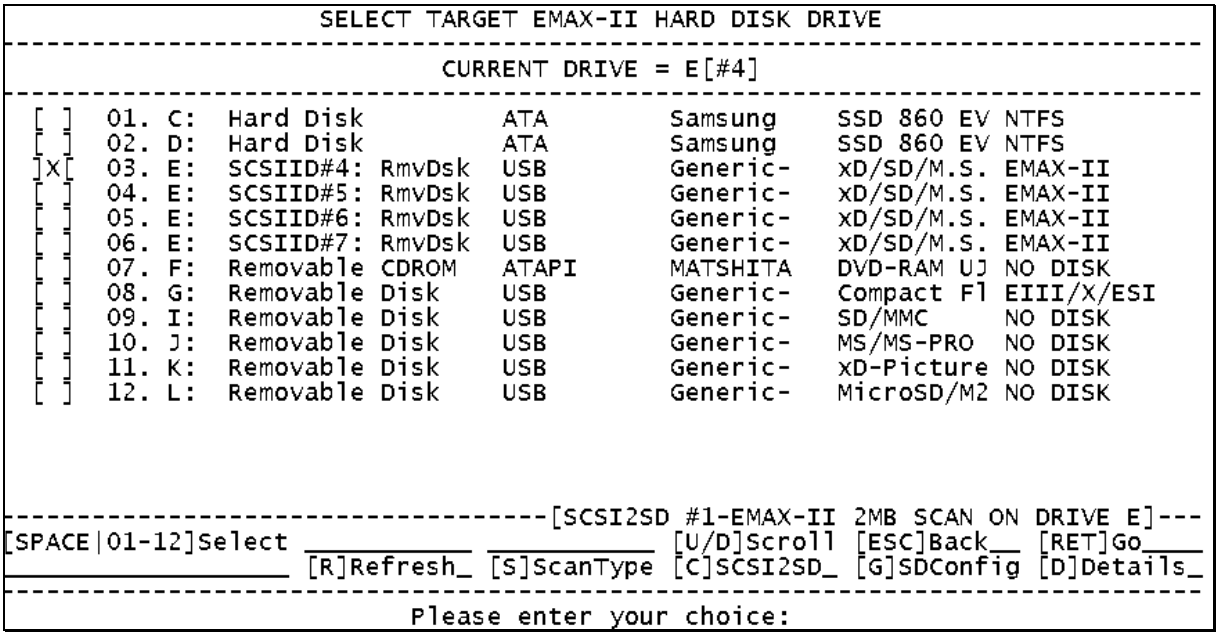
B. Selecting the target folder or disk

- If you are copying items to *floppy disks*, EMXP will launch the Disk Manager and you'll have to select the drive in which you will insert the target floppy disks. Then EMXP will start copying all selected items, and for each item it will ask you to insert a new (empty) target floppy disk in the specified drive.

- If you are copying items to *files*, EMXP will launch the File Manager and you'll have to select the folder in which folder the target files should be saved. The picture below illustrates this for copying to EMAX-I bank files. After having selected the destination folder, EMXP will start copying all selected items and it will create all target files in the specified folder; each target file will have a file name that will be based on the source item's file name or contents.



- If you are copying items to *hard disks*, EMXP will launch the Disk Manager and you'll have to select the sampler hard disk drive or the sampler partition on a SCSI2SD hard disk, as illustrated below.



  After having selected the target hard disk or target SCSI2SD partition, EMXP will start copying all selected items and it will save each target bank on the next available free bank location (*) on the target hard disk or SCSI2SD partition. If no bank location is available anymore, or if the disk or partition is full, the item will not be copied and an error will be generated which will be written to the final overall execution report.

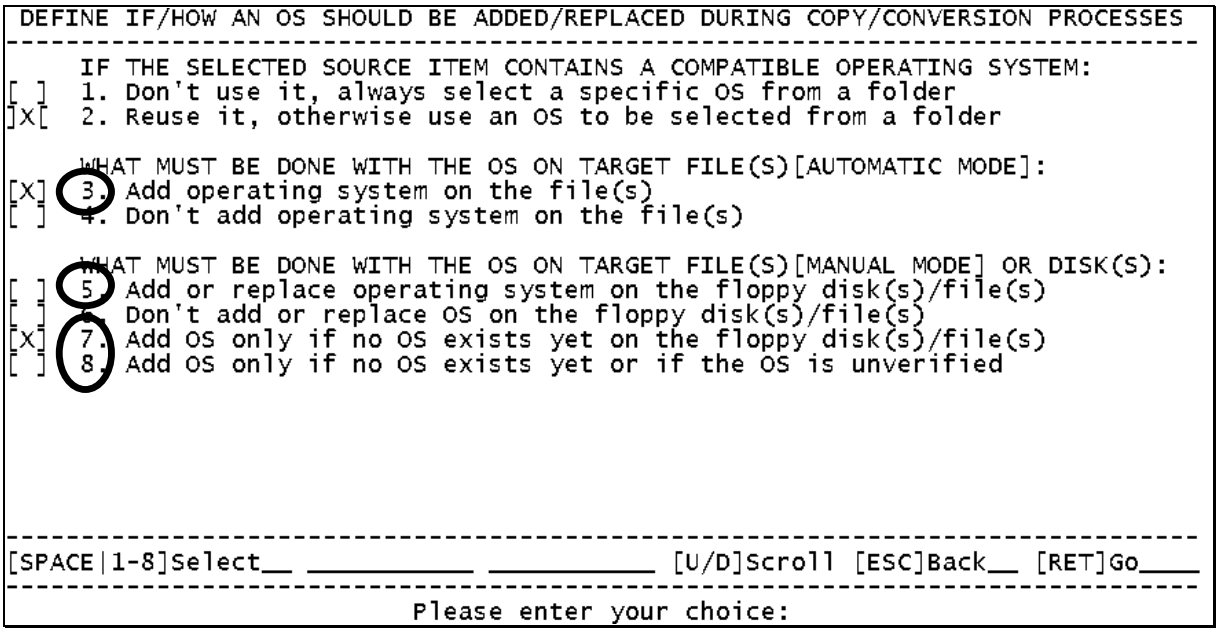
- If you are copying items to *hard disks image files*, EMXP will launch the File Manager and you'll have to select the target sampler hard disk image file or the sampler partition in a SCSI2SD hard disk image file. The procedure and next steps are similar to the ones when copying items to hard disks or partitions on SCSI2SD hard disks.

(*) If you are copying items to Emulator-II hard disks or hard disk image files (like DREM files), the way how free bank locations are detected depends on a parameter that should be set in the preferences menu. This is due to the fact that "empty bank location" actually don't exist in the Emulator-II+HD file system: each bank slot should at least contain a valid bank with a NULL PRESET in it. But you can instruct EMXP to treat bank slots with such a "Null Preset" banks as an empty bank slot. For more details, see *section "10.5.8.8 Define Emulator-II hard disk/hard disk image empty bank detection mode"*.

C. Selecting an operating system (only if applicable)

If the target is a *floppy disk* (EMAX only) or *a floppy disk image file or HxC floppy disk image file* (Emulator-I, Emulator-II, EMAX-I and EMAX-II only), EMXP can also copy an operating system besides the sound banks (which will be copied anyway).
This feature is not supported when copying sound banks to *hard disks* or *hard disk images.* Please read *section "6.4 COPYING OPERATING SYSTEMS"* if you would like to copy an operating system to a sampler hard disk or hard disk image.

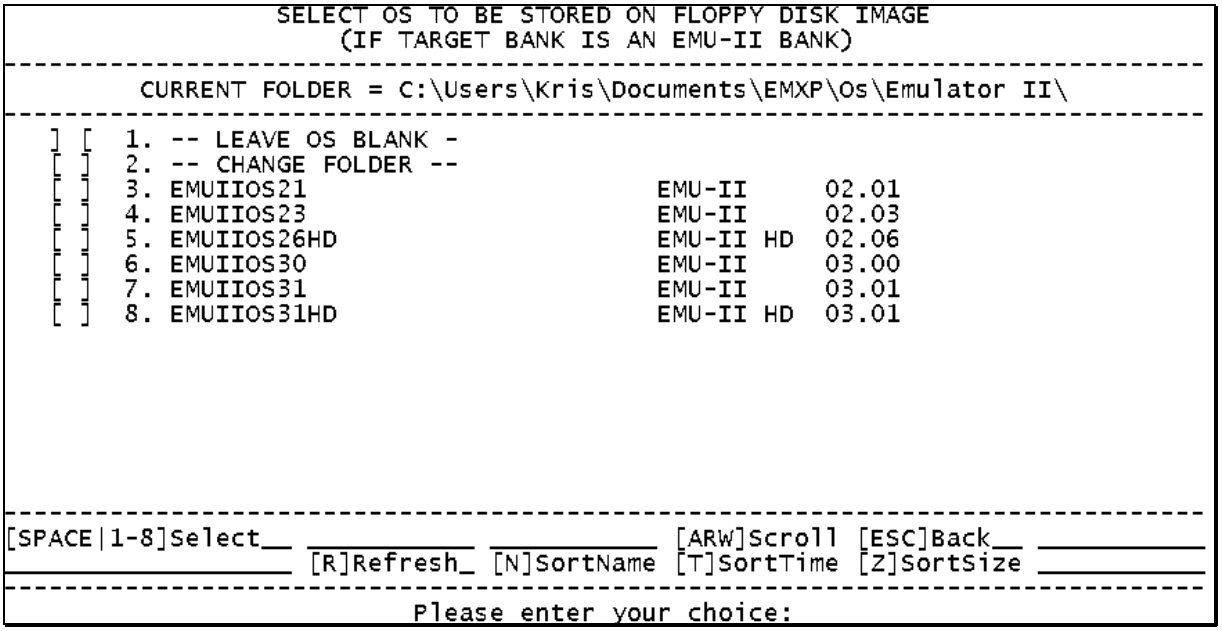
Copying an operating system will only be done if you have enabled the Copy/Conversion preference related to adding or replacing an OS in the automatic copy/conversion mode, as illustrated below. See also *section "10.3.11 Manage preferences about OS handling in copy/conversion processing"*.



If option 3 in this preference menu has been set and you are copying to *floppy disk image files or HxC floppy disk image files*, or if one of the options 5, 7 or 8 has been set and you are copying to *floppy disks*, EMXP will now launch the File Manager and ask for the operating system that should be saved to the target floppy disk or to the target floppy disk image file or HxC floppy disk image file if the source item (floppy disk, floppy disk image, HxC floppy disk image, hard disk, hard disk image) does not contain a compatible operating system *or* if you have asked not to re-use the operating system of the source item (see options 1 → 2) Note that the File Manager is always launched when copying to floppy disks, floppy disk images or HxC floppy disk images, even if you would like to re-use the operating system of the source item. In that case the operating system selected in the File Manager will be used only if the source item's operating system is missing or invalid. There's one exception though: if the source is a sampler hard disk or hard disk image and contains a valid operating system, EMXP will not launch the File Manager to select an operating system.

Selecting the operating system is illustrated in the picture below, which shows the Emulator-II operating system files that can be selected for being copied to Emulator-II floppy disk images.

If you don't have an operating system file available, you can select the "`1. -- LEAVE OS BLANK -`" item.



If an Emulator-II *hard disk* operating system has been selected, EMXP also needs to know which *physical configuration* should be saved to the floppy disk image file or to HxC floppy disk image file. In BATCH mode, EMXP will always use the configuration which has been set as the default for copying operating systems to floppy disk images. Setting this default can be done in the preferences menu, see *section "10.5.8.3 Define Emulator-II hard disk/hard disk image configurations"*.

D. Starting the copy process

EMXP will now start copying all selected items. When all items have been copied, a copy process execution report will be displayed. See *section "6.2.4 Copy process execution report"*.

6.2.2.2 MANUAL Mode

In MANUAL mode you have full control of the copy process. All parameters that can influence the copy process can be reviewed and changed depending on your needs.

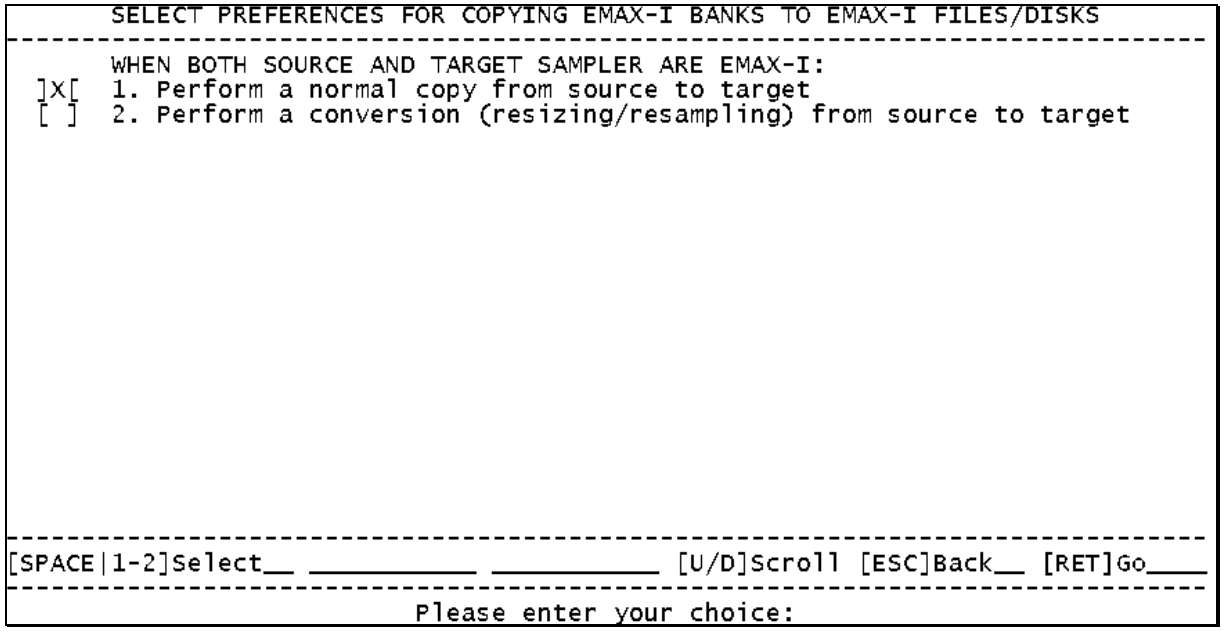
The parameters that can be changed depend on the selected source file or disk type and the chosen target file or disk type.
For some copy processes, only a few parameters can be changed. This is e.g. true when copying a bank from an Emulator-II floppy disk image file to an Emulator-II bank file.
For other copy processes, multiple parameters can be changed. This is e.g. true when copying Emulator-III, Emulator-IIIX or ESI-v3 banks to an Emulator-III/X/ESI hard disk.

A. Normal copy or re-sampling/converting

If you're copying EMAX-I, EMAX-II, Emulator-III, Emulator-IIIX, ESI-v3 or SP-12 banks or files, you have the possibility to

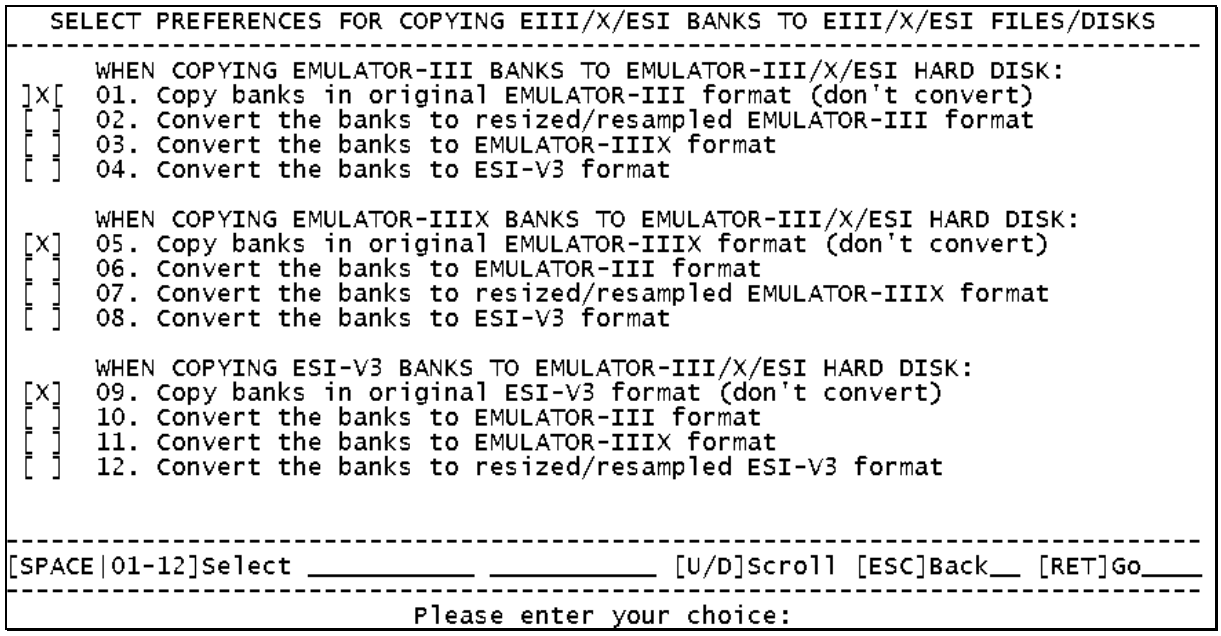
- either perform a copy without any data or sound conversion involved (a "true copy")
- or perform a copy in which the sound data will be re-sampled to another sample rate (not for SP-12 though) or in which the bank size will be adapted. These options allow you to reduce the size of the resulting bank, e.g. because you want to use an EMAX-II 4MB bank in an EMAX-II sampler which only holds 2MB of memory.

The picture below illustrates this screen for EMAX-I copy processes. The screen can vary depending on the selected files, e.g. when a mixture of Emulator-III and Emulator-IIIX banks on a hard disk have been selected the question will appear twice: once for the Emulator-III banks and once for the Emulator-IIIX banks.



In addition, if you' re copying Emulator-III, Emulator-IIIX or ESI-v3 banks to an Emulator-III/X/ESI hard disk or hard disk image file, or if you're copying EMAX-I or EMAX-II banks/files to EMAX floppy disks, you will also have the choice to convert the banks/files between Emulator-III, Emulator-IIIX and ESI-v3, or between EMAX-I and EMAX-II.

This is illustrated in the picture below, which shows the possible parameters after having selected a mixture of Emulator-III, Emulator-IIIX and ESI-v3 banks on a hard disk image for being copied to an Emulator-III/X/ESI hard disk.



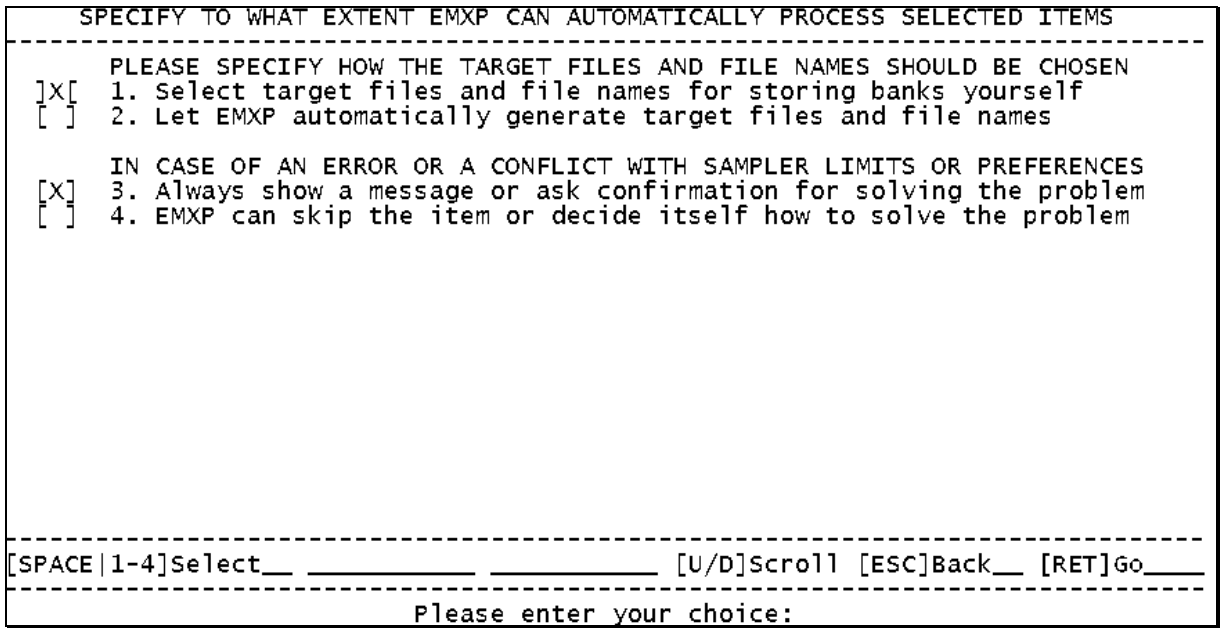
B. Level of automation

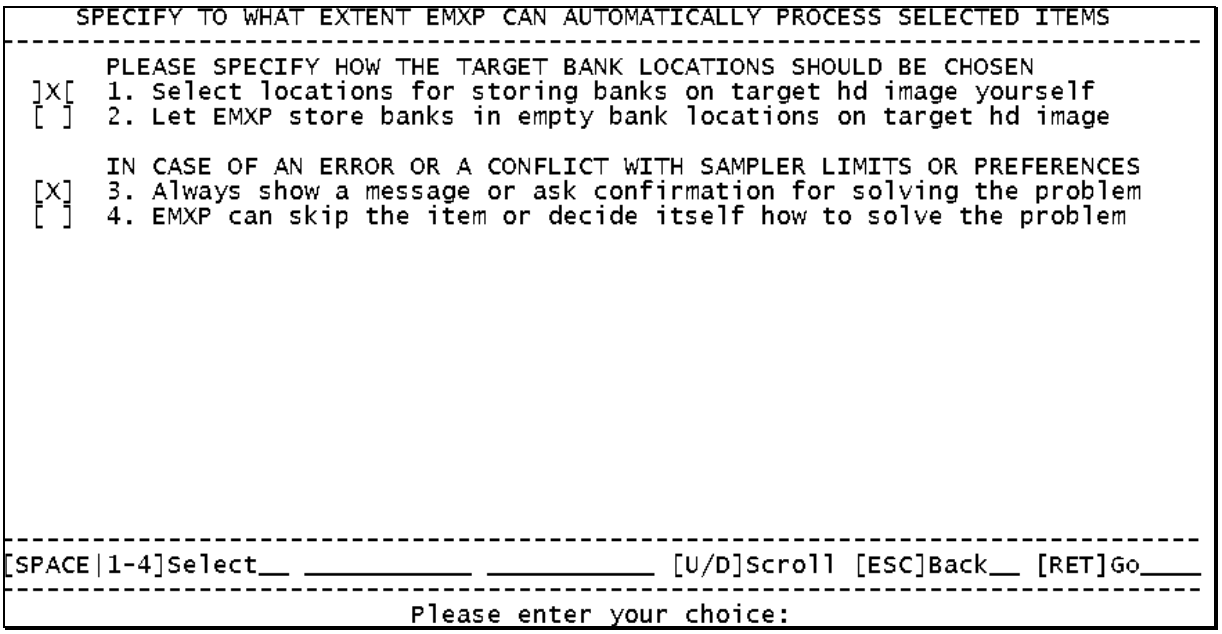
The next set of parameters that can be defined is related to the level of automation that EMXP will use during the copy process of all selected items.

No matter what Emu banks or files you have selected, you can always set the following 2 parameters:

- whether you would like to specify the target file names (or bank locations on hard disks and hard disk image files) yourself, or whether EMXP should automatically derive them for you. *Of course this parameter can not be set if you are copying to floppy disks.*
- whether you want to be informed about any error or exception during the copy process whenever they occur and want to have the possibility to intervene at that point in time, or whether EMXP should automatically continue in case of any error or any exception (by skipping the failed items) and show all errors and exceptions at the end of the process.

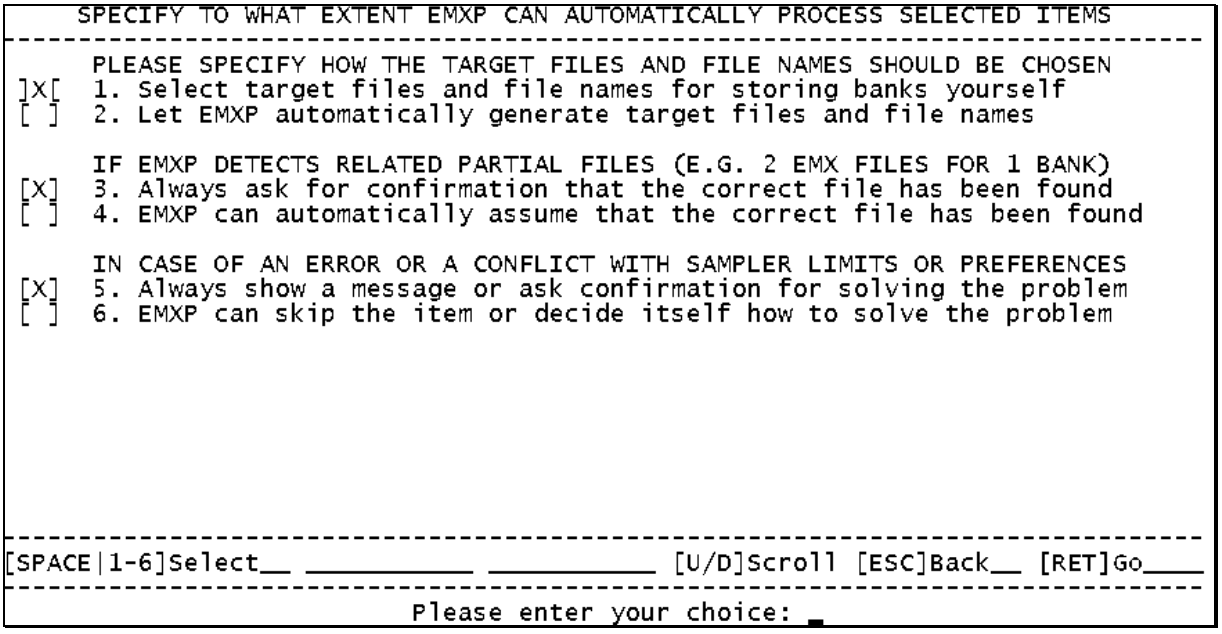
The pictures below show the screens in which you can make these choices. The first picture illustrates this for copying to *files*, while the second picture illustrates this for copying to *hard disks or hard disk image files.*





If the selected source items are EMAX-II EMX files, EMAX-II floppy disk image files or EMAX-II HxC floppy disk image files, and you are copying them to EMAX-II bank files or to an EMAX-II hard disk or hard disk image file, EMXP will need *all EMX files, floppy disk image files or HxC floppy disk image files that are part of the same bank.*
E.g. a 2MB EMAX-II bank consists of 4 EMX files, so EMXP will need these 4 files in order to generate and copy the total bank to the target file or disk.
You can decide whether you want to select all EMX/floppy disk image/HxC floppy disk image files belonging to the same bank yourself, or whether EMXP can find this out automatically. In the latter case, EMXP will search the *current folder* for related EMX/floppy disk image/HxC floppy disk image files. Of course if EMXP can't find one or more of the required EMX/floppy disk image/HxC floppy disk image files, it will ask you to select the missing EMX/floppy disk image/HxC floppy disk image file yourself - because it may e.g. be stored in another folder...

The picture below illustrates how the screen looks like when EMAX-II EMX files or EMAX-II floppy disk image files have been selected. Please note options 3 and 4.



C. Positioning Emulator-I sounds

If the source items are

- either *Emulator-I Lower/Upper sound files (.E1H)*
- or the *Lower and/or Upper sound of an Emulator-I bank*

and

- you are copying them to any type of file or disk except for Emulator-I Lower/Upper sound files
- EMXP will generate the target files automatically

you should tell EMXP where to put the selected sounds.

The procedure is exactly the same as the one described in *section "6.2.2.1 BATCH Mode"* so we refer to that part of the manual for more details.

If however you are going to specify the target file names yourself during the copy process, you don't have to tell EMXP now on what part of the keyboard the sounds should be copied. You will have the possibility to specify this for each individual item later during the copy process.

D. Setting the re-sampling/conversion parameters

If you have chosen to either re-sample or convert the selected banks/files in the very first step, EMXP will now switch to the process flow for conversions and ask for some conversion parameters. This is further explained in *chapter "7. USING EMXP: CONVERSIONS"*.

E. Defining Emulator-III/IIIX/ESI bank naming convention

If you are copying banks to

- an Emulator-III/IIIX/ESI hard disk
- an Emulator-III/IIIX/ESI hard disk image

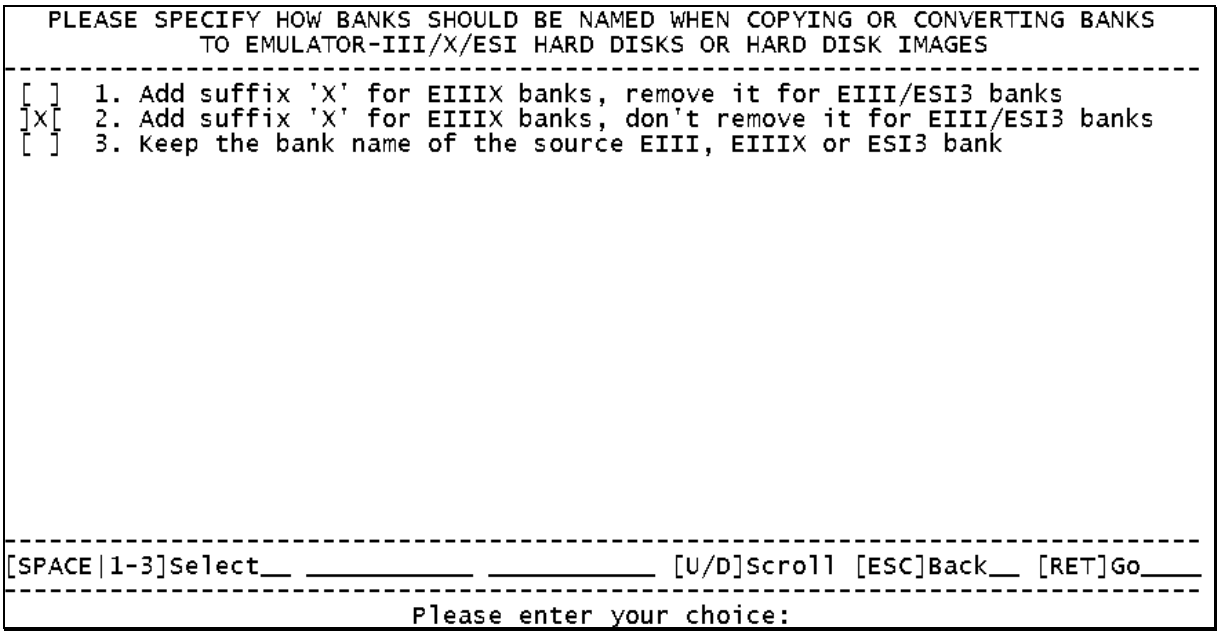
you will be asked whether the bank names should be corrected in the same way as the Emulator-IIIX and ESI samplers are doing when saving banks to hard disks.

You can instruct EMXP to apply the same bank naming rule as the one applied by the Emulator-IIIX and ESI samplers when it's saving sound banks to a hard disk:

- Emulator-IIIX bank names by default have an 'X' at position 16
- Emulator-III bank names by default have no 'X' at position 16
- No default rule exists for ESI banks

The main reason for applying this naming convention, is to be able to immediately see whether a bank is an original Emulator-III bank or an Emulator-IIIX bank when scrolling through the banks on the sampler itself (when loading a bank).

The way bank names are constucted has no consequences whatsoever on the behaviour of the sound bank itself.



The following options are available:

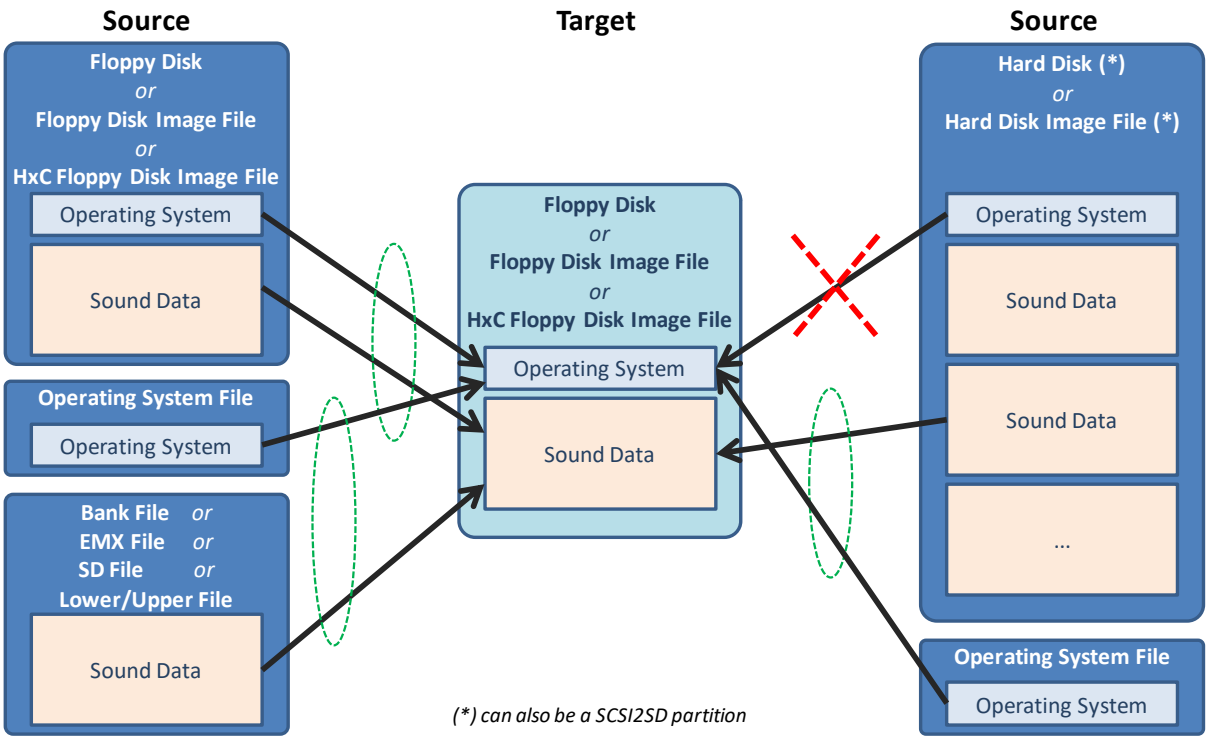
- Select *option 1* to always add an 'X' on position 16 of the bank name if the bank is an Emulator-IIIX (or ESIv2) bank, and to remove any 'X' which may exist on position 16 of the bank name if the bank is an Emulator-III bank. This is the same rule as applied by the Emulator-IIIX and ESI sampler when it saves banks in Emulator-III or Emulator-IIIX format to hard disks.
- Select *option 2* to always add an 'X' on position 16 of the bank name if the bank is an Emulator-IIIX (or ESIv2) bank. No correction is applied however if the bank is an Emulator-III bank or ESI bank, meaning that an 'X' on position 16 of an Emulator-III or ESI bank will be accepted and not removed. This is the same rule as applied by the Emulator-III sampler, and the same rule as applied by the Emulator-IIIX/ESI when it saves Emulator-IIIX banks to hard disks (the Emulator-IIIX and ESI samplers accept and display original Emulator-III banks with an 'X' at position 16 of the bank name - they will only remove the 'X' when saving it as an E3 bank). This is the *default setting*.
- Select *option 3* to not apply any rule at all. Any character is allowed on position 16 of a bank name, no matter it the bank is an Emulator-III, an Emulator-IIIX bank or an ESI bank.

F. Selecting an operating system

If the target is a *floppy disk* (EMAX only) or *a floppy disk image file or HxC floppy disk image file* (EMAX-I, EMAX-II, Emulator-I and Emulator-II only), EMXP can also copy an operating system besides the sound banks (which will be copied anyway).
This feature is not supported when copying sound banks to *hard disks* or *hard disk images.* Please read *section "6.4 COPYING OPERATING SYSTEMS"* if you would like to copy an operating system to a sampler hard disk or hard disk image.

The available options regarding copying an operating system depend on:

- whether EMXP will automatically generate target files or not (see previous section)
- whether the source file(s) or disk(s) can contain an operating system or not. E.g. when copying from Emulator-II floppy disk image files to other Emulator-II floppy disk image files, the source file can contain an operating system which can be copied to the target file. See picture below.



There are 4 possible sets of available options. These are explained in the next paragraphs.

1. You will select each target file yourself, and the source items can hold an operating system

E.g. when copying banks from Emulator-II floppy disk image files to other Emulator-II floppy disk image files, and selecting these target Emulator-II floppy disk image files yourself, the following screen will appear.

```
PLEASE SPECIFY IF/HOW THE OPERATING SYSTEM SHOULD SHOULD BE ADDED OR REPLACED
--------------------------------------------------------------------------------
      IF THE SELECTED SOURCE ITEM CONTAINS A COMPATIBLE OPERATING SYSTEM:
 [ ]  1. Don't use it, always use the OS selected in the next screen
 ]X[  2. Reuse it, otherwise use the OS selected in the next screen

      WHAT MUST BE DONE WITH THE OS ON THE TARGET DISK(S)/FILE(S):
 [ ]  3. Add or replace operating system on the floppy disk image(s)
 [ ]  4. Don't add or replace OS on the floppy disk image(s)
 [X]  5. Add OS only if no OS exists yet on the floppy disk image(s)
 [ ]  6. Add OS only if no OS exists yet or if the OS is unverified









--------------------------------------------------------------------------------
[SPACE|1-6]Select__ ___________ ___________ [U/D]Scroll [ESC]Back__ [RET]Go____
--------------------------------------------------------------------------------
                          Please enter your choice:
```

Options 3 → 6 are used to define whether an operating system should be copied to the target file or disk:

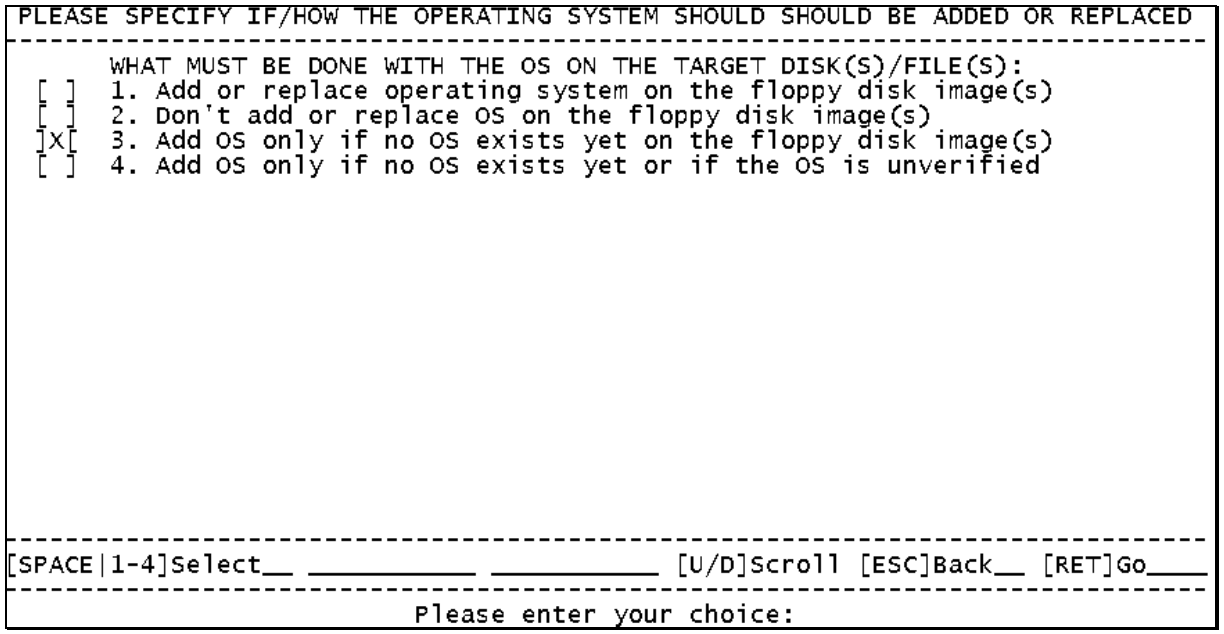
- Select 3 if you want to add an operating system (if a new file will be created or if the selected existing target file or disk does not contain an operating system yet), or if you want to replace the operating system of the selected existing target file/disk if it would already contain an operating system

- Select 4 if you won't copy an operating system to the target file or disk, no matter if this target file or disk is new or existing, and no matter if an existing target file/disk would contain an operating system already or not.
- Select 5 if you only want to copy an operating system if the target file or disk does not contain an operating system yet (this is always true if you are creating a new file/disk)
- Option 6 is the same as option 5, but it will also copy an operating system if an existing target file or disk would already contain an operating system which is invalid (corrupt) or unknown by EMXP.

Options 1 and 2 are used to define whether the operating system that will be copied to each target file/disk should be a specifically selected one, of rather the operating system of the source file/disk that is being copied to the target file/disk.
No matter which option you choose, you will be asked to select a specific operating system file in the next step. This is even true for option 2, because some of the selected source files or disks may perhaps not contain an operating system. There's one exception though: if the source is a sampler hard disk or hard disk image and contains a valid operating system, EMXP will not launch the File Manager to select an operating system.

2. You will select each target file yourself, and the source items can not hold an operating system

E.g. when copying banks from Emulator-II bank files to Emulator-II floppy disk image files, and selecting these target Emulator-II floppy disk image files yourself, the following screen will appear.

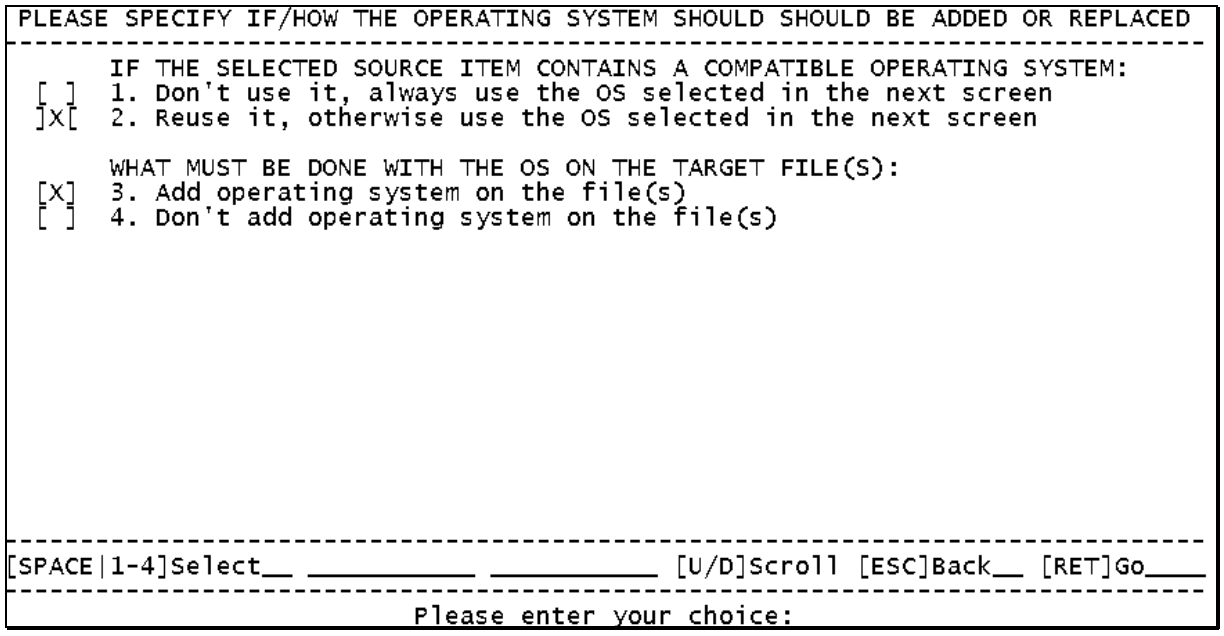


We refer to the previous paragraph for a description of the available options 1 → 4 (which are labelled 3 → 6 in that paragraph).

3. EMXP automatically generates target files, and the source items can hold an operating system

If EMXP automatically generates target *floppy image files or HxC floppy image files*, only new files will be created. Existing target files will never be used and overwritten. As a consequence you don't need the possibility to make the copy of an operating system dependent on the presence of an existing operating system in the target file.

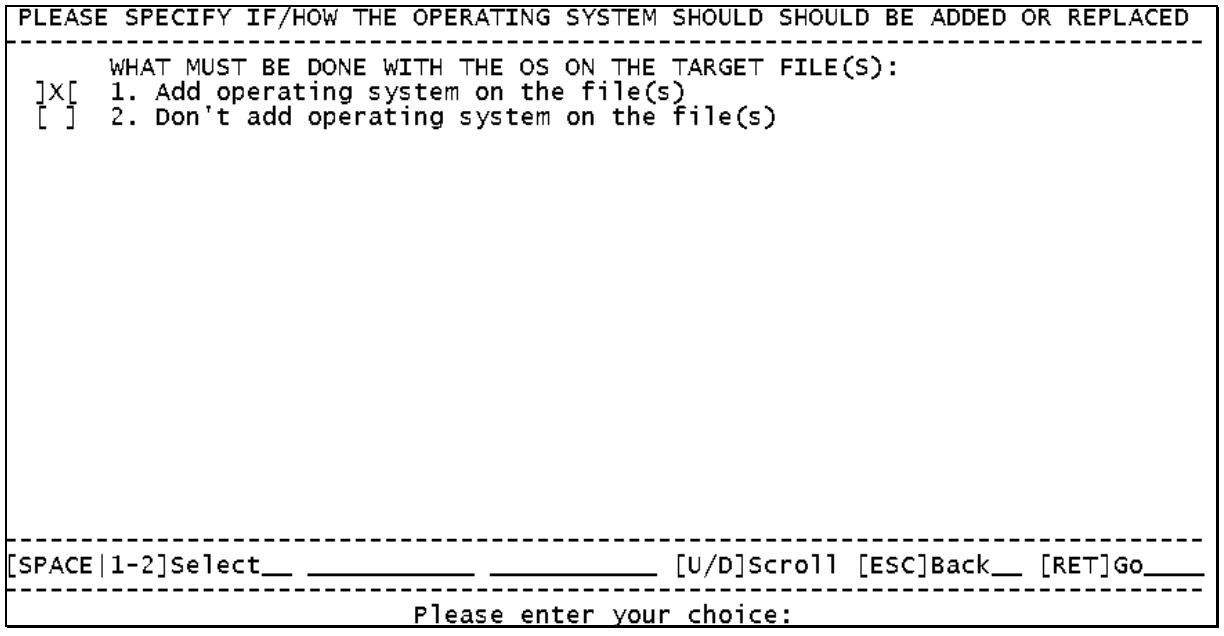
In the example below we are copying the banks from Emulator-II floppy disk image files automatically to new Emulator-II floppy disk image files.



We refer to paragraph 1 for a description of options 1 → 2 and 3 → 4.

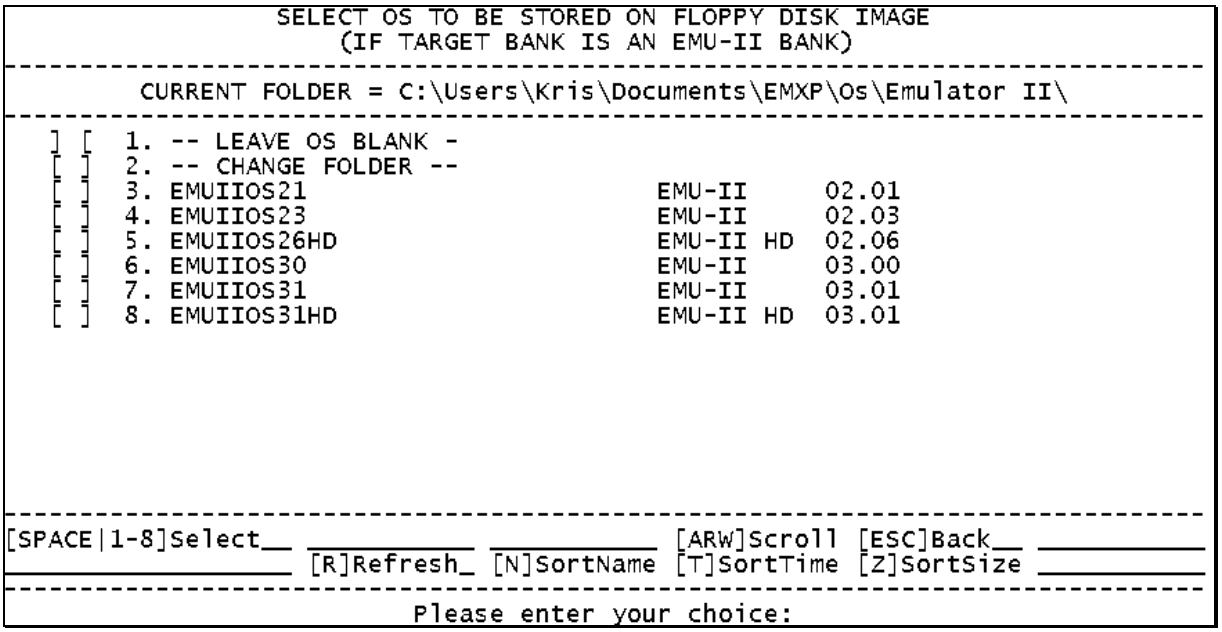
4. EMXP automatically generates target files, and the source items can not hold an operating system

In this case you only have the options depicted below.
See paragraph 1 for a description of the options (which are labelled 3 and 4 in that paragraph).



If you have selected one of the options to add or replace the operating system on the target file or disk, EMXP will now launch the File Manager and ask for the operating system that should be saved to the target floppy disk or floppy disk image file, either always, or only if the target does not contain a (valid) operating system yet. This depends on the options you have selected in the previous step.

The selection of an operating system is illustrated in the picture below. It shows the Emulator-II operating system files that can be selected for being copied to Emulator-II floppy disk images.

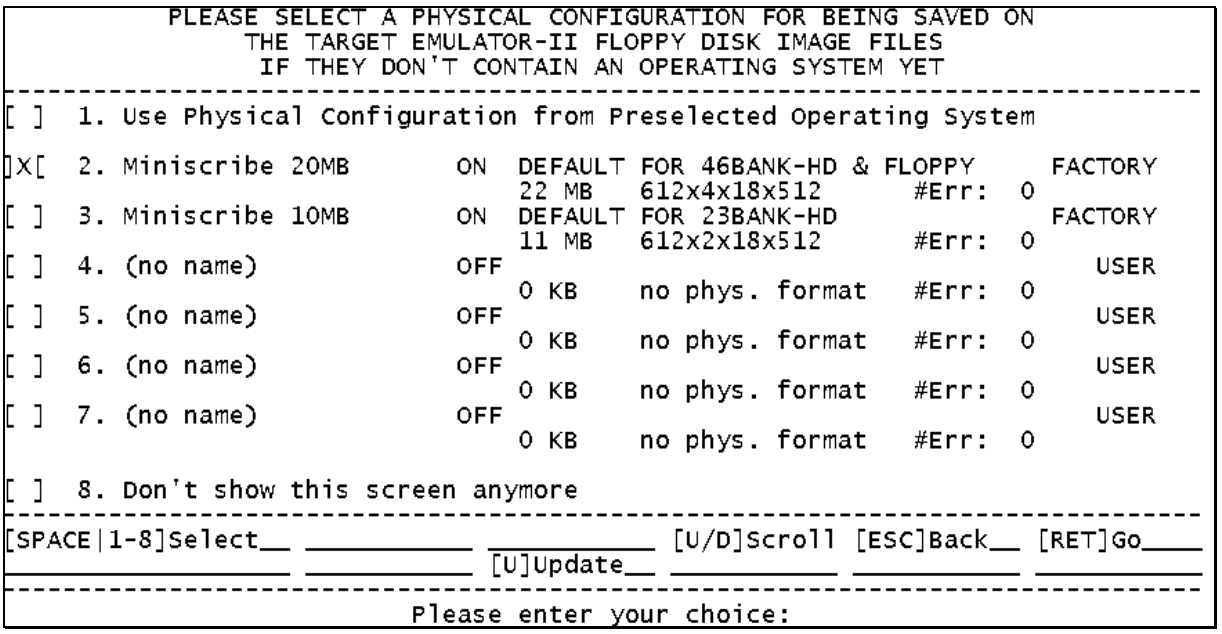


If you don't have an operating system file available, you can select the "`1. -- LEAVE OS BLANK -`" item.

G. Specifying the target Emulator-II hard disk physical configuration

If you're copying Emulator-II sound banks to floppy disk image files or to HxC floppy disk image files, and you have selected a *hard disk operating system* (e.g. version 2.6HD, 3.1HD) in the previous step, EMXP also needs to know which physical configuration should be saved to the (HxC) floppy disk image file.
This configuration contains the *error log* for formatting hard disks with bad sectors, which is typically also stored on the floppy disks used in an Emulator-II+HD sampler.

EMXP will only save this configuration to the target (HxC) floppy disk image file if it's saving the selected operating system (from the previous step) as well. As explained in the previous paragraph, this depends on whether the source file(s) or disk(s) contains an operating system or not, and the preferred action that you have chosen.
If the operating system will not be added/replaced, the configuration data won't be added/replaced neither.



If your Emulator-II+HD is equipped with a DREM emulator, you can simply use the factory default configuration called Miniscribe 20MB (*option 2*), and ask EMXP to never show this screen again (*option 8*).

If your Emulator-II+HD still has its original hard disk, you can also use the factory default configuration if you won't use the (HxC) floppy disk image files to format that hard disk. However if you're planning to use these (HxC) floppy disk image files to format the hard disk, you should select the physical configuration corresponding to the hard disk (especially taking into account the bad sector/error log data which uniquely belongs to your hard disk).

More details about Emulator-II hard disk physical configurations can be found in *section "10.5.8.3 Define Emulator-II hard disk/hard disk image configurations"*.

H. Specifying the target folder or target disk

If you specified in the previous step that EMXP can automatically *generate the file names* for each target file, EMXP will now ask for the folder in which these files should be saved. If you specified that you will enter each target file name yourself, no folder will be requested now because you will have the possibility to change the folder for each file that will be created by EMXP during the copy process.

If you are copying banks/files to *sampler hard disks* or *sampler hard disk image files (or to sampler partitions on SCSISD hard disks or SCSI2SD hard disk image files)*, EMXP will ask for the target hard disk (by launching the Disk Manager) or for the target hard disk image file (by launching the File Manager). This hard disk or hard disk image file (or a SCSI2SD partition on them) will then be used by EMXP for saving the copied banks/files. If you are copying banks/files to *sampler floppy disks*, EMXP will ask for the floppy drive in which you will insert the target floppy disks during the copy process.

The above scenarios are the same as the ones explained in *section "6.2.2.1 BATCH Mode"*.

I. Starting the copy process

EMXP will now start with copying all the selected items. If you have chosen to specify the target file names or bank locations on a target hard disk (image file) yourself, EMXP will prompt you to enter a file name (and perhaps change the folder) or select a bank number on the target hard disk/hard disk image file *for each item being copied*.

If the source items are

- either *Emulator-I Lower/Upper sound files (.E1H)*
- or the *Lower and/or Upper sound of an Emulator-I bank*

and they are being copied to any type of file or disk different from Emulator-I Lower/Upper sound files, EMXP will also ask you to which part of the target bank preset's keyboard the selected sound should be copied. You will be able to define this *for each item being copied*. The screen will look similar to the ones below.

```
                    PROCESSING ITEM 1/2 - SOUND OF CELLO
                       SELECT TARGET LOWER/UPPER SOUND
------------------------------------------------------------------------------
 ]X[  1. LOWER                  (empty)         57344  bytes     available
 [ ]  2. UPPER                  (empty)         57344  bytes     available
------------------------------------------------------------------------------
[SPACE|1-2]Select__ _____________ _____________ [U/D]Scroll [ESC]Back__ [RET]Go____
_____________________ _____________ [D]Details_ _____________ _____________ _____________
------------------------------------------------------------------------------
                           Please enter your choice: _
```

The first screen is valid if we have selected a target file which is either new or which doesn't contain any sounds yet. See the `(empty)` label in its current lower and upper sound.

The next screen is another illustration but shows the situation in which we have selected an existing target file which already contains one or more sounds. In this example, the target bank preset's upper sound is still empty and available while the lower sound is already in use with an Emulator-I multi-sample sound. The lower sound can still be overwritten of course.

```
                    PROCESSING ITEM 1/1 - SOUND OF CELLO
                       SELECT TARGET LOWER/UPPER SOUND
------------------------------------------------------------------------------
 ]X[  1. LOWER                   Multi     #Samp: 4   #Zone: 4   C1->B2
 [ ]  2. UPPER                  -EMPTY-
------------------------------------------------------------------------------
[SPACE|1-2]Select__ _____________ _____________ [U/D]Scroll [ESC]Back__ [RET]Go____
_____________________ _____________ [D]Details_ _____________ _____________ _____________
------------------------------------------------------------------------------
                           Please enter your choice:
```

6.2.2.3 Custom Automation Level Mode (and SEMI-MANUAL Mode)

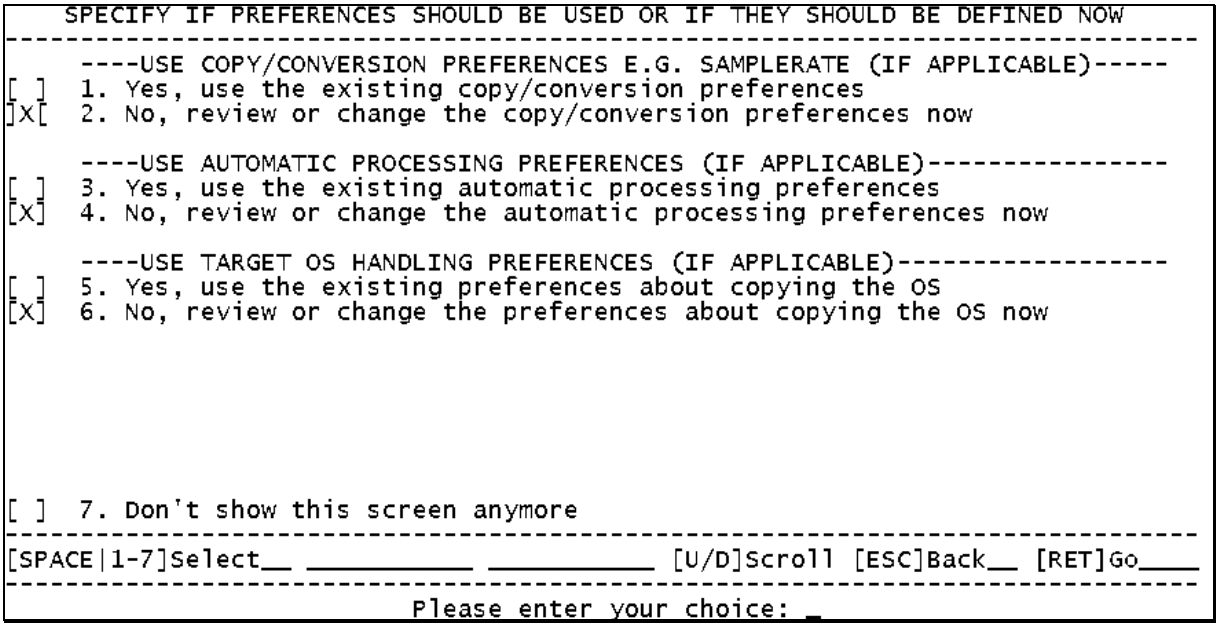
If you choose to customize the automation level, EMXP will allow you to change the automation settings based on the mode you have used the last time you copied or converted items. This current mode can be

- the fully automated BATCH mode
- the fully user controlled MANUAL mode
- the SEMI-MANUAL mode which is a mixture of the BATCH and MANUAL mode

Note that the current mode can be found at the end of the option 3 line between brackets.

When choosing for the custom automation level mode, EMXP will offer the same parameter control as the one you have if you would have selected option 2 (MANUAL) but you will have the possibility of *not having to go through all individual parameter setting screens.*

Selecting which parameters you would like to change and which ones you don't want to be bothered with can be done on the next screen EMXP will display (see picture below).



Note that EMXP will *not* show the above screen if you have explicitly instructed EMXP not to do so. This can be done by activating option 7 "Don't show this screen anymore" at the bottom of the screen. This option can also be set in the Advanced Automation/Workflow Preferences. See *section "10.2.2 Advanced setup of automated and manual processing"*.

If you set options 2, 4 and/or 6, EMXP will show the parameter screens of that subject area in the next screens; you will have the possibility to change those parameters before starting the copy process.
If you set options 1, 3 and/or 5, EMXP will assume the current parameter values for all parameters of that subject area and will not show those screens anymore in the next step.

E.g. if you have defined (either in a previous fully manual controlled mode or in the Preferences menu) that you want EMXP to select the target file names/banks itself and

- if you select item 3 in the above screen, then EMXP won't ask anymore for choosing between the automated and manual target file/bank selection (the screen from paragraph B in *section "6.2.2.2 MANUAL Mode"* will not be shown anymore*).* Moreover EMXP will assume that it can select the target file names/banks itself because that is the current setting for this parameter.
- if you select item 4 in the above screen, then EMXP will still ask for choosing between the automated and manual target file/bank selection (the screen from paragraph B in *section "6.2.2.2 MANUAL Mode"* will still be shown*).* Just like in the MANUAL mode you will be able to make a choice regarding this parameter.

The parameters that can or can't be changed are:

- for options 1 and 2: the parameters mentioned under the titles A, D and E in *section "6.2.2.2 MANUAL Mode"*.
- for options 3 and 4: the parameters mentioned under the titles B and C in *section "6.2.2.2 MANUAL Mode"*.
- for options 5 and 6: the parameters mentioned under the title F and G in *section "6.2.2.2 MANUAL Mode"*.

From here on, the process is similar as the one described in paragraphs A → I of *section "6.2.2.2 MANUAL Mode"*, but of course only the requested parameter screens will actually be shown.

Note that if the current mode is BATCH and you decide *not* to go through any of the individual parameter setting screens (i.e. you select options 1, 3 and 5) EMXP will behave exactly the same as if you would have selected the BATCH mode. See *section "6.2.2.1 BATCH Mode"*.

6.2.3 Available space required on the target folder or disk

It's important to note that EMXP does ***not*** calculate ***upfront*** the total available space which is required on the target folder or disk in order to copy all selected items.

EMXP will copy one item after another and it will check the available space every time before copying the next item. If no sufficient space is available anymore, an error will be raised. Depending on the selected mode, these errors will be reported to the user

- after *each* failed copy as well as in the overall report displayed after all items have been processed (when in MANUAL or SEMI-MANUAL mode)
- or only as in the overall report displayed after all items have been processed (when in BATCH mode).

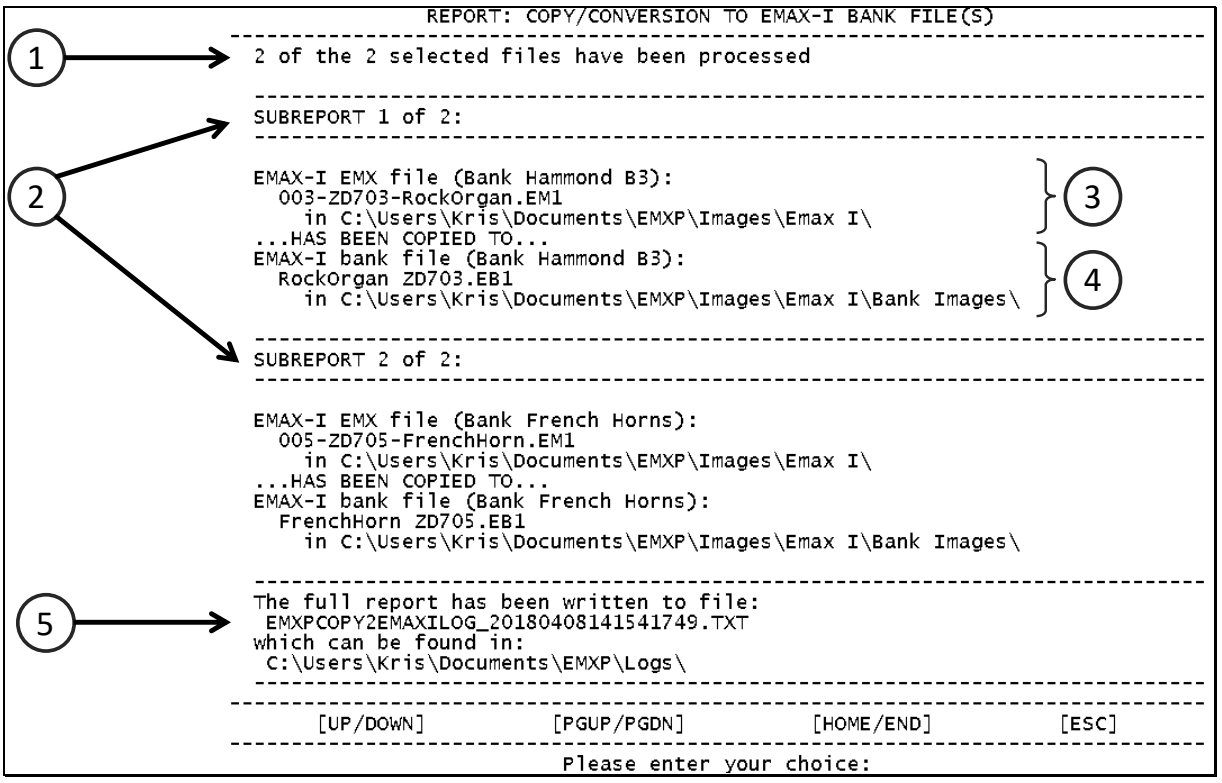
6.2.4 Copy process execution report

After EMXP has copied - or attempted to copy - all selected items, a *copy process execution report* will be displayed. This report explains which source items have been copied to which target items, as well as any problem that may have occurred during the copy process.
Each displayed report has also been saved to disk unless you have explicitly instructed EMXP not to do so in the Report and Log Preferences. See *section "10.8 LOG AND REPORTING PREFERENCES"*.

Let's have a look at some typical examples of copy execution reports now.

Example 1

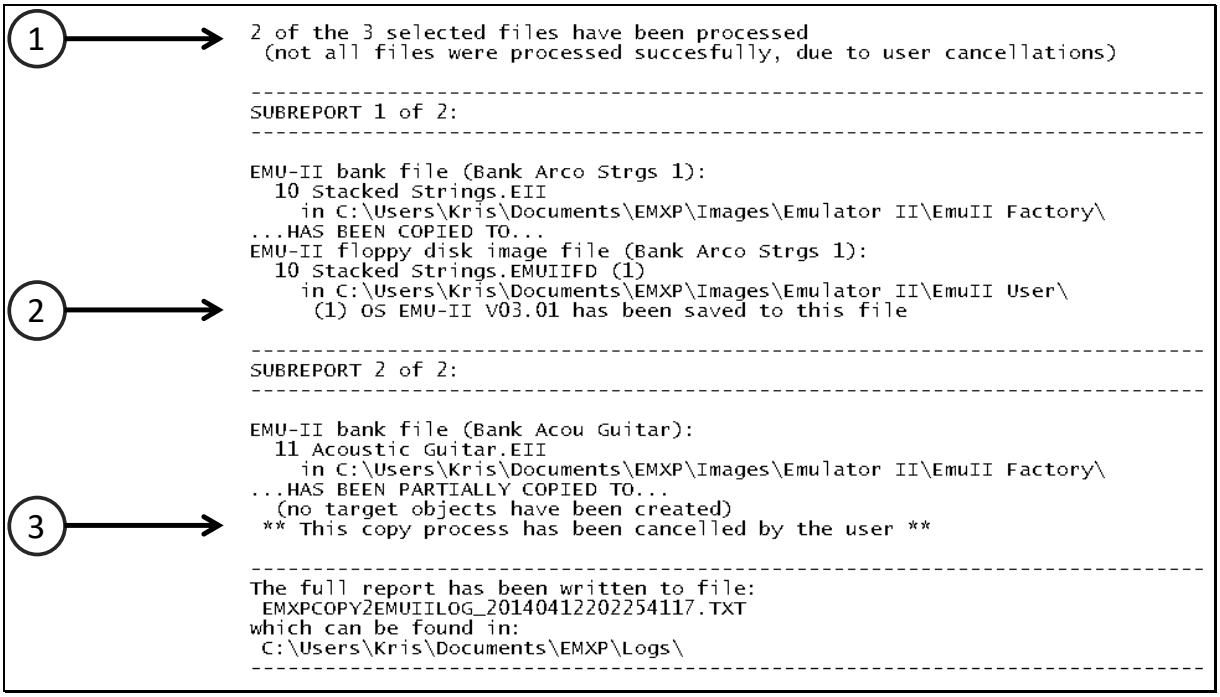
In the first example below, the copy process of 2 EMAX-I EMX files to EMAX-I bank files was successful.



- The first line of the report summarizes how many items have been processed. See (1).
- For each item that has been copied, a separate subreport has been created. See (2).
- Each subreport explains which source item (see (3)) has been copied to which target item (see (4)). In this example, both source and target items are files, so the subreport mentions the file names and the folders in which the files can be found.
- At the end of the report you can see to which report file and in which folder the report has been saved (if this option is activated in the Report and Log Preferences). See (5).

Example 2

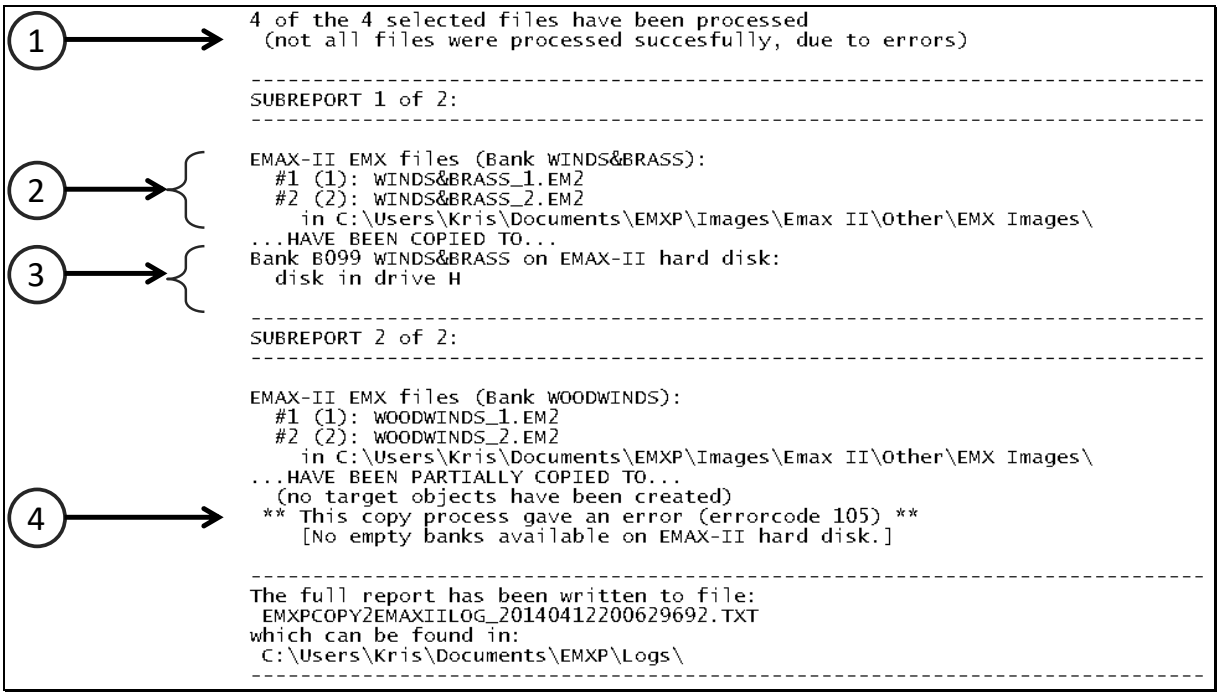
In the second example, the copy of the first Emulator-II bank file to an Emulator-II floppy disk image file was successful but the second copy was not successful because the user has cancelled the process. In this example EMXP has also copied an operating system to the first target floppy disk image file.



- The report starts with saying that not all files have been processed, because the user cancelled the process while EMXP was copying the second file. Hence only 2 of the 3 files were processed, of which one successfully and one not successfully due to the user cancellation. See (1).
- When an operating system was copied besides the sound data, this is mentioned in the report as well. After each name of a target file to which an operating system has been written, a reference to a footnote is mentioned, here labelled (1). At the end of the subreport, the footnote is printed, here stating which OS has been written to the file(s). See (2).
- The fact that the user cancelled the copy process when EMXP wanted to copy the second file is reported as well. See (3).

Example 3

In the last example, the copy of the first set of EMAX-II EMX files to a bank on an EMAX-II hard disk was successful, but the second copy failed due to the hard disk being full (no available space).



- The report starts with saying that all items have been processed (since no cancel was done by the user) but that not all items were copied successfully. See (1).
- If multiple EMX files had to be merged into one bank, all EMX files that were involved are mentioned. See (2).
- When saving a bank to a hard disk, the report shows the bank number of the disk in which the bank has been saved, as well as the drive letter of the hard disk. See (3).
- The second set of EMX files could not be copied to the hard disk because the disk is full. This is displayed in the report, see (4).

6.3 COPYING AKAI SAMPLER PROGRAM AND SAMPLE FILES

The copy functions related to Akai S1000 files are less advanced than the ones related to Emu sampler files. Copying Akai S1000 program, sample and drum files can be done in a manually controlled way or in a batch (automated) way.
For copying entire floppy disks, floppy disk image files and HxC floppy disk image files, see section "6.5 COPYING ENTIRE FLOPPY DISK (IMAGE)S AND HARD DISK (IMAGE)S".
For copying operating system files, see *section "6.4.2 Copying AKAI S1000 operating systems"*.

6.3.1 How to start copying Akai S1000 files

6.3.1.1 Copying to Akai S1000 floppy disks

Following steps will bring you to the Akai S1000 copy functions to *floppy disks*.

To copy any Akai S1000 file (program, sample, drums) to a floppy disk:
"2. Manage AKAI S1000 Files and Disks" → "1. Manage AKAI S1000 Files (all Sample, Program, Drums)" → [select one or more files] → [press 'F'] or [select "1. Copy AKAI S1000 File(s) to Floppy Disk"]

To copy Akai S1000 program files to a floppy disk:
"2. Manage AKAI S1000 Files and Disks" → "2. Manage AKAI S1000 Program Files only" → [select one or more files] → [press 'F'] or [select "1. Copy AKAI S1000 Program File(s) to Floppy Disk"]

To copy Akai S1000 sample files to a floppy disk:
"2. Manage AKAI S1000 Files and Disks" → "3. Manage AKAI S1000 Sample Files only" → [select one or more files] → [press 'F'] or [select "1. Copy AKAI S1000 Sample File(s) to Floppy Disk"]

To copy Akai S1000 drums files to a floppy disk:
"2. Manage AKAI S1000 Files and Disks" → "4. Manage AKAI S1000 Drums Files only" → [select one or more files] → [press 'F'] or [select "1. Copy AKAI S1000 Drums File(s) to Floppy Disk"]

6.3.1.2 Copying to Akai S1000 floppy disk images

Following steps will bring you to the Akai S1000 copy functions to *floppy disk images*.

To copy any Akai S1000 file (program, sample, drums) to a floppy disk image:
"2. Manage AKAI S1000 Files and Disks" → "1. Manage AKAI S1000 Files (all Sample, Program, Drums)" → [select one or more files] → [press 'I'] or [select "2. Copy AKAI S1000 File(s) to Floppy Disk Image"]

To copy Akai S1000 program files to a floppy disk image:
"2. Manage AKAI S1000 Files and Disks" → "2. Manage AKAI S1000 Program Files only" → [select one or more files] → [press 'I'] or [select "2. Copy AKAI S1000 Program File(s) to Floppy Disk Image"]

To copy Akai S1000 sample files to a floppy disk image:
"2. Manage AKAI S1000 Files and Disks" → "3. Manage AKAI S1000 Sample Files only" → [select one or more files] → [press 'I'] or [select "2. Copy AKAI S1000 Sample File(s) to Floppy Disk Image"]

To copy Akai S1000 drums files to a floppy disk image:
"2. Manage AKAI S1000 Files and Disks" → "4. Manage AKAI S1000 Drums Files only" → [select one or more files] → [press 'I'] or [select "2. Copy AKAI S1000 Drums File(s) to Floppy Disk Image"]

6.3.1.3 Copying to Akai S1000 HxC floppy disk images

Following steps will bring you to the Akai S1000 copy functions to *HxC floppy disk images*.

To copy any Akai S1000 file (program, sample, drums) to an HxC floppy disk image:
"2. Manage AKAI S1000 Files and Disks" → "1. Manage AKAI S1000 Files (all Sample, Program, Drums)" → [select one or more files] → [press 'X'] or [select "3. Copy AKAI S1000 File(s) to HxC Floppy Disk Image"]

To copy Akai S1000 program files to an HxC floppy disk image:
"2. Manage AKAI S1000 Files and Disks" → "2. Manage AKAI S1000 Program Files only" → [select one or more files] → [press 'X'] or [select "3. Copy AKAI S1000 Program File(s) to HxC Floppy Disk Image"]

To copy Akai S1000 sample files to a floppy disk image:
"2. Manage AKAI S1000 Files and Disks" → "3. Manage AKAI S1000 Sample Files only" → [select one or more files] → [press 'X'] or [select "3. Copy AKAI S1000 Sample File(s) to HxC Floppy Disk Image"]

To copy Akai S1000 drums files to a floppy disk image:
"2. Manage AKAI S1000 Files and Disks" → "4. Manage AKAI S1000 Drums Files only" → [select one or more files] → [press 'X'] or [select "3. Copy AKAI S1000 Drums File(s) to HxC Floppy Disk Image"]

6.3.1.4 Copying from Akai S1000 floppy disks

Following steps will bring you to the Akai S1000 copy functions from *floppy disks*.

To copy any Akai S1000 file (program, sample, drums) from a floppy disk to the computer
"2. Manage AKAI S1000 Files and Disks" → "8. Manage AKAI S1000 Floppy Disks" → [select a floppy drive] → [press 'D'] or [select "1. Manage AKAI S1000 Files on Floppy Disk"] → [insert a disk if not inserted yet] → [select the volume] → [press 'F'] or [select "1. Show all AKAI S1000 Files on Floppy Disk"] → [select one or more files] → [press 'Y'] or [select "1. Copy AKAI S1000 File(s) to Computer"]

To copy Akai S1000 programs from a floppy disk to the computer
"2. Manage AKAI S1000 Files and Disks" → "8. Manage AKAI S1000 Floppy Disks" → [select a floppy drive] → [press 'D'] or [select "1. Manage AKAI S1000 Files on Floppy Disk"] → [insert a disk if not inserted yet] → [select the volume] → [press 'P'] or [select "2. Show AKAI S1000 Program Files only"] → [select one or more programs] → [press 'Y'] or [select "1. Copy AKAI S1000 Program File(s) to Computer"]

To copy Akai S1000 samples from a floppy disk to the computer
"2. Manage AKAI S1000 Files and Disks" → "8. Manage AKAI S1000 Floppy Disks" → [select a floppy drive] → [press 'D'] or [select "1. Manage AKAI S1000 Files on Floppy Disk"] → [insert a disk if not inserted yet] → [select the volume] → [press 'S'] or [select "3. Show AKAI S1000 Sample Files only"] → [select one or more samples] → [press 'Y'] or [select "1. Copy AKAI S1000 Sample File(s) to Computer"]

To copy Akai S1000 drums files from a floppy disk to the computer
"2. Manage AKAI S1000 Files and Disks" → "8. Manage AKAI S1000 Floppy Disks" → [select a floppy drive] → [press 'D'] or [select "1. Manage AKAI S1000 Files on Floppy Disk"] → [insert a disk if not inserted yet] → [select the volume] → [press 'U'] or [select "4. Show AKAI S1000 Drums Files only"] → [select one or more drums files] → [press 'Y'] or [select "1. Copy AKAI S1000 Drums File(s) to Computer"]

6.3.1.5 Copying from Akai S1000 floppy disk images

Following steps will bring you to the Akai S1000 copy functions from *floppy disk images*.

To copy any Akai S1000 file (program, sample, drums) from a floppy disk image to the computer
"2. Manage AKAI S1000 Files and Disks" → "6. Manage AKAI S1000 Floppy Disk Images" → "1. Manage existing AKAI S1000 Floppy Disk Images" → [select a floppy disk image file] → [press 'F'] or [select "4. Show all AKAI S1000 Files on Floppy Disk Image"] → [select one or more files] → [press 'Y'] or [select "1. Copy AKAI S1000 File(s) to Computer"]

To copy Akai S1000 programs from a floppy disk image to the computer
"2. Manage AKAI S1000 Files and Disks" → "6. Manage AKAI S1000 Floppy Disk Images" → "1. Manage existing AKAI S1000 Floppy Disk Images"→ [select a floppy disk image file] → [press 'P'] or [select "5. Show AKAI S1000 Program Files only"] → [select one or more programs] → [press 'Y'] or [select "1. Copy AKAI S1000 Program File(s) to Computer"]

To copy Akai S1000 samples from a floppy disk image to the computer
"2. Manage AKAI S1000 Files and Disks" → "6. Manage AKAI S1000 Floppy Disk Images" → "1. Manage existing AKAI S1000 Floppy Disk Images"→ [select a floppy disk image file] → [press 'S'] or [select "6. Show AKAI S1000 Sample Files only"] → [select one or more samples] → [press 'Y'] or [select "1. Copy AKAI S1000 Sample File(s) to Computer"]

To copy Akai S1000 drums files from a floppy disk image to the computer
"2. Manage AKAI S1000 Files and Disks" → "6. Manage AKAI S1000 Floppy Disk Images" → "1. Manage existing AKAI S1000 Floppy Disk Images"→ [select a floppy disk image file] → [press 'U'] or [select "7. Show AKAI S1000 Drums Files only"] → [select one or more drums files] → [press 'Y'] or [select "1. Copy AKAI S1000 Drums File(s) to Computer"]

6.3.1.6 Copying from Akai S1000 HxC floppy disk images

Following steps will bring you to the Akai S1000 copy functions from *HxC floppy disk images.*

To copy any Akai S1000 file (program, sample, drums) from an HxC floppy disk image to the computer
"2. Manage AKAI S1000 Files and Disks" → "7. Manage AKAI S1000 HxC Floppy Disk Images" → "1. Manage existing AKAI S1000 HxC Floppy Disk Images" → [select a floppy disk image file] → [select 'F'] or [select "4. Show all AKAI S1000 Files on Floppy Disk Image"] → [select one or more files] → [press 'Y'] or [select "1. Copy AKAI S1000 File(s) to Computer"]

To copy Akai S1000 programs from an HxC floppy disk image to the computer
"2. Manage AKAI S1000 Files and Disks" → "7. Manage AKAI S1000 HxC Floppy Disk Images" → "1. Manage existing AKAI S1000 HxC Floppy Disk Images"→ [select a floppy disk image file] → [press 'P'] or [select "5. Show AKAI S1000 Program Files only"] → [select one or more programs] → [press 'Y'] or [select "1. Copy AKAI S1000 Program File(s) to Computer"]

To copy Akai S1000 samples from an HxC floppy disk image to the computer
"2. Manage AKAI S1000 Files and Disks" → "7. Manage AKAI S1000 HxC Floppy Disk Images" → "1. Manage existing AKAI S1000 HxC Floppy Disk Images"→ [select a floppy disk image file] → [press 'S'] or [select "6. Show AKAI S1000 Sample Files only"] → [select one or more samples] → [press 'Y'] or [select "1. Copy AKAI S1000 Sample File(s) to Computer"]

To copy Akai S1000 drums files from an HxC floppy disk image to the computer
"2. Manage AKAI S1000 Files and Disks" → "7. Manage AKAI S1000 HxC Floppy Disk Images" → "1. Manage existing AKAI S1000 HxC Floppy Disk Images"→ [select a floppy disk image file] → [press 'U'] or [select "7. Show AKAI S1000 Drums Files only"] → [select one or more drums files] → [press 'Y'] or [select "1. Copy AKAI S1000 Drums File(s) to Computer"]

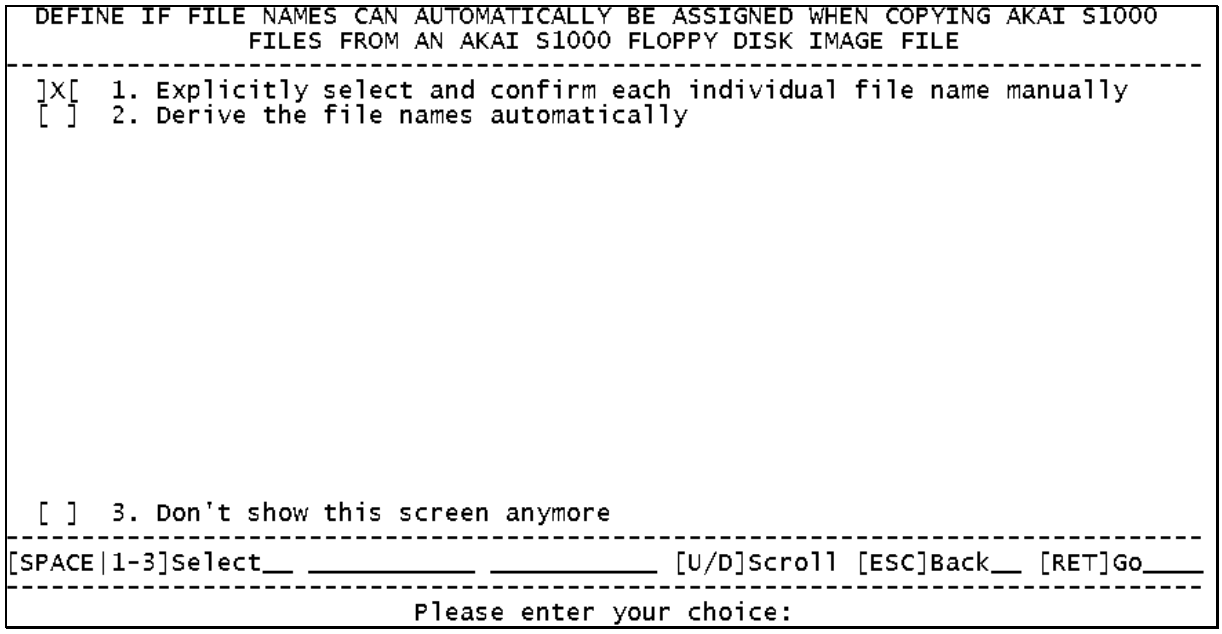
6.3.2 Selecting the target files in a folder or on floppy disk/floppy disk image

6.3.2.1 Copying from floppy disk, floppy disk image or HxC floppy disk image

Define level of automation

When copying files from an Akai S1000 floppy disk, an Akai S1000 floppy disk image file or an Akai S1000 HxC floppy disk image file, EMXP needs to know what file names should be assigned to the target files on the computer's hard disk.
You can decide whether EMXP should ask for confirmation of the file name for *every file which is being copied,* or whether EMXP can decide itself without any user intervention.

The following screen will appear (unless you have explicitly requested EMXP before not to show this screen anymore, see option 3 below and *section "10.3.9.4 Define automation level when copying from floppy or floppy image"*):



If you select *option 1*, you will have to confirm every file name. E.g. if you have selected 20 files to be copied to your PC, you will have to go through 20 confirmation screens. In this mode you will be able to overwrite (replace) existing files.

If you select *option 2*, EMXP will generate the target file names itself and make sure that the file names are unique (by adding a suffix) whenever there's a risk of overwriting an existing file.

If you will always use the same level of automation (either option 1 or option 2), you can explicitly ask EMXP not to show this screen anymore in the future by enabling *option 3*.

Define target file name pattern

The target file names that will be suggested (option 1) or used (option 2) by EMXP are determined by applying the file name pattern which can be defined in the next screen (see below).
The first screen will be shown when copying from a floppy disk, the second screen will be shown when copying from a floppy disk image file or an HxC floppy disk image file (the screen looks slightly different for HxC files).

```
  DEFINE FORMAT OF AKAI S1000 FILE NAMES COPIED FROM AKAI S1000 FLOPPY DISKS
--------------------------------------------------------------------------------
              [ ]  1. <floppy volume name>_<AKAI file name>
              ]X[  2. <AKAI file name>









              [ ]  3. Don't show this screen anymore
--------------------------------------------------------------------------------
[SPACE|1-3]Select__ ___________ ___________ [U/D]Scroll [ESC]Back__ [RET]Go____
--------------------------------------------------------------------------------
                            Please enter your choice:
```

```
              DEFINE FORMAT OF AKAI S1000 FILE NAMES COPIED FROM
                     AKAI S1000 FLOPPY DISK IMAGE FILES
--------------------------------------------------------------------------------
              [ ]  1. <floppy img file name>_<AKAI file name>
              ]X[  2. <AKAI file name>









              [ ]  3. Don't show this screen anymore
--------------------------------------------------------------------------------
[SPACE|1-3]Select__ ___________ ___________ [U/D]Scroll [ESC]Back__ [RET]Go____
--------------------------------------------------------------------------------
                            Please enter your choice:
```

If the source is an Akai floppy disk, you can

- either choose to simply use the file's *original Akai file name* on the disk as the target file name
- or use the file's original Akai file name preceded by the *disk's volume name*

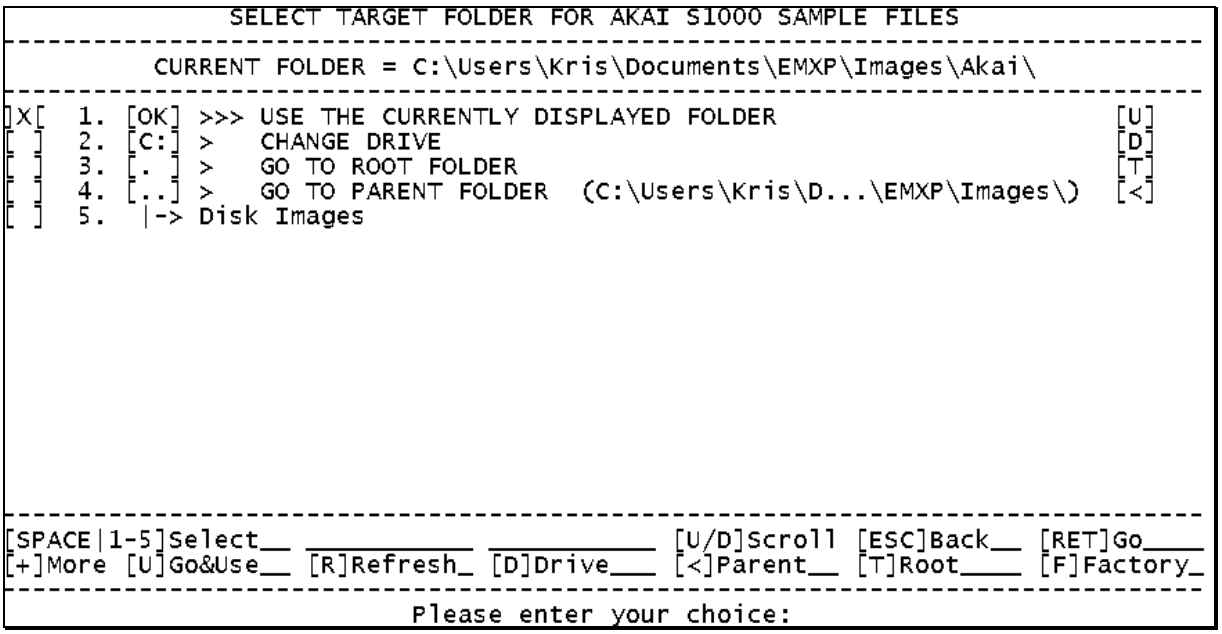
If the source is an Akai floppy disk image file or an Akai HxC floppy disk image file, you can

- either choose to simply use the file's *original Akai file name* on the disk image file as the target file name
- or use the file's original Akai file name preceded by the *floppy disk image file name or HxC floppy disk image file name*

Whenever a file with the chosen file name would already exist in the selected target folder, EMXP will use or suggest a slightly adapted file name to assure that the file does not exist yet. But if you have requested EMXP to ask for confirmation of the target file name for every file being copied, you'll have the possibility to replace existing files if you really want to do so.

Select target folder (automated copy only)

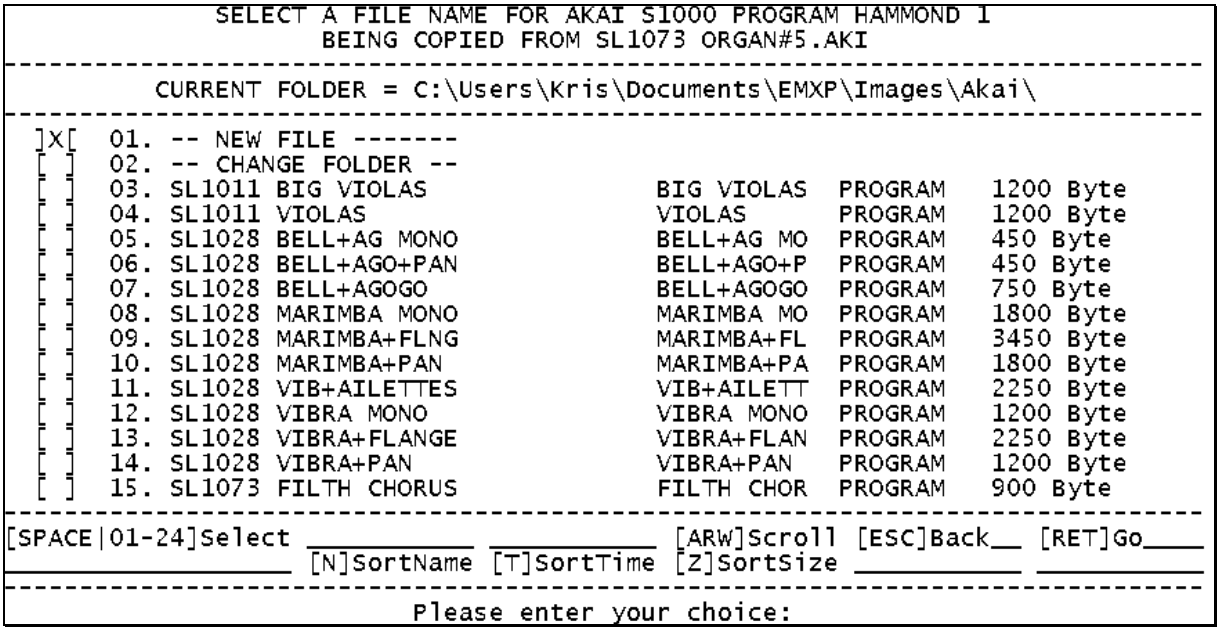
If you have decided to let EMXP assign the target file names by itself without any user confirmation (see paragraph "Define level of automation" before), you will have to select the target folder to which the Akai S1000 files should be copied.



After having selected the target folder, EMXP will start the actual copy of the files. When finished, a message will be displayed telling you that the copy process has succeeded (or failed).

Select target file names (manual copy only)

If you have selected the "manual" mode in which you will confirm every target file name yourself (see paragraph "Define level of automation" before), EMXP will now ask for the target file names *for each of the selected files on the floppy disk or floppy disk image file*. The File Manager will be launched as depicted in the picture below. You can either overwrite one of the existing Akai S1000 files by selecting one of the existing files, or you create an entirely new file by selecting the "`-- NEW FILE --`" item. Of course you can also change the target folder in the File Manager by selecting the "`-- CHANGE FOLDER --`" item.



Only after you have selected or entered the target file names for *all selected source files*, EMXP will start the actual copy of the files. When finished, a message will be displayed telling you that the copy process has succeeded (or failed).
If you cancel the process while EMXP is still asking for target file names, *none of the selected files will be copied* (not even the ones for which you have entered a target file name already !).

6.3.2.2 Copying to floppy disk, floppy disk image or HxC floppy disk image

Define level of automation

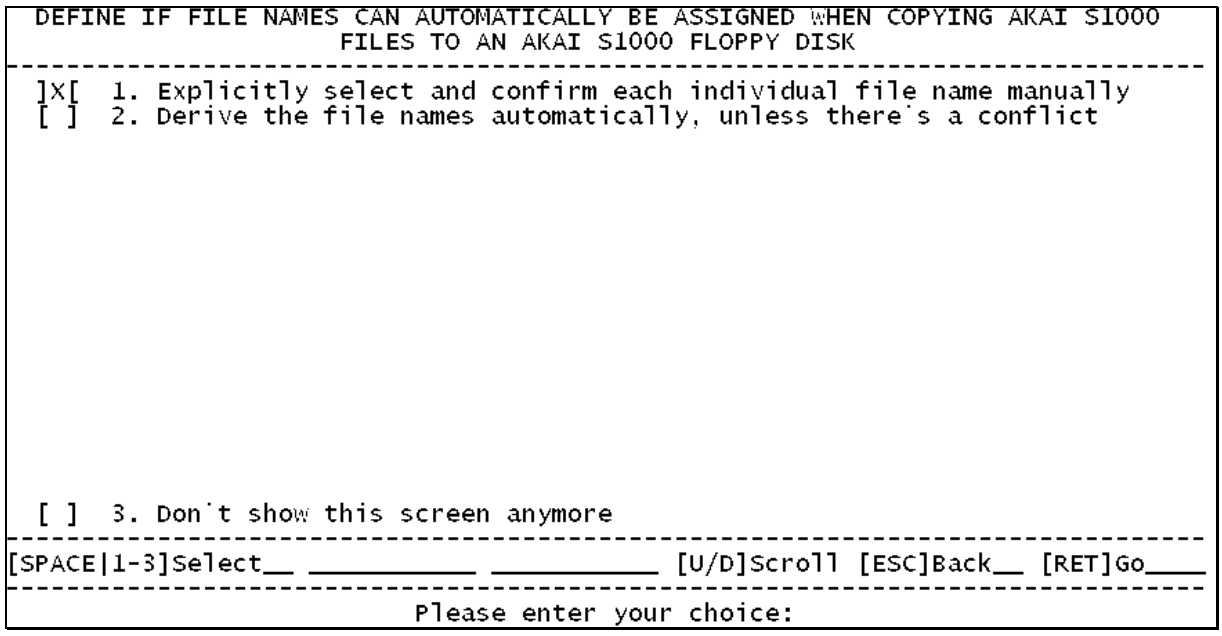
When copying files to an Akai S1000 floppy disk, an Akai S1000 floppy disk image file or an Akai S1000 HxC floppy disk image file, the target files on the floppy disk, floppy disk image or HxC floppy disk image will have the same name as the one defined *in* the Akai S1000 files being copied.
E.g. if the Akai S1000 sample name in sample file "BrassHornTrumpet.s" is "BRASS", EMXP will save the sample as BRASS on the floppy disk, floppy disk image or HxC floppy disk image.
However, the floppy disk, floppy disk image or HxC floppy disk image may already contain a file with that name. If that's true, another name should be chosen. Take into account that if a program file is depending on a sample file which is being renamed, the program's reference to that sample should be changed as well. EMXP will *not do that*, since EMXP can't know which programs and samples belong together. Changing the sample name in a program file should be done on the Akai S1000 sampler.

When checking the uniqueness of a file name on the floppy disk, floppy disk image file or HxC floppy disk image file, and when suggesting alternative names, EMXP takes into account the maximum Akai file name size that has been defined in the Akai copy/conversion preferences. For more details, see *section "10.3.9.3 Define maximum size of Akai S1000 file names on floppy or floppy image"*.

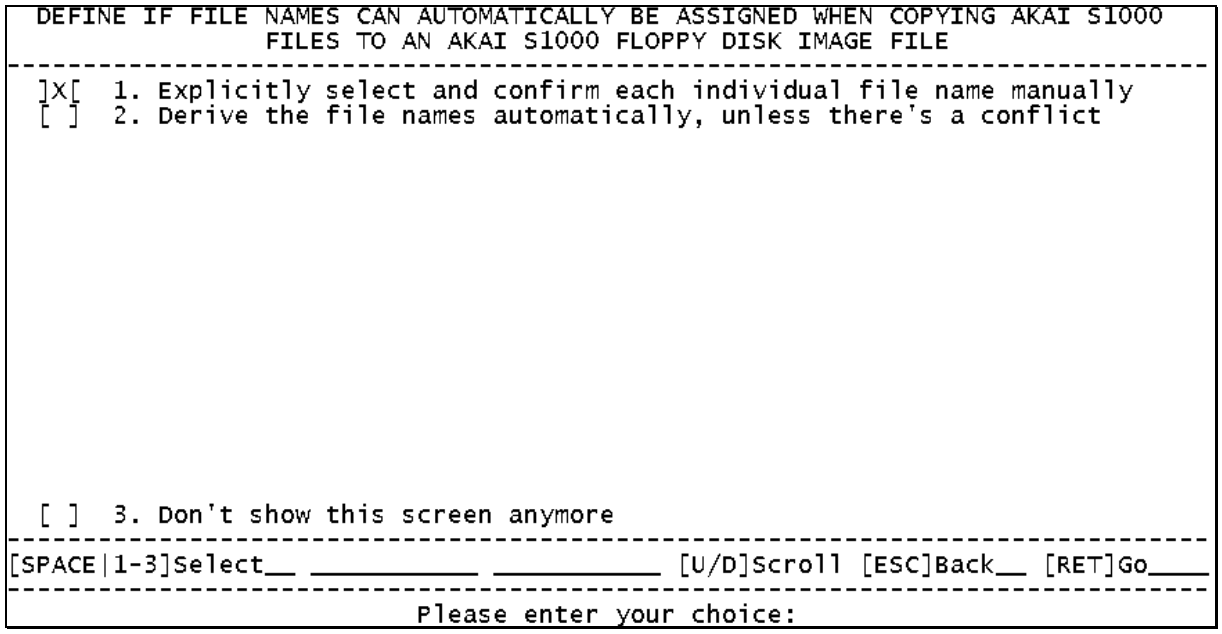
You can choose whether EMXP should ask for confirmation of the Akai S1000 file name for *every file which is being copied*, or whether EMXP can decide itself as much as possible without any user intervention.

The following screens will appear (unless you have explicitly requested EMXP before not to show this screen anymore, see option 3 below and *section "10.3.9.5 Define automation level when copying to floppy or floppy image"*):

If you are copying to an Akai S1000 floppy disk:



If you are copying to an Akai S1000 floppy disk image or Akai S1000 HxC floppy disk image:



(the screen looks slightly different when copying to an HxC floppy disk image)

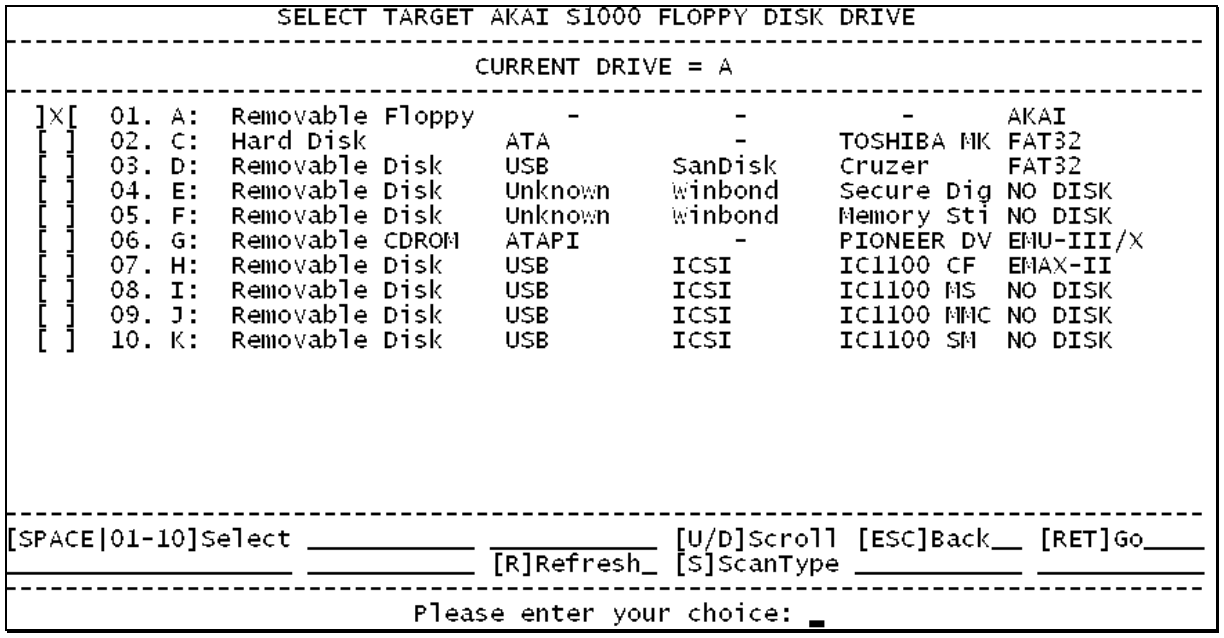
If you select *option 1*, you will have to confirm every file name. E.g. if you have selected 20 files to be copied to your PC, you will have to go through 20 confirmation screens.

If you select *option 2*, EMXP will assign the file names by itself (based on the name included in the source file) without asking for any confirmation, *unless* the file name would already be in use on the target floppy disk, floppy disk image or HxC floppy disk image. In that case, you will still have to define an alternative name, but this user intervention is limited to the files with duplicate names only.

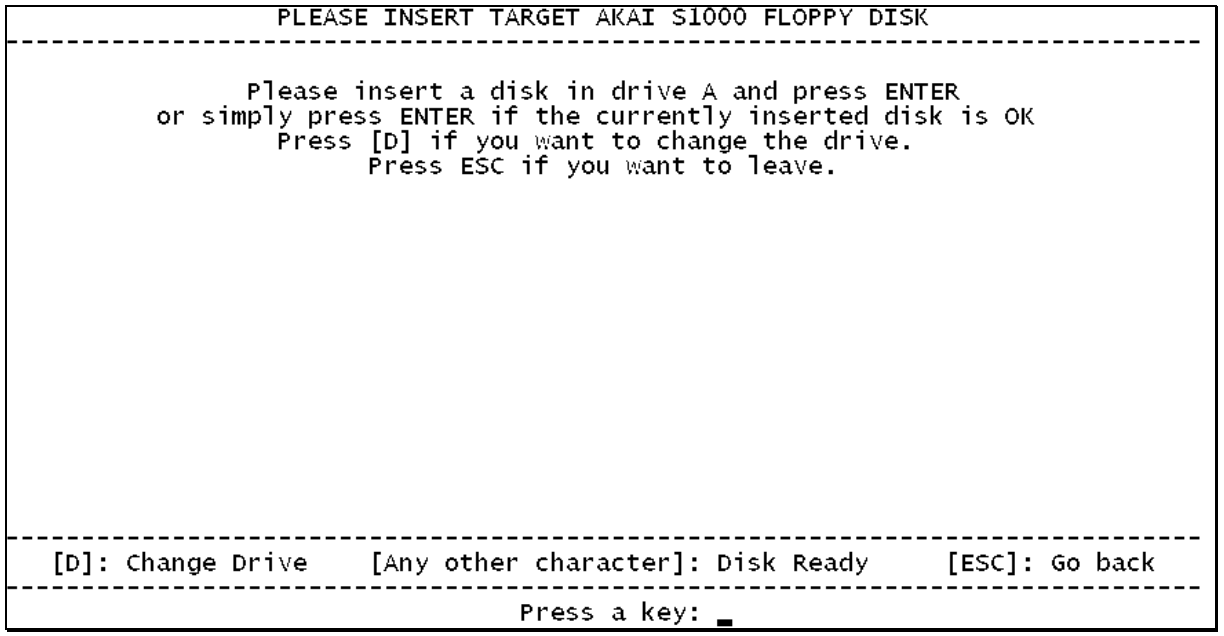
If you will always use the same level of automation (either option 1 or option 2), you can explicitly ask EMXP not to show this screen anymore in the future by enabling *option 3*.

Select target floppy disk (when copying to a floppy disk)

When copying files from your computer's drive to an Akai S1000 floppy disk, you have to select the target floppy drive. In our example this is drive A.



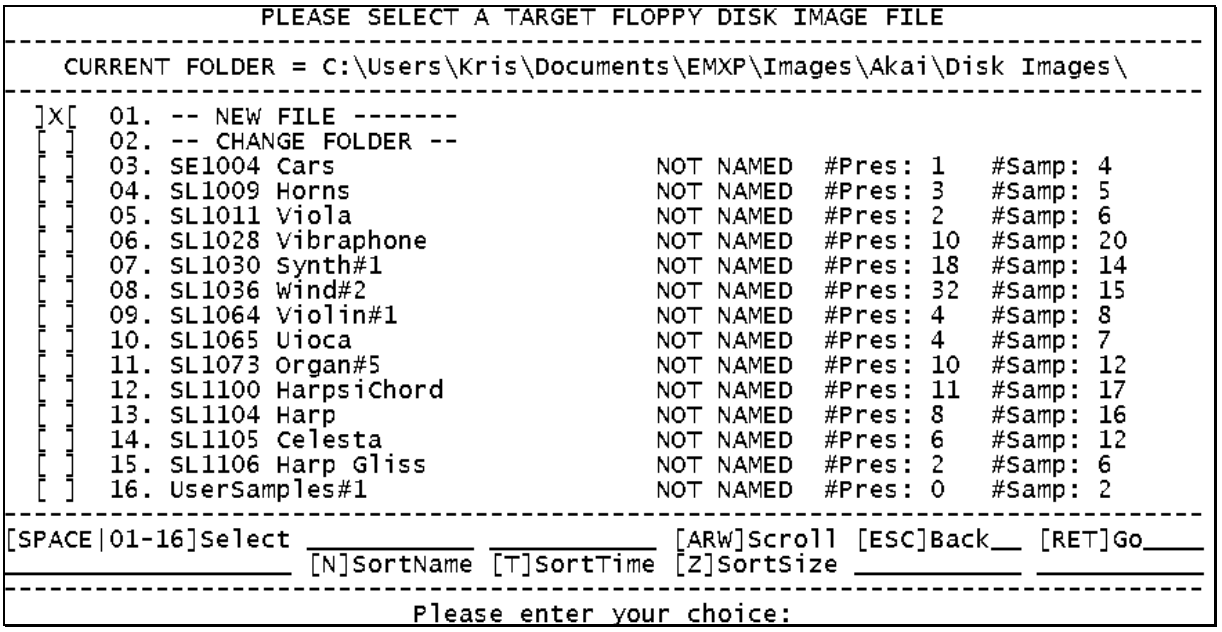
Now insert a floppy disk into the selected drive. Make sure the disk has been formatted for Akai S1000.



EMXP will now check if there's a sufficient amount of available space on the floppy disk. If there's not, you will get an error and you will have to start over again.

Select target floppy disk image (when copying to a floppy disk image)

When copying files to an Akai S1000 floppy disk image or to an Akai S1000 HxC floppy disk image, you have to select the target floppy disk image file or HxC floppy disk image file.
The File Manager will be launched, allowing you to navigate to the target folder and to *either* select an existing Akai S1000 (HxC) floppy disk image, *or* to generate a new Akai S1000 (HxC) floppy disk image.



If an *existing* file is selected, EMXP will ask for confirmation because the file may be an important backup file which you don't want to change by accident. You can disable this confirmation step by changing a preference. See *section "10.3.9.6 Define if confirmation is required when copying to existing floppy image"*.

If a *new* file is selected, next to asking for a file name EMXP will also ask for the size of the target file. Then EMXP will generate an empty file and install the Akai S1000 file system on it before proceeding with the actual copy process. See *section "9.3 GENERATING EMPTY AKAI S1000 FLOPPY DISK IMAGES"* for more details about generating empty Akai S1000 floppy disk images or empty Akai S1000 HxC floppy disk images.

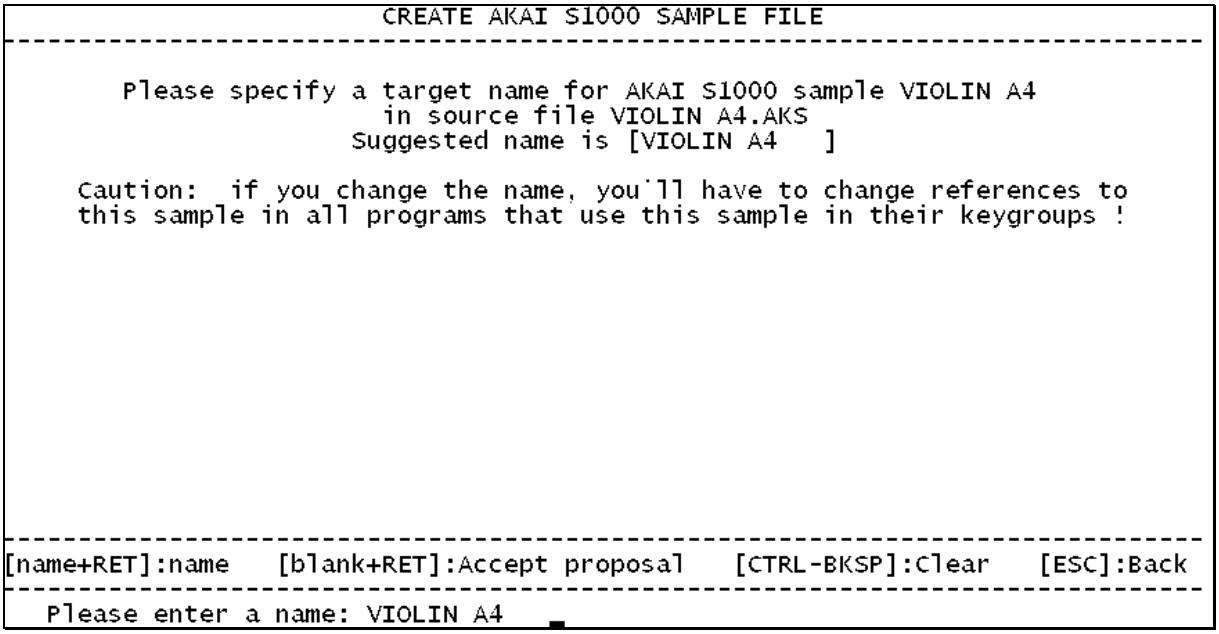
EMXP will now check if there's a sufficient amount of available space in the floppy disk image file or HxC floppy disk image file. If there's not, you will get an error and you will have to start over again.

Select target file names (manual copy only)

If you have selected the "manual" mode in which you will confirm every target file name yourself (see paragraph "Define level of automation" before), EMXP will now ask for a target file name for *each selected file* that will be copied to the floppy disk or floppy disk image.

As already explained, by default EMXP proposes the name contained within the Akai program, sample or drum file.
Especially for Akai S1000 samples it is recommended to accept this suggested name, because this name is probably used as a reference from within one or more Akai S1000 programs. If you change the name, the link between the program and samples will be broken.
If the floppy disk, floppy disk image file or HxC floppy disk image file already contains a sample file with that name, there will be no other solution than specifying another file name. In that case don't forget to change the sample name references in the programs on your Akai sampler !

After having entered or accepted the target Akai S1000 file names for *all selected files*, EMXP will start copying the files. When finished, a message will be displayed telling you that the copy process has succeeded (or failed). If you cancel the process while EMXP is still asking for target Akai S1000 file names, *none of the selected files will be copied* (not even the ones for which you have entered a target file name already !).

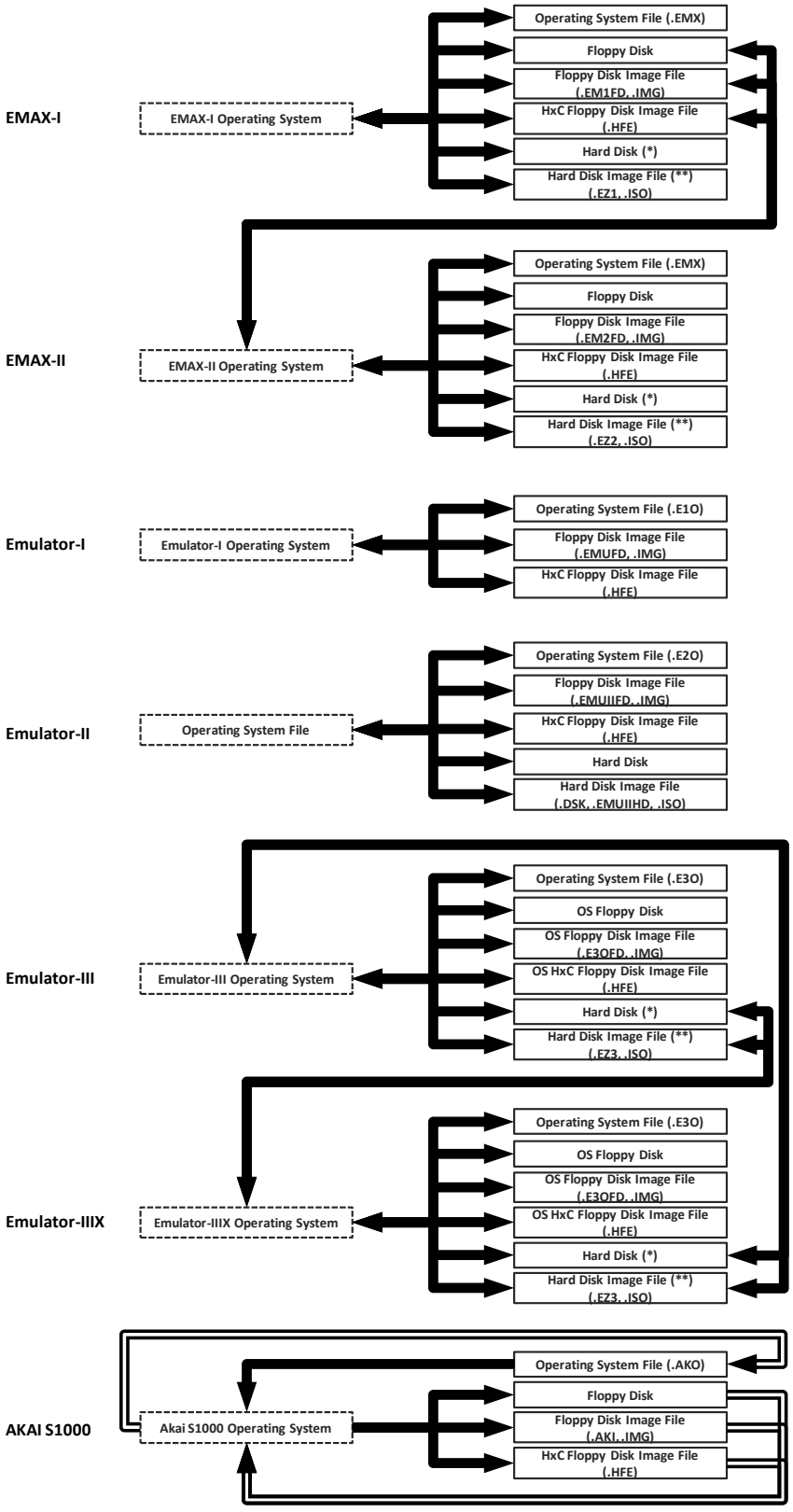


Select target file names (automated copy only)

If you have decided to let EMXP assign the target file names by itself without any user confirmation (see paragraph "Define level of automation" before), it's possible that the target floppy disk, floppy disk image or HxC floppy disk image already contains a file with a name identical to the name of a source file.
In that case you will have to provide another name. The procedure is similar to the one explained in the previous paragraph (see "Select target file name (manual copy only)")

6.4 COPYING OPERATING SYSTEMS

EMXP supports making copies of operating systems for all supported samplers except for the SP-12 and ESI samplers (since their operating system resides on (EP)ROM). The picture below illustrates the supported copy flows.



(*) can also be a partition on a SCSI2SD hard disk
(**) can also be a partition in a SCSI2SD hard disk image file (.ISO, .IMG)

There are three ways in EMXP to copy operating systems:

- by explicitly copying them, which is described in this chapter. For EMU operating systems, two options are offered:
    - selecting an operating system and copying it to a single file or disk
    - a mass (bulk) replacement of the operating system on multiple selected floppy disks, floppy disk images or HxC floppy disk images at once
- by copying them while copying sound data, which is explained in *section "6.2 COPYING EMU SAMPLER SOUND DATA"*. This is only true for Emu operating systems, and this approach does not support copying operating systems to/from hard disks and to/from hard disk image files.
- by formatting a disk, which is explained in *section "9.1 FORMATTING DISKS"*.

Besides copying operating systems, it's also possible to *generate empty bootable floppy disk image files and empty bootable HxC floppy disk image files* for the EMAX-I, EMAX-II, Emulator-I, Emulator-II, Emulator-III and Emulator-IIIX.

For Akai S1000 it's also possible to generate empty floppy disk image files and empty bootable HxC floppy disk image files, but you'll have to copy an operating system to it in a separate step (since the Akai S1000 doesn't *need* an operating system on a floppy disk...)

For Emulator-II two additional options are available:

- when copying *operating systems for the Emulator-II+HD (like version 2.6HD and 31HD)* to *floppy disk images or HxC floppy disk images*, you can choose which physical configuration (e.g. error log) should be saved on the target image, unless the source of the operating system is a hard disk or hard disk image (in that case the physical configuration of the hard disk/hard disk image will automatically chosen). See also *section "10.5.8.1 Emulator-II support for hard disks: introduction"* and *section "10.5.8.3 Define Emulator-II hard disk/hard disk image configurations"* for more details about physical configurations.
- when *generating an empty bootable floppy disk image file or HxC floppy disk image file*, the file system which will be written to the image can be tuned for faster loading on the Emulator-II sampler. The copy process won't ask you for this possibility, but this option can be set in the preferences menu. See *section "10.5.8.9 Define Emulator-II floppy disk bank load speed mode"*. If the option is enabled for "Null Preset" banks, the Emulator-II will boot faster.

6.4.1 Copying EMU operating systems

6.4.1.1 About interchanging EMAX operating systems

The EMAX-I and EMAX-II samplers use operating systems which are not interchangeable between these two types of samplers. However, the EMAX-II can load floppy disks that contain EMAX-I (compressed) sound banks. It's perfectly possible to create a set of floppy disks containing EMAX-I sound banks accompanied by an EMAX-II operating system. These disks can used in both the EMAX-I and EMAX-II, but the operating system modules of the disks can only be used by the EMAX-II.

EMXP applies the following operating system inter-changeability rules:

1. Only EMAX-I operating systems can be copied to
    - EMAX-I hard disks or EMAX-I partitions on SCSI2SD hard disks
    - EMAX-I hard disk image files or EMAX-I partitions in SCSI2SD hard disk image files
    - EMAX-I floppy disk image files
    - EMAX-I HxC floppy disk image files
2. Only EMAX-II operating systems can be copied to
    - EMAX-II hard disks or EMAX-II partitions on SCSI2SD hard disks
    - EMAX-II hard disk image files or EMAX-II partitions in SCSI2SD hard disk image files
3. Both EMAX-I and EMAX-II operating systems can be copied to
    - EMAX-I floppy disks
    - EMAX-II floppy disks (*but be aware that floppy disks with EMAX-II sound banks can't be used in an EMAX-I sampler, so copying the EMAX-I operating system to them doesn't make sense in practice)*

4. EMAX-II operating systems can be copied to
    - EMAX-I floppy disk image files
    - EMAX-I HxC floppy disk image files
    - EMAX-II floppy disk image files
    - EMAX-II HxC floppy disk image files
5. When backing up and restoring EMAX-I and EMAX-II floppy disks , floppy disk image files and HxC floppy disk image files (see *section "6.5 COPYING ENTIRE FLOPPY DISK (IMAGE)S AND HARD* DISK (IMAGE)S*")*, the operating system which "happen" to be on the disks or files will be preserved, no matter whether they comply with the above rules or not.

6.4.1.2 About combining Emulator-III/IIIX operating systems

Just like the EMAX series of samplers, the Emulator-III and Emulator-IIIX samplers use operating systems which are not interchangeable between these two types of samplers. However the hard disks (and cdroms) are interchangeable between these two samplers, and both samplers can boot from the same hard disk.
This means that an Emulator-III operating system and an Emulator-IIIX operating system can co-exist on the same hard disk. At boot time, the Emulator-III sampler will search for an Emulator-III operating system, while the Emulator-IIIX sampler will search for an Emulator-IIIX operating system.
Note that Emulator-III/X hard disks can also be used on ESI samplers. ESI samplers however don't need an operating system on their hard disk and any Emulator-III or Emulator-IIIX operating systems residing on the hard disk will simply be ignored.

Emulator-III/IIIX/ESI floppy disks can't contain sound bank data data and operating system at once. An Emulator-III/IIIX/ESI floppy disk

- either contains sound bank data. If a bank does not fit on a single floppy disk, multiple disks are required to save or load that bank
- or contains a single operating system (not applicable for ESI though). An operating system always fits on a single floppy disk. A single disk can contain only one operating system. As opposed to hard disks, it's not possible to boot both the Emulator-III and Emulator-IIIX sampler from the same floppy disk.

The same is true of course for Emulator-III/IIIX floppy disk images and HxC floppy disk images.

EMXP only supports Emulator-III/IIIX floppy disks, floppy disk images and HxC floppy disk images that can contain an operating system. As a consequence, no ESI floppy disks are supported at all since the ESI operating system does not reside on disks.

6.4.1.3 Copying an operating system to a single file or disk

EMAX-I

Step 1: select the source operating system

To copy an operating system from an EMAX-I operating system file:
"1. Manage EMU Files and Disks" → "1. Manage EMU EMAX-I Files and Disks" → "3. Manage EMAX-I Operating System Files" → [select a file] → go to step 2

To copy an operating system from an EMAX floppy disk:
"1. Manage EMU Files and Disks" → "1. Manage EMU EMAX-I Files and Disks" → "8. Manage other EMAX-I Files and Disks" → "2. Manage EMAX-I/EMAX-II Floppy Disks" → [select a floppy drive] → [press 'O'] or [select "3. Manage Operating System on Floppy Disk"] → [insert an EMAX-I floppy disk if not inserted yet] → [select operating system] → go to step 2

To copy an operating system from an EMAX-I floppy disk image file:
"1. Manage EMU Files and Disks" → "1. Manage EMU EMAX-I Files and Disks" → "6. Manage EMAX-I Floppy Disk Images" → [select a single floppy image file] → [press 'O'] or [select "9. Show Details" → "3. Show Operating System Details"] → [select operating system] → go to step 2

To copy an operating system from an EMAX-I HxC floppy disk image file:
"1. Manage EMU Files and Disks" → "1. Manage EMU EMAX-I Files and Disks" → "7. Manage EMAX-I HxC Floppy Disk Images" → [select a single HxC floppy image file] → [press 'O'] or [select "9. Show Details" → "3. Show Operating System Details"] → [select operating system] → go to step 2

To copy an operating system from an EMAX-I hard disk or from an EMAX-I partition on a SCSI2SD hard disk:
"1. Manage EMU Files and Disks" → "1. Manage EMU EMAX-I Files and Disks" → "5. Manage EMAX-I Hard Disks" → [select a drive or scan for SCSI2SD and select a partition] → [press 'O'] or [select "3. Manage Operating System on EMAX-I Hard Disk"] → [insert a hard disk if not inserted yet] → [select operating system] → go to step 2

To copy an operating system from an EMAX-I hard disk image file or from an EMAX-I partition on a SCSI2SD hard disk image file:
"1. Manage EMU Files and Disks" → "1. Manage EMU EMAX-I Files and Disks" → "4. Manage EMAX-I Hard Disk Images" → "1. Manage existing EMAX-I Hard Disk Images" → [select a hard disk image file or scan for SCSI2SD and select a partition] →[press 'O'] or [select "2. Manage Operating System on EMAX-I Hard Disk Image"] → [select operating system] → go to step 2

Step 2: copy operating system to target file or disk

To copy an operating system to an EMAX-I operating system file:
First perform step 1 → [press 'Y'] or [select "1. Copy Operating System to EMAX-I Operating System File"] → [select target file name and location]

To copy an operating system to an EMAX floppy disk:
First perform step 1→ [press 'F'] or [select "2. Copy Operating System to EMAX Floppy Disk"] → [select a floppy drive] → [insert an EMAX formatted floppy disk]

To copy an operating system to an EMAX-I floppy disk image file:
First perform step 1 → [press 'I'] or [select "5. Copy Operating System to EMAX-I Floppy Disk Image"] → [select target floppy disk image file and location]

To copy an operating system to an EMAX-I HxC floppy disk image file:
First perform step 1 → [press 'X'] or [select "6. Copy Operating System to EMAX-I HxC Floppy Disk Image"] → [select target HxC floppy disk image file and location]

To copy an operating system to an EMAX-I hard disk or to an EMAX-I partition on a SCSI2SD hard disk:
First perform step 1 → [press 'H'] or [select "3. Copy Operating System to EMAX-I Hard Disk"] → [select a drive or scan for SCSI2SD and select a partition] → [insert a hard disk]

To copy an operating system to an EMAX-I hard disk image file or to an EMAX-I partition in a SCSI2SD hard disk image file:
First perform step 1 → [press 'G'] or [select "4. Copy Operating System to EMAX-I Hard Disk Image"] → [select a hard disk image file or scan for SCSI2SD and select a partition] → [*optional:* confirm that file can be written to]

Besides the possibility to copy a selected operating system to an EMAX-I floppy disk image file or to an EMAX-I HxC floppy disk image files, EMXP also provides functions called "Generate Empty Bootable EMAX-I Floppy Disk Image" and "Generate Empty Bootable EMAX-I HxC Floppy Disk Image". See *section "6.4.3 Generating empty bootable EMU floppy disk images".*

EMAX-II

Step 1: select the source operating system

To copy an operating system from an EMAX-II operating system file:
"1. Manage EMU Files and Disks" → "2. Manage EMU EMAX-II Files and Disks" → "3. Manage EMAX-II Operating System Files" → [select a file] → go to step 2

To copy an operating system from an EMAX floppy disk:
"1. Manage EMU Files and Disks" → "2. Manage EMU EMAX-II Files and Disks" → "8. Manage EMAX-I/EMAX-II Floppy Disks" → [select a floppy drive] → [press 'O'] or [select "3. Manage Operating System on Floppy Disk"] → [insert an EMAX-II floppy disk if not inserted yet] → [select operating system] → go to step 2

To copy an operating system from an EMAX-II floppy disk image file:
"1. Manage EMU Files and Disks" → "2. Manage EMU EMAX-I Files and Disks" → "6. Manage EMAX-II Floppy Disk Images" → [select a single floppy image file] → [press 'O'] or [select "9. Show More Details" → "3. Show Operating System Details"] → [select operating system] → go to step 2

To copy an operating system from an EMAX-II HxC floppy disk image file:
"1. Manage EMU Files and Disks" → "2. Manage EMU EMAX-I Files and Disks" → "7. Manage EMAX-II HxC Floppy Disk Images" → [select a single HxC floppy image file] → [press 'O'] or [select "9. Show More Details" → "3. Show Operating System Details"] → [select operating system] → go to step 2

To copy an operating system from an EMAX-II hard disk or from an EMAX-II partition on a SCSI2SD hard disk:
"1. Manage EMU Files and Disks" → "2. Manage EMU EMAX-II Files and Disks" → "5. Manage EMAX-II Hard Disks" → [select a drive or scan for SCSI2SD and select a partition] → [press 'O'] or [select "3. Manage Operating System on EMAX-II Hard Disk"] → [insert a hard disk if not inserted yet] → [select operating system] → go to step 2

To copy an operating system from an EMAX-II hard disk image file or from an EMAX-II partition in a SCSI2SD hard disk image file:
"1. Manage EMU Files and Disks" → "2. Manage EMU EMAX-II Files and Disks" → "4. Manage EMAX-II Hard Disk Images" → "1. Manage existing EMAX-II Hard Disk Images" → [select a hard disk image file or scan for SCSI2SD and select a partition] → [press 'O'] or [select "2. Manage Operating System on EMAX-II Hard Disk Image"] → [select operating system] → go to step 2

Step 2: copy operating system to target file or disk

To copy an operating system to an EMAX-II operating system file:
First perform step 1 → [press 'Y'] or [select "1. Copy Operating System to EMAX-II Operating System File"] → [select target file name and location]

To copy an operating system to an EMAX floppy disk:
First perform step 1 → [press 'F'] or [select "2. Copy Operating System to EMAX Floppy Disk"] → [select a floppy drive] → [insert an EMAX formatted floppy disk]

To copy an operating system to an EMAX-II floppy disk image file:
First perform step 1 → [press 'I'] or [select "5. Copy Operating System to EMAX-II Floppy Disk Image"] → [select target floppy disk image file and location]

To copy an operating system to an EMAX-II HxC floppy disk image file:
First perform step 1 → [press 'X'] or [select "6. Copy Operating System to EMAX-II HxC Floppy Disk Image"] → [select target HxC floppy disk image file and location]

To copy an operating system to an EMAX-I floppy disk image file:
First perform step 1 → [press 'U'] or [*if source is EMAX-II hard disk or EMAX-II hard disk image* select "8. Copy OS to or Generate Empty Bootable EMAX-I Floppy Disk Image" → "2. Copy Operating System to EMAX-I Floppy Disk Image"] or [*else* select "9. Copy OS to or Generate Empty Bootable EMAX-I Floppy Disk Image"→ "1. Copy Operating System to EMAX-I Floppy Disk Image"] → [select target floppy disk image file and location]

To copy an operating system to an EMAX-I HxC floppy disk image file:
First perform step 1 → [press 'P'] or [*if source is EMAX-II hard disk or EMAX-II hard disk image* select "8. Copy OS to or Generate Empty Bootable EMAX-I Floppy Disk Image" → "2. Copy Operating System to EMAX-I HxC Floppy Disk Image"] or [*else* select "9. Copy OS to or Generate Empty Bootable EMAX-I Floppy Disk Image"→ "2. Copy Operating System to EMAX-I HxC Floppy Disk Image"] → [select target Hxc floppy disk image file and location]

To copy an operating system to an EMAX-II hard disk or to an EMAX-II partition on a SCSI2SD hard disk:
First perform step 1 → [press 'H'] or [select "3. Copy Operating System to EMAX-II Hard Disk"] → [select a drive or scan for SCSI2SD and select a partition] → [insert a hard disk]

To copy an operating system to an EMAX-II hard disk image file or to an EMAX-II partition in a SCSI2SD hard disk image file:
First perform step 1 → [press 'G'] or [select "4. Copy Operating System to EMAX-II Hard Disk Image" → [select a hard disk image file or scan for SCSI2SD and select a partition] → [*optional:* confirm that file can be written to]

Besides the possibility to copy a selected operating system to an EMAX-I or EMAX-II floppy disk image file or to an EMAX-I or EMAX-II HxC floppy disk image file, EMXP also provides functions called "Generate Empty Bootable EMAX-I *or* EMAX-II Floppy Disk Image" and "Generate Empty Bootable EMAX-I *or* EMAX-II HxC Floppy Disk Image". See *section "6.4.3 Generating empty bootable EMU floppy disk images".*

Emulator-I

Step 1: select the source operating system

To copy an operating system from an Emulator-I operating system file:
"1. Manage EMU Files and Disks" → "3. Manage EMU EMULATOR-I Files" → "5. Manage EMULATOR-I Operating System Files" → [select one or more files] → go to step 2

To copy an operating system from an Emulator-I floppy disk image file:
"1. Manage EMU Files and Disks" → "3. Manage EMU EMULATOR-I Files" → "3. Manage EMULATOR-I Floppy Disk Images" → [select a file] → [press 'O'] or [select "9. Show More Details" → "3. Show Operating System"] → [select operating system] → go to step 2

To copy an operating system from an Emulator-I HxC floppy disk image file:
"1. Manage EMU Files and Disks" → "3. Manage EMU EMULATOR-I Files" → "4. Manage EMULATOR-I HxC Floppy Disk Images" → [select a file] → [press 'O'] or [select "9. Show More Details" → "3. Show Operating System"] → [select operating system] → go to step 2

Step 2: copy operating system to target file

To copy an operating system to an Emulator-I operating system file:
First perform step 1 → [press 'Y'] or [select "1. Copy Operating System to EMULATOR-I Operating System File"] → [select target file name and location]

To copy an operating system to an Emulator-I floppy disk image file:
First perform step 1 → [press 'I'] or [select "2. Copy Operating System to EMULATOR-I Floppy Disk Image" → [select target file name and location]

To copy an operating system to an Emulator-I HxC floppy disk image file:
First perform step 1 → [press 'X'] or [select "2. Copy Operating System to EMULATOR-I HxC Floppy Disk Image" → [select target file name and location]

Besides the possibility to copy a selected operating system to an Emulator-I floppy disk image file or to an Emulator-I HxC floppy disk image file, EMXP also provides functions called "Generate Empty Bootable EMULATOR-I Floppy Disk Image" and "Generate Empty Bootable EMULATOR-I HxC Floppy Disk Image". See *section "6.4.3 Generating empty bootable EMU floppy disk images"*.

Emulator-II

When copying HD operating systems (like version 2.6HD and 31HD) *from operating system files or (HxC) floppy disk images* to other (HxC) floppy disk images or HxC floppy disk images, you can choose which physical configuration (e.g. error log) should be saved on the target image. In most cases (e.g. for use with Emulator-II+HD with DREM), you can use the factory default configuration (Miniscribe 20MB).
See also *section "10.5.8.1 Emulator-II support for hard disks: introduction"* and *section "10.5.8.3 Define Emulator-II hard disk/hard disk image configurations"* for more details about physical configurations.

Step 1: select the source operating system

To copy an operating system from an Emulator-II operating system file:
"1. Manage EMU Files and Disks" → "4. Manage EMU EMULATOR-II Files and Disks" → "6. Manage EMULATOR-II Operating System Files" → [select one or more files] → go to step 2

To copy an operating system from an Emulator-II floppy disk image file:
"1. Manage EMU Files and Disks" → "4. Manage EMU EMULATOR-II Files and Disks" → "2. Manage EMULATOR-II Floppy Disk Images" → [select a file] → [press 'O'] or [select "9. Show Details" → "5. Show Operating System Details"] → [select operating system] → go to step 2

To copy an operating system from an Emulator-II HxC floppy disk image file:
"1. Manage EMU Files and Disks" → "4. Manage EMU EMULATOR-II Files and Disks" → "3. Manage EMULATOR-II HxC Floppy Disk Images" → [select a file] → [press 'O'] or [select "9. Show Details" → "5. Show Operating System Details"] → [select operating system] → go to step 2

To copy an operating system from an Emulator-II hard disk:
"1. Manage EMU Files and Disks" → "4. Manage EMU EMULATOR-II Files and Disks" → "5. Manage EMULATOR-II Hard Disks" → [select a drive] → [press 'O'] or [select "3. Manage Operating System on on EMULATOR-II Hard Disk"] → [insert a hard disk if not inserted yet] → [select operating system] → go to step 2

To copy an operating system from an Emulator-II hard disk image file (e.g. DREM):
"1. Manage EMU Files and Disks" → "1. Manage EMU EMULATOR-II Files and Disks" → "4. Manage EMULATOR-II Hard Disk Images (e.g. DREM)" → "1. Manage existing EMULATOR-II Hard Disk Images" → [select a hard disk image file] →[press 'O'] or [select "2. Manage Operating System on EMULATOR-II Hard Disk Image"] → [select operating system] → go to step 2

Step 2: copy operating system to target file

To copy an operating system to an Emulator-II operating system file:
First perform step 1 → [press 'Y'] or [select "1. Copy Operating System to EMULATOR-II Operating System File"] → [select target file name and location]

To copy an operating system to an Emulator-II floppy disk image file:
First perform step 1 → [press 'I'] or [select "4. Copy Operating System to EMULATOR-II Floppy Disk Image" → [select target file name and location] → [*if a hard disk operating system has been selected and the source is not a hard disk or hard disk image:* select target physical configuration (*)]

To copy an operating system to an Emulator-II HxC floppy disk image file:
First perform step 1 → [press 'X'] or [select "5. Copy Operating System to EMULATOR-II HxC Floppy Disk Image"] → [select target file name and location] → [*if a hard disk operating system has been selected and the source is not a hard disk or hard disk image:* select target physical configuration (*)]

To copy an operating system to an EMULATOR hard disk:
First perform step 1 → [press 'H'] or [select "2. Copy Operating System to EMULATOR-II Hard Disk"] → [select a drive] → [insert a hard disk]

To copy an operating system to an EMULATOR-II hard disk image file (e.g. DREM):
First perform step 1 → [press 'G'] or [select "3. Copy Operating System to EMULATOR-II Hard Disk Image" → [select a hard disk image file] → [*optional:* confirm that file can be written to]

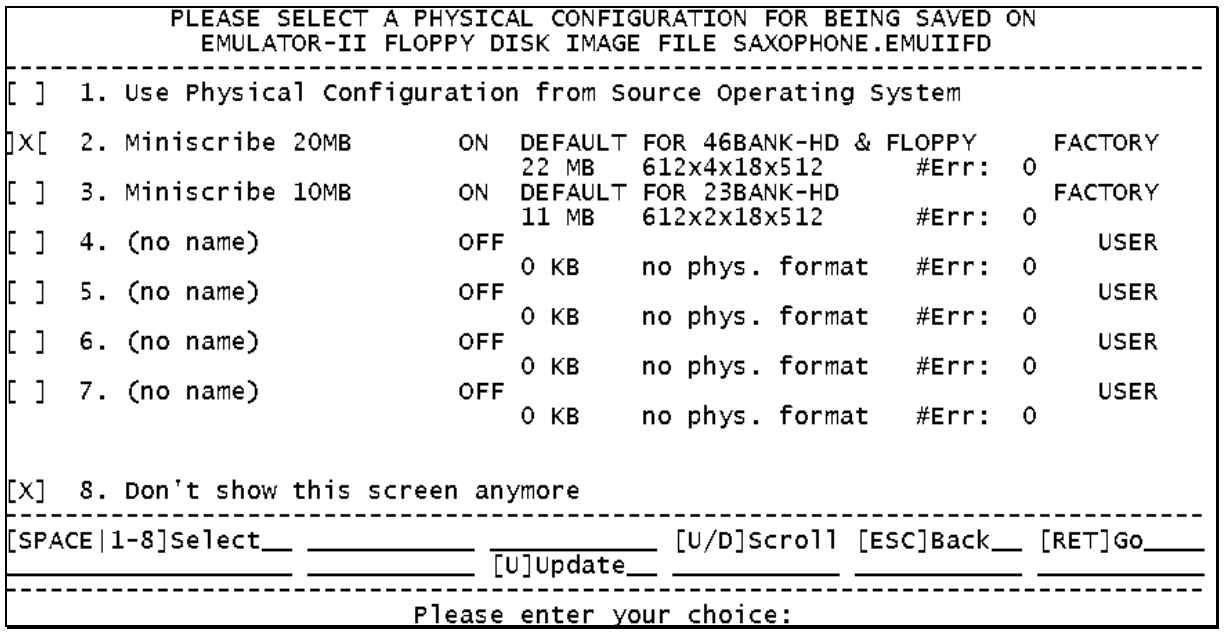
Besides the possibility to copy a selected operating system to an Emulator-II floppy disk image file or to an Emulator-II HxC floppy disk image file, EMXP also provides functions called "Generate Empty Bootable EMULATOR-II Floppy Disk Image" and "Generate Empty Bootable EMULATOR-II HxC Floppy Disk Image". See *section "6.4.3 Generating empty bootable EMU floppy disk images"*.

(*) **Selecting a physical configuration**

When copying a *hard disk operating system* to a floppy disk image file or to an HxC floppy disk image file, you will be asked for a target *physical configuration* (unless the source operating system resides on a hard disk or hard disk image). This allows for creating floppy disk images which "correspond" to the hard disk or DREM files that are being used in an Emulator-II+HD sampler. This is especially important with respect to the *error log*, which describes where the bad sectors on a hard disk are located.
Note: if the source operating system has been selected from a hard disk or hard disk image, you can't choose the physical configuration: in this case, EMXP will always use the physical configuration of the hard disk/hard disk image itself. This assures that the resulting (HxC) floppy disk image corresponds 100% to the hard disk/hard disk image, and can be used to (re)format the hard disk.

In practice, making sure that the physical configuration (error log) stored in the floppy disk image is the same as the physical configuration of the har disk or hard disk image is only required if the floppy disk image will be used to (re-format) a <u>true hard disk</u> in the Emulator-II+HD sampler.

In all other cases, there's no probem if the physical configuration of the floppy disk image does not match the physical configuration of the hard disk/hard disk image. This is also true if you're intending to use the floppy disk image for formatting DREM .DSK files.
In these cases, you can simply use the factory default configuration called "Miniscribe 20MB", and (optionally) enable to the option to never ask for a physical configuration again when copying a hard disk operating system.



As explained, in most cases you can simply select *option 2*, and also select *option 8*.
It's always possible to change the default settings in the preferences menu: see *section "10.5.8.3 Define Emulator-II hard disk/hard disk image configurations"*.

Emulator-III

Step 1: select the source operating system

To copy an operating system from an Emulator-III operating system file:
"1. Manage EMU Files and Disks" → "5. Manage EMU EMULATOR-III/X/ESI Files and Disks" → "6. Manage EMULATOR-III Operating System Files and Disks" → "1. Manage EMULATOR-III Operating System Files" → [select a file] → go to step 2

To copy an operating system from an Emulator-III OS floppy disk:
"1. Manage EMU Files and Disks" → "5. Manage EMU EMULATOR-III/X/ESI Files and Disks" → "6. Manage EMULATOR-III Operating System Files and Disks" → "4. Manage EMULATOR-III/X Operating System Floppy Disks" → [select a floppy drive] → [press 'O'] or [select "1. Manage Operating System on Floppy Disk"] → [insert an Emulator-III OS floppy disk if not inserted yet] → [select operating system] → go to step 2

To copy an operating system from an Emulator-III OS floppy disk image file:
"1. Manage EMU Files and Disks" → "5. Manage EMU EMULATOR-III/X/ESI Files and Disks" → "6. Manage EMULATOR-III Operating System Files and Disks" → "2. Manage EMULATOR-III Operating System Floppy Disk Images" → [select a file] → go to step 2

To copy an operating system from an Emulator-III OS HxC floppy disk image file:
"1. Manage EMU Files and Disks" → "5. Manage EMU EMULATOR-III/X/ESI Files and Disks" → "6. Manage EMULATOR-III Operating System Files and Disks" → "3. Manage EMULATOR-III Operating System HxC Floppy Disk Images" → [select a file] → go to step 2

To copy an operating system from an Emulator-III/IIIX/ESI hard disk or from an Emulator-III/IIIX/ESI partition on a SCSI2SD hard disk:
"1. Manage EMU Files and Disks" → "5. Manage EMU EMULATOR-III/X/ESI Files and Disks" → "5. Manage EMULATOR-III/X/ESI Hard Disks" → [select a drive or scan for SCSI2SD and select a partition] → [press 'O'] or [select "5. Manage Operating System(s) on EMULATOR-III/X/ESI Hard Disk"] → [insert a hard disk if not inserted yet] → [select operating system] → go to step 2

To copy an operating system from an Emulator-III/IIIX/ESI hard disk image file or from an Emulator-III/IIIX/ESI partition on a SCSI2SD hard disk image file:
"1. Manage EMU Files and Disks" → "5. Manage EMU EMULATOR-III/X/ESI Files and Disks" → "4. Manage EMULATOR-III/X/ESI Hard Disk Images" → "1. Manage existing EMULATOR-III/X/ESI Hard Disk Images" → [select a hard disk image file or scan for SCSI2SD and select a partition] →[press 'O'] or [select "5. Manage Operating System(s) on EMULATOR-III/X/ESI Hard Disk Image"] → [select operating system] → go to step 2

Step 2: copy operating system to target file or disk

To copy an operating system to an Emulator-III operating system file:
First perform step 1 → [press 'Y'] or [select "4. Copy Operating System to EMULATOR-III Operating System File"] → [select target file name and location]

To copy an operating system to an Emulator-III OS floppy disk:
First perform step 1→ [press 'F'] or [select "1. Create Bootable EMULATOR-III OS Floppy Disk"] → [select a floppy drive] → [insert an Emulator-III/IIIX formatted floppy disk]

To copy an operating system to an Emulator-III OS floppy disk image file:
First perform step 1 → [press 'I'] or [select "2. Generate Bootable EMULATOR-III OS Floppy Disk Image"] → [select target floppy disk image file and location]

To copy an operating system to an Emulator-III OS HxC floppy disk image file:
First perform step 1 → [press 'X'] or [select "3. Generate Bootable EMULATOR-III OS HxC Floppy Disk Image"] → [select target HxC floppy disk image file and location]

To copy an operating system to an Emulator-III/IIIX/ESI hard disk or to an Emulator-III/IIIX/ESI partition on a SCSI2SD hard disk:
First perform step 1 → [press 'H'] or [select "5. Copy Operating System to EMULATOR-III/X/ESI Hard Disk"] → [select a drive or scan for SCSI2SD and select a partition] → [insert a hard disk]

To copy an operating system to an Emulator-III/IIIX/ESI hard disk image file or to an Emulator-III/IIIX/ESI partition in a SCSI2SD hard disk image file:
First perform step 1 → [press 'G'] or [select "6. Copy Operating System to EMULATOR-III/X/ESI Hard Disk Image"] → [select a hard disk image file or scan for SCSI2SD and select a partition] → [*optional:* confirm that file can be written to]

Emulator-IIIX

Step 1: select the source operating system

To copy an operating system from an Emulator-IIIX operating system file:
"1. Manage EMU Files and Disks" → "5. Manage EMU EMULATOR-III/X/ESI Files and Disks" → "7. Manage EMULATOR-IIIX Operating System Files and Disks" → "1. Manage EMULATOR-IIIX Operating System Files" → [select a file] → go to step 2

To copy an operating system from an Emulator-IIIX OS floppy disk:
"1. Manage EMU Files and Disks" → "5. Manage EMU EMULATOR-III/X/ESI Files and Disks" → "7. Manage EMULATOR-IIIX Operating System Files and Disks" → "4. Manage EMULATOR-III/X Operating System Floppy Disks" → [select a floppy drive] → [press 'O'] or [select "1. Manage Operating System on Floppy Disk"] → [insert an Emulator-IIIX OS floppy disk if not inserted yet] → [select operating system] → go to step 2

To copy an operating system from an Emulator-IIIX OS floppy disk image file:
"1. Manage EMU Files and Disks" → "5. Manage EMU EMULATOR-III/X/ESI Files and Disks" → "7. Manage EMULATOR-IIIX Operating System Files and Disks" → "2. Manage EMULATOR-IIIX Operating System Floppy Disk Images" → [select a file] → go to step 2

To copy an operating system from an Emulator-IIIX OS HxC floppy disk image file:
"1. Manage EMU Files and Disks" → "5. Manage EMU EMULATOR-III/X/ESI Files and Disks" → "7. Manage EMULATOR-IIIX Operating System Files and Disks" → "3. Manage EMULATOR-IIIX Operating System HxC Floppy Disk Images" → [select a file] → go to step 2

To copy an operating system from an Emulator-III/IIIX/ESI hard disk or from an Emulator-III/IIIX/ESI partition on a SCSI2SD hard disk:
"1. Manage EMU Files and Disks" → "5. Manage EMU EMULATOR-III/X/ESI Files and Disks" → "5. Manage EMULATOR-III/X/ESI Hard Disks" → [select a drive or scan for SCSI2SD and select a partition] → [press 'O'] or [select "5. Manage Operating System(s) on EMULATOR-III/X/ESI Hard Disk"] → [insert a hard disk if not inserted yet] → [select operating system] → go to step 2

To copy an operating system from an Emulator-III/IIIX/ESI hard disk image file or from an Emulator-III/IIIX/ESI partition on a SCSI2SD hard disk image file:
"1. Manage EMU Files and Disks" → "5. Manage EMU EMULATOR-III/X/ESI Files and Disks" → "4. Manage EMULATOR-III/X/ESI Hard Disk Images" → "1. Manage existing EMULATOR-III/X/ESI Hard Disk Images" → [select a hard disk image file or scan for SCSI2SD and select a partition] →[press 'O'] or [select "5. Manage Operating System(s) on EMULATOR-III/X/ESI Hard Disk Image"] → [select operating system] → go to step 2

Step 2: copy operating system to target file or disk

To copy an operating system to an Emulator-IIIX operating system file:
First perform step 1 → [press 'Y'] or [select "4. Copy Operating System to EMULATOR-IIIX Operating System File"] → [select target file name and location]

To copy an operating system to an Emulator-IIIX OS floppy disk:
First perform step 1→ [press 'F'] or [select "1. Create Bootable EMULATOR-IIIX OS Floppy Disk"] → [select a floppy drive] → [insert an Emulator-III/IIIX formatted floppy disk]

To copy an operating system to an Emulator-IIIX OS floppy disk image file:
First perform step 1 → [press 'I'] or [select "2. Generate Bootable EMULATOR-IIIX OS Floppy Disk Image"] → [select target floppy disk image file and location]

To copy an operating system to an Emulator-IIIX OS HxC floppy disk image file:
First perform step 1 → [press 'X'] or [select "3. Generate Bootable EMULATOR-IIIX OS HxC Floppy Disk Image"] → [select target HxC floppy disk image file and location]

To copy an operating system to an Emulator-III/IIIX/ESI hard disk or to an Emulator-III/IIIX/ESI partition on a SCSI2SD hard disk:
First perform step 1 → [press 'H'] or [select "5. Copy Operating System to EMULATOR-III/X/ESI Hard Disk"] → [select a drive or scan for SCSI2SD and select a partition] → [insert a hard disk]

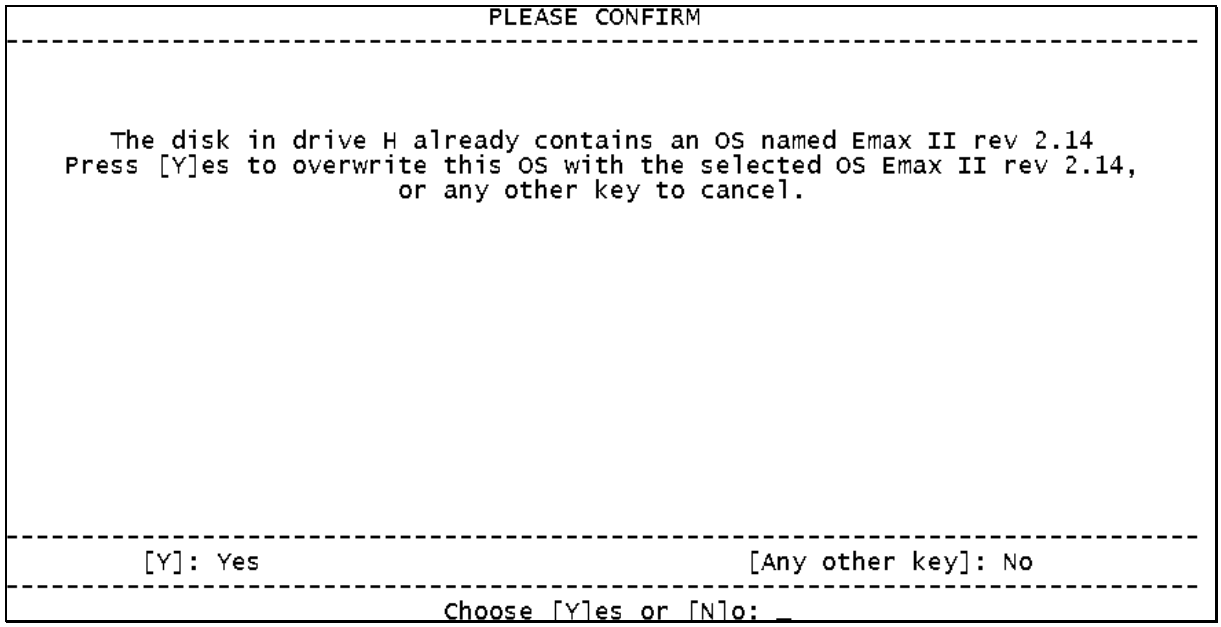
To copy an operating system to an Emulator-III/IIIX/ESI hard disk image file or to an Emulator-III/IIIX/ESI partition in a SCSI2SD hard disk image file:
First perform step 1 → [press 'G'] or [select "6. Copy Operating System to EMULATOR-III/X/ESI Hard Disk Image"] → [select a hard disk image file or scan for SCSI2SD and select a partition] → [*optional:* confirm that file can be written to]

Since an Emulator-III/IIIX floppy disk, floppy disk image or HxC floppy disk image can not contain both sound data and operating system data, copying an operating system to an Emulator-III/IIIX OS floppy disk, OS floppy disk image or OS HxC floppy disk is exactly the same as *generating an empty bootable* Emulator-III/IIIX floppy disk, floppy disk image or HxC floppy disk. See also *section "6.4.3 Generating empty bootable EMU floppy disk images"*.

Replacing an existing operating system on a floppy disk, hard disk or floppy/hard disk image file

Copying an operating system to a floppy disk, floppy disk image file, HxC floppy disk image file, hard disk, partition on a SCSI2SD hard disk, hard disk image file or a partition in a SCSI2SD hard disk image file *which already contains an operating system* is perfectly possible, but EMXP will ask you to confirm that you want to replace the existing operating system, as illustrated in the following picture in which we want to copy an EMAX-II operating system to an EMAX-II hard disk.

When copying Emulator-III or Emulator-IIIX operating systems to a (partition on a) hard disk or hard disk image, this confirmation will only be asked if an operating system of the same sampler type already exists on the target disk or target image. E.g. if an Emulator-III operating system is being copied, and the target disk or image only contains an Emulator-IIIX operating system (or no operating systems at all), no confirmation is required because Emulator-III and Emulator-IIIX operating systems can co-exist on the same hard disk or hard disk image. See also *section "6.4.1.2 About combining Emulator-III/IIIX operating systems"*.



6.4.1.3 Mass update of operating system on floppy disks and floppy disk image files

EMAX-I

To update/replace the operating system on multiple EMAX-I floppy disks at once:
"1. Manage EMU Files and Disks" → "1. Manage EMU EMAX-I Files and Disks" → "8. Manage other EMAX-I Files and Disks" → "2. Manage EMAX-I/EMAX-II Floppy Disks" → [select a floppy drive] →[press 'K'] or [select "9. Replace Operating System on Floppy Disk(s)"] → [select operating system] → [confirm that the operating system can be overwritten on all disks]→ (*) *EMXP is replacing the operating system* → [insert the next EMAX-I floppy disk and repeat (*) or press Escape → *EMXP shows an operating system replacement execution report*

To update/replace the operating system on multiple EMAX-I floppy disk image files:
"1. Manage EMU Files and Disks" → "1. Manage EMU EMAX-I Files and Disks" → "6. Manage EMAX-I Floppy Disk Images" → [select one or more files] →[press 'K'] or [select "8. Replace Operating System"] → [select operating system] → [confirm that the operating system can be overwritten on all files] → *EMXP is replacing the operating system on all selected files* → *EMXP shows an operating system replacement execution report*

To update/replace the operating system on multiple EMAX-I HxC floppy disk image files:
"1. Manage EMU Files and Disks" → "1. Manage EMU EMAX-I Files and Disks" → "7. Manage EMAX-I HxC Floppy Disk Images" → [select one or more files] → [press 'K'] or [select "8. Replace Operating System"] → [select operating system] → [confirm that the operating system can be overwritten on all files] → *EMXP is replacing the operating system on all selected files* → *EMXP shows an operating system replacement execution report*

EMAX-II

To update/replace the operating system on multiple EMAX-I or EMAX-II floppy disks at once:
"1. Manage EMU Files and Disks" → "2. Manage EMU EMAX-II Files and Disks" → "8. Manage EMAX-I/EMAX-II Floppy Disks" → [select a floppy drive] → [press 'K'] or [select "9. Replace Operating System on Floppy Disk(s)"] → [select operating system] → [confirm that the operating system can be overwritten on all disks]→ (*) *EMXP is replacing the operating system* → [insert the next EMAX-I or EMAX-II floppy disk and repeat (*) or press Escape → *EMXP shows an operating system replacement execution report*

To update/replace the operating system on multiple EMAX-II floppy disk image files:
"1. Manage EMU Files and Disks" → "2. Manage EMU EMAX-II Files and Disks" → "6. Manage EMAX-II Floppy Disk Images" → [select one or more files] → [press 'K'] or [select "7. Replace Operating System"] → [select operating system] → [confirm that the operating system can be overwritten on all files] → *EMXP is replacing the operating system on all selected files* → *EMXP shows an operating system replacement execution report*

To update/replace the operating system on multiple EMAX-II HxC floppy disk image files:
"1. Manage EMU Files and Disks" → "2. Manage EMU EMAX-II Files and Disks" → "7. Manage EMAX-II HxC Floppy Disk Images" → [select one or more files] → [press 'K'] or [select "7. Replace Operating System"] → [select operating system] → [confirm that the operating system can be overwritten on all files] → *EMXP is replacing the operating system on all selected files* → *EMXP shows an operating system replacement execution report*

Emulator-I

To update/replace the operating system on multiple Emulator-I floppy disk image files
"1. Manage EMU Files and Disks" → "3. Manage EMU EMULATOR-I Files" → "3. Manage EMULATOR-I Floppy Disk Images" → [select one or more files] → [press 'K'] or [select "7. Replace Operating System"] → [select operating system] → [confirm that the operating system can be overwritten on all files] → *EMXP is replacing the operating system on all selected files* → *EMXP shows an operating system replacement execution report*

To update/replace the operating system on multiple Emulator-I HxC floppy disk image files
"1. Manage EMU Files and Disks" → "3. Manage EMU EMULATOR-I Files" → "4. Manage EMULATOR-I HxC Floppy Disk Images" → [select one or more files] → [press 'K'] or [select "7. Replace Operating System"] → [select operating system] → [confirm that the operating system can be overwritten on all files] → *EMXP is replacing the operating system on all selected files* → *EMXP shows an operating system replacement execution report*

Emulator-II

To update/replace the operating system on multiple Emulator-II floppy disk image files
"1. Manage EMU Files and Disks" → "4. Manage EMU EMULATOR-II Files and Disks" → "2. Manage EMULATOR-II Floppy Disk Images" → [select one or more files] → [press 'K'] or [select "8. Replace Operating System"] → [select operating system] → [*if a hard disk operating system has been selected:* select target physical configuration (*)] → [confirm that the operating system can be overwritten on all files] → *EMXP is replacing the operating system on all selected files* → *EMXP shows an operating system replacement execution report*

To update/replace the operating system on multiple Emulator-II HxC floppy disk image files
"1. Manage EMU Files and Disks" → "4. Manage EMU EMULATOR-II Files and Disks" → "3. Manage EMULATOR-II HxC Floppy Disk Images" → [select one or more files] → [press 'K'] or [select "8. Replace Operating System"] → [select operating system] → [*if a hard disk operating system has been selected:* select target physical configuration (*)] → [confirm that the operating system can be overwritten on all files] → *EMXP is replacing the operating system on all selected files* → *EMXP shows an operating system replacement execution report*

(*) When copying a *hard disk operating system* to floppy disk image files or HxC floppy disk image files, you will be asked for a target *physical configuration.* This allows for creating floppy disk images which "correspond" to the hard disk or DREM files that are being used in an Emulator-II+HD sampler. This is especially important with respect to the *error log*, which describes where the bad sectors on a hard disk are located.
In most cases, you can simply use the factory default configuration called "Miniscribe 20MB", and (optionally) enable to the option to never ask for a physical configuration again when copying a hard disk operating system.

More details about selecting a physical configuration can be found in *section "6.4.1.3 Copying an operating system to a single file or disk"* and in *section "10.5.8.3 Define Emulator-II hard disk/hard disk image configurations".*

Emulator-III and Emulator-IIIX

Since Emulator-III/IIIX floppy disks, floppy disk images or HxC floppy disk images containing sound bank data can't contain an operating system, a mass update function to replace the operating system on Emulator-III/IIIX floppy disks, floppy disk images and HxC floppy disk images is not available in EMXP.

6.4.2 Copying AKAI S1000 operating systems

To copy an Akai S1000 operating system file to a floppy disk:
"2. Manage AKAI S1000 Files and Disks" → "5. Manage AKAI S1000 Operating System Files" → [select a file] → [press 'F'] or [select "1. Copy AKAI S1000 Operating System to Floppy Disk"]

To copy an Akai S1000 operating system file to a floppy disk image file:
"2. Manage AKAI S1000 Files and Disks" → "5. Manage AKAI S1000 Operating System Files" → [select a file] → [press 'Y'] or [select "2. Copy AKAI S1000 Operating System to Floppy Disk Image"]

To copy an Akai S1000 operating system file to an HxC floppy disk image file:
"2. Manage AKAI S1000 Files and Disks" → "5. Manage AKAI S1000 Operating System Files" → [select a file] → [press 'X'] or [select "3. Copy AKAI S1000 Operating System to HxC Floppy Disk Image"]

To copy an Akai S1000 operating system from a floppy disk to an operating system file:
"2. Manage AKAI S1000 Files and Disks" → "8. Manage AKAI S1000 Floppy Disks" → [select a floppy drive] → [press 'D'] or [select "7. Manage AKAI S1000 Files on Floppy Disk"] → [insert a floppy disk if not inserted yet] → [select the disk volume] → [press 'O'] or [select "5. Show AKAI S1000 Operating System Files"] → [select an operating system] → → [press 'Y'] or [select "1. Copy AKAI S1000 Operating System to Computer"]

To copy an Akai S1000 operating system from a floppy disk image file to an operating system file:
"2. Manage AKAI S1000 Files and Disks" → "6. Manage AKAI S1000 Floppy Disk Images" → "1. Manage existing AKAI S1000 Floppy Disk Images"→ [select a floppy disk image file] → [press 'O'] or [select "8. Manage Operating System on AKAI S1000 Floppy Disk Image"] → [select an operating system] → [press 'Y'] or [select "1. Copy AKAI S1000 Operating System to Computer"]

To copy an Akai S1000 operating system from an HxC floppy disk image file to an operating system file:
"2. Manage AKAI S1000 Files and Disks" → "7. Manage AKAI S1000 HxC Floppy Disk Images" → "1. Manage existing AKAI S1000 HxC Floppy Disk Images"→ [select an HxC floppy disk image file] → [press 'O'] or [select "8. Manage Operating System on AKAI S1000 HxC Floppy Disk Image"] → [select an operating system] → [press 'Y'] or [select "1. Copy AKAI S1000 Operating System to Computer"]

The remainder of the copy process is identical to the copy process of any other Akai S1000 file (program, sample, drums). More details can be found in *section "6.3 COPYING AKAI SAMPLER PROGRAM AND SAMPLE FILES"*.

Copying an operating system to an AKAI S1000 floppy disk, floppy disk image file or HxC floppy disk image file which already contains an operating system *is not possible.* You will first have to remove the operating system from the disk or image before copying another operating system to it. Removing files from Akai S1000 floppy disks, floppy disk image files and HxC floppy disk image files is supported by EMXP as well.

6.4.3 Generating empty bootable EMU floppy disk images

Besides the possibility to copy a selected operating system to a floppy disk image file or to an HxC floppy disk image file, EMXP also provides functions called "Generate Empty Bootable Floppy Disk Image" and "Generate Empty Bootable HxC Floppy Disk Image". These functions are available for the EMAX-I, EMAX-II, Emulator-I, Emulator-II, Emulator-III and Emulator-IIIX.

For the Emulator-III and Emulator-IIIX however, these functions are identical to copying operating systems to a floppy disk, floppy disk image or HxC floppy disk image because Emulator-III/IIIX floppy disks and (HxC) floppy disk images can not contain sound bank data and operating systems at the same time. See *section "6.4.1.2 About combining Emulator-III/IIIX operating systems"*.

Next to the selected operating system, the generated floppy disk image file or HxC floppy disk image file will contain an empty sound bank (consisting of one empty preset with no voices, key areas nor samples). The empty sound bank will only be generated for the EMAX-I, EMAX-II and Emulator-II. For the Emulator-I, the sound area will simply be empty. And for the Emulator-III and Emulator-IIIX, sound bank data can simply not co-exist with operating system data on the same floppy disk/floppy disk image.

When generating an empty bootable floppy disk image file or HxC floppy disk image file for the Emulator-II, the file system which will be written to the image can be tuned for faster loading on the Emulator-II sampler. The copy process won't ask you for this possibility, but this option can be set in the preferences menu. See *section "10.5.8.9 Define Emulator-II floppy disk bank load speed mode"*. If the option is enabled for "Null Preset" banks, the Emulator-II will boot faster.

When restoring this empty bootable floppy disk image or HxC floppy disk image to a floppy disk, or when using it in a floppy disk emulator device (like the SD HxC), the image can be used for booting the sampler.
Of course it's also possible to add sound bank data to these empty image files in EMXP.

Selecting the "generate empty bootable (HxC) floppy disk image" function is *identical* to selecting one of the "Copy Operating System to <sampler> (HxC) Floppy Disk Image" functions in EMXP, and requesting to do the copy to a `"-- NEW FILE --".`
If you use the "Generate Empty Bootable Floppy Disk Image" or "Generate Empty Bootable HxC Floppy Disk image" function and select an *existing floppy disk image file or HxC floppy disk image file* as the target file, the file will be *replaced by a file only containing an operating system.* The existing sound bank (if any) *will be removed*.

EMAX-I

Step 1: select the source operating system

The procedure is identical to the first step of copying an operating system. See paragraph "EMAX-I Step 1" in *section "6.4.1.3 Copying an operating system to a single file or disk"*.

Step 2: generate the target empty bootable floppy disk image

To generate an empty bootable EMAX-I floppy disk image:
First perform step 1 → [press 'K'] or select “7. Generate Empty Bootable EMAX-I Floppy Disk Image” → [select target file name and location]

To generate an empty bootable EMAX-I HxC floppy disk image:
First perform step 1 → [press 'J'] or [select “8. Generate Empty Bootable EMAX-I HxC Floppy Disk Image”] → [select target file name and location]

EMAX-II

Step 1: select the source operating system

The procedure is identical to the first step of copying an operating system. See paragraph "EMAX-II Step 1" in *section "6.4.1.3 Copying an operating system to a single file or disk"*.

Step 2: generate the target empty bootable floppy disk image

If the source operating system originates from an EMAX-II operating system file, floppy disk, floppy disk image or HxC floppy disk image:

To generate an empty bootable EMAX-II floppy disk image containing an EMAX-II operating system:
First perform step 1 → [press 'K'] or [select "7. Generate Empty Bootable EMAX-II Floppy Disk Image"] → [select target file name and location]

To generate an empty bootable EMAX-II HxC floppy disk image containing an EMAX-II operating system:
First perform step 1 → [press 'J'] or [select "8. Generate Empty Bootable EMAX-II HxC Floppy Disk Image"] → [select target file name and location]

To generate an empty bootable EMAX-I floppy disk image containing an EMAX-II operating system:
First perform step 1 → [press 'Q'] or [select "9. Copy OS to or Generate Empty Bootable EMAX-I Floppy Disk Image"→ "3. Generate Empty Bootable EMAX-I Floppy Disk Image"] → [select target file name and location]

To generate an empty bootable EMAX-I HxC floppy disk image containing an EMAX-II operating system:
First perform step 1 → [press 'V'] or [select "9. Copy OS to or Generate Empty Bootable EMAX-I Floppy Disk Image"→ "4. Generate Empty Bootable EMAX-I HxC Floppy Disk Image"] → [select target file name and location]

If the source operating system originates from an EMAX-II hard disk or hard disk image:

To generate an empty bootable EMAX-II floppy disk image containing an EMAX-II operating system:
First perform step 1 → [press 'K'] or [select "7. Generate Empty Bootable EMAX-II Floppy Disk Image" → "1. Generate Empty Bootable EMAX-II Floppy Disk Image"] → [select target file name and location]

To generate an empty bootable EMAX-II HxC floppy disk image containing an EMAX-II operating system:
First perform step 1 → [press 'J'] or [select "7. Generate Empty Bootable EMAX-II Floppy Disk Image" → "2. Generate Empty Bootable EMAX-II HxC Floppy Disk Image"] → [select target file name and location]

To generate an empty bootable EMAX-I floppy disk image containing an EMAX-II operating system:
First perform step 1 → [press 'Q'] or [select "8. Copy OS to or Generate Empty Bootable EMAX-I Floppy Disk Image"→ "3. Generate Empty Bootable EMAX-I Floppy Disk Image"] → [select target file name and location]

To generate an empty bootable EMAX-I HxC floppy disk image containing an EMAX-II operating system:
First perform step 1 → [press 'V'] or [select "8. Copy OS to or Generate Empty Bootable EMAX-I Floppy Disk Image"→ "4. Generate Empty Bootable EMAX-I HxC Floppy Disk Image"] → [select target file name and location]

Emulator-I

Step 1: select the source operating system

The procedure is identical to the first step of copying an operating system. See paragraph "Emulator-I Step 1" in *section "6.4.1.3 Copying an operating system to a single file or disk"*.

Step 2: generate the target empty bootable floppy disk image

To generate one or more empty bootable Emulator-I floppy disk images:
First perform step 1 → [press 'K'] or [select "4. Generate Empty Bootable EMULATOR-I Floppy Disk Image"] → [select target file name and location]

To generate one or more empty bootable Emulator-I HxC floppy disk images:
First perform step 1 → [press 'J'] or [select "5. Generate Empty Bootable EMULATOR-I HxC Floppy Disk Image"] → [select target file name and location]

Emulator-II

When generating an empty bootable floppy disk image file or HxC floppy disk image file for the Emulator-II, the file system which will be written to the image can be tuned for faster loading on the Emulator-II sampler. The copy process won't ask you for this possibility, but this option can be set in the preferences menu. See *section "10.5.8.9 Define Emulator-II floppy disk bank load speed mode"*. If the option is enabled for "Null Preset" banks, the Emulator-II will boot faster.

Step 1: select the source operating system

The procedure is identical to the first step of copying an operating system. See paragraph "Emulator-II Step 1" in *section "6.4.1.3 Copying an operating system to a single file or disk".*

Step 2: generate the target empty bootable floppy disk image

To generate one or more empty bootable Emulator-II floppy disk images:
First perform step 1 → [press 'K'] or [select "6. Generate Empty Bootable EMULATOR-II Floppy Disk Image (Overlay file)"] → [select target file name and location] → [*if a hard disk operating system has been selected and the source is not a hard disk or hard disk image:* select target physical configuration (*)]

To generate one or more empty bootable Emulator-II HxC floppy disk images:
First perform step 1 → [press 'J'] or [select "7. Generate Empty Bootable EMULATOR-II HxC Floppy Disk Image"] → [select target file name and location] → [*if a hard disk operating system has been selected and the source is not a hard disk or hard disk image:* select target physical configuration (*)]

(*) When generating floppy disk image files or HxC floppy disk image files with a *hard disk operating system*, you will be asked for a target *physical configuration* (unless the source operating system resides on a hard disk or hard disk image).This allows for creating floppy disk images which "correspond" to the hard disk or DREM files that are being used in an Emulator-II+HD sampler. This is especially important with respect to the *error log*, which describes where the bad sectors on a hard disk are located.
In most cases, you can simply use the factory default configuration called "Miniscribe 20MB", and (optionally) enable to the option to never ask for a physical configuration again when copying a hard disk operating system.

Note: if the source operating system has been selected from a hard disk or hard disk image, you can't choose the physical configuration: in this case, EMXP will always use the physical configuration of the hard disk/hard disk image itself. This assures that the resulting (HxC) floppy disk image corresponds 100% to the hard disk/hard disk image, and can be used to (re)format the hard disk.

More details about selecting a physical configuration can be found in *section "6.4.1.3 Copying an operating system to a single file or disk"* and in *section "10.5.8.3 Define Emulator-II hard disk/hard disk image configurations"*.

Emulator-III

Step 1: select the source operating system

The procedure is identical to the first step of copying an operating system. See paragraph "Emulator-III Step 1" in *section "6.4.1.3 Copying an operating system to a single file or disk"*.

Step 2: generate the target bootable floppy disk image

To generate a bootable Emulator-III OS floppy disk image file:
First perform step 1 → [press 'I'] or [select "2. Generate Bootable EMULATOR-III OS Floppy Disk Image"] → [select target floppy disk image file and location]

To generate a bootable Emulator-III OS HxC floppy disk image file:
First perform step 1 → [press 'X'] or [select "3. Generate Bootable EMULATOR-III OS HxC Floppy Disk Image"] → [select target HxC floppy disk image file and location]

Emulator-IIIX

Step 1: select the source operating system

The procedure is identical to the first step of copying an operating system. See paragraph "Emulator-IIIX Step 1" in *section "6.4.1.3 Copying an operating system to a single file or disk"*.

Step 2: generate the target bootable floppy disk image

To generate a bootable Emulator-IIIX OS floppy disk image file:
First perform step 1 → [press 'I'] or [select "2. Generate Bootable EMULATOR-IIIX OS Floppy Disk Image"] → [select target floppy disk image file and location]

To generate a bootable Emulator-IIIX OS HxC floppy disk image file:
First perform step 1 → [press 'X'] or [select "3. Generate Bootable EMULATOR-IIIX OS HxC Floppy Disk Image"] → [select target HxC floppy disk image file and location]

6.4.4 Generating empty Akai S1000 floppy disk images

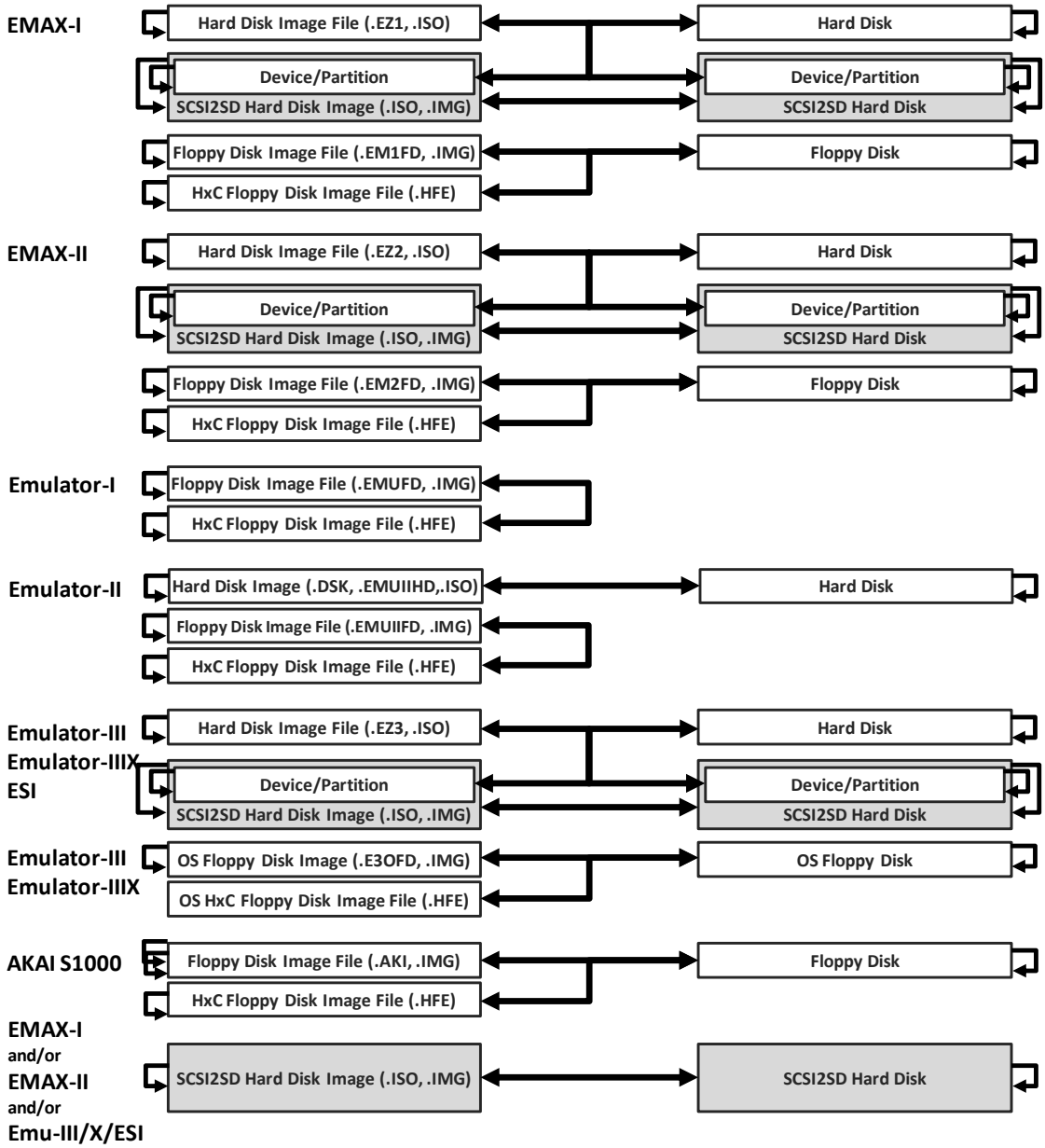
For more details about generating empty Akai S1000 floppy disk image files and empty Akai S1000 HxC floppy disk image files, see *section "9.3 GENERATING EMPTY AKAI S1000 FLOPPY DISK IMAGES"*.

6.5 COPYING ENTIRE FLOPPY DISK (IMAGE)S AND HARD DISK (IMAGE)S

As shown in the picture below, it's possible to:

- copy complete Akai S1000, EMAX-I, EMAX-II and Emulator-III/X floppy disks to standard or HxC floppy disk image files (e.g. as a backup) or to other floppy disks (clone)
- copy complete Akai S1000, EMAX-I, EMAX-II and Emulator-III/X standard or HxC floppy disk image files to floppy disks (e.g. restoring a backup) or to other standard or HxC floppy disk image files (clone)
- copy complete EMAX-I, EMAX-II, Emulator-II and Emulator-III/X/ESI hard disks or SCSI2SD devices/partitions on SCSI2SD partitioned hard disks to hard disk image files (backup) or to other hard disks or SCSI2SD devices/partitions (clone)
- copy complete EMAX-I, EMAX-II, Emulator-II and Emulator-III/X/ESI hard disk image files or SCSI2SD devices/partitions on SCSI2SD partitioned hard disk image files to hard disks (restore) or to other hard disk image files or SCSI2SD devices/partitions (clone)
- copy complete SCSI2SD partitioned hard disks to hard disk image files (backup) or to other hard disks (clone)
- copy complete SCSI2SD partitioned hard disk image files to hard disks (restore) or to other hard disk image files (clone)

Note that copying SCSI2SD images or partitions is not supported for the Emulator-II.



Backing up floppy disks can be done to either *floppy disk images* or *HxC floppy disk images*. Backing up hard disks or hard disk partitions can be done *to hard disk images* and *partitions on hard disk images*.
These images can then

- be used for pure backup purposes only. If the original floppy disk or hard disk would fail, the image can be restored (=copied back) to a new disk.
- be used as a mechanism to copy entire disks to other disks. After having made a backup, the backup image can be copied to one or more other disks as a means to reproduce and distribute the original disk.

As shown in the picture, raw copying directly between *floppy disks, floppy disk images* and *HxC floppy disk images* is supported as well for EMAX-I, EMAX-II, Emulator-I, Emulator-II, Emulator-III/X and Akai S1000.

For the Emu-samplers this can also be achieved by using the normal "Copy Bank" or 'Copy Sounds" (for Emulator-I) option (see *section "6.2 COPYING EMU SAMPLER SOUND DATA"*), but that option is less straight-forward due the higher flexibility offered by it (e.g. the possibility to select another operating system while copying disk images may not always be required or useful)

When making a raw copy of a disk (disk image), the entire contents of the disk (disk image) will be copied to the destination image (destination disk), including the operating system (if any is stored on the source).

While backing up, restoring and cloning of *Emulator-III/IIIX operating system floppy disks* is supported by EMXP, these functions are not available for *Emulator-III/IIIX sound bank data floppy disks*.

The raw copy process in EMXP is pretty straight forward and is explained in the next sections.

6.5.1 Copying floppy disk, hard disks and partitions of SCSI2SD hard disks

6.5.1.1 Copying floppy disks

Akai S1000

To backup an Akai S1000 floppy disk to a floppy disk image
"2. Manage AKAI S1000 Files and Disks" → "8. Manage AKAI S1000 Floppy Disks" → [select a floppy drive] → [press 'I'] or [select "4. Copy AKAI S1000 Floppy Disk(s) to Floppy Disk Image(s)"] → [insert a floppy disk if not inserted yet] → (*) *EMXP reads the floppy disk* → [select target file name and location] → [insert the next floppy disk for backup] → *see (*)*

To backup an Akai S1000 floppy disk to an HxC floppy disk image
"2. Manage AKAI S1000 Files and Disks" → "8. Manage AKAI S1000 Floppy Disks" → [select a floppy drive] → [press 'X'] or [select "5. Copy AKAI S1000 Floppy Disk(s) to HxC Floppy Disk Image(s)"] → [insert a floppy disk if not inserted yet] → (*) *EMXP reads the floppy disk* → [select target file name and location] → [insert the next floppy disk for backup] → *see (*)*

To clone an Akai S1000 floppy disk to another floppy disk
"2. Manage AKAI S1000 Files and Disks" → "8. Manage AKAI S1000 Floppy Disks" → [select a source floppy drive] → [press 'J'] or [select "6. Copy AKAI S1000 Floppy Disk(s) to other Floppy Disk(s)"] → [insert a source floppy disk if not inserted yet] → (*) *EMXP reads the floppy disk* → [if first disk being copied: select a target floppy drive] → [insert a target floppy disk if not inserted yet] → [insert the next source floppy disk for cloning] → *see (*)*

EMAX-I

To backup an EMAX-I floppy disk to a floppy disk image
"1. Manage EMU Files and Disks" → "1. Manage EMU EMAX-I Files and Disks" → "8. Manage other EMAX-I Files and Disks" → "2. Manage EMAX-I/EMAX-II Floppy Disks" → [select a drive] → [press 'I'] or [select "5. Copy Floppy Disk(s) to EMAX Floppy Disk Image(s) or Othe Disk(s)" → "1. Copy Floppy Disk(s) to EMAX Floppy Disk Image(s)"] → [insert a floppy disk if not inserted yet] → (*) *EMXP reads the floppy disk* → [select target file name and location] → [insert the next floppy disk for backup] → *see (*)*

To backup an EMAX-I floppy disk to an HxC floppy disk image
"1. Manage EMU Files and Disks" → "1. Manage EMU EMAX-I Files and Disks" → "8. Manage other EMAX-I Files and Disks" → "2. Manage EMAX-I/EMAX-II Floppy Disks" → [select a drive] → [press 'X'] or [select "5. Copy Floppy Disk(s) to EMAX Floppy Disk Image(s) or Othe Disk(s)" → "2. Copy Floppy Disk(s) to EMAX HxC Floppy Disk Image(s)"] → [insert a floppy disk if not inserted yet] → (*) *EMXP reads the floppy disk* → [select target file name and location] → [insert the next floppy disk for backup] → *see (*)*

To clone an EMAX-I floppy disk to another floppy disk
"1. Manage EMU Files and Disks" → "1. Manage EMU EMAX-I Files and Disks" → "8. Manage other EMAX-I Files and Disks" → "2. Manage EMAX-I/EMAX-II Floppy Disks" → [select a source drive] → [press 'J'] or [select "5. Copy Floppy Disk(s) to EMAX Floppy Disk Image(s) or Othe Disk(s)" → "3. Copy Floppy Disk(s) to other EMAX Floppy Disk(s)"] → [insert a source floppy disk if not inserted yet] → (*) *EMXP reads the floppy disk* → [if first disk being copied: select a target drive] → [insert a target floppy disk if not inserted yet] → [insert the next floppy disk for backup] → *see (*)*

EMAX-II

To backup an EMAX-II floppy disk to a floppy disk image
"1. Manage EMU Files and Disks" → "2. Manage EMU EMAX-II Files and Disks" → "8. Manage EMAX-I/EMAX-II Floppy Disks" → [select a drive] → [press 'I'] or [select "5. Copy Floppy Disk(s) to EMAX Floppy Disk Image(s) or Othe Disk(s)" → "1. Copy Floppy Disk(s) to EMAX Floppy Disk Image(s)"] → [insert a floppy disk if not inserted yet] → (*) *EMXP reads the floppy disk* → [select target file name and location] → [insert the next floppy disk for backup] → *see (*)*

To backup an EMAX-II floppy disk to an HxC floppy disk image
"1. Manage EMU Files and Disks" → "2. Manage EMU EMAX-II Files and Disks" → "8. Manage EMAX-I/EMAX-II Floppy Disks" → [select a drive] → [press 'X'] or [select "5. Copy Floppy Disk(s) to EMAX Floppy Disk Image(s) or Othe Disk(s)" → "2. Copy Floppy Disk(s) to EMAX HxC Floppy Disk Image(s)"] → [insert a floppy disk if not inserted yet] → (*) *EMXP reads the floppy disk* → [select target file name and location] → [insert the next floppy disk for backup] → *see (*)*

To clone an EMAX-II floppy disk to another floppy disk
"1. Manage EMU Files and Disks" → "2. Manage EMU EMAX-II Files and Disks" → "8. Manage EMAX-I/EMAX-II Floppy Disks" → [select a source drive] → [press 'J'] or [select "5. Copy Floppy Disk(s) to EMAX Floppy Disk Image(s) or Othe Disk(s)" → "3. Copy Floppy Disk(s) to other EMAX Floppy Disk(s)"] → [insert a source floppy disk if not inserted yet] → (*) *EMXP reads the floppy disk* → [if first disk being copied: select a target drive] → [insert a target floppy disk if not inserted yet] → [insert the next floppy disk for backup] → *see (*)*

Emulator-III

To backup an Emulator-III OS floppy disk to a floppy disk image
"1. Manage EMU Files and Disks" → "5. Manage EMU EMULATOR-III/X/ESI Files and Disks" → "6. Manage EMULATOR-III Operating System Files and Disks" → "4. Manage EMULATOR-III/X Operating System Floppy Disks" → [select a drive] → [press 'I'] or [select "3. Copy OS Floppy Disk(s) to EMULATOR-III/X OS Floppy Disk Image(s)"] → [insert a floppy disk if not inserted yet] → (*) *EMXP reads the floppy disk* → [select target file name and location] → [insert the next floppy disk for backup] → *see (*)*

To backup an Emulator-III OS floppy disk to an HxC floppy disk image
"1. Manage EMU Files and Disks" → "5. Manage EMU EMULATOR-III/X/ESI Files and Disks" → "6. Manage EMULATOR-III Operating System Files and Disks" → "4. Manage EMULATOR-III/X Operating System Floppy Disks" → [select a drive] → [press 'X'] or [select "4. Copy OS Floppy Disk(s) to EMULATOR-III/X HxC OS Floppy Disk Image(s)"] → [insert a floppy disk if not inserted yet] → (*) *EMXP reads the floppy disk* → [select target file name and location] → [insert the next floppy disk for backup] → *see (*)*

To clone an Emulator-III OS floppy disk to another floppy disk
"1. Manage EMU Files and Disks" → "5. Manage EMU EMULATOR-III/X/ESI Files and Disks" → "6. Manage EMULATOR-III Operating System Files and Disks" → "4. Manage EMULATOR-III/X Operating System Floppy Disks" → [select a drive] → [press 'J'] or [select "5. Copy OS Floppy Disk(s) to EMULATOR-III/X OS Floppy Disk(s)"] → [insert a source floppy disk if not inserted yet] → (*) *EMXP reads the floppy disk* → [if first disk being copied: select a target drive] → [insert a target floppy disk if not inserted yet] → [insert the next floppy disk for backup] → *see (*)*

Emulator-IIIX

To backup an Emulator-IIIX OS floppy disk to a floppy disk image
"1. Manage EMU Files and Disks" → "5. Manage EMU EMULATOR-III/X/ESI Files and Disks" → "7. Manage EMULATOR-IIIX Operating System Files and Disks" → "4. Manage EMULATOR-III/X Operating System Floppy Disks" → [select a drive] → [press 'I'] or [select "3. Copy OS Floppy Disk(s) to EMULATOR-III/X OS Floppy Disk Image(s)"] → [insert a floppy disk if not inserted yet] → (*) *EMXP reads the floppy disk* → [select target file name and location] → [insert the next floppy disk for backup] → *see (*)*

To backup an Emulator-IIIX OS floppy disk to an HxC floppy disk image
"1. Manage EMU Files and Disks" → "5. Manage EMU EMULATOR-III/X/ESI Files and Disks" → "7. Manage EMULATOR-IIIX Operating System Files and Disks" → "4. Manage EMULATOR-III/X Operating System Floppy Disks" → [select a drive] → [press 'X'] or [select "4. Copy OS Floppy Disk(s) to EMULATOR-III/X HxC OS Floppy Disk Image(s)"] → [insert a floppy disk if not inserted yet] → (*) *EMXP reads the floppy disk* → [select target file name and location] → [insert the next floppy disk for backup] → *see (*)*

To clone an Emulator-IIIX OS floppy disk to another floppy disk
"1. Manage EMU Files and Disks" → "5. Manage EMU EMULATOR-III/X/ESI Files and Disks" → "7. Manage EMULATOR-IIIX Operating System Files and Disks" → "4. Manage EMULATOR-III/X Operating System Floppy Disks" → [select a drive] → [press 'J'] or [select "5. Copy OS Floppy Disk(s) to EMULATOR-III/X OS Floppy Disk(s)"] → [insert a source floppy disk if not inserted yet] → (*) *EMXP reads the floppy disk* → [if first disk being copied: select a target drive] → [insert a target floppy disk if not inserted yet] → [insert the next floppy disk for backup] → *see (*)*

Copying the floppy disk

EMXP will start the copy process now. Please note that the copy process can't be interrupted. EMXP will ask for the next disk to be copied after the copy process of the previous disk has finished. This allows for a fast copy of multiple disks one after another (the process will repeat at step (*)). Press Escape to stop copying disks.
When the copy of all disks has been finished, an execution report will be displayed.

6.5.1.2 Copying hard disks or SCSI2SD hard disk partitions

6.5.1.2.1 About the size of data being copied

When copying
- a normal un-partitioned sampler hard disk
- a single partition from a SCSI2SD sampler hard disk

EMXP will only copy the part of the disk or partition which is logically formatted for the sampler.

Example
- *if a disk with a physical capacity of 16GB has been formatted as a 1GB Emax-II hard disk, only 1GB of data will be subject of the copy process in EMXP*
- *if each of the 4 SCSI2SD devices (partitions) on an SD card of 16GB has been configured with a physical size of 2GB, but they are logically formatted for an Emax-I sampler, only 19MB of data on each SCSI2SD device (partition) will be subject of the copy process in EMXP*

When copying a SCSI2SD partitioned hard disk as a whole (i.e. including all of its partitions at once), EMXP will copy the part of the disk which is required to hold all of the enabled SCSI2SD devices.

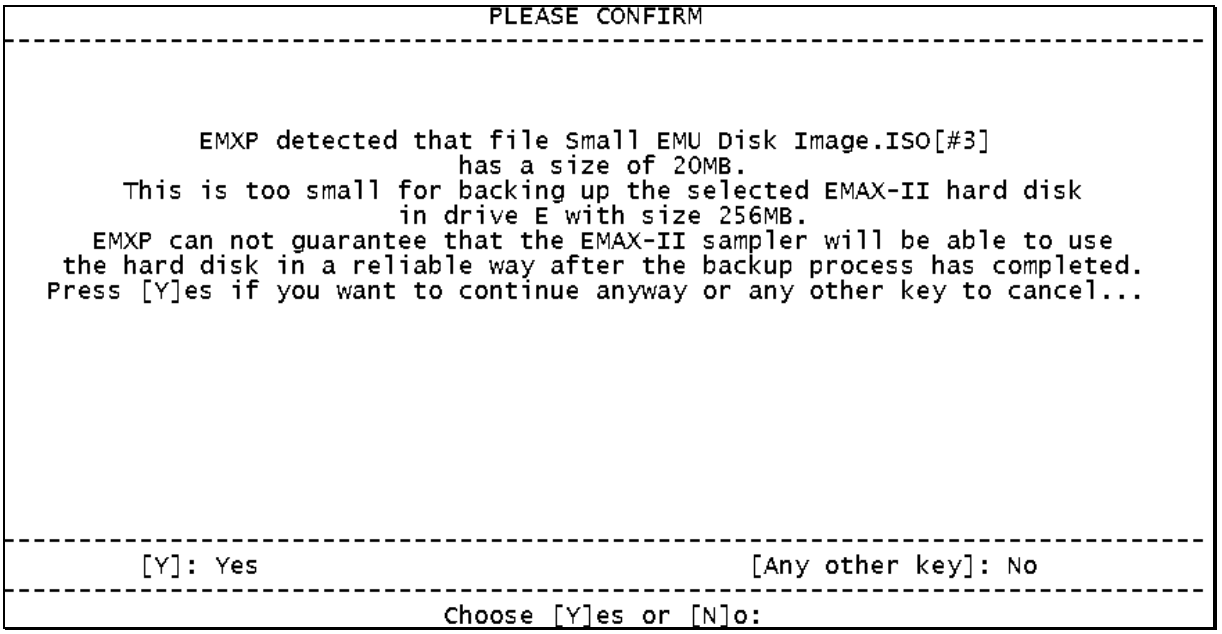
Example:

if an SD card with a physical capacity of 16GB has been formatted for use in a SCSI2SD board with 4 enabled devices of 1GB each and the first device starts at a position of 512MB on the disk, EMXP will copy the first 4.5GB of the SD card.
The logically formatted size of the SCSI2SD devices doesn't matter - even if the devices have only been formatted as 19MB Emax-I disks, EMXP will still copy 4.5GB of data.

When copying to a single partition on a SCSI2SD sampler hard disk image, EMXP will check if the logically formatted size of the source disk or source SCSI2SD partition fits in the physical size of the target SCSI2SD partition.
If it doesn't fit, a warning will be displayed (see picture below) but you can instruct EMXP to continue the copy process anyway.
In that case, only the part which fits in the target SCSI2SD partition will be copied. This is tricky and can result in read/write errors later, but it might make sense if you're sure that not all of the logically formatted space on the source disk is actually used by sound banks.

Example:

a 256MB Emax-II hard disk may contain only 5 sound banks of 1MB each, so the used space may fit in a 20MB partition if the used clusters on the source disk are not scattered too much across the disk



When copying a normal un-partitioned hard disk or an entire SCIS2SD partitioned hard disk to a *hard disk image file*, and the *formatted space* (*) of the hard disk is larger than 4GB, the copy process will only succeed if the file system on your computer is capable of storing files larger than 4GB. All modern file systems support such large files (e.g. NTFS) but if you're using an older file system (e.g. FAT32), the copy process will result in a Windows error.

(*) Formatted space is:

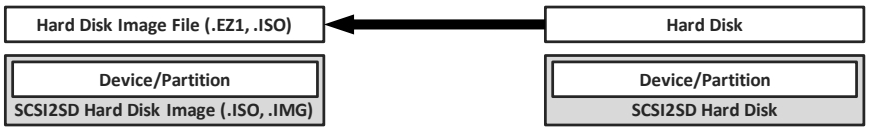
- the logically formatted Emax-I, Emax-II, Emulator-II or Emulator-III/IIIX/ESI space, when copying a normal, un-partitioned hard disk or a single partition of a SCSI2SD partitioned hard disk
- the total physical size of all enabled partitions when copying an entire SCSISD partitioned hard disk. This includes the initial offset and the gaps between partitions if any of these would exist.

When copying Emulator-II hard disks, the target hard disk or hard disk image can have a different physical configuration than the source hard disk (e.g. bad sectors on other locations). For this reason EMXP will give you the option to explicitly select a target physical configuration.
For more details about Emulator-II physical configurations for hard disks, see *section "10.5.8.1 Emulator-II support for hard disks: introduction"* and *section "10.5.8.3 Define Emulator-II hard disk/hard disk image configurations".*

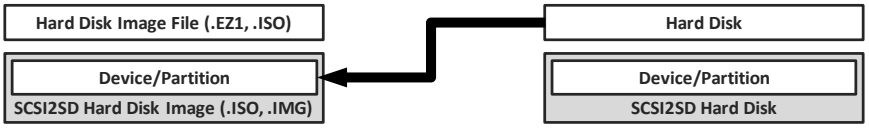
6.5.1.2.2 Copying to hard disk image files

If you copy to an existing (partition in a) hard disk image file, the partition or file may contain valuable data. You will have to confirm that you agree with *destroying and overwriting* the (partition in) the target hard disk image file before the actual copy process will be launched.

EMAX-I



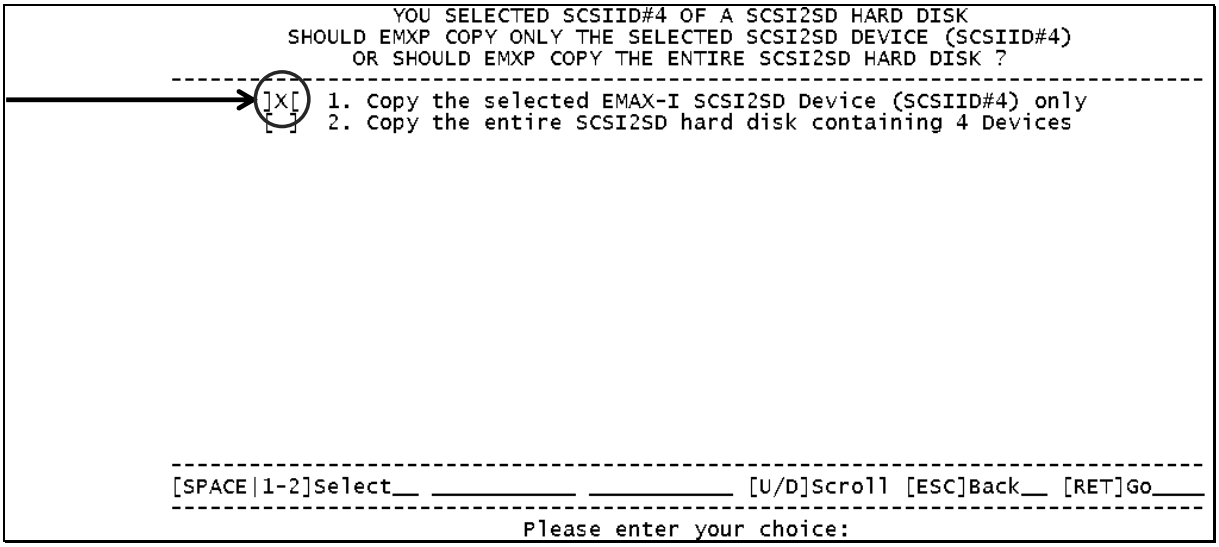
To copy a normal un-partitioned EMAX-I hard disk to a normal un-partitioned hard disk image file
"1. Manage EMU Files and Disks" → "1. Manage EMU EMAX-I Files and Disks" → "5. Manage EMAX-I Hard Disks" → [select a drive] → [press 'I'] or [select "4. Copy EMAX-I Hard Disk to EMAX-I Hard Disk Image (Backup)"] → [insert a hard disk if not inserted yet] → [select target file name and location]



To copy a normal un-partitioned EMAX-I hard disk to a SCSI2SD partition on a SCSI2SD partitioned hard disk image file
"1. Manage EMU Files and Disks" → "1. Manage EMU EMAX-I Files and Disks" → "5. Manage EMAX-I Hard Disks" → [select a drive] → [press 'I'] or [select "4. Copy EMAX-I Hard Disk to EMAX-I Hard Disk Image (Backup)"] → [insert a hard disk if not inserted yet] → [scan for SCSI2SD image files and select a specific target SCSI2SD partition]



To copy an EMAX-I partition from a SCSI2SD partitioned hard disk to a normal un-partitioned hard disk image file
"1. Manage EMU Files and Disks" → "1. Manage EMU EMAX-I Files and Disks" → "5. Manage EMAX-I Hard Disks" → [scan for SCSI2SD hard disks and select a specific source SCSI2SD partition] → [press 'I'] or [select "4. Copy EMAX-I Hard Disk to EMAX-I Hard Disk Image (Backup)"] → [insert a hard disk if not inserted yet] → [select option 1: "copy the selected EMAX-I SCSI2SD Device only", see picture below] → [select target file name and location]

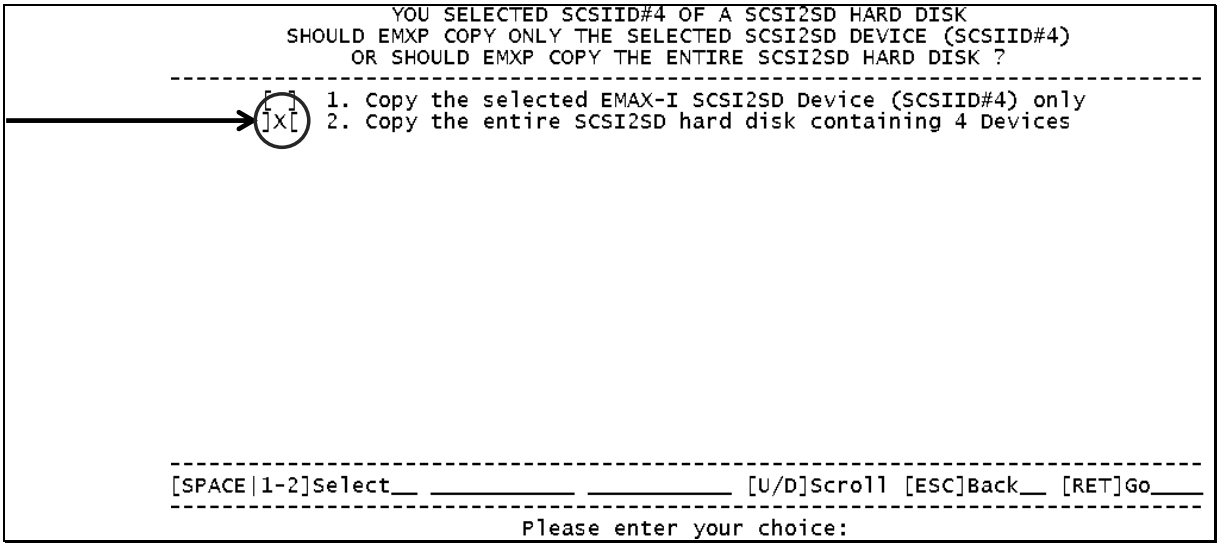




To copy an EMAX-I partition from a SCSI2SD partitioned hard disk to a SCSI2SD partition on a SCSI2SD partitioned hard disk image file
"1. Manage EMU Files and Disks" → "1. Manage EMU EMAX-I Files and Disks" → "5. Manage EMAX-I Hard Disks" → [scan for SCSI2SD hard disks and select a specific source SCSI2SD partition] → [press 'I'] or [select "4. Copy EMAX-I Hard Disk to EMAX-I Hard Disk Image (Backup)"] → [insert a hard disk if not inserted yet] → [select option 1: "copy the selected EMAX-I SCSI2SD Device only", see picture above] → [scan for SCSI2SD image files and select a specific target SCSI2SD partition]



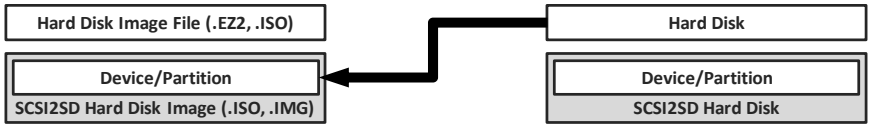
To copy an entire SCSI2SD partitioned hard disk (containing at least one EMAX-I partition) to a SCSI2SD partitioned hard disk image file
"1. Manage EMU Files and Disks" → "1. Manage EMU EMAX-I Files and Disks" → "5. Manage EMAX-I Hard Disks" → [scan for SCSI2SD hard disks and select one of its EMAX-I partitions, it doesn't matter which one] → [press 'I'] or [select "4. Copy EMAX-I Hard Disk to EMAX-I Hard Disk Image (Backup)"] → [insert a hard disk if not inserted yet] → [select option 2: "copy the entire SCSI2SD hard disk containing ... devices", see picture below] → [select target file name and location]



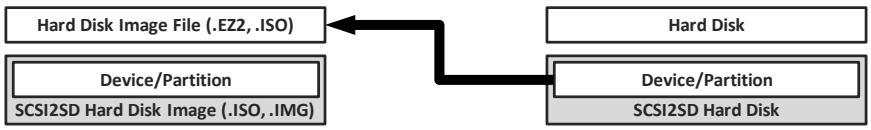
EMAX-II



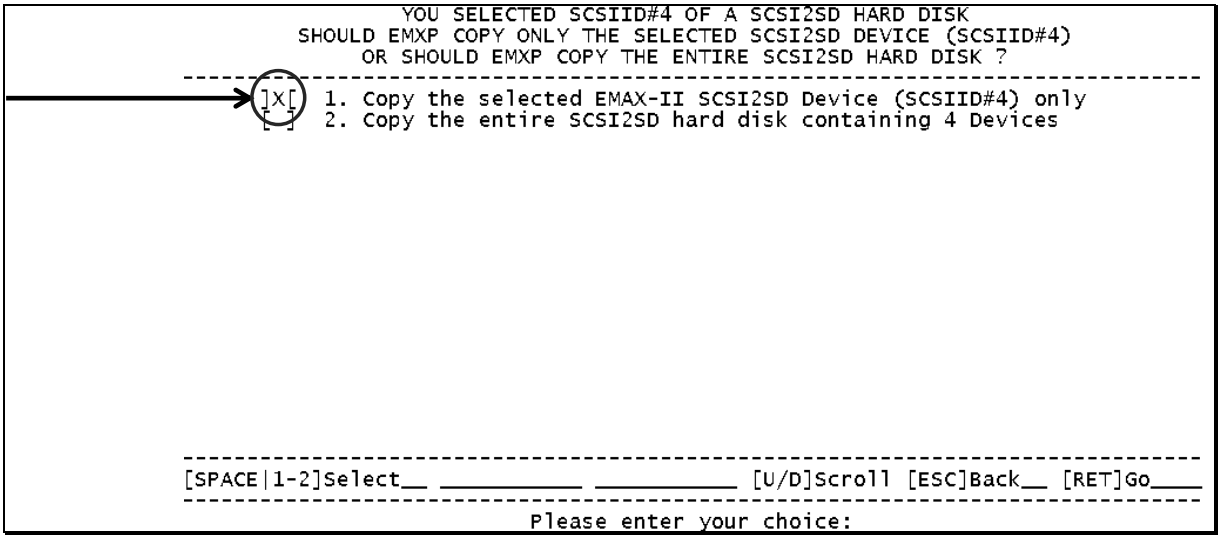
To copy a normal un-partitioned EMAX-II hard disk to a normal un-partitioned hard disk image file
"1. Manage EMU Files and Disks" → "2. Manage EMU EMAX-II Files and Disks" → "5. Manage EMAX-II Hard Disks" → [select a drive] → [press 'I'] or [select "4. Copy EMAX-II Hard Disk to EMAX-II Hard Disk Image (Backup)"] → [insert a hard disk if not inserted yet] → [select target file name and location]



To copy a normal un-partitioned EMAX-II hard disk to a SCSI2SD partition on a SCSI2SD partitioned hard disk image file
"1. Manage EMU Files and Disks" → "2. Manage EMU EMAX-II Files and Disks" → "5. Manage EMAX-II Hard Disks" → [select a drive] → [press 'I'] or [select "4. Copy EMAX-II Hard Disk to EMAX-II Hard Disk Image (Backup)"] → [insert a hard disk if not inserted yet] → [scan for SCSI2SD image files and select a specific target SCSI2SD partition]



To copy an EMAX-II partition from a SCSI2SD partitioned hard disk to a normal un-partitioned hard disk image file
"1. Manage EMU Files and Disks" → "2. Manage EMU EMAX-II Files and Disks" → "5. Manage EMAX-II Hard Disks" → [scan for SCSI2SD hard disks and select a specific source SCSI2SD partition] → [press 'I'] or [select "4. Copy EMAX-II Hard Disk to EMAX-II Hard Disk Image (Backup)"] → [insert a hard disk if not inserted yet] → [select option 1: "copy the selected EMAX-II SCSI2SD Device only", see picture below] → [select target file name and location]

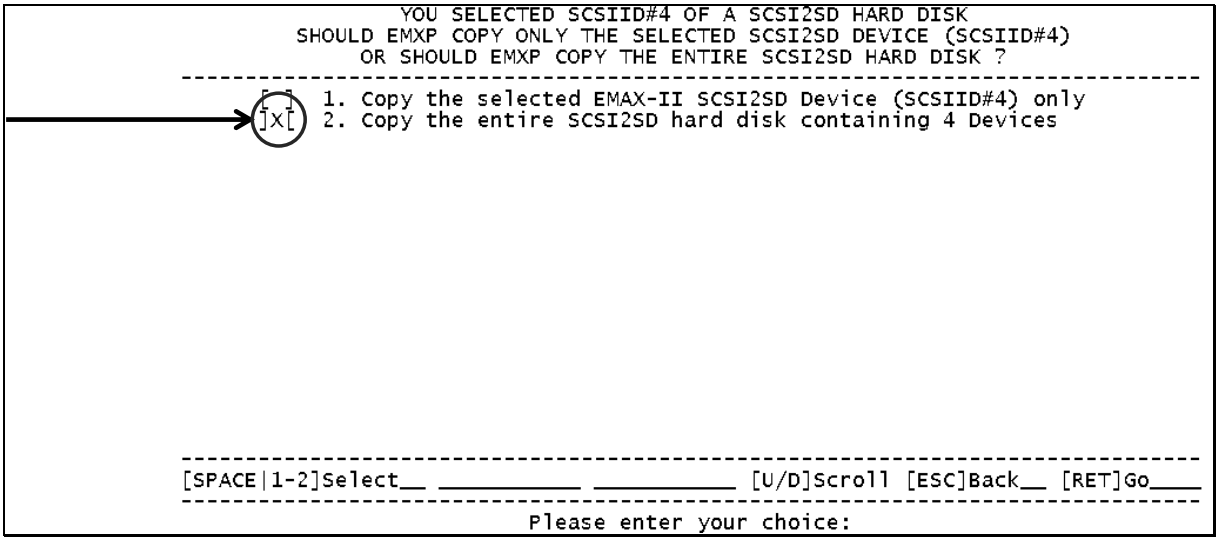




To copy an EMAX-II partition from a SCSI2SD partitioned hard disk to a SCSI2SD partition on a SCSI2SD partitioned hard disk image file
"1. Manage EMU Files and Disks" → "2. Manage EMU EMAX-II Files and Disks" → "5. Manage EMAX-II Hard Disks" → [scan for SCSI2SD hard disks and select a specific source SCSI2SD partition] → [press 'I'] or [select "4. Copy EMAX-II Hard Disk to EMAX-II Hard Disk Image (Backup)"] → [insert a hard disk if not inserted yet] → [select option 1: "copy the selected EMAX-II SCSI2SD Device only", see picture above] → [scan for SCSI2SD image files and select a specific target SCSI2SD partition]



To copy an entire SCSI2SD partitioned hard disk (containing at least one EMAX-II partition) to a SCSI2SD partitioned hard disk image file
"1. Manage EMU Files and Disks" → "2. Manage EMU EMAX-II Files and Disks" → "5. Manage EMAX-II Hard Disks" → [scan for SCSI2SD hard disks and select one of its EMAX-II partitions, it doesn't matter which one] → [press 'I'] or [select "4. Copy EMAX-II Hard Disk to EMAX-II Hard Disk Image (Backup)"] → [insert a hard disk if not inserted yet] → [select option 2: "copy the entire SCSI2SD hard disk containing ... devices", see picture below] → [select target file name and location]



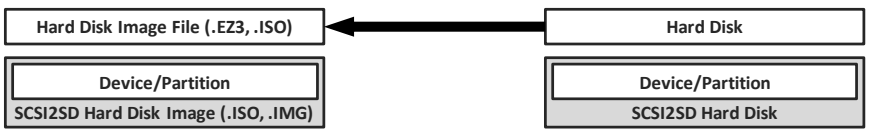
Emulator-II



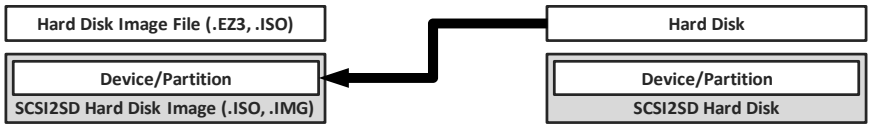
To copy an Emulator-II hard disk to a hard disk image file
"1. Manage EMU Files and Disks" → "4. Manage EMU EMULATOR-II Files and Disks" → "5. Manage EMULATOR-II Hard Disks" → [select a drive] → [press 'I'] or [select "4. Copy EMULATOR-II Hard Disk to EMULATOR-II Hard Disk Image (Backup)"] → [insert a hard disk if not inserted yet] → [select target file name and location] → [select target physical configuration (*)]

(*) the process to select a target physical configuratin is similar to selecting a physical configuration when generating a new, empty Emulator-II hard disk image. This has been explained in *chapter "9.2 GENERATING EMPTY HARD DISK IMAGES", section "Selecting an Emulator-II hard disk configuration".*
In most cases, e.g. when using the images in a DREM emulator, the factory default configuration called Miniscribe 20MB is can be selected.

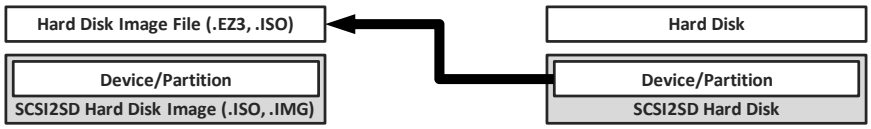
Emulator-III/IIIX/ESI



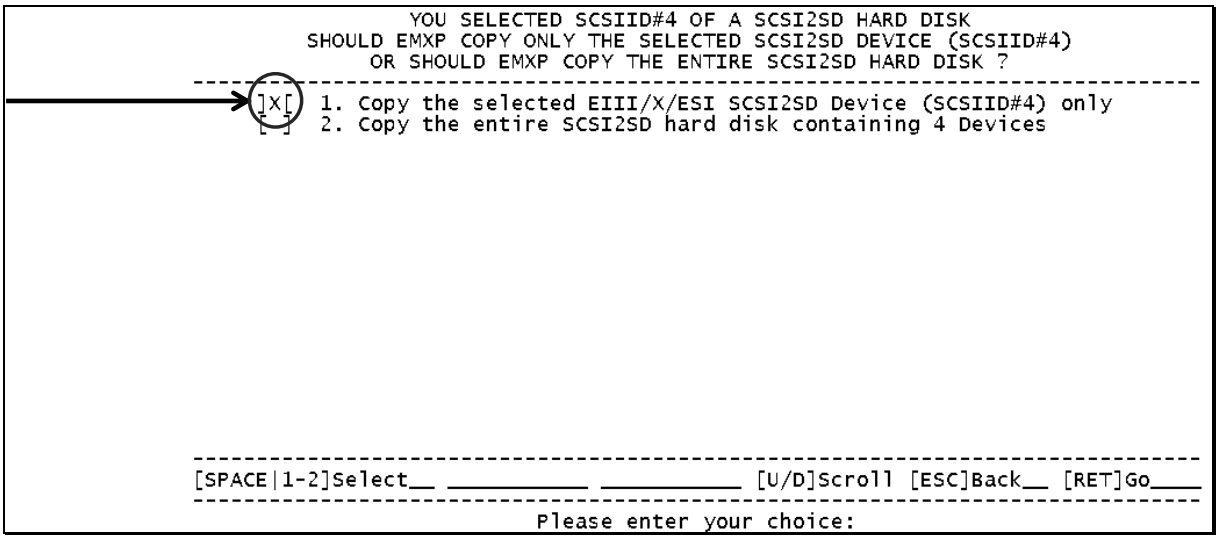
To copy a normal un-partitioned Emulator-III/IIIX/ESI hard disk to a normal un-partitioned hard disk image file
"1. Manage EMU Files and Disks" → "5. Manage EMU EMULATOR-III/X/ESI Files and Disks" → "5. Manage EMULATOR-III/X/ESI Hard Disks" → [select a drive] → [press 'I'] or [select "7. Copy EIII/X/ESI Hard Disk to EIII/X/ESI Hard Disk Image (Backup)"] → [insert a hard disk if not inserted yet] → [select target file name and location]



To copy a normal un-partitioned Emulator-III/IIIX/ESI hard disk to a SCSI2SD partition on a SCSI2SD partitioned hard disk image file
"1. Manage EMU Files and Disks" → "5. Manage EMU EMULATOR-III/X/ESI Files and Disks" → "5. Manage EMULATOR-III/X/ESI Hard Disks" → [select a drive] → [press 'I'] or [select "7. Copy EIII/X/ESI Hard Disk to EIII/X/ESI Hard Disk Image (Backup)"] → [insert a hard disk if not inserted yet] → [scan for SCSI2SD image files and select a specific target SCSI2SD partition]



To copy an Emulator-III/IIIX/ESI partition from a SCSI2SD partitioned hard disk to a normal un-partitioned hard disk image file
"1. Manage EMU Files and Disks" → "5. Manage EMU EMULATOR-III/X/ESI Files and Disks" → "5. Manage EMULATOR-III/X/ESI Hard Disks" → [scan for SCSI2SD hard disks and select a specific source SCSI2SD partition] → [select 'I'] or [select "7. Copy EIII/X/ESI Hard Disk to EIII/X/ESI Hard Disk Image (Backup)"] → [insert a hard disk if not inserted yet] → [select option 1: "copy the selected EIII/X/ESI SCSI2SD Device only", see picture below] → [select target file name and location]

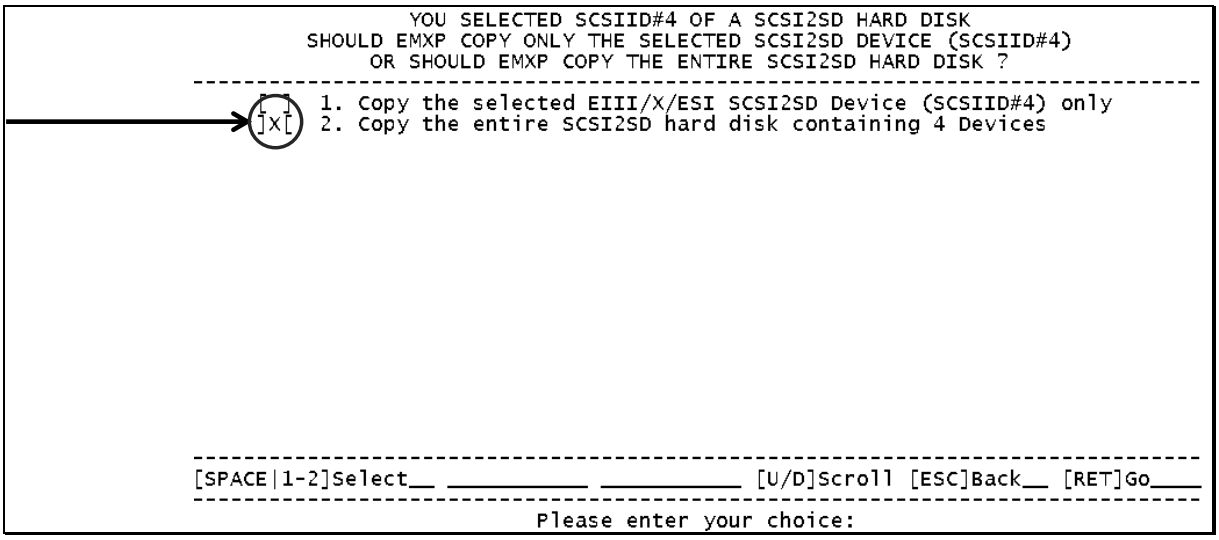




To copy an Emulator-III/IIIXESI partition from a SCSI2SD partitioned hard disk to a SCSI2SD partition on a SCSI2SD partitioned hard disk image file
"1. Manage EMU Files and Disks" → "5. Manage EMU EMULATOR-III/X/ESI Files and Disks" → "5. Manage EMULATOR-III/X/ESI Hard Disks" → [scan for SCSI2SD hard disks and select a specific source SCSI2SD partition] → [press 'I'] or [select "7. Copy EIII/X/ESI Hard Disk to EIII/X/ESI Hard Disk Image (Backup)"] → [insert a hard disk if not inserted yet] → [select option 1: "copy the selected EIII/X/ESI SCSI2SD Device only", see picture above] → [scan for SCSI2SD image files and select a specific target SCSI2SD partition]



To copy an entire SCSI2SD partitioned hard disk (containing at least one Emulator-III/IIIX/ESI partition) to a SCSI2SD partitioned hard disk image file
"1. Manage EMU Files and Disks" → "5. Manage EMU EMULATOR-III/X/ESI Files and Disks" → "5. Manage EMULATOR-III/X/ESI Hard Disks" → [scan for SCSI2SD hard disks and select one of its Emulator-III/X/ESI partitions, it doesn't matter which one] → [press 'I'] or [select "7. Copy EIII/X/ESI Hard Disk to EIII/X/ESI Hard Disk Image (Backup)"] → [insert a hard disk if not inserted yet] → [select option 2: "copy the entire SCSI2SD hard disk containing ... devices", see picture below] → [select target file name and location]



6.5.1.2.3 Copying to other hard disks

EMXP supports (direct) copies between sampler hard disks.

When copying between hard disks, EMXP will perform a *quick physical format of the target hard disk* before actually copying the contents of the hard disk. This however is only done when copying

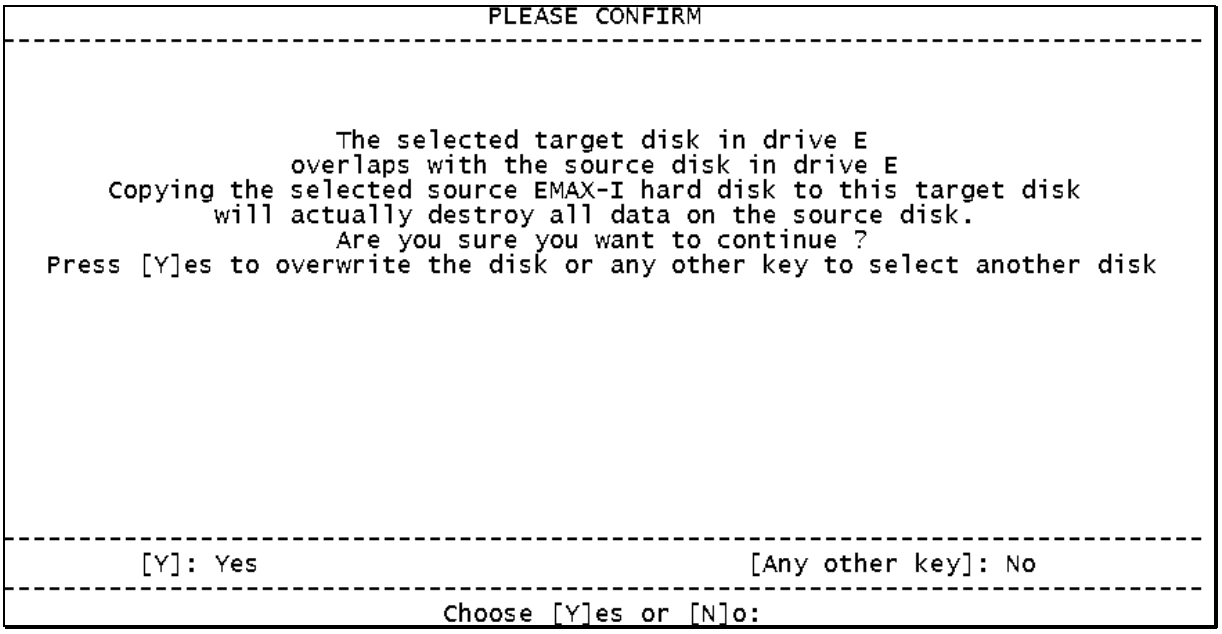
- a normal, un-partitioned hard disk or a specific partition from a SCSI2S partitioned hard disk *to a normal un-partitioned hard disk*
- *an entire SCSI2SD partitioned hard disk* to another hard disk

A physical format is not performed when copying *to a specific partition of a SCSI2SD partitioned disk*.

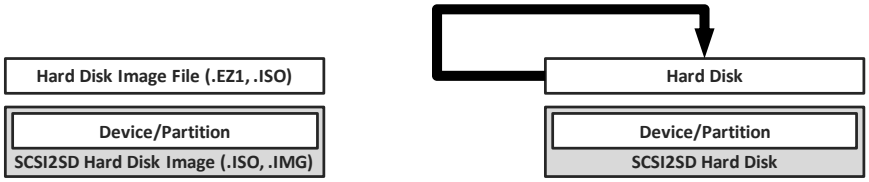
Note 1: the selected (partition on the) target hard disk may contain valuable data. You will have to confirm *twice* that you agree with *destroying and overwriting* the (partition on the) target disk before the actual copy process will be launched.

Note 2: copying an entire SCSI2SD hard disk (consisting of multiple partitions) to a single partition of a target SCSISD hard disk image file is not possible. If you try do this, EMXP will display an error.

Note 3: when copying (partitions on) hard disks to (partitions on) hard disks, it's perfectly possible to overwrite the source disk or source partition, although in most cases this doesn't make sense.
If the selected target disk or partition is the same as the selected source disk or partition, EMXP will raise a warning.



EMAX-I



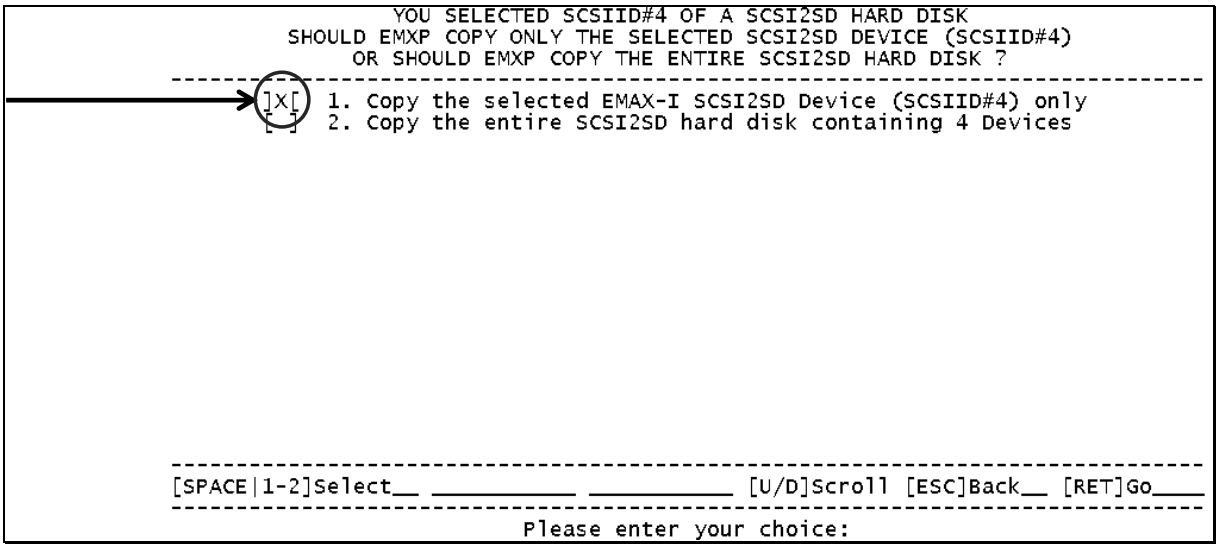
To copy a normal un-partitioned EMAX-I hard disk to another normal un-partitioned hard disk
"1. Manage EMU Files and Disks" → "1. Manage EMU EMAX-I Files and Disks" → "5. Manage EMAX-I Hard Disks" → [select a drive] → [press 'H'] or [select "5. Copy EMAX-I Hard Disk to other EMAX-I Hard Disk (Clone)"] → [insert a source hard disk if not inserted yet] → [select a target hard disk]

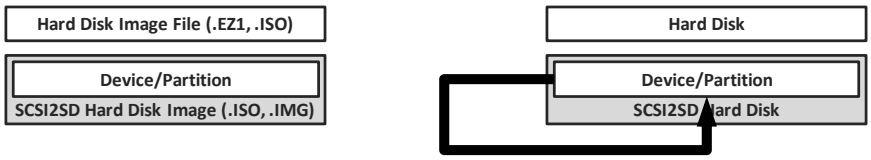


To copy a normal un-partitioned EMAX-I hard disk to a SCSI2SD partition on a SCSI2SD partitioned hard disk
"1. Manage EMU Files and Disks" → "1. Manage EMU EMAX-I Files and Disks" → "5. Manage EMAX-I Hard Disks" → [select a drive] → [press 'H'] or [select "5. Copy EMAX-I Hard Disk to other EMAX-I Hard Disk (Clone)"] → [insert a source hard disk if not inserted yet] → [scan for SCSI2SD hard disks and select a specific target SCSI2SD partition]



To copy an EMAX-I partition from a SCSI2SD partitioned hard disk to a normal un-partitioned hard disk
"1. Manage EMU Files and Disks" → "1. Manage EMU EMAX-I Files and Disks" → "5. Manage EMAX-I Hard Disks" → [scan for SCSI2SD hard disks and select a specific source SCSI2SD partition] → [press 'H'] or [select "5. Copy EMAX-I Hard Disk to other EMAX-I Hard Disk (Clone)"] → [insert a source hard disk if not inserted yet] → [select option 1: "copy the selected EMAX-I SCSI2SD Device only", see picture below] → [select a target hard disk]

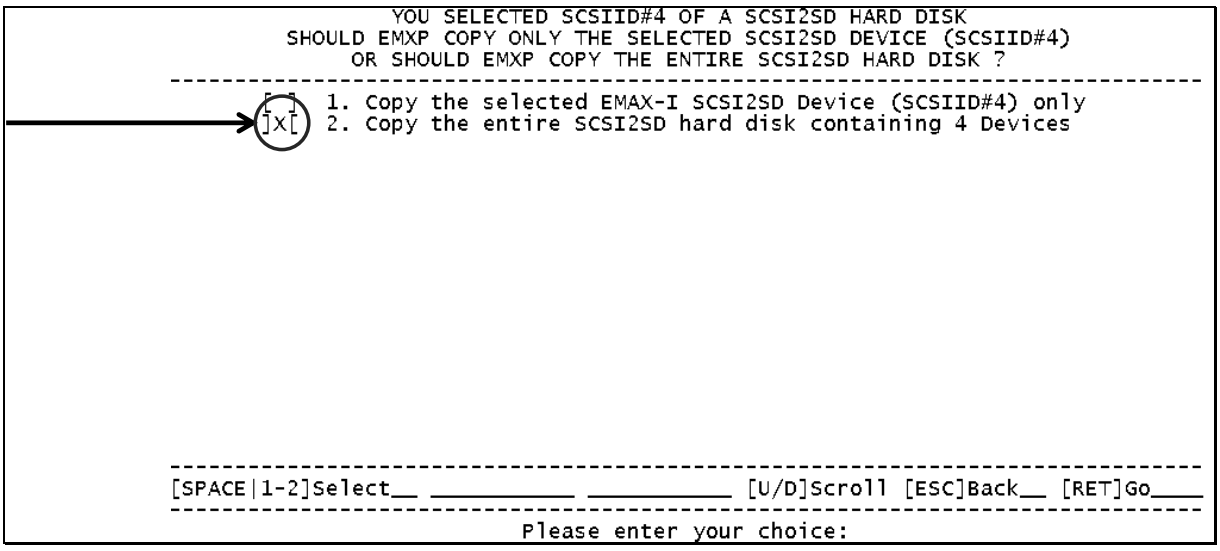




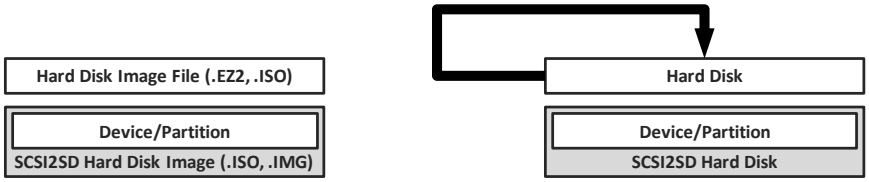
To copy an EMAX-I partition from a SCSI2SD partitioned hard disk to a SCSI2SD partition on another SCSI2SD partitioned hard disk
"1. Manage EMU Files and Disks" → "1. Manage EMU EMAX-I Files and Disks" → "5. Manage EMAX-I Hard Disks" → [scan for SCSI2SD hard disks and select a specific source SCSI2SD partition] → [press 'H'] or [select "5. Copy EMAX-I Hard Disk to other EMAX-I Hard Disk (Clone)"] → [insert a source hard disk if not inserted yet] → [select option 1: "copy the selected EMAX-I SCSI2SD Device only", see picture above] → [scan for SCSI2SD hard disks and select a specific target SCSI2SD partition]



To copy an entire SCSI2SD partitioned hard disk (containing at least one EMAX-I partition) to another hard disk
"1. Manage EMU Files and Disks" → "1. Manage EMU EMAX-I Files and Disks" → "5. Manage EMAX-I Hard Disks" → [scan for SCSI2SD hard disks and select one of its EMAX-I partitions, it doesn't matter which one] →[press 'H'] or [select "5. Copy EMAX-I Hard Disk to other EMAX-I Hard Disk (Clone)"] → [insert a source hard disk if not inserted yet] → [select option 2: "copy the entire SCSI2SD hard disk containing ... devices", see picture below] → [select a target hard disk]



EMAX-II



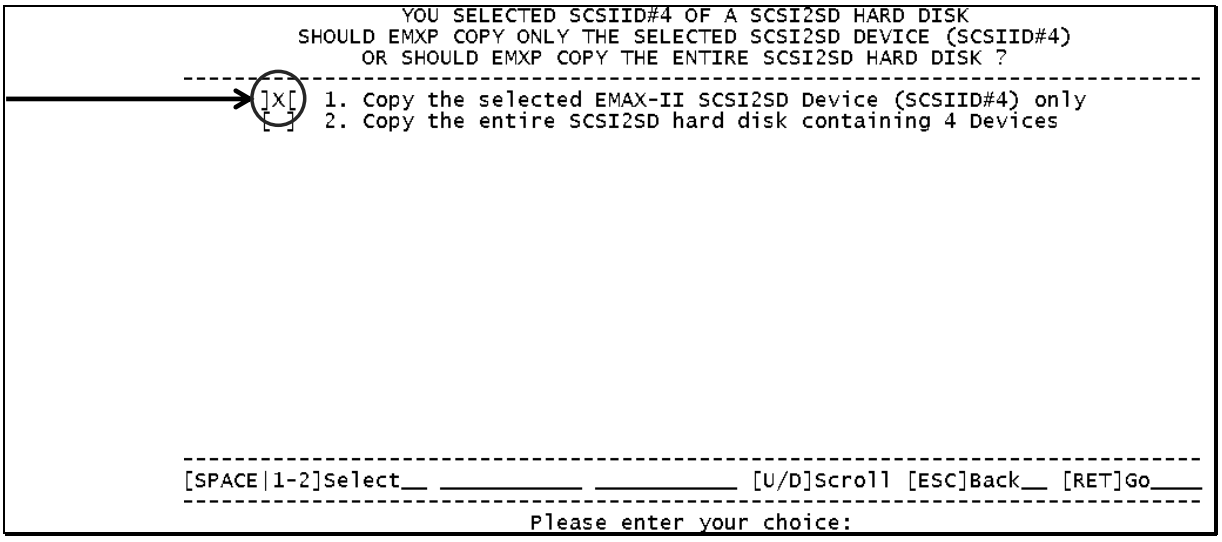
To copy a normal un-partitioned EMAX-II hard disk to another normal un-partitioned hard disk
"1. Manage EMU Files and Disks" → "2. Manage EMU EMAX-II Files and Disks" → "5. Manage EMAX-II Hard Disks" → [select a drive] → [press 'H'] or [select "5. Copy EMAX-II Hard Disk to other EMAX-II Hard Disk (Clone)"] → [insert a source hard disk if not inserted yet] → [select a target hard disk]

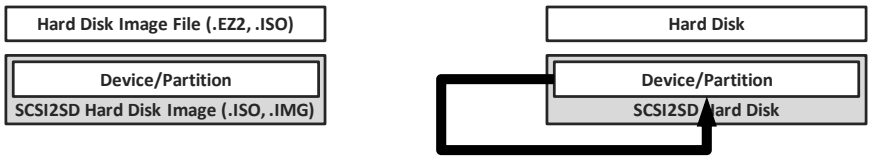


To copy a normal un-partitioned EMAX-II hard disk to a SCSI2SD partition on a SCSI2SD partitioned hard disk
"1. Manage EMU Files and Disks" → "2. Manage EMU EMAX-II Files and Disks" → "5. Manage EMAX-II Hard Disks" → [select a drive] → [press 'H'] or [select "5. Copy EMAX-II Hard Disk to other EMAX-II Hard Disk (Clone)"] → [insert a source hard disk if not inserted yet] → [scan for SCSI2SD hard disks and select a specific target SCSI2SD partition]



To copy an EMAX-II partition from a SCSI2SD partitioned hard disk to a normal un-partitioned hard disk
"1. Manage EMU Files and Disks" → "2. Manage EMU EMAX-II Files and Disks" → "5. Manage EMAX-II Hard Disks" → [scan for SCSI2SD hard disks and select a specific source SCSI2SD partition] → [press 'H'] or [select "5. Copy EMAX-II Hard Disk to other EMAX-II Hard Disk (Clone)"] → [insert a source hard disk if not inserted yet] → [select option 1: "copy the selected EMAX-II SCSI2SD Device only", see picture below] → [select a target hard disk]

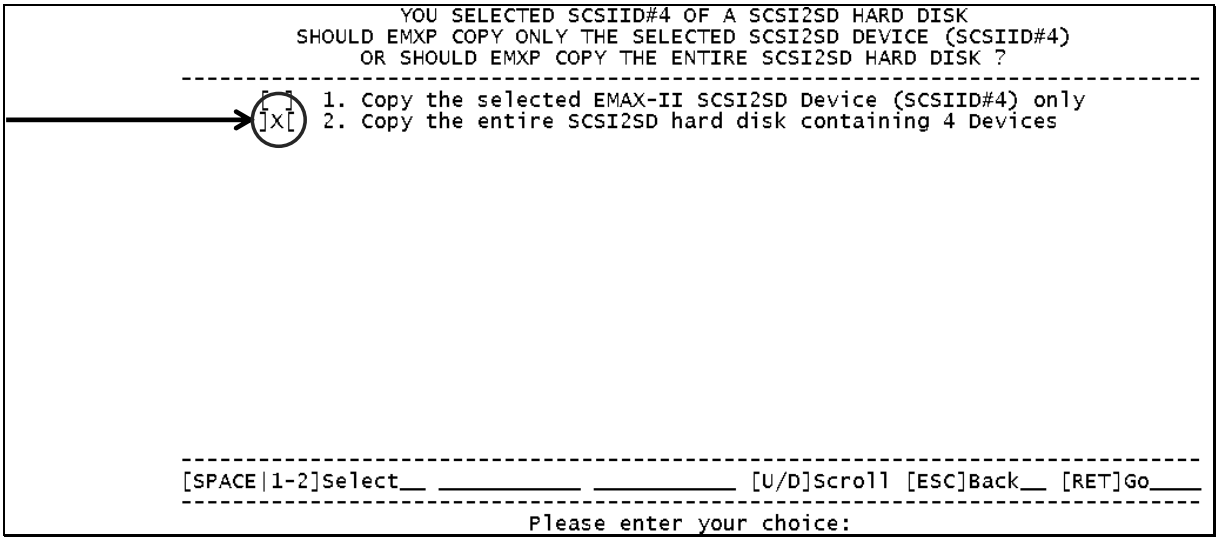




To copy an EMAX-II partition from a SCSI2SD partitioned hard disk to a SCSI2SD partition on another SCSI2SD partitioned hard disk
"1. Manage EMU Files and Disks" → "2. Manage EMU EMAX-II Files and Disks" → "5. Manage EMAX-II Hard Disks" → [scan for SCSI2SD hard disks and select a specific source SCSI2SD partition] → [press 'H'] or [select "5. Copy EMAX-II Hard Disk to other EMAX-II Hard Disk (Clone)"] → [insert a source hard disk if not inserted yet] → [select option 1: "copy the selected EMAX-II SCSI2SD Device only", see picture above] → [scan for SCSI2SD hard disks and select a specific target SCSI2SD partition]



To copy an entire SCSI2SD partitioned hard disk (containing at least one EMAX-II partition) to another hard disk
"1. Manage EMU Files and Disks" → "2. Manage EMU EMAX-II Files and Disks" → "5. Manage EMAX-II Hard Disks" → [scan for SCSI2SD hard disks and select one of its EMAX-II partitions, it doesn't matter which one] → [press 'H'] or [select "5. Copy EMAX-II Hard Disk to other EMAX-II Hard Disk (Clone)"] → [insert a source hard disk if not inserted yet] → [select option 2: "copy the entire SCSI2SD hard disk containing ... devices", see picture below] → [select a target hard disk]



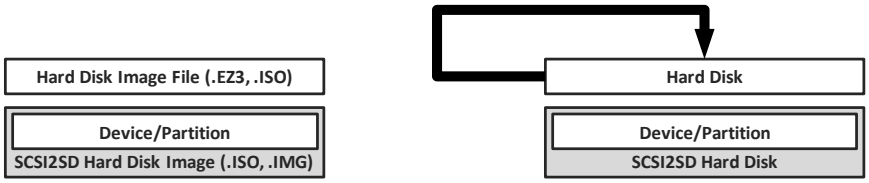
Emulator-II



To copy an Emulator-II hard disk to another hard disk
"1. Manage EMU Files and Disks" → "4. Manage EMU EMULATOR-II Files and Disks" → "5. Manage EMULATOR-II Hard Disks" → [select a drive] → [press 'H'] or [select "7. Copy EMULATOR-II Hard Disk to other EMULATOR-II Hard Disk (Clone)"] → [insert a source hard disk if not inserted yet] → [select a target hard disk] → [select target physical configuration (*)]

(*) the process to select a target physical configuratin is similar to selecting a physical configuration when formatting an Emulator-II hard disk. This has been explained in *chapter "9.1 FORMATTING DISKS", section "Selecting an Emulator-II hard disk configuration"*

Emulator-III/IIIX/ESI



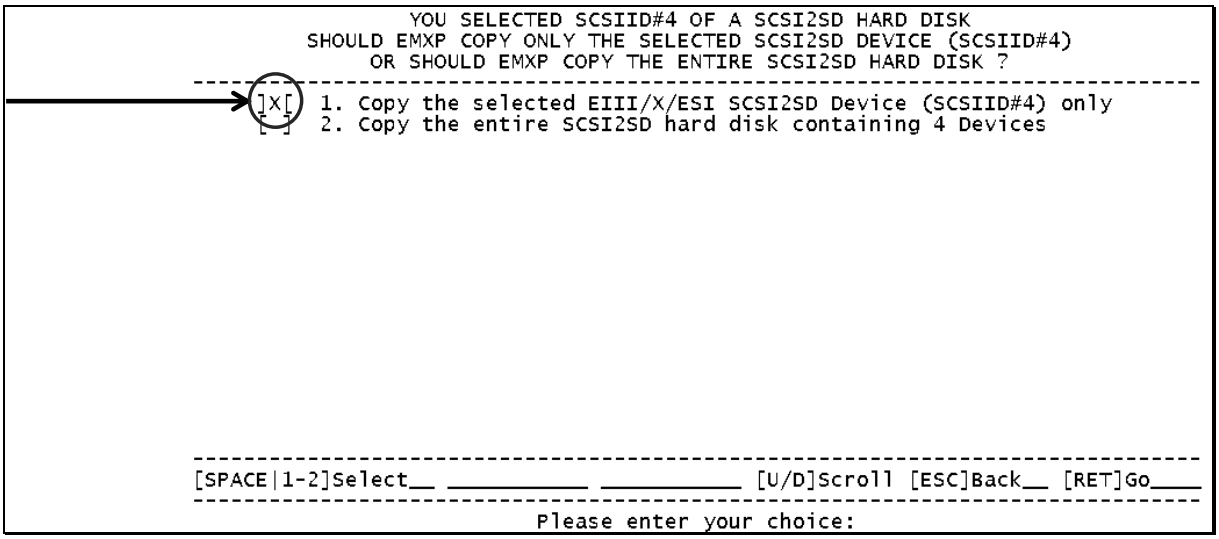
To copy a normal un-partitioned Emulator-III/IIIX/ESI hard disk to another normal un-partitioned hard disk
"1. Manage EMU Files and Disks" → "5. Manage EMU EMULATOR-III/X/ESI Files and Disks" → "5. Manage EMULATOR-III/X/ESI Hard Disks" → [select a drive] → [press 'H'] or [select "8. Copy EIII/X/ESI Hard Disk to other EIII/X/ESI Hard Disk (Clone)"] → [insert a source hard disk if not inserted yet] → [select a target hard disk]

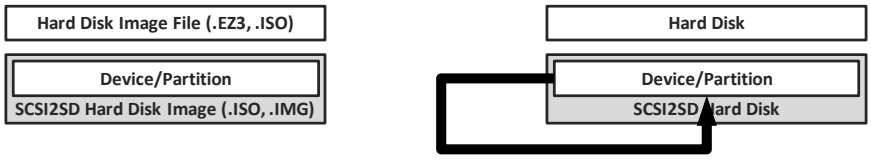


To copy a normal un-partitioned Emulator-III/IIIX/ESI hard disk to a SCSI2SD partition on a SCSI2SD partitioned hard disk
"1. Manage EMU Files and Disks" → "5. Manage EMU EMULATOR-III/X/ESI Files and Disks" → "5. Manage EMULATOR-III/X/ESI Hard Disks" → [select a drive] → [press 'H'] or [select "8. Copy EIII/X/ESI Hard Disk to other EIII/X/ESI Hard Disk (Clone)"] → [insert a source hard disk if not inserted yet] → [scan for SCSI2SD hard disks and select a specific target SCSI2SD partition]



To copy an Emulator-III/IIIX/ESI partition from a SCSI2SD partitioned hard disk to a normal un-partitioned hard disk
"1. Manage EMU Files and Disks" → "5. Manage EMU EMULATOR-III/X/ESI Files and Disks" → "5. Manage EMULATOR-III/X/ESI Hard Disks" → [scan for SCSI2SD hard disks and select a specific source SCSI2SD partition] → [press 'H'] or [select "8. Copy EIII/X/ESI Hard Disk to other EIII/X/ESI Hard Disk (Clone)"] → [insert a source hard disk if not inserted yet] → [select option 1: "copy the selected EIII/X/ESI SCSI2SD Device only", see picture below] → [select a target hard disk]

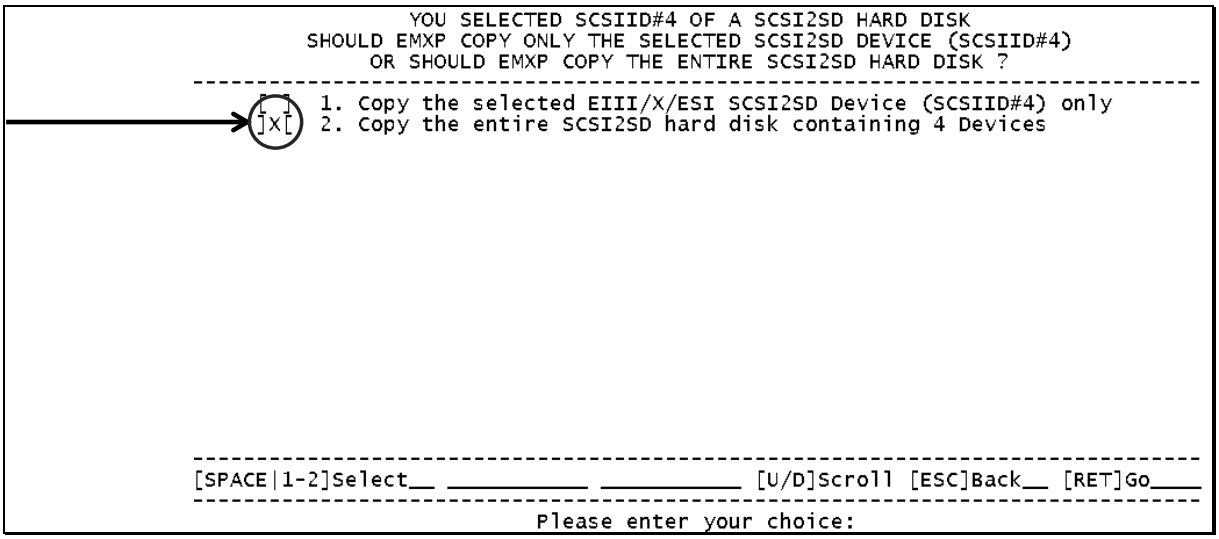




To copy an Emulator-III/IIIX/ESI partition from a SCSI2SD partitioned hard disk to a SCSI2SD partition on another SCSI2SD partitioned hard disk
"1. Manage EMU Files and Disks" → "5. Manage EMU EMULATOR-III/X/ESI Files and Disks" → "5. Manage EMULATOR-III/X/ESI Hard Disks" → [scan for SCSI2SD hard disks and select a specific source SCSI2SD partition] → [press 'H'] or [select "8. Copy EIII/X/ESI Hard Disk to other EIII/X/ESI Hard Disk (Clone)"] → [insert a source hard disk if not inserted yet] → [select option 1: "copy the selected EIII/X/ESI SCSI2SD Device only", see picture above] → [scan for SCSI2SD hard disks and select a specific target SCSI2SD partition]



To copy an entire SCSI2SD partitioned hard disk (containing at least one Emulator-III/IIIX/ESI partition) to another hard disk
"1. Manage EMU Files and Disks" → "5. Manage EMU EMULATOR-III/X/ESI Files and Disks" → "5. Manage EMULATOR-III/X/ESI Hard Disks" → [scan for SCSI2SD hard disks and select one of its Emulator-III/X/ESI partitions, it doesn't matter which one] → [press 'H'] or [select "8. Copy EIII/X/ESI Hard Disk to other EIII/X/ESI Hard Disk (Clone)"] → [insert a source hard disk if not inserted yet] → [select option 2: "copy the entire SCSI2SD hard disk containing ... devices", see picture below] → [select a target hard disk]


YOU SELECTED SCSIID#4 OF A SCSI2SD HARD DISK
SHOULD EMXP COPY ONLY THE SELECTED SCSI2SD DEVICE (SCSIID#4)
OR SHOULD EMXP COPY THE ENTIRE SCSI2SD HARD DISK ?
[ ] 1. Copy the selected EIII/X/ESI SCSI2SD Device (SCSIID#4) only
[X] 2. Copy the entire SCSI2SD hard disk containing 4 Devices
[SPACE|1-2]Select__ [U/D]Scroll [ESC]Back__ [RET]Go____
Please enter your choice:

6.5.2 Copying a floppy disk image, a hard disk image or a partition of a SCSI2SD HD image

6.5.2.1 Restoring floppy disk images to floppy disks

Akai S1000

To restore one or more Akai S1000 floppy disk image files to floppy disks:
"2. Manage AKAI S1000 Files and Disks" → "6. Manage AKAI S1000 Floppy Disk Images" → "1. Manage existing AKAI S1000 Floppy Disk Images" → [select one or more files] → [press 'J'] or [select "1. Copy AKAI S1000 Floppy Disk Image to Floppy Disk or (HxC) Floppy Image" followed by "1. Copy AKAI S1000 Floppy Disk Image to Floppy Disk"] → [select a drive] → (*) *for each selected file:* [insert a floppy disk] → *EMXP writes the floppy disk → see (*)*

To restore one or more Akai S1000 HxC floppy disk image files to floppy disks:
"2. Manage AKAI S1000 Files and Disks" → "7. Manage AKAI S1000 HxC Floppy Disk Images" → "1. Manage existing AKAI S1000 HxC Floppy Disk Images" → [select one or more files] → [press 'J'] or select "1. Copy AKAI S1000 HxC Floppy Disk Image to Floppy Disk or (HxC) Floppy Image" followed by "1. Copy AKAI S1000 HxC Floppy Disk Image to Floppy Disk"] → [select a drive] → (*) *for each selected file:* [insert a floppy disk] → *EMXP writes the floppy disk → see (*)*

EMAX-I

To restore one or more EMAX-I floppy disk image files to floppy disks:
"1. Manage EMU Files and Disks" → "1. Manage EMU EMAX-I Files and Disks" → "6. Manage EMAX-I Floppy Disk Images" → [select one or more files] → [press 'F'] or [select "7. Copy Floppy Disk Image to EMAX Floppy Disk or EMAX-I (HxC) Floppy Image" followed by "1. Copy Floppy Disk Image to EMAX Floppy Disk"] → [select a drive] → (*) *for each selected file:* [insert a floppy disk] → *EMXP writes the floppy disk → see (*)*

To restore one or more EMAX-I HxC floppy disk image files to floppy disks:
"1. Manage EMU Files and Disks" → "1. Manage EMU EMAX-I Files and Disks" → "7. Manage EMAX-I HxC Floppy Disk Images" → [select one or more files] → [press 'F'] or [select "7. Copy HxC Floppy Disk Image to EMAX Floppy Disk or EMAX-I (HxC) Floppy Image" followed by "1. Copy HxC Floppy Disk Image to EMAX Floppy Disk"] → [select a drive] → (*) *for each selected file:* [insert a floppy disk] → *EMXP writes the floppy disk → see (*)*

EMAX-II

To restore one or more EMAX-II floppy disk image files to floppy disks:
"1. Manage EMU Files and Disks" → "2. Manage EMU EMAX-II Files and Disks" → "6. Manage EMAX-II Floppy Disk Images" → [select one or more files] → [press 'F'] or [select "6. Copy Floppy Disk Image to EMAX Floppy Disk or EMAX-II (HxC) Floppy Image" followed by "1. Copy Floppy Disk Image to EMAX Floppy Disk"] → [select a drive] → (*) *for each selected file:* [insert a floppy disk] → *EMXP writes the floppy disk → see (*)*

To restore one or more EMAX-II HxC floppy disk image files to floppy disks:
"1. Manage EMU Files and Disks" → "2. Manage EMU EMAX-II Files and Disks" → "7. Manage EMAX-II Floppy Disk Images" → [select one or more files] → [press 'F'] or [select "6. Copy HxC Floppy Image to EMAX Floppy Disk or EMAX-II (HxC) Floppy Image" followed by "1. Copy HxC Floppy Disk Image to EMAX Floppy Disk"] → [select a drive] → (*) *for each selected file:* [insert a floppy disk] → *EMXP writes the floppy disk → see (*)*

Emulator-III

To restore one or more Emulator-III OS floppy disk image files to floppy disks:
"1. Manage EMU Files and Disks" → "5. Manage EMU EMULATOR-III/X/ESI Files and Disks" → "6. Manage EMULATOR-III Operating System Files and Disks" → "2. Manage EMULATOR-III Operating System Floppy Disk Images" → [select one or more files] → [press 'F'] or [select "3. Copy OS Floppy Disk Image to EMULATOR-III OS Floppy Disk"] → [select a drive] → (*) *for each selected file:* [insert a floppy disk] → *EMXP writes the floppy disk* → *see (*)*

To restore one or more Emulator-III HxC OS floppy disk image files to floppy disks:
"1. Manage EMU Files and Disks" → "5. Manage EMU EMULATOR-III/X/ESI Files and Disks" → "6. Manage EMULATOR-III Operating System Files and Disks" → "3. Manage EMULATOR-III Operating System HxC Floppy Disk Images" → [select one or more files] → [press 'F'] or [select "3. Copy HxC OS Floppy Disk Image to EMULATOR-III OS Floppy Disk"] → [select a drive] → (*) *for each selected file:* [insert a floppy disk] → *EMXP writes the floppy disk* → *see (*)*

Emulator-IIIX

To restore one or more Emulator-IIIX OS floppy disk image files to floppy disks:
"1. Manage EMU Files and Disks" → "5. Manage EMU EMULATOR-III/X/ESI Files and Disks" → "7. Manage EMULATOR-IIIX Operating System Files and Disks" → "2. Manage EMULATOR-IIIX Operating System Floppy Disk Images" → [select one or more files] → [press 'F'] or [select "3. Copy OS Floppy Disk Image to EMULATOR-IIIX OS Floppy Disk"] → [select a drive] → (*) *for each selected file:* [insert a floppy disk] → *EMXP writes the floppy disk* → *see (*)*

To restore one or more Emulator-IIIX HxC OS floppy disk image files to floppy disks:
"1. Manage EMU Files and Disks" → "5. Manage EMU EMULATOR-III/X/ESI Files and Disks" → "7. Manage EMULATOR-IIIX Operating System Files and Disks" → "3. Manage EMULATOR-IIIX Operating System HxC Floppy Disk Images" → [select one or more files] → [press 'F'] or [select "3. Copy HxC OS Floppy Disk Image to EMULATOR-IIIX OS Floppy Disk"] → [select a drive] → (*) *for each selected file:* [insert a floppy disk] → *EMXP writes the floppy disk* → *see (*)*

Copying the image file to floppy disk

EMXP will start the copy process now. Please note that the copy process can't be interrupted. When restoring floppy disk image files or HxC floppy disk image files, EMXP will ask for a next disk after the copy process of the previous file has finished. This allows for a fast copy of multiple backup files to floppy disks (the process will repeat at step (*)). When all files have been restored, an execution report will be displayed.

6.5.2.2 Raw copying between floppy disk image files and HxC floppy disk image files

Next to restoring and making backups of floppy *disks*, EMXP also provides the possibility to

- export floppy disk image files to HxC floppy disk image files
- extract floppy disk image files from HxC floppy disk image files
- clone (raw copying) floppy disk image files to floppy disk image files
- clone (raw copying) HxC floppy disk image files to HxC floppy disk image files

This functionality is available for EMAX-I, EMAX-II, Emulator-I, Emulator-II, Emulator-III, Emulator-IIIX and Akai S1000.

While raw copying normally doesn't affect the actual contents which is being copied, there is an option to update the file system of Emulator-II floppy disk images in order to make them load faster in the Emulator-II sampler. The copy process won't ask you for this possibility, but this option can be enabled or disabled in the preferences menu. See *section "10.5.8.9 Define Emulator-II floppy disk bank load speed mode"*.

Akai S1000

To copy one or more Akai S1000 floppy disk image files to HxC floppy disk image files:
"2. Manage AKAI S1000 Files and Disks" → "6. Manage AKAI S1000 Floppy Disk Images" → "1. Manage existing AKAI S1000 Floppy Disk Images" → [select one or more files] → [press 'X'] or [select "1. Copy AKAI S1000 Floppy Disk Image to Floppy Disk or (HxC) Floppy Image" followed by "2. Copy AKAI S1000 Floppy Disk Image to HxC Floppy Disk Image"→ (**) *if multiple files have been selected:* [choose manual or automated file generation mode] → *if automated mode has been chosen:* [select destination folder] → (*) *only if one file has been selected or if manual mode has been chosen: for each selected file:* [select a target file] → *EMXP copies the file → see (*)*

To clone one or more Akai S1000 floppy disk image files to other floppy disk image files:
"2. Manage AKAI S1000 Files and Disks" → "6. Manage AKAI S1000 Floppy Disk Images" → "1. Manage existing AKAI S1000 Floppy Disk Images" → [select one or more files] → [press 'I'] or [select "1. Copy AKAI S1000 Floppy Disk Image to Floppy Disk or (HxC) Floppy Image" followed by "3. Copy AKAI S1000 Floppy Disk Image to other Floppy Disk Image"→ (**) *if multiple files have been selected:* [choose manual or automated file generation mode] → *if automated mode has been chosen:* [select destination folder] → (*) *only if one file has been selected or if manual mode has been chosen: for each selected file:* [select a target file] → *EMXP copies the file → see (*)*

To copy one or more Akai S1000 HxC floppy disk image files to floppy disk image files:
"2. Manage AKAI S1000 Files and Disks" → "7. Manage AKAI S1000 HxC Floppy Disk Images" → "1. Manage existing AKAI S1000 HxC Floppy Disk Images" → [select one or more files] → [press 'I'] or [select "1. Copy AKAI S1000 HxC Floppy Image to Floppy Disk or (HxC) Floppy Image" followed by "2. Copy AKAI S1000 HxC Floppy Disk Image to Floppy Disk Image"] → (**) *if multiple files have been selected:* [choose manual or automated file generation mode] → *if automated mode has been chosen:* [select destination folder] → (*) *only if one file has been selected or if manual mode has been chosen: for each selected file:* [select a target file] → *EMXP copies the file → see (*)*

To clone one or more Akai S1000 HxC floppy disk image files to other HxC floppy disk image files:
"2. Manage AKAI S1000 Files and Disks" → "7. Manage AKAI S1000 HxC Floppy Disk Images" → "1. Manage existing AKAI S1000 HxC Floppy Disk Images" → [select one or more files] → [press 'X'] or [select "1. Copy AKAI S1000 HxC Floppy Image to Floppy Disk or (HxC) Floppy Image" followed by "3. Copy AKAI S1000 HxC Floppy Disk Image to other HxC Floppy Disk Image"] → (**) *if multiple files have been selected:* [choose manual or automated file generation mode] → *if automated mode has been chosen:* [select destination folder] → (*) *only if one file has been selected or if manual mode has been chosen: for each selected file:* [select a target file] → *EMXP copies the file → see (*)*

EMAX-I

To copy one or more EMAX-I floppy disk image files to HxC floppy disk image files:
"1. Manage EMU Files and Disks" → "1. Manage EMU EMAX-I Files and Disks" → "6. Manage EMAX-I Floppy Disk Images" → [select one or more files] → [press 'X'] or [select "7. Copy Floppy Disk Image to EMAX Floppy Disk or EMAX-I (HxC) Floppy Image" followed by "2. Copy Floppy Disk Image to EMAX-I HxC Floppy Disk Image"] → (**) *if multiple files have been selected:* [choose manual or automated file generation mode] → *if automated mode has been chosen:* [select destination folder] → (*) *only if one file has been selected or if manual mode has been chosen: for each selected file:* [select a target file] → *EMXP copies the file → see (*)*

To clone one or more EMAX-I floppy disk image files to other floppy disk image files:
"1. Manage EMU Files and Disks" → "1. Manage EMU EMAX-I Files and Disks" → "6. Manage EMAX-I Floppy Disk Images" → [select one or more files] → [press 'I'] or [select "7. Copy Floppy Disk Image to EMAX Floppy Disk or EMAX-I (HxC) Floppy Image" followed by "3. Copy Floppy Disk Image to other EMAX-I Floppy Disk Image"] → (**) *if multiple files have been selected:* [choose manual or automated file generation mode] → *if automated mode has been chosen:* [select destination folder] → (*) *only if one file has been selected or if manual mode has been chosen: for each selected file:* [select a target file] → *EMXP copies the file → see (*)*

To copy one or more EMAX-I HxC floppy disk image files to floppy disk image files:
"1. Manage EMU Files and Disks" → "1. Manage EMU EMAX-I Files and Disks" → "7. Manage EMAX-I HxC Floppy Disk Images" → [select one or more files] → [press 'I'] or [select "7. Copy HxC Floppy Disk Image to EMAX Floppy Disk or EMAX-I (HxC) Floppy Image" followed by "2. Copy HxC Floppy Disk Image to EMAX-I Floppy Disk Image"] → (**) *if multiple files have been selected:* [choose manual or automated file generation mode] → *if automated mode has been chosen:* [select destination folder] → (*) *only if one file has been selected or if manual mode has been chosen: for each selected file:* [select a target file] → *EMXP copies the file → see (*)*

To clone one or more EMAX-I HxC floppy disk image files to other HxC floppy disk image files:
"1. Manage EMU Files and Disks" → "1. Manage EMU EMAX-I Files and Disks" → "7. Manage EMAX-I HxC Floppy Disk Images" → [select one or more files] → [press 'X'] or [select "7. Copy HxC Floppy Disk Image to EMAX Floppy Disk or EMAX-I (HxC) Floppy Image" followed by "3. Copy HxC Floppy Disk Image to other EMAX-I HxC Floppy Image"] → (**) *if multiple files have been selected:* [choose manual or automated file generation mode] → *if automated mode has been chosen:* [select destination folder] → (*) *only if one file has been selected or if manual mode has been chosen: for each selected file:* [select a target file] → *EMXP copies the file → see (*)*

EMAX-II

To copy one or more EMAX-IX floppy disk image files to HxC floppy disk image files:
"1. Manage EMU Files and Disks" → "2. Manage EMU EMAX-II Files and Disks" → "6. Manage EMAX-II Floppy Disk Images" → [select one or more files] → [press 'X'] or [select "6. Copy Floppy Disk Image to EMAX Floppy Disk or EMAX-II (HxC) Floppy Image" followed by "2. Copy Floppy Disk Image to EMAX-II HxC Floppy Disk Image"] → (**) *if multiple files have been selected:* [choose manual or automated file generation mode] → *if automated mode has been chosen:* [select destination folder] → (*) *only if one file has been selected or if manual mode has been chosen: for each selected file:* [select a target file] → *EMXP copies the file → see (*)*

To clone one or more EMAX-II floppy disk image files to other floppy disk image files:
"1. Manage EMU Files and Disks" → "2. Manage EMU EMAX-II Files and Disks" → "6. Manage EMAX-II Floppy Disk Images" → [select one or more files] → [press 'I'] or [select "6. Copy Floppy Disk Image to EMAX Floppy Disk or EMAX-II (HxC) Floppy Image" followed by "3. Copy Floppy Disk Image to other EMAX-II Floppy Disk Image"] → (**) *if multiple files have been selected:* [choose manual or automated file generation mode] → *if automated mode has been chosen:* [select destination folder] → (*) *only if one file has been selected or if manual mode has been chosen: for each selected file:* [select a target file] → *EMXP copies the file → see (*)*

To copy one or more EMAX-II HxC floppy disk image files to floppy disk image files:
"1. Manage EMU Files and Disks" → "2. Manage EMU EMAX-II Files and Disks" → "7. Manage EMAX-II HxC Floppy Disk Images" → [select one or more files] → [press 'I'] or [select "6. Copy HxC Floppy Image to EMAX Floppy Disk or EMAX-II (HxC) Floppy Image" followed by "2. Copy HxC Floppy Disk Image to EMAX-II Floppy Disk Image"] → (**) *if multiple files have been selected:* [choose manual or automated file generation mode] → *if automated mode has been chosen:* [select destination folder] → (*) *only if one file has been selected or if manual mode has been chosen: for each selected file:* [select a target file] → *EMXP copies the file → see (*)*

To clone one or more EMAX-II HxC floppy disk image files to other HxC floppy disk image files:
"1. Manage EMU Files and Disks" → "2. Manage EMU EMAX-II Files and Disks" → "7. Manage EMAX-II HxC Floppy Disk Images" → [select one or more files] → [press 'X'] or [select "6. Copy HxC Floppy Image to EMAX Floppy Disk or EMAX-II (HxC) Floppy Image" followed by "3. Copy HxC Floppy Disk Image to other EMAX-II HxC Floppy Image"] → (**) *if multiple files have been selected:* [choose manual or automated file generation mode] → *if automated mode has been chosen:* [select destination folder] → (*) *only if one file has been selected or if manual mode has been chosen: for each selected file:* [select a target file] → *EMXP copies the file → see (*)*

Emulator-I

To copy one or more Emulator-I floppy disk image files to HxC floppy disk image files:
"1. Manage EMU Files and Disks" → "3. Manage EMU EMULATOR-I Files" → "3. Manage EMULATOR-I Floppy Disk Images" → [select one or more files] → [press 'X'] or [select "5. Copy Floppy Disk Image to EMULATOR-I (HxC) Floppy Disk Image" followed by "1. Copy EMULATOR-I Floppy Disk Image to HxC Floppy Disk Image"] → (**) *if multiple files have been selected:* [choose manual or automated file generation mode] → *if automated mode has been chosen:* [select destination folder] → (*) *only if one file has been selected or if manual mode has been chosen: for each selected file:* [select a target file] → *EMXP copies the file → see (*)*

To clone one or more Emulator-I floppy disk image files to other floppy disk image files:
"1. Manage EMU Files and Disks" → "3. Manage EMU EMULATOR-I Files" → "3. Manage EMULATOR-I Floppy Disk Images" → [select one or more files] → [press 'I'] or [select "5. Copy Floppy Disk Image to EMULATOR-I (HxC) Floppy Disk Image" followed by "2. Copy EMULATOR-I Floppy Disk Image to other Floppy Disk Image"] → (**) *if multiple files have been selected:* [choose manual or automated file generation mode] → *if automated mode has been chosen:* [select destination folder] → (*) *only if one file has been selected or if manual mode has been chosen: for each selected file:* [select a target file] → *EMXP copies the file → see (*)*

To copy one or more Emulator-I HxC floppy disk image files to floppy disk image files:
"1. Manage EMU Files and Disks" → "3. Manage EMU EMULATOR-I Files" → "4. Manage EMULATOR-I HxC Floppy Disk Images" → [select one or more files] → [press 'I'] or [select "5. Copy HxC Floppy Disk Image to EMULATOR-I (HxC) Floppy Disk Image" followed by "1. Copy EMULATOR-I HxC Floppy Disk Image to Floppy Disk Image"] → (**) *if multiple files have been selected:* [choose manual or automated file generation mode] → *if automated mode has been chosen:* [select destination folder] → (*) *only if one file has been selected or if manual mode has been chosen: for each selected file:* [select a target file] → *EMXP copies the file → see (*)*

To clone one or more Emulator-I HxC floppy disk image files to other HxC floppy disk image files:
"1. Manage EMU Files and Disks" → "3. Manage EMU EMULATOR-I Files" → "4. Manage EMULATOR-I HxC Floppy Disk Images" → [select one or more files] → [press 'X'] or [select "5. Copy HxC Floppy Disk Image to EMULATOR-I (HxC) Floppy Disk Image" followed by "2. Copy EMULATOR-I HxC Floppy Disk Image to other HxC Floppy Disk Image"] → (**) *if multiple files have been selected:* [choose manual or automated file generation mode] → *if automated mode has been chosen:* [select destination folder] → (*) *only if one file has been selected or if manual mode has been chosen: for each selected file:* [select a target file] → *EMXP copies the file → see (*)*

Emulator-II

As mentioned before, there is an option to update the file system of the target Emulator-II floppy disk image in order to make the disk load faster in an Emulator-II sampler. The copy process won't ask you for this possibility, but this option can be enabled or disabled in the preferences menu. See *section "10.5.8.9 Define Emulator-II floppy disk bank load speed mode"*.

To copy one or more Emulator-II floppy disk image files to HxC floppy disk image files:
"1. Manage EMU Files and Disks" → "4. Manage EMU EMULATOR-II Files and Disks" → "2. Manage EMULATOR-II Floppy Disk Images" → [select one or more files] → [press 'X'] or [select "5. Copy Floppy Disk Image to EMULATOR-II (HxC) Floppy Disk Image" followed by "1. Copy EMULATOR-II Floppy Disk Image to HxC Floppy Disk Image"] → (**) *if multiple files have been selected:* [choose manual or automated file generation mode] → *if automated mode has been chosen:* [select destination folder] → (*) *only if one file has been selected or if manual mode has been chosen: for each selected file:* [select a target file] → *EMXP copies the file → see (*)*

To clone one or more Emulator-II floppy disk image files to other floppy disk image files:
"1. Manage EMU Files and Disks" → "4. Manage EMU EMULATOR-II Files and Disks" → "2. Manage EMULATOR-II Floppy Disk Images" → [select one or more files] → [press 'I'] or [select "5. Copy Floppy Disk Image to EMULATOR-II (HxC) Floppy Disk Image" followed by "2. Copy EMULATOR-II Floppy Disk Image to other Floppy Disk Image"] → (**) *if multiple files have been selected:* [choose manual or automated file generation mode] → *if automated mode has been chosen:* [select destination folder] → (*) *only if one file has been selected or if manual mode has been chosen: for each selected file:* [select a target file] → *EMXP copies the file → see (*)*

To copy one or more Emulator-II HxC floppy disk image files to floppy disk image files:
"1. Manage EMU Files and Disks" → "4. Manage EMU EMULATOR-II Files and Disks" → "3. Manage EMULATOR-II HxC Floppy Disk Images" → [select one or more files] → [press 'I'] or [select "5. Copy HxC Floppy Disk Image to EMULATOR-I (HxC) Floppy Disk Image" followed by "1. Copy EMULATOR-II HxC Floppy Disk Image to Floppy Disk Image"] → (**) *if multiple files have been selected:* [choose manual or automated file generation mode] → *if automated mode has been chosen:* [select destination folder] → (*) *only if one file has been selected or if manual mode has been chosen: for each selected file:* [select a target file] → *EMXP copies the file → see (*)*

To clone one or more Emulator-II HxC floppy disk image files to other HxC floppy disk image files:
"1. Manage EMU Files and Disks" → "4. Manage EMU EMULATOR-II Files and Disks" → "3. Manage EMULATOR-II HxC Floppy Disk Images" → [select one or more files] → [press 'X'] or [select "5. Copy HxC Floppy Disk Image to EMULATOR-II (HxC) Floppy Disk Image" followed by "2. Copy EMULATOR-II HxC Floppy Disk Image to other HxC Floppy Disk Image"] → (**) *if multiple files have been selected:* [choose manual or automated file generation mode] → *if automated mode has been chosen:* [select destination folder] → (*) *only if one file has been selected or if manual mode has been chosen: for each selected file:* [select a target file] → *EMXP copies the file → see (*)*

Emulator-III

To copy one or more Emulator-III OS floppy disk image files to HxC floppy disk image files:
"1. Manage EMU Files and Disks" → "5. Manage EMU EMULATOR-III/X/ESI Files and Disks" → "6. Manage EMULATOR-III Operating System Files and Disks" → "2. Manage EMULATOR-III Operating System Floppy Disk Images" → [select one or more files] → [press 'X'] or [select "1. Copy OS Floppy Disk Image to EMULATOR-III HxC OS Floppy Disk Image"] → (**) *if multiple files have been selected:* [choose manual or automated file generation mode] → *if automated mode has been chosen:* [select destination folder] → (*) *only if one file has been selected or if manual mode has been chosen: for each selected file:* [select a target file] → *EMXP copies the file → see (*)*

To clone one or more Emulator-III OS floppy disk image files to other floppy disk image files:
"1. Manage EMU Files and Disks" → "5. Manage EMU EMULATOR-III/X/ESI Files and Disks" → "6. Manage EMULATOR-III Operating System Files and Disks" → "2. Manage EMULATOR-III Operating System Floppy Disk Images" → [select one or more files] → [press 'I'] or [select "2. Copy OS Floppy Disk Image to EMULATOR-III OS Floppy Disk Image"] → (**) *if multiple files have been selected:* [choose manual or automated file generation mode] → *if automated mode has been chosen:* [select destination folder] → (*) *only if one file has been selected or if manual mode has been chosen: for each selected file:* [select a target file] → *EMXP copies the file → see (*)*

To copy one or more Emulator-III HxC OS floppy disk image files to floppy disk image files:
"1. Manage EMU Files and Disks" → "5. Manage EMU EMULATOR-III/X/ESI Files and Disks" → "6. Manage EMULATOR-III Operating System Files and Disks" → "3. Manage EMULATOR-III Operating System HxC Floppy Disk Images" → [select one or more files] → [press 'I'] or [select "1. Copy HxC OS Floppy Disk Image to EMULATOR-III OS Floppy Disk Image"] → (**) *if multiple files have been selected:* [choose manual or automated file generation mode] → *if automated mode has been chosen:* [select destination folder] → (*) *only if one file has been selected or if manual mode has been chosen: for each selected file:* [select a target file] → *EMXP copies the file → see (*)*

To clone one or more Emulator-IIIX HxC OS floppy disk image files to other HxC floppy disk image files:
"1. Manage EMU Files and Disks" → "5. Manage EMU EMULATOR-III/X/ESI Files and Disks" → "6. Manage EMULATOR-III Operating System Files and Disks" → "3. Manage EMULATOR-III Operating System HxC Floppy Disk Images" → [select one or more files] → [press 'X'] or [select "2. Copy HxC OS Floppy Disk Image to EMULATOR-III HxC OS Floppy Disk Image"] → (**) *if multiple files have been selected:* [choose manual or automated file generation mode] → *if automated mode has been chosen:* [select destination folder] → (*) *only if one file has been selected or if manual mode has been chosen: for each selected file:* [select a target file] → *EMXP copies the file → see (*)*

Emulator-IIIX

To copy one or more Emulator-IIIX OS floppy disk image files to HxC floppy disk image files:
"1. Manage EMU Files and Disks" → "5. Manage EMU EMULATOR-III/X/ESI Files and Disks" → "7. Manage EMULATOR-IIIX Operating System Files and Disks" → "2. Manage EMULATOR-IIIX Operating System Floppy Disk Images" → [select one or more files] → [press 'X'] or [select "1. Copy OS Floppy Disk Image to EMULATOR-IIIX HxC OS Floppy Disk Image"] → (**) *if multiple files have been selected:* [choose manual or automated file generation mode] → *if automated mode has been chosen:* [select destination folder] → (*) *only if one file has been selected or if manual mode has been chosen: for each selected file:* [select a target file] → *EMXP copies the file → see (*)*

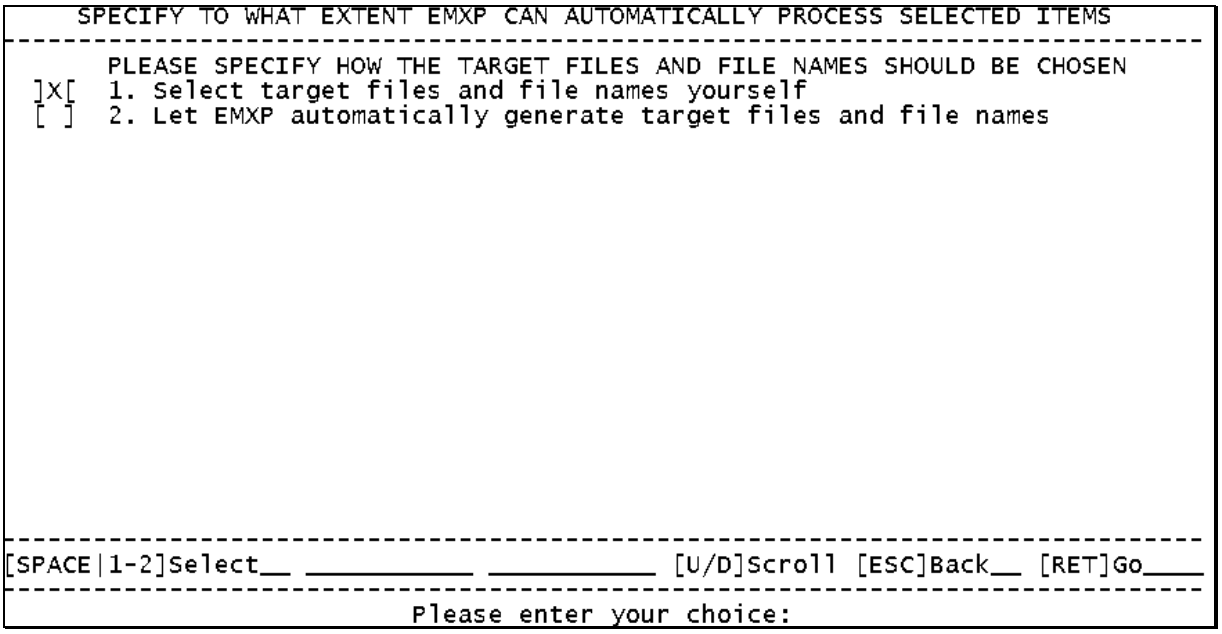
To clone one or more Emulator-IIIX OS floppy disk image files to other floppy disk image files:
"1. Manage EMU Files and Disks" → "5. Manage EMU EMULATOR-III/X/ESI Files and Disks" → "7. Manage EMULATOR-IIIX Operating System Files and Disks" → "2. Manage EMULATOR-IIIX Operating System Floppy Disk Images" → [select one or more files] → [press 'I'] or [select "2. Copy OS Floppy Disk Image to EMULATOR-IIIX OS Floppy Disk Image"] → (**) *if multiple files have been selected:* [choose manual or automated file generation mode] → *if automated mode has been chosen:* [select destination folder] → (*) *only if one file has been selected or if manual mode has been chosen: for each selected file:* [select a target file] → *EMXP copies the file → see (*)*

To copy one or more Emulator-IIIX HxC OS floppy disk image files to floppy disk image files:
"1. Manage EMU Files and Disks" → "5. Manage EMU EMULATOR-III/X/ESI Files and Disks" → "7. Manage EMULATOR-IIIX Operating System Files and Disks" → "3. Manage EMULATOR-IIIX Operating System HxC Floppy Disk Images" → [select one or more files] → [press 'I'] or [select "1. Copy HxC OS Floppy Disk Image to EMULATOR-IIIX OS Floppy Disk Image"] → (**) *if multiple files have been selected:* [choose manual or automated file generation mode] → *if automated mode has been chosen:* [select destination folder] → (*) *only if one file has been selected or if manual mode has been chosen: for each selected file:* [select a target file] → *EMXP copies the file → see (*)*

To clone one or more Emulator-IIIX HxC OS floppy disk image files to other HxC floppy disk image files: "1. Manage EMU Files and Disks" → "5. Manage EMU EMULATOR-III/X/ESI Files and Disks" → "7. Manage EMULATOR-IIIX Operating System Files and Disks" → "3. Manage EMULATOR-IIIX Operating System HxC Floppy Disk Images" → [select one or more files] → [press 'X'] or [select "2. Copy HxC OS Floppy Disk Image to EMULATOR-IIIX HxC OS Floppy Disk Image"] → (**) *if multiple files have been selected:* [choose manual or automated file generation mode] → *if automated mode has been chosen:* [select destination folder] → (*) *only if one file has been selected or if manual mode has been chosen: for each selected file:* [select a target file] → *EMXP copies the file* → *see (*)*

(**) Manually or automatically assigning target file names

If two or more files have been selected, EMXP will ask whether the file name for each target file should be manually entered/confirmed by the user, or whether the target files can automatically be generated based on the file names of the source files (see picture below and the steps labelled with (**) in the procedures explained above).



6.5.2.3 Copying hard disk images or SCSI2SD hard disk image partitions

6.5.2.3.1 About the size of data being copied

The way EMXP decides about the size of the data to be copied from a *hard disk image* is identical as the way EMXP decides about the size to be copied from a *hard disk*.
See *section "6.5.1.2.1 About the size of data being copied"* for more details.

When copying Emulator-II hard disk images, the target hard disk or hard disk image can have a different physical configuration than the source hard disk image (e.g. bad sectors on other locations). For this reason EMXP will give you the option to explicitly select a target physical configuration.
For more details about Emulator-II physical configurations for hard disks, see *section "10.5.8.1 Emulator-II support for hard disks: introduction"* and *section "10.5.8.3 Define Emulator-II hard disk/hard disk image configurations"*.

6.5.2.3.2 Copying to hard disks

When copying to hard disks, EMXP will perform a *quick physical format of the target hard disk* before actually copying the contents of the hard disk image file. This however is only done when copying

- a normal, un-partitioned hard disk image file or a specific partition from a SCSI2S partitioned hard disk image file *to a normal un-parttioned hard disk*
- *an entire SCSI2SD partitioned hard disk image file* to a hard disk

A physical format is not performed when copying *to a specific partition of a SCSI2SD partitioned disk*.

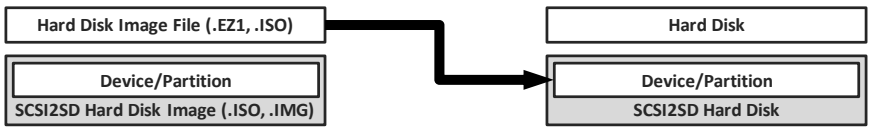
The selected (partition on the) target hard disk may contain valuable data. You will have to confirm *twice* that you agree with *destroying and overwriting* the (partition on the) target disk before the actual copy process will be launched.

Copying an entire SCSI2SD hard disk image file (consisting of multiple partitions) to a single partition of a target SCSISD hard disk is not possible. If you try do this, EMXP will display an error.

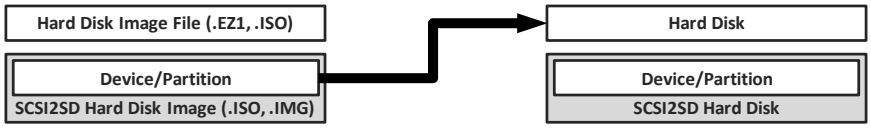
EMAX-I



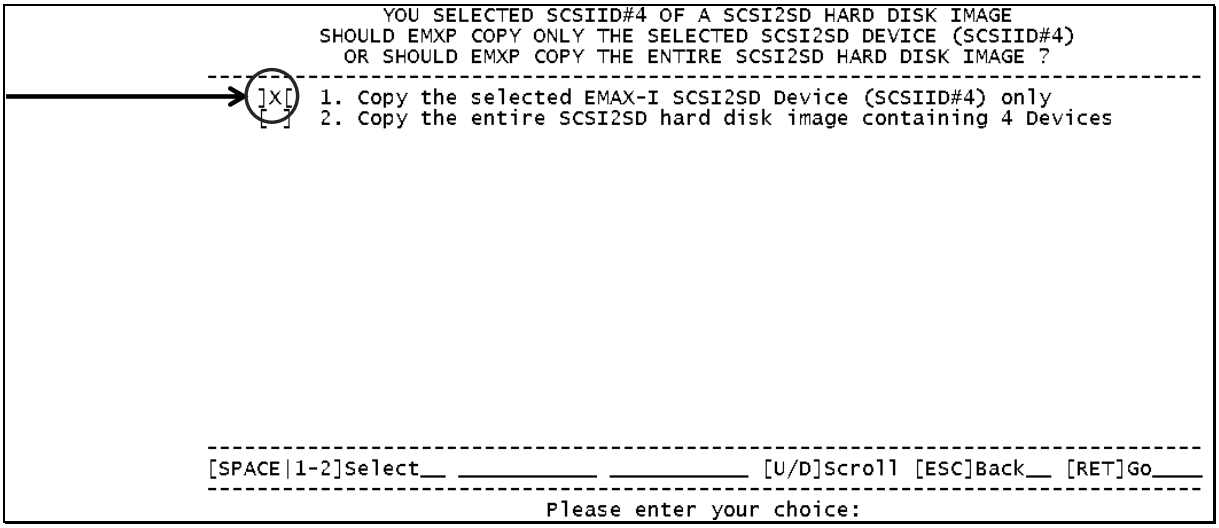
To copy a normal un-partitioned EMAX-I hard disk image file to a normal un-partitioned hard disk
"1. Manage EMU Files and Disks" → "1. Manage EMU EMAX-I Files and Disks" → "4. Manage EMAX-I Hard Disk Images" → "1. Manage existing EMAX-I Hard Disk Images"→ [select a hard disk image file] → [press 'H'] or [select "4. Copy EMAX-I Hard Disk Image to EMAX-I Hard Disk (Restore)"] → [select a target hard disk]



To copy a normal un-partitioned EMAX-I hard disk image file to a SCSI2SD partition on a SCSI2SD partitioned hard disk
"1. Manage EMU Files and Disks" → "1. Manage EMU EMAX-I Files and Disks" → "4. Manage EMAX-I Hard Disk Images" → "1. Manage existing EMAX-I Hard Disk Images"→ [select a hard disk image file] → [press 'H'] or [select "4. Copy EMAX-I Hard Disk Image to EMAX-I Hard Disk (Restore)"] → [scan for SCSI2SD hard disks and select a specific target SCSI2SD partition]



To copy an EMAX-I partition from a SCSI2SD partitioned hard disk image file to a normal un-partitioned hard disk
"1. Manage EMU Files and Disks" → "1. Manage EMU EMAX-I Files and Disks" → "4. Manage EMAX-I Hard Disk Images" → "1. Manage existing EMAX-I Hard Disk Images" → [scan for SCSI2SD hard disk image files and select a specific source SCSI2SD partition] → [press 'H'] or [select "4. Copy EMAX-I Hard Disk Image to EMAX-I Hard Disk (Restore)"] → [select option 1: "copy the selected EMAX-I SCSI2SD Device only", see picture below] → [select target file name and location]

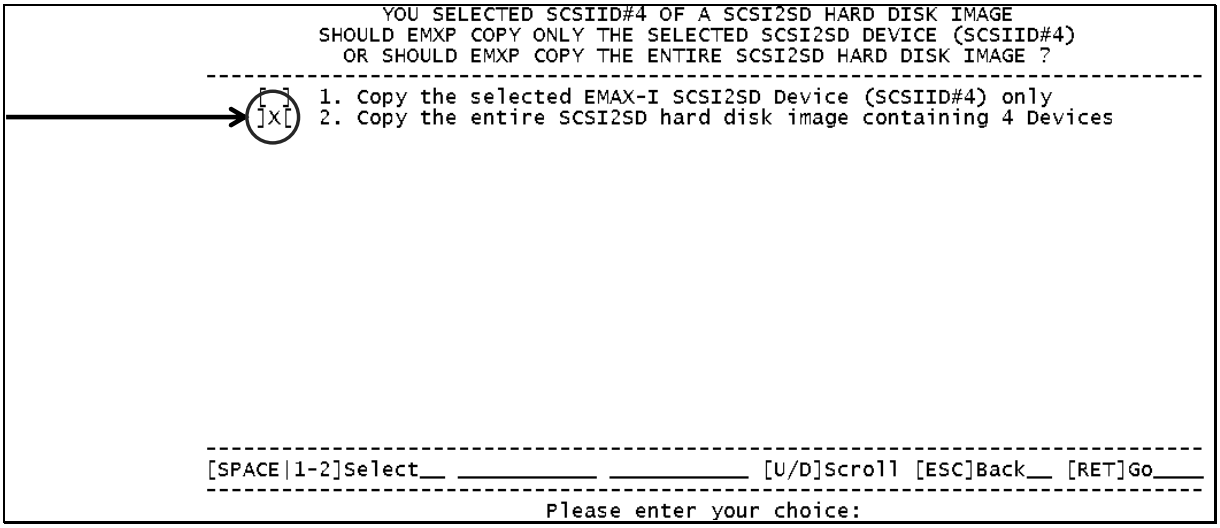




To copy an EMAX-I partition from a SCSI2SD partitioned hard disk image file to a SCSI2SD partition on a SCSI2SD partitioned hard disk
"1. Manage EMU Files and Disks" → "1. Manage EMU EMAX-I Files and Disks" → "4. Manage EMAX-I Hard Disk Images" → "1. Manage existing EMAX-I Hard Disk Images" → [scan for SCSI2SD hard disk image files and select a specific source SCSI2SD partition] → [press 'H'] or [select "4. Copy EMAX-I Hard Disk Image to EMAX-I Hard Disk (Restore)"] → [select option 1: "copy the selected EMAX-I SCSI2SD Device only", see picture above] → [scan for SCSI2SD hard disks and select a specific target SCSI2SD partition]



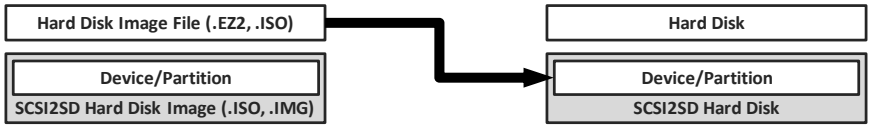
To copy an entire SCSI2SD partitioned hard disk image file (containing at least one EMAX-I partition) to a hard disk
"1. Manage EMU Files and Disks" → "1. Manage EMU EMAX-I Files and Disks" → "4. Manage EMAX-I Hard Disk Images" → "1. Manage existing EMAX-I Hard Disk Images" → [scan for SCSI2SD hard disk image files and select one of its EMAX-I partitions, it doesn't matter which one] → [press 'H'] or [select "4. Copy EMAX-I Hard Disk Image to EMAX-I Hard Disk (Restore)"] → [select option 2: "copy the entire SCSI2SD hard disk image containing ... devices", see picture below] → [select a target hard disk]



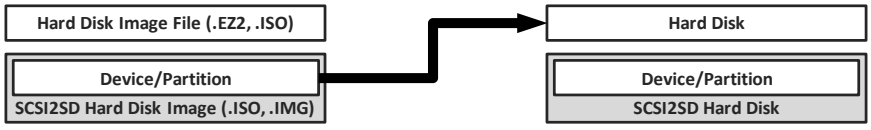
EMAX-II



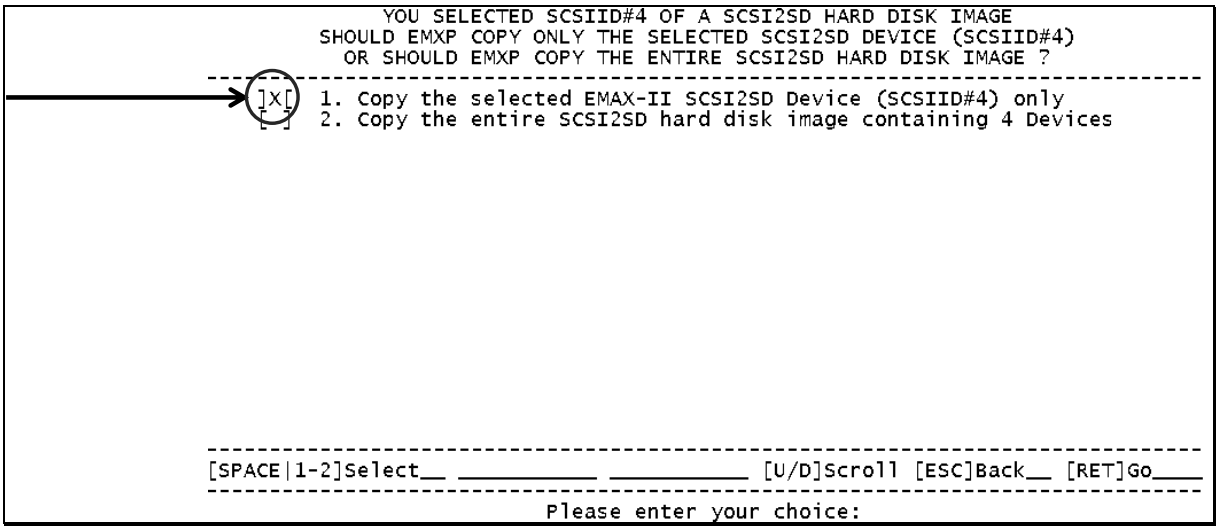
To copy a normal un-partitioned EMAX-II hard disk image file to a normal un-partitioned hard disk
"1. Manage EMU Files and Disks" → "2. Manage EMU EMAX-II Files and Disks" → "4. Manage EMAX-II Hard Disk Images" → "1. Manage existing EMAX-II Hard Disk Images"→ [select a hard disk image file] → [press 'H'] or [select "4. Copy EMAX-II Hard Disk Image to EMAX-II Hard Disk (Restore)"] → [select a target hard disk]



To copy a normal un-partitioned EMAX-II hard disk image file to a SCSI2SD partition on a SCSI2SD partitioned hard disk
"1. Manage EMU Files and Disks" → "2. Manage EMU EMAX-II Files and Disks" → "4. Manage EMAX-II Hard Disk Images" → "1. Manage existing EMAX-II Hard Disk Images"→ [select a hard disk image file] → [press 'H'] or [select "4. Copy EMAX-II Hard Disk Image to EMAX-II Hard Disk (Restore)"] → [scan for SCSI2SD hard disks and select a specific target SCSI2SD partition]



To copy an EMAX-II partition from a SCSI2SD partitioned hard disk image file to a normal un-partitioned hard disk
"1. Manage EMU Files and Disks" → "2. Manage EMU EMAX-II Files and Disks" → "4. Manage EMAX-II Hard Disk Images" → "1. Manage existing EMAX-II Hard Disk Images" → [scan for SCSI2SD hard disk image files and select a specific source SCSI2SD partition] → [press 'H'] or [select "4. Copy EMAX-II Hard Disk Image to EMAX-II Hard Disk (Restore)"] → [select option 1: "copy the selected EMAX-II SCSI2SD Device only", see picture below] → [select target file name and location]

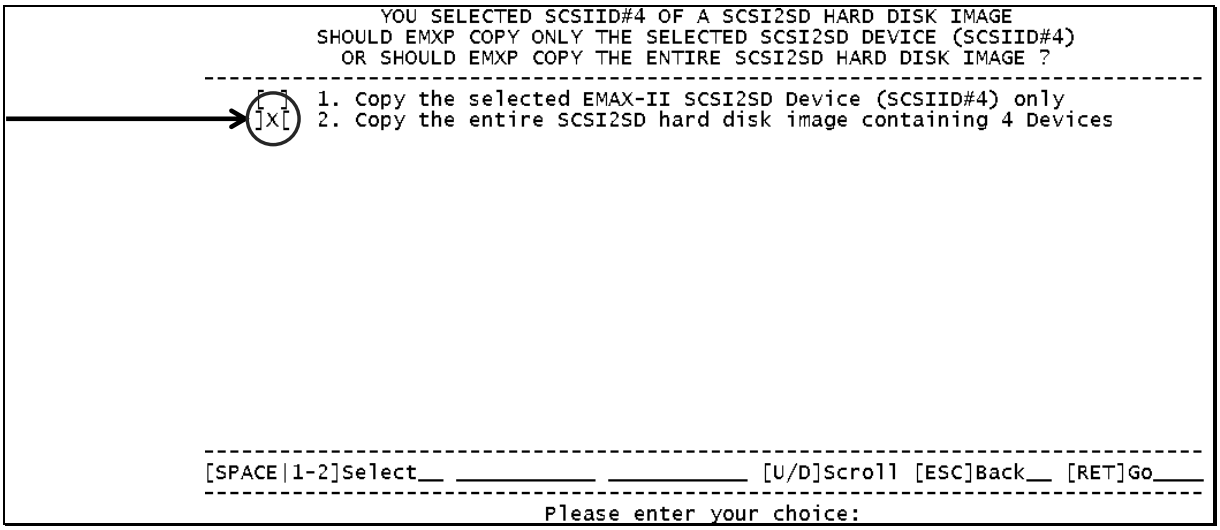




To copy an EMAX-II partition from a SCSI2SD partitioned hard disk image file to a SCSI2SD partition on a SCSI2SD partitioned hard disk
"1. Manage EMU Files and Disks" → "2. Manage EMU EMAX-II Files and Disks" → "4. Manage EMAX-II Hard Disk Images" → "1. Manage existing EMAX-II Hard Disk Images" → [scan for SCSI2SD hard disk image files and select a specific source SCSI2SD partition] → [press 'H'] or [select "4. Copy EMAX-II Hard Disk Image to EMAX-II Hard Disk (Restore)"] → [select option 1: "copy the selected EMAX-II SCSI2SD Device only", see picture above] → [scan for SCSI2SD hard disks and select a specific target SCSI2SD partition]



To copy an entire SCSI2SD partitioned hard disk image file (containing at least one EMAX-II partition) to a hard disk
"1. Manage EMU Files and Disks" → "2. Manage EMU EMAX-II Files and Disks" → "4. Manage EMAX-II Hard Disk Images" → "1. Manage existing EMAX-II Hard Disk Images" → [scan for SCSI2SD hard disk image files and select one of its EMAX-II partitions, it doesn't matter which one] → [press 'H'] or [select "4. Copy EMAX-II Hard Disk Image to EMAX-II Hard Disk (Restore)"] → [select option 2: "copy the entire SCSI2SD hard disk image containing ... devices", see picture below] → [select a target hard disk]



Emulator-II



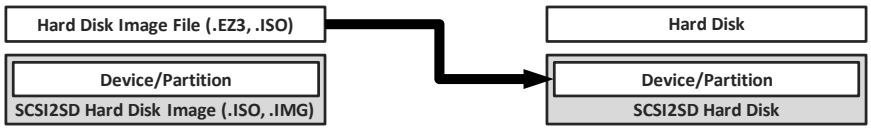
To copy an Emulator-II hard disk image file (e.g. DREM) to a hard disk
"1. Manage EMU Files and Disks" → "4. Manage EMU EMULATOR-II Files and Disks" → "4. Manage EMULATOR-II Hard Disk Images (e.g. DREM)" → "1. Manage existing EMULATOR-II Hard Disk Images"→ [select a hard disk image file] → [press 'H'] or [select ["3. Copy EMULATOR-II Hard Disk Image to EMULATOR-II Hard Disk (Restore)"] → [select a target hard disk] → [select target physical configuration (*)]

(*) the process to select a target physical configuratin is similar to selecting a physical configuration when formatting an Emulator-II hard disk. This has been explained in *chapter "9.1 FORMATTING DISKS", section "Selecting an Emulator-II hard disk configuration"*

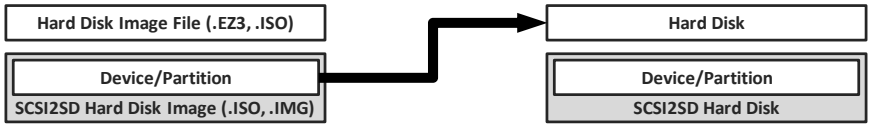
Emulator-III/IIIX/ESI



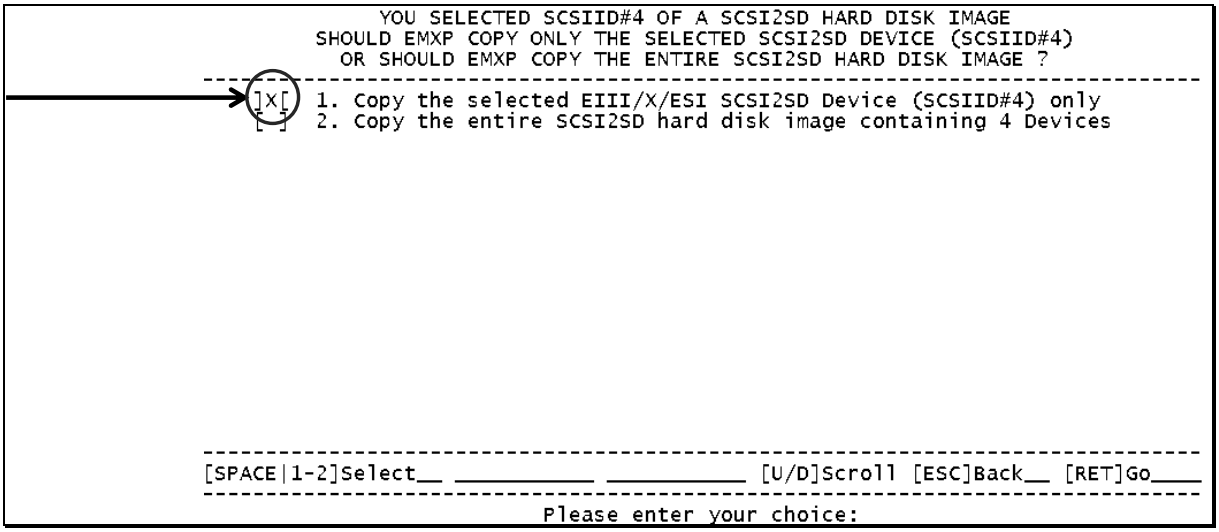
To copy a normal un-partitioned Emulator-III/IIIX/ESI hard disk image file to a normal un-partitioned hard disk
"1. Manage EMU Files and Disks" → "5. Manage EMU EMULATOR-III/X/ESI Files and Disks" → "4. Manage EMULATOR-III/X/ESI Hard Disk Images" → "1. Manage existing EMULATOR-III/X/ESI Hard Disk Images"→ [select a hard disk image file] → [press 'H'] or [select ["6. Copy EIII/X/ESI Hard Disk Image to EIII/X/ESI Hard Disk (Restore)"] → [select a target hard disk]



To copy a normal un-partitioned Emulator-III/IIIX/ESI hard disk image file to a SCSI2SD partition on a SCSI2SD partitioned hard disk
"1. Manage EMU Files and Disks" → "5. Manage EMU EMULATOR-III/X/ESI Files and Disks" → "4. Manage EMULATOR-III/X/ESI Hard Disk Images" → "1. Manage existing EMULATOR-III/X/ESI Hard Disk Images" → [select a hard disk image file] → [press 'H'] or [select "6. Copy EIII/X/ESI Hard Disk Image to EIII/X/ESI Hard Disk (Restore)"] → [scan for SCSI2SD hard disks and select a specific target SCSI2SD partition]



To copy an Emulator-III/IIIX/ESI partition from a SCSI2SD partitioned hard disk image file to a normal un-partitioned hard disk
"1. Manage EMU Files and Disks" → "5. Manage EMU EMULATOR-III/X/ESI Files and Disks" → "4. Manage EMULATOR-III/X/ESI Hard Disk Images" → "1. Manage existing EMULATOR-III/X/ESI Hard Disk Images"→ [scan for SCSI2SD hard disk image files and select a specific source SCSI2SD partition] → [press 'H'] or [select "6. Copy EIII/X/ESI Hard Disk Image to EIII/X/ESI Hard Disk (Restore)"] → [select option 1: "copy the selected EIII/X/ESI SCSI2SD Device only", see picture below] → [select target file name and location]

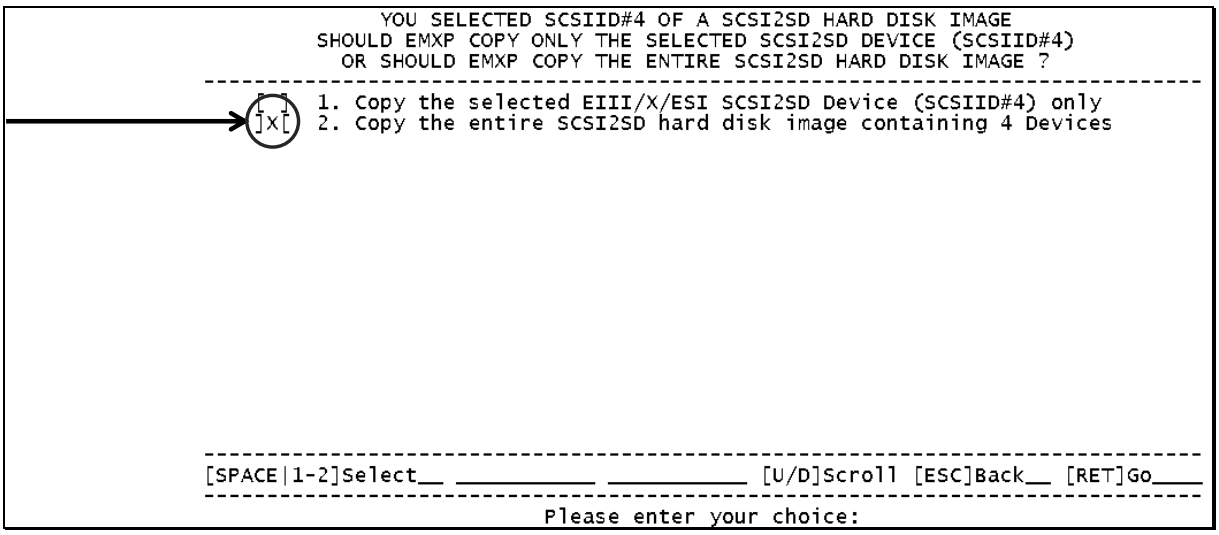




To copy an Emulator-III/IIIX/ESI partition from a SCSI2SD partitioned hard disk image file to a SCSI2SD partition on a SCSI2SD partitioned hard disk
"1. Manage EMU Files and Disks" → "5. Manage EMU EMULATOR-III/X/ESI Files and Disks" → "4. Manage EMULATOR-III/X/ESI Hard Disk Images" → "1. Manage existing EMULATOR-III/X/ESI Hard Disk Images"→ [scan for SCSI2SD hard disk image files and select a specific source SCSI2SD partition] → [press 'H'] or [select "6. Copy EIII/X/ESI Hard Disk Image to EIII/X/ESI Hard Disk (Restore)"] → [select option 1: "copy the selected EIII/X/ESI SCSI2SD Device only", see picture above] → [scan for SCSI2SD hard disks and select a specific target SCSI2SD partition]



To copy an entire SCSI2SD partitioned hard disk image file (containing at least one Emulator-III/IIIX/ESI partition) to a hard disk
"1. Manage EMU Files and Disks" → "5. Manage EMU EMULATOR-III/X/ESI Files and Disks" → "4. Manage EMULATOR-III/X/ESI Hard Disk Images" → "1. Manage existing EMULATOR-III/X/ESI Hard Disk Images"→ [scan for SCSI2SD hard disk image files and select one of its Emulator-III/X/ESI partitions, it doesn't matter which one] → [press 'H'] or [select "6. Copy EIII/X/ESI Hard Disk Image to EIII/X/ESI Hard Disk (Restore)"] → [select option 2: "copy the entire SCSI2SD hard disk image containing ... devices", see picture below] → [select a target hard disk]



6.5.1.2.3 Copying to other hard disk image files

EMXP supports (direct) copies between sampler hard disks image files.

If you copy to an existing (partition in a) hard disk image file, the partition or file may contain valuable data. You will have to confirm that you agree with *destroying and overwriting* the (partition in) the target hard disk image file before the actual copy process will be launched.

Note: when copying (partitions of) hard disk image files to (partitions of) hard disk image files, it's perfectly possible to overwrite the source file or source partition, although in most cases this doesn't make sense.
If the selected target file or partition is the same as the selected source file or partition, EMXP will raise a warning.

```
                              PLEASE CONFIRM
--------------------------------------------------------------------------------



                The selected target file Factory Library.EZ3
              overlaps with the source file Factory Library.EZ3
          Copying the selected source EMULATOR-III/X/ESI hard disk image
                                to this target file
               will actually destroy all data on the source file.
                        Are you sure you want to continue ?
     Press [Y]es to overwrite the file or any other key to select another file



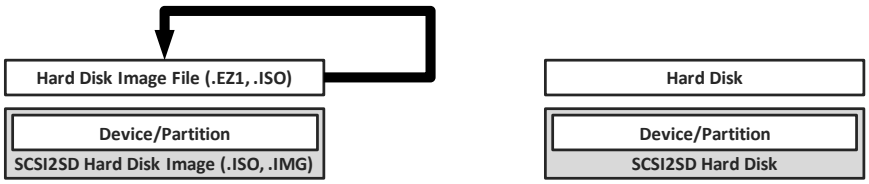




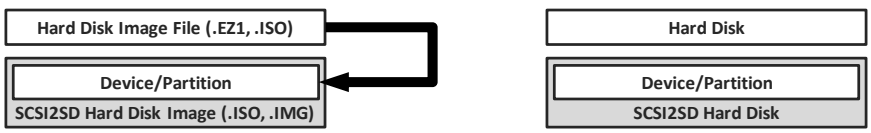


--------------------------------------------------------------------------------
            [Y]: Yes                                  [Any other key]: No
--------------------------------------------------------------------------------
                                Choose [Y]es or [N]o:
```

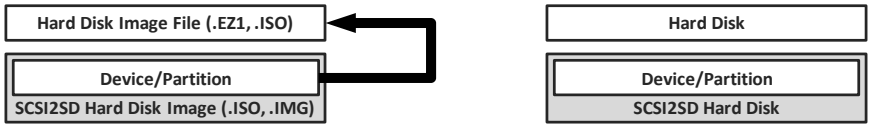
EMAX-I



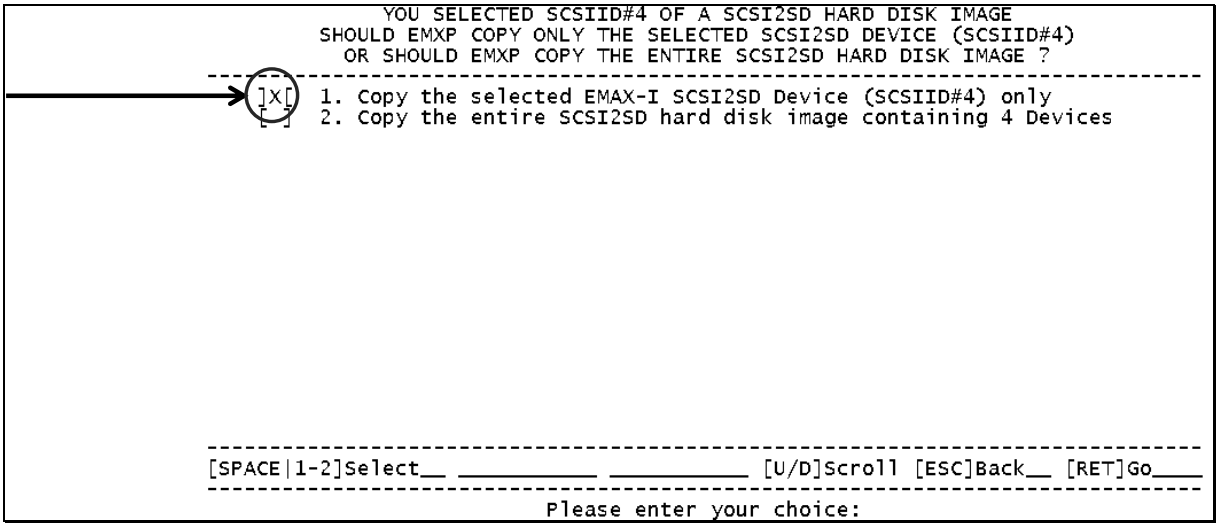
To copy a normal un-partitioned EMAX-I hard disk image file to another normal un-partitioned hard disk file
"1. Manage EMU Files and Disks" → "1. Manage EMU EMAX-I Files and Disks" → "4. Manage EMAX-I Hard Disk Images" → "1. Manage existing EMAX-I Hard Disk Images"→ [select a hard disk image file] → [press 'I'] or [select "5. Copy EMAX-I Hard Disk Image to other EMAX-I Hard Disk Image (Clone)"] → [select a target hard disk image file]

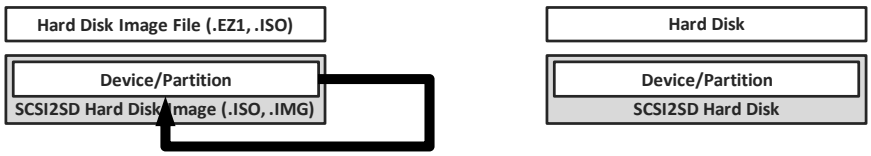


To copy a normal un-partitioned EMAX-I hard disk image file to a SCSI2SD partition in a SCSI2SD partitioned hard disk image file
"1. Manage EMU Files and Disks" → "1. Manage EMU EMAX-I Files and Disks" → "4. Manage EMAX-I Hard Disk Images" → "1. Manage existing EMAX-I Hard Disk Images"→ [select a hard disk image file] →[press 'I'] or [select "5. Copy EMAX-I Hard Disk Image to other EMAX-I Hard Disk Image (Clone)"] → [scan for SCSI2SD hard disk image files and select a specific target SCSI2SD partition]

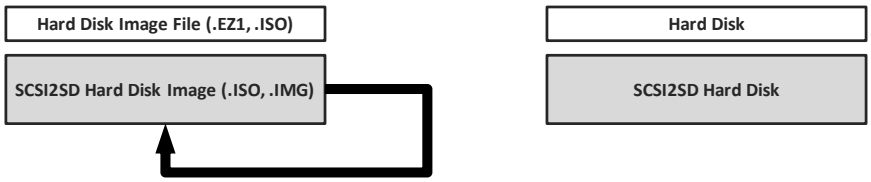


To copy an EMAX-I partition from a SCSI2SD partitioned hard disk image file to a normal un-partitioned hard disk image
"1. Manage EMU Files and Disks" → "1. Manage EMU EMAX-I Files and Disks" → "4. Manage EMAX-I Hard Disk Images" → "1. Manage existing EMAX-I Hard Disk Images"→ [scan for SCSI2SD hard disk image files and select a specific source SCSI2SD partition] → [press 'I'] or [select "5. Copy EMAX-I Hard Disk Image to other EMAX-I Hard Disk Image (Clone)"] → [select option 1: "copy the selected EMAX-I SCSI2SD Device only", see picture below] → [select a target hard disk image file]

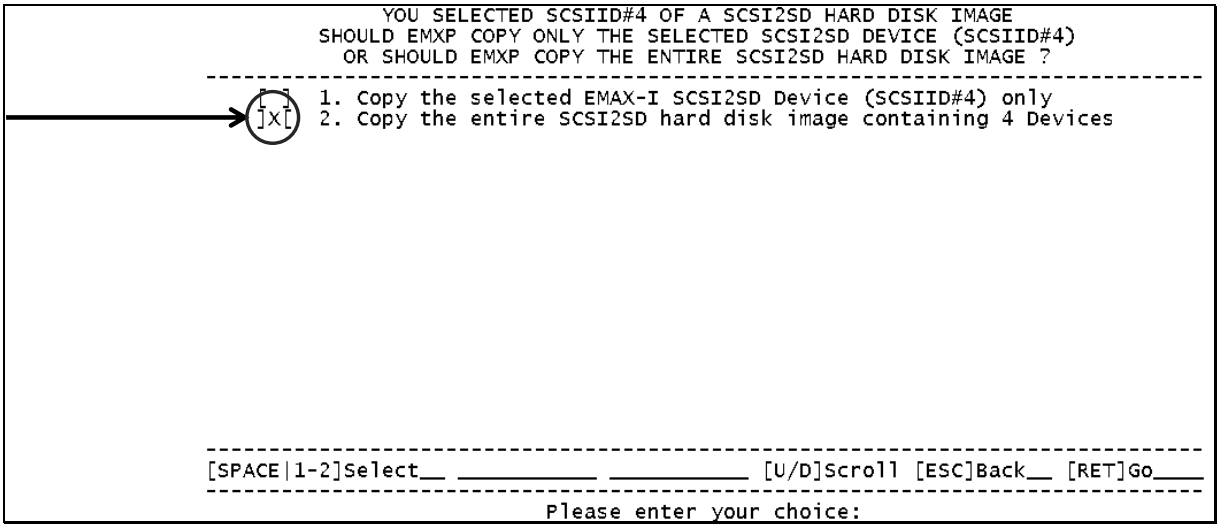




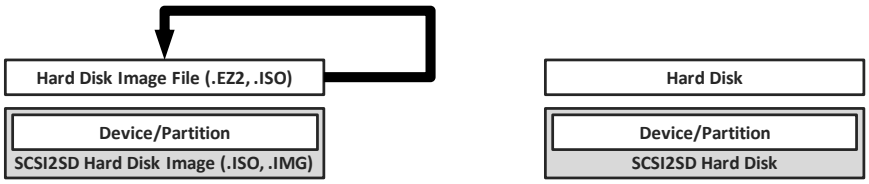
To copy an EMAX-I partition from a SCSI2SD partitioned hard disk image file to a SCSI2SD partition in another SCSI2SD partitioned hard disk image file
"1. Manage EMU Files and Disks" → "1. Manage EMU EMAX-I Files and Disks" → "4. Manage EMAX-I Hard Disk Images" → "1. Manage existing EMAX-I Hard Disk Images"→ [scan for SCSI2SD hard disk image files and select a specific source SCSI2SD partition] → [press 'I'] or [select "5. Copy EMAX-I Hard Disk Image to other EMAX-I Hard Disk Image (Clone)"] → [select option 1: "copy the selected EMAX-I SCSI2SD Device only", see picture above] → [scan for SCSI2SD hard disk image files and select a specific target SCSI2SD partition]



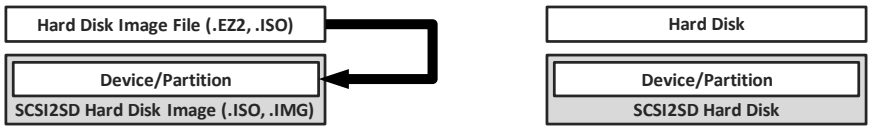
To copy an entire SCSI2SD partitioned hard disk image file (containing at least one EMAX-I partition) to another hard disk image file
"1. Manage EMU Files and Disks" → "1. Manage EMU EMAX-I Files and Disks" → "4. Manage EMAX-I Hard Disk Images" → "1. Manage existing EMAX-I Hard Disk Images" → [scan for SCSI2SD hard disk image files and select one of its EMAX-I partitions, it doesn't matter which one] → [press 'I'] or [select "5. Copy EMAX-I Hard Disk Image to other EMAX-I Hard Disk Image (Clone)"] → [select option 2: "copy the entire SCSI2SD hard disk image containing ... devices", see picture below] → [select a target hard disk image file]



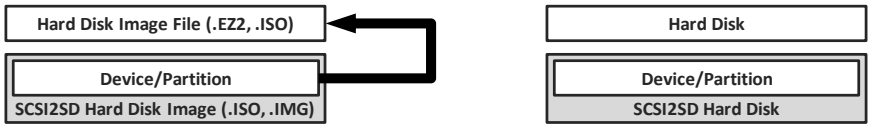
EMAX-II



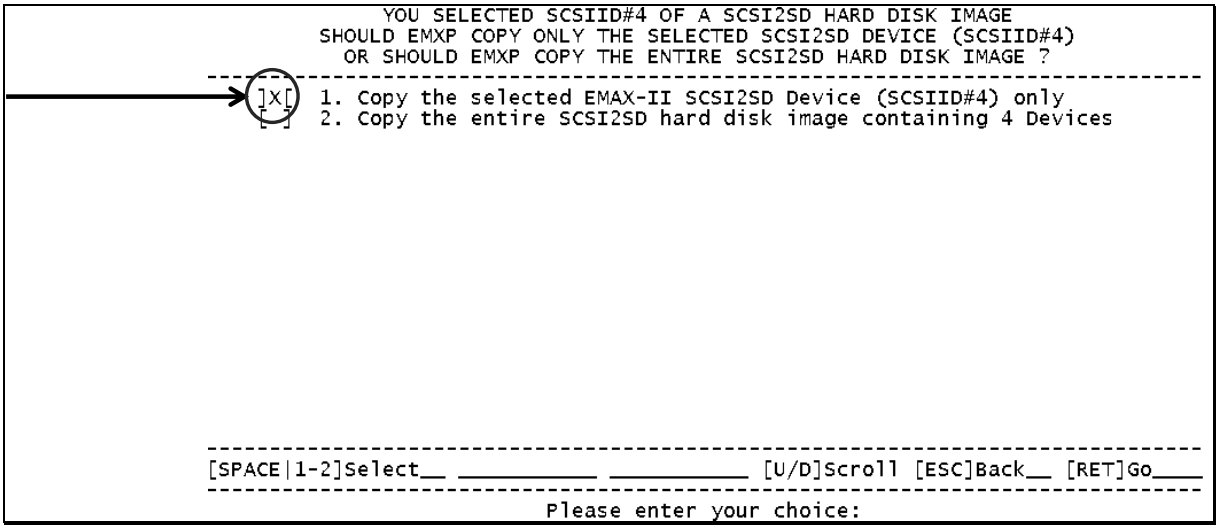
To copy a normal un-partitioned EMAX-II hard disk image file to another normal un-partitioned hard disk file
"1. Manage EMU Files and Disks" → "2. Manage EMU EMAX-II Files and Disks" → "4. Manage EMAX-II Hard Disk Images" → "1. Manage existing EMAX-II Hard Disk Images"→ [select a hard disk image file] → [press 'I] or [select "5. Copy EMAX-II Hard Disk Image to other EMAX-II Hard Disk Image (Clone)"] → [select a target hard disk image file]

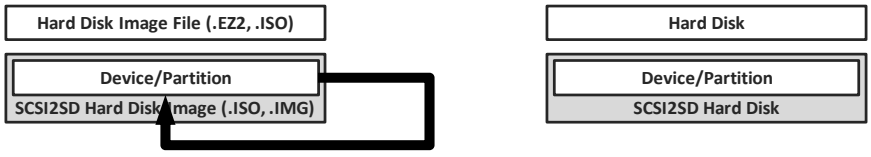


To copy a normal un-partitioned EMAX-II hard disk image file to a SCSI2SD partition in a SCSI2SD partitioned hard disk image file
"1. Manage EMU Files and Disks" → "2. Manage EMU EMAX-II Files and Disks" → "4. Manage EMAX-II Hard Disk Images" → "1. Manage existing EMAX-II Hard Disk Images"→ [select a hard disk image file] → [press 'I'] or [select "5. Copy EMAX-II Hard Disk Image to other EMAX-II Hard Disk Image (Clone)"] → [scan for SCSI2SD hard disk image files and select a specific target SCSI2SD partition]

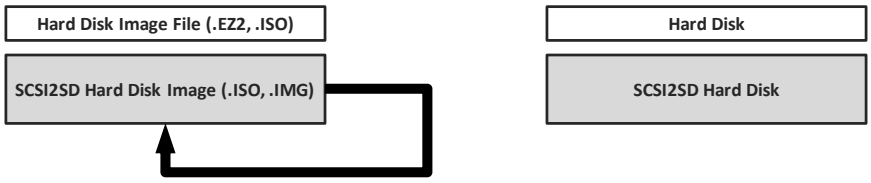


To copy an EMAX-II partition from a SCSI2SD partitioned hard disk image file to a normal un-partitioned hard disk image
"1. Manage EMU Files and Disks" → "2. Manage EMU EMAX-II Files and Disks" → "4. Manage EMAX-II Hard Disk Images" → "1. Manage existing EMAX-II Hard Disk Images"→ [scan for SCSI2SD hard disk image files and select a specific source SCSI2SD partition] → [press 'I'] or [select "5. Copy EMAX-II Hard Disk Image to other EMAX-II Hard Disk Image (Clone)"] → [select option 1: "copy the selected EMAX-II SCSI2SD Device only", see picture below] → [select a target hard disk image file]

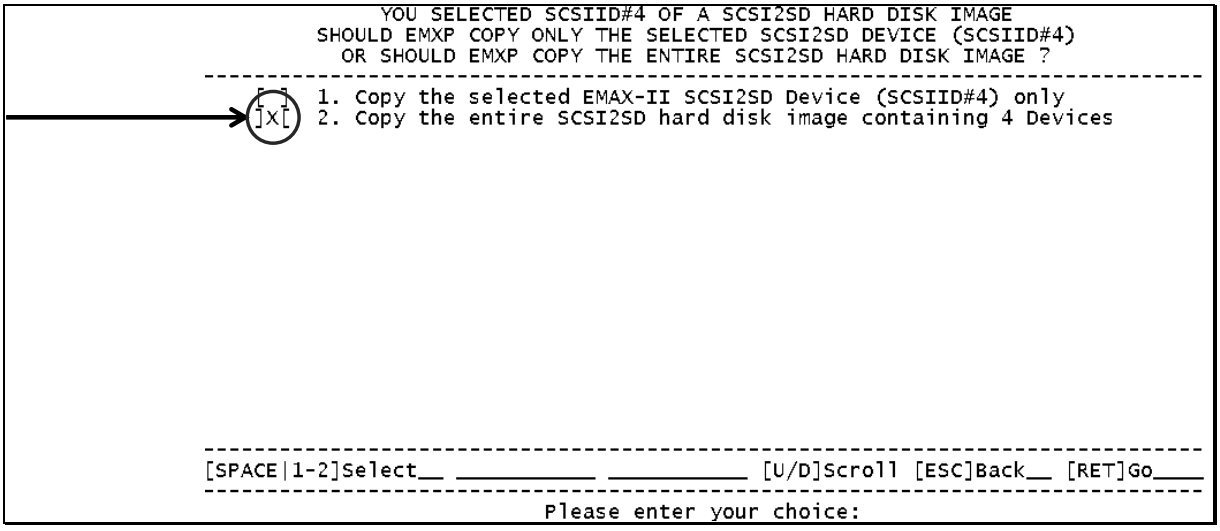




To copy an EMAX-II partition from a SCSI2SD partitioned hard disk image file to a SCSI2SD partition in another SCSI2SD partitioned hard disk image file
"1. Manage EMU Files and Disks" → "2. Manage EMU EMAX-II Files and Disks" → "4. Manage EMAX-II Hard Disk Images" → "1. Manage existing EMAX-II Hard Disk Images"→ [scan for SCSI2SD hard disk image files and select a specific source SCSI2SD partition] → [press 'I'] or [select "5. Copy EMAX-II Hard Disk Image to other EMAX-II Hard Disk Image (Clone)"] → [select option 1: "copy the selected EMAX-II SCSI2SD Device only", see picture above] → [scan for SCSI2SD hard disk image files and select a specific target SCSI2SD partition]



To copy an entire SCSI2SD partitioned hard disk image file (containing at least one EMAX-II partition) to another hard disk image file
"1. Manage EMU Files and Disks" → "2. Manage EMU EMAX-II Files and Disks" → "4. Manage EMAX-II Hard Disk Images" → "1. Manage existing EMAX-II Hard Disk Images" → [scan for SCSI2SD hard disk image files and select one of its EMAX-II partitions, it doesn't matter which one] → [press 'I'] or [select "5. Copy EMAX-II Hard Disk Image to other EMAX-II Hard Disk Image (Clone)"] → [select option 2: "copy the entire SCSI2SD hard disk image containing ... devices", see picture below] → [select a target hard disk image file]



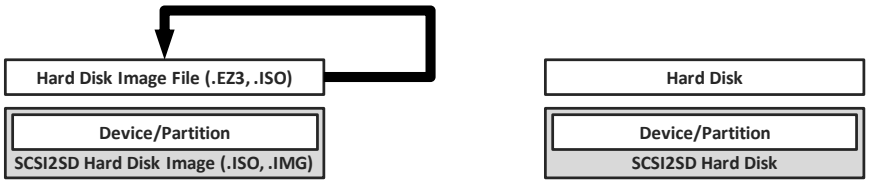
Emulator-II



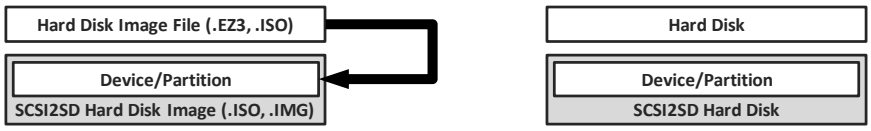
To copy an Emulator-II hard disk image file to another hard disk file (e.g. DREM)
"1. Manage EMU Files and Disks" → "4. Manage EMU EMULATOR-II Files and Disks" → "4. Manage EMULATOR-II Hard Disk Images (e.g. DREM)" → "1. Manage existing EMULATOR-II Hard Disk Images"→ [select a hard disk image file] → [press 'I'] or [select "4. Copy EMULATOR-II Hard Disk Image to other EMULATOR-II Hard Disk Image (Clone)"] → [select a target hard disk image file] → [select target physical configuration (*)]

(*) the process to select a target physical configuratin is similar to selecting a physical configuration when generating a new, empty Emulator-II hard disk image. This has been explained in *chapter "9.2 GENERATING EMPTY HARD DISK IMAGES", section "Selecting an Emulator-II hard disk configuration"*.
In most cases, e.g. when using the images in a DREM emulator, the factory default configuration called Miniscribe 20MB is can be selected.

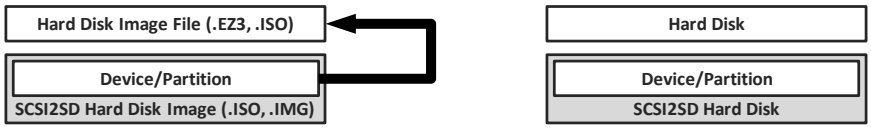
Emulator-III/IIIX/ESI



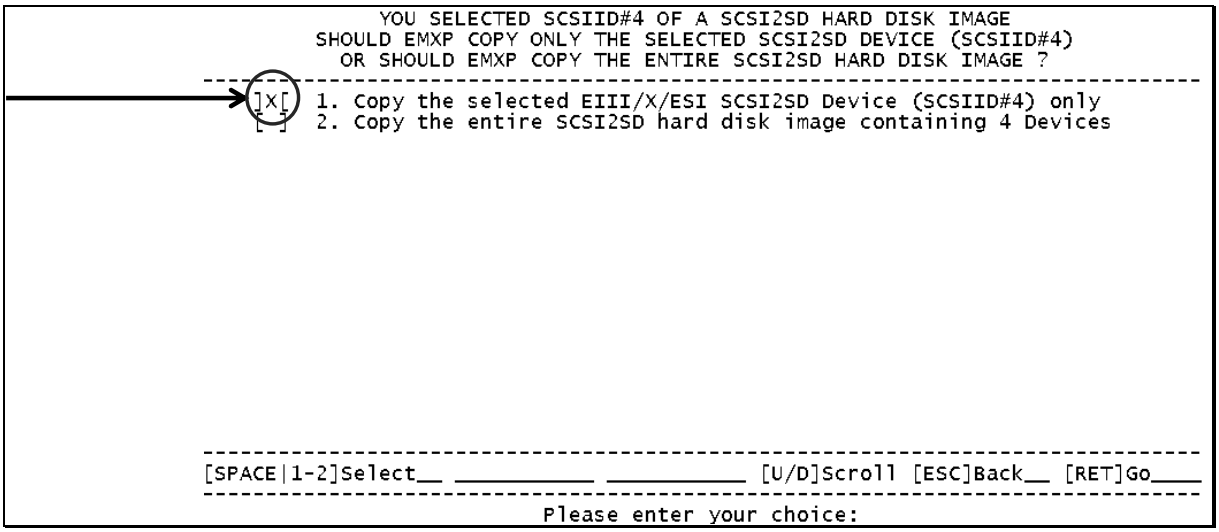
To copy a normal un-partitioned Emulator-III/IIIX/ESI hard disk image file to another normal un-partitioned hard disk file
"1. Manage EMU Files and Disks" → "5. Manage EMU EMULATOR-III/X/ESI Files and Disks" → "4. Manage EMULATOR-III/X/ESI Hard Disk Images" → "1. Manage existing EMULATOR-III/X/ESI Hard Disk Images"→ [select a hard disk image file] → [press 'I'] or [select "7. Copy EIII/X/ESI Hard Disk Image to other EIII/X/ESI Hard Disk Image (Clone)"] → [select a target hard disk image file]

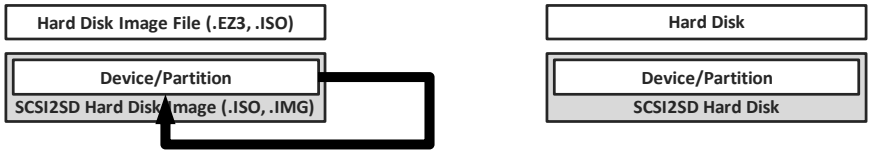


To copy a normal un-partitioned Emulator-III/IIIX/ESI hard disk image file to a SCSI2SD partition in a SCSI2SD partitioned hard disk image file
"1. Manage EMU Files and Disks" → "5. Manage EMU EMULATOR-III/X/ESI Files and Disks" → "4. Manage EMULATOR-III/X/ESI Hard Disk Images" → "1. Manage existing EMULATOR-III/X/ESI Hard Disk Images" → [select a hard disk image file] → [press 'I'] or [select "7. Copy EIII/X/ESI Hard Disk Image to other EIII/X/ESI Hard Disk Image (Clone)"] → [scan for SCSI2SD hard disk image files and select a specific target SCSI2SD partition]

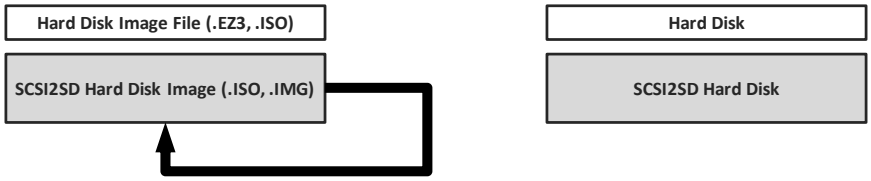


To copy an Emulator-III/IIIX/ESI partition from a SCSI2SD partitioned hard disk image file to a normal un-partitioned hard disk image
"1. Manage EMU Files and Disks" → "5. Manage EMU EMULATOR-III/X/ESI Files and Disks" → "4. Manage EMULATOR-III/X/ESI Hard Disk Images" → "1. Manage existing EMULATOR-III/X/ESI Hard Disk Images" → [scan for SCSI2SD hard disk image files and select a specific source SCSI2SD partition] → [press 'I'] or [select "7. Copy EIII/X/ESI Hard Disk Image to other EIII/X/ESI Hard Disk Image (Clone)"] → [select option 1: "copy the selected EIII/X/ESI SCSI2SD Device only", see picture below] → [select a target hard disk image file]

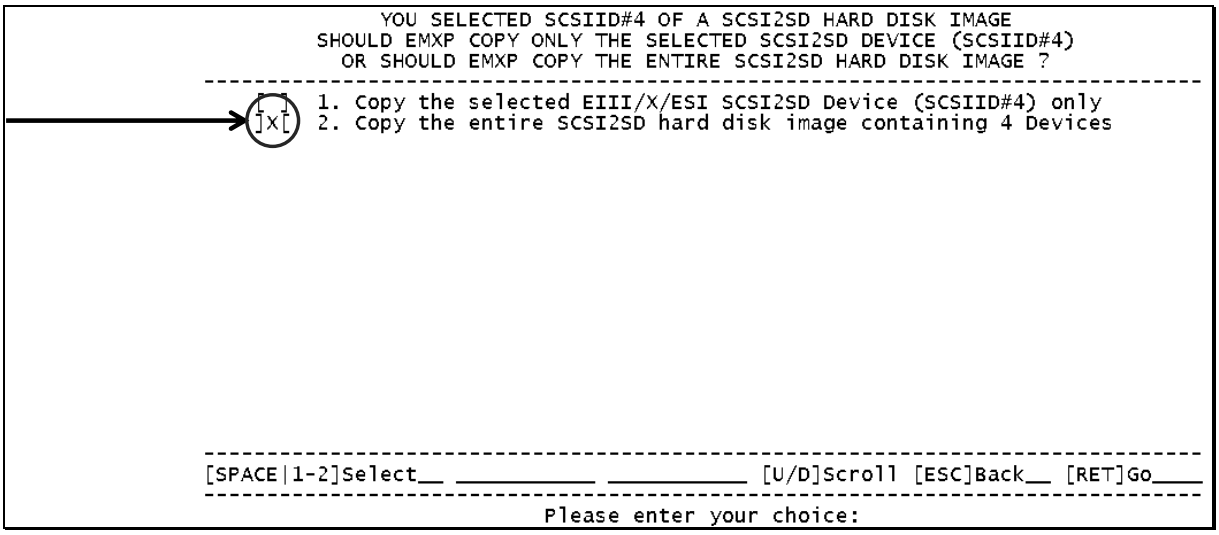




To copy an Emulator-III/IIIX/ESI partition from a SCSI2SD partitioned hard disk image file to a SCSI2SD partition in another SCSI2SD partitioned hard disk image file
"1. Manage EMU Files and Disks" → "5. Manage EMU EMULATOR-III/X/ESI Files and Disks" → "4. Manage EMULATOR-III/X/ESI Hard Disk Images" → "1. Manage existing EMULATOR-III/X/ESI Hard Disk Images" → [scan for SCSI2SD hard disk image files and select a specific source SCSI2SD partition] → [press 'I'] or [select "7. Copy EIII/X/ESI Hard Disk Image to other EIII/X/ESI Hard Disk Image (Clone)"] → [select option 1: "copy the selected EIII/X/ESI SCSI2SD Device only", see picture above] → [scan for SCSI2SD hard disk image files and select a specific target SCSI2SD partition]



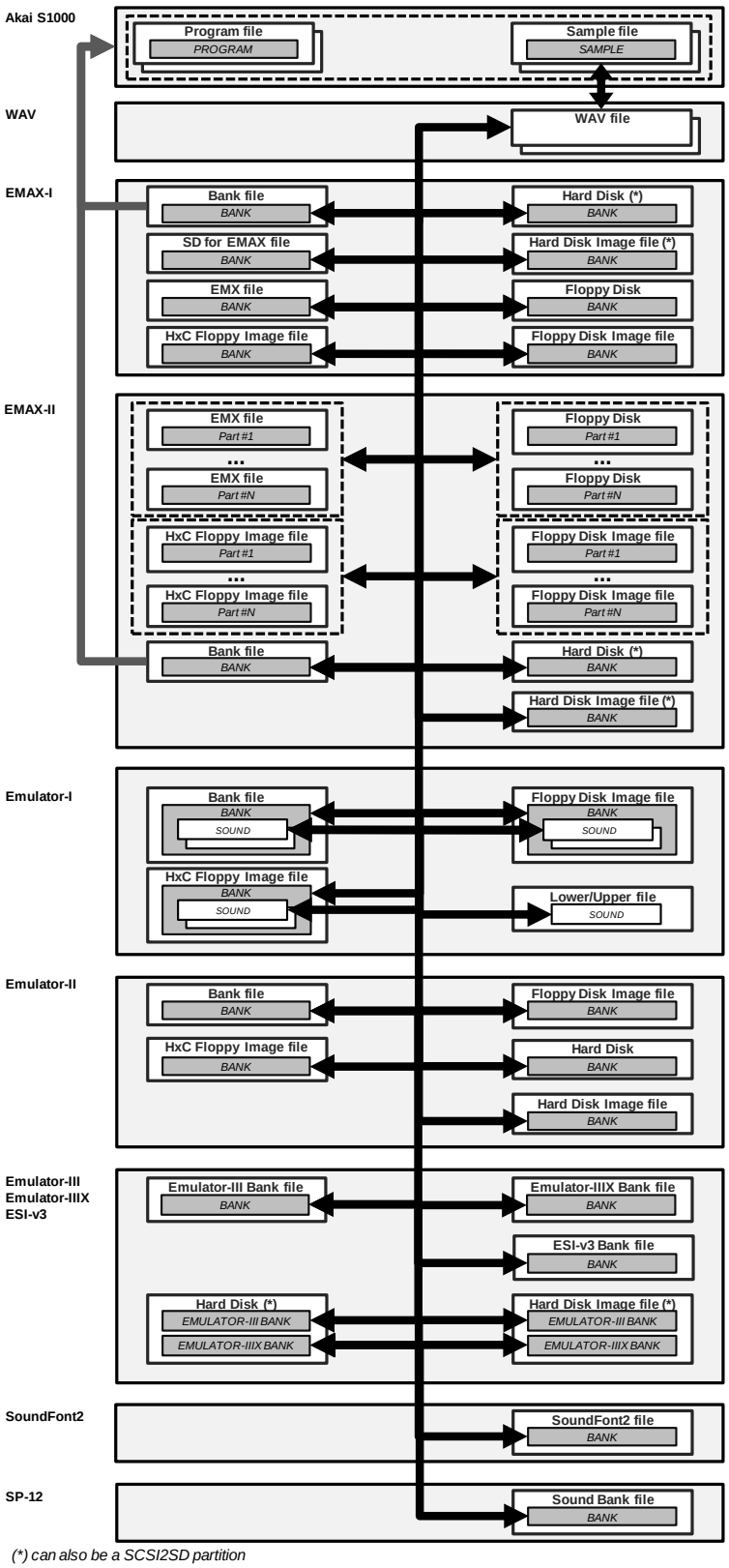
To copy an entire SCSI2SD partitioned hard disk image file (containing at least one Emulator-III/IIIX/ESI partition) to another hard disk image file
"1. Manage EMU Files and Disks" → "5. Manage EMU EMULATOR-III/X/ESI Files and Disks" → "4. Manage EMULATOR-III/X/ESI Hard Disk Images" → "1. Manage existing EMULATOR-III/X/ESI Hard Disk Images"→ [scan for SCSI2SD hard disk image files and select one of its Emulator-III/X/ESI partitions, it doesn't matter which one] → [press 'I'] or [select "7. Copy EIII/X/ESI Hard Disk Image to other EIII/X/ESI Hard Disk Image (Clone)"] → [select option 2: "copy the entire SCSI2SD hard disk image containing ... devices", see picture below] → [select a target hard disk image file]



7. USING EMXP: CONVERSIONS

7.1 OVERVIEW

The following picture illustrates all supported conversion flows:



(*) can also be a SCSI2SD partition

Except for the Akai S1000 sampler format, EMXP supports the conversion from any source sampler format to any target sampler format. This includes converting to and from WAV files. The Akai S1000 sampler format is only supported as a target format; moreover only EMAX-I and EMAX-II bank files and WAV files can be converted into the Akai S1000 format.

Although the picture shows arrows between virtually all supported samplers and sampler file/disk types, conversions *within the same sampler type* (e.g. EMAX-II to EMAX-II) are only supported if sample rate conversion (re-sampling) or memory size conversion are supported. In that case conversions between identical sampler types make sense because the size and nature of a sound bank can be changed. This is true for the EMAX-I, EMAX-II, Emulator-III, Emulator-IIIX, ESI-v3 and SP-12.
If sample rate conversions or memory size conversions are *not* supported, conversions between identical sampler types do not make sense and hence are not supported by EMXP. This is true for Emulator-I, Emulator-II, Akai S1000 and SoundFont2.

In the next sections the conversion process is further elaborated.
The procedure to perform conversions is similar to the procedure to perform a copy of sound data. We will refer to *chapter "6. USING EMXP: COPYING SOUND BANKS AND FILES"* whenever a similar procedure has already been explained in that chapter.

Important note: EMXP does not guarantee that the translated banks sound exactly the same as the original ones. This is due to hardware differences between the various sampler types. Most sound differences are caused by different filter characteristics. If you think the translated file lacks some brightness (or is too bright) we suggest that you change the filter Fc and Q settings on the target sampler to a level which sounds more pleasing or natural. For all possible causes of sound differences, see *section "7.7 CONVERSION CONSTRAINTS AND CONVERSION QUALITY"* below.
Consider the translation functions of EMXP only as a "quick start" for translations between samplers, not as a "final exact copy" ! You may still have to add the finishing touch to your translated sound banks yourself, especially considering filter settings.

7.2 STARTING A CONVERSION PROCESS

7.2.1 Selecting the source items that should be converted

You start a conversion process by selecting *one or more* source items that have to be converted into the requested target sampler format. Here's how you start a conversion for each of the supported source formats:

EMAX-I

Conversion to WAV files

To convert an EMAX-I bank file to WAV files:
"1. Manage EMU Files and Disks" → "1. Manage EMU EMAX-I Files and Disks" → "1. Manage EMAX-I Bank Files" → [select one or more files] → [press 'W'] or [select "3. Extract all Samples to WAV Files"]

To convert an EMAX-I EMX file to WAV files:
"1. Manage EMU Files and Disks" → "1. Manage EMU EMAX-I Files and Disks" → "2. Manage EMAX-I EMX Files" → [select one or more files] → [press 'W'] or [select "3. Extract all Samples to WAV Files"]

To convert a SoundDesigner for EMAX file to WAV files:
"1. Manage EMU Files and Disks" → "1. Manage EMU EMAX-I Files and Disks" → "8. Manage other EMAX-I Files and Disks"→ "1. Manage SoundDesigner for EMAX Files" → [select one or more files] → [press 'W'] or [select "3. Extract all Samples to WAV Files"]

To convert a bank on an EMAX-I hard disk image file or on an EMAX-I partition of a SCSISD hard disk image file to WAV files:
"1. Manage EMU Files and Disks" → "1. Manage EMU EMAX-I Files and Disks" → "4. Manage EMAX-I Hard Disk Images" → "1. Manage existing EMAX-I Hard Disk Images"→ [select a hard disk image file or scan for SCSI2SD and select a partition] → [press 'B'] or [select "1. Manage Banks on EMAX-I Hard Disk Image"] → [select one or more banks] → [press 'W'] or [select "3. Extract all Samples to WAV Files"]

To convert a bank on an EMAX-I hard disk or on an EMAX-I partition of a SCSI2SD hard disk to WAV files:
"1. Manage EMU Files and Disks" → "1. Manage EMU EMAX-I Files and Disks" → "5. Manage EMAX-I Hard Disks" → [select a hard disk or scan for SCSI2SD and select a partition] → [press 'B'] or [select "1. Manage Banks on EMAX-I Hard Disk"] → [select one or more banks] → [press 'W'] or [select "3. Extract all Samples to WAV Files"]

To convert a bank on an EMAX-I floppy disk image file to WAV files:
"1. Manage EMU Files and Disks" → "1. Manage EMU EMAX-I Files and Disks" → "6. Manage EMAX-I Floppy Disk Images" → [select one or more files] → [press 'W'] or [select "3. Extract all Samples to WAV Files"]

To convert a bank on an EMAX-I HxC floppy disk image file to WAV files:
"1. Manage EMU Files and Disks" → "1. Manage EMU EMAX-I Files and Disks" → "7. Manage EMAX-I HxC Floppy Disk Images" → [select one or more files] → [press 'W'] or [select "3. Extract all Samples to WAV Files"]

To convert a bank from an EMAX-I floppy disk to WAV files (=single bank conversion mode):
"1. Manage EMU Files and Disks" → "1. Manage EMU EMAX-I Files and Disks" → "8. Manage other EMAX-I Files and Disks"→ "2. Manage EMAX-I/EMAX-II Floppy Disks" → [select a floppy drive] → [press 'B'] or [select "1. Manage Banks on Floppy Disk"] → [insert a disk if not inserted yet] → [select the bank] →[press 'W'] or [select "3. Extract all Samples to WAV Files"]

To convert banks from a series of EMAX-I floppy disks to WAV files (=multi bank conversion mode):
"1. Manage EMU Files and Disks" → "1. Manage EMU EMAX-I Files and Disks" → "8. Manage other EMAX-I Files and Disks"→ "2. Manage EMAX-I/EMAX-II Floppy Disks" → [select a floppy drive] → [press 'W'] or [select "7. Extract all samples from Floppy Disk(s) to WAV Files"]

For converting sound banks from EMAX-I floppy disks to WAV files, EMXP supports two modes:

- *Single bank* copy mode: in this mode, only the bank of the current floppy disk will be converted
- *Multi bank* copy mode: in this mode, EMXP will keep asking for floppy disks and keep converting the banks from these floppy disks until you cancel the loop by pressing ESC. This mode is useful if you have a lot of floppy disks to be converted and if you would like to speed up the conversion process.

Besides converting *all samples* of an EMAX-I bank to WAV files at once, it's also possible to convert *only a few* selected samples.

To do this, go to the *samples overview of the bank* or to *the samples overview of a specific voice of a preset of the bank* and press 'W' or go to the menu and select option "1. Create WAV File(s) from selected EMAX-I Sample(s)"

Conversion to other sampler format

To convert EMAX-I bank files:
"1. Manage EMU Files and Disks" → "1. Manage EMU EMAX-I Files and Disks" → "1. Manage EMAX-I Bank Files" → [select one or more files] → [press 'C'] or [select "2. Convert to Other Sampler Format"]

To convert EMAX-I EMX files:
"1. Manage EMU Files and Disks" → "1. Manage EMU EMAX-I Files and Disks" → "2. Manage EMAX-I EMX Files" → [select one or more files] → [press 'C'] or [select "2. Convert to Other Sampler Format"]

To convert SoundDesigner for EMAX files:

"1. Manage EMU Files and Disks" → "1. Manage EMU EMAX-I Files and Disks" → "8. Manage other EMAX-I Files and Disks"→ "1. Manage SoundDesigner for EMAX Files" → [select one or more files] → [press 'C'] or [select "2. Convert to Other Sampler Format"]

To convert banks on an EMAX-I hard disk image file or on an EMAX-I partition of a SCSI2SD hard disk image file:
"1. Manage EMU Files and Disks" → "1. Manage EMU EMAX-I Files and Disks" → "4. Manage EMAX-I Hard Disk Images" → "1. Manage existing EMAX-I Hard Disk Images"→ [select a hard disk image file or scan for SCSI2SD and select a partition] → [press 'B'] or [select "1. Manage Banks on EMAX-I Hard Disk Image"] → [select one or more banks] → [press 'C'] or [select "2. Convert to Other Sampler Format"]

To convert banks on an EMAX-I hard disk or on an EMAX-I partition of a SCSI2SD hard disk:
"1. Manage EMU Files and Disks" → "1. Manage EMU EMAX-I Files and Disks" → "5. Manage EMAX-I Hard Disks" → [select a hard disk or scan for SCSI2SD and select a partition] → [press 'B'] or [select "1. Manage Banks on EMAX-I Hard Disk"] → [select one or more banks] → [press 'C'] or [select "2. Convert to Other Sampler Format"]

To convert banks on EMAX-I floppy disk image files:
"1. Manage EMU Files and Disks" → "1. Manage EMU EMAX-I Files and Disks" → "6. Manage EMAX-I Floppy Disk Images" → [select one or more files] → [press 'C'] or [select "2. Convert to Other Sampler Format"]

To convert banks on EMAX-I HxC floppy disk image files:
"1. Manage EMU Files and Disks" → "1. Manage EMU EMAX-I Files and Disks" → "7. Manage EMAX-I HxC Floppy Disk Images" → [select one or more files] → [press 'C'] or [select "2. Convert to Other Sampler Format"]

To convert a bank from an EMAX-I floppy (=single bank conversion mode):
"1. Manage EMU Files and Disks" → "1. Manage EMU EMAX-I Files and Disks" → "8. Manage other EMAX-I Files and Disks"→ "2. Manage EMAX-I/EMAX-II Floppy Disks" → [select a floppy drive] → [press 'B'] or [select "1. Manage Banks on Floppy Disk"] → [insert a disk if not inserted yet] → [select the bank] → [press 'C'] or [select "2. Convert to Other Sampler Format"]

To convert banks from a series of EMAX-I floppy disks (=multi bank conversion mode):
"1. Manage EMU Files and Disks" → "1. Manage EMU EMAX-I Files and Disks" → "8. Manage other EMAX-I Files and Disks"→ "2. Manage EMAX-I/EMAX-II Floppy Disks" → [select a floppy drive] → [press 'C'] or [select "6. Convert Banks of Floppy Disk(s) to Other Sampler format"]

For converting sound banks from EMAX-I floppy disks, EMXP supports two modes:

- *Single bank* copy mode: in this mode, only the bank of the current floppy disk will be converted
- *Multi bank* copy mode: in this mode, EMXP will keep asking for floppy disks and keep converting the banks from these floppy disks until you cancel the loop by pressing ESC. This mode is useful if you have a lot of floppy disks to be converted and if you would like to speed up the conversion process.

EMAX-II

Conversion to WAV files

To convert an EMAX-II bank file to WAV files:
"1. Manage EMU Files and Disks" → "2. Manage EMU EMAX-II Files and Disks" → "1. Manage EMAX-II Bank Files" → [select one or more files] → [press 'W'] or [select "3. Extract all Samples to WAV Files"]

To convert an EMAX-II EMX file to WAV files:
"1. Manage EMU Files and Disks" → "2. Manage EMU EMAX-II Files and Disks" → "2. Manage EMAX-II EMX Files" → [select one or more files] → [press 'W'] or [select "3. Extract all Samples to WAV Files"]

To convert a bank on an EMAX-II hard disk image file or on an EMAX-II partition of a SCSI2SD hard disk image file to WAV files:
"1. Manage EMU Files and Disks" → "2. Manage EMU EMAX-II Files and Disks" → "4. Manage EMAX-II Hard Disk Images" → "1. Manage existing EMAX-II Hard Disk Images"→ [select a hard disk image file or scan for SCSI2SD and select a partition] → [press 'B'] or [select "1. Manage Banks on EMAX-II Hard Disk Image"] → [select one or more banks] → [press 'W'] or [select "3. Extract all Samples to WAV Files"]

To convert a bank on an EMAX-II hard disk or on an EMAX-II partition of a SCSI2SD hard disk to WAV files:
"1. Manage EMU Files and Disks" → "2. Manage EMU EMAX-II Files and Disks" → "5. Manage EMAX-II Hard Disks" → [select a hard disk or scan for SCSI2SD and select a partition] → [press 'B'] or [select "1. Manage Banks on EMAX-II Hard Disk"] → [select one or more banks] → [press 'W'] or [select "3. Extract all Samples to WAV Files"]

To convert a bank on an EMAX-II floppy disk image file to WAV files:
"1. Manage EMU Files and Disks" → "2. Manage EMU EMAX-II Files and Disks" → "6. Manage EMAX-II Floppy Disk Images" → [select one or more files] → [press 'W'] or [select "3. Extract all Samples to WAV Files"]

To convert a bank on an EMAX-II HxC floppy disk image file to WAV files:
"1. Manage EMU Files and Disks" → "2. Manage EMU EMAX-II Files and Disks" → "7. Manage EMAX-II HxC Floppy Disk Images" → [select one or more files] → [press 'W'] or [select "3. Extract all Samples to WAV Files"]

To convert a bank from an EMAX-II floppy disk to WAV files (=single bank conversion mode):
"1. Manage EMU Files and Disks" → "2. Manage EMU EMAX-II Files and Disks" → "8. Manage EMAX-I/EMAX-II Floppy Disks" → [select a floppy drive] → [press 'B'] or [select "1. Manage Banks on Floppy Disk"] → [insert a disk if not inserted yet] → [select the bank] → [press 'W'] or [select "3. Extract all Samples to WAV Files"]

To convert banks from a series of EMAX-II floppy disks to WAV files (=multi bank conversion mode):
"1. Manage EMU Files and Disks" → "2. Manage EMU EMAX-II Files and Disks" → "8. Manage EMAX-I/EMAX-II Floppy Disks" → [select a floppy drive] → [press 'W'] or [select "7. Extract all samples from Floppy Disk(s) to WAV Files"]

Just like for EMAX-I floppy disks, EMXP supports two modes for converting sound banks from EMAX-II floppy disks to WAV files:

- *Single bank* copy mode: in this mode, only the bank of the current floppy disk will be converted
- *Multi bank* copy mode: in this mode, EMXP will keep asking for floppy disks and keep converting the banks from these floppy disks until you cancel the loop by pressing ESC. This mode is useful if you have a lot of floppy disks to be converted and if you would like to speed up the conversion process.

If samples are being converted from EMAX-II EMX files, EMAX-II floppy disks, EMAX-II floppy disk image files or EMAX-II HxC floppy disk image files, the samples may be spread across multiple files or disks. If this is true, EMXP will ask for the other files or disks later during the actual process of converting the samples to WAV files.

Besides converting *all samples* of an EMAX-II bank to WAV files at once, it's also possible to convert *only a few* selected samples.

To do this, go to the *samples overview of the bank* or to *the samples overview of a specific voice of a preset of the bank* and press 'W' or go to the menu and select option "1. Create WAV File(s) from selected EMAX-II Sample(s)"

Again, if you select samples from EMX files, floppy disks, floppy disk image files or HxC floppy disk image files which may be located in another - related - file or disk, EMXP will ask for the other file(s) or disk(s) later during the actual process of converting the selected samples to WAV files.

Conversion to other sampler format

To convert EMAX-II bank files:
"1. Manage EMU Files and Disks" → "2. Manage EMU EMAX-II Files and Disks" → "1. Manage EMAX-II Bank Files" → [select one or more files] → [press 'C'] or [select "2. Convert to Other Sampler Format"]

To convert EMAX-II EMX files:
"1. Manage EMU Files and Disks" → "2. Manage EMU EMAX-II Files and Disks" → "2. Manage EMAX-II EMX Files" → [select one or more files] → [press 'C'] or [select "2. Convert to Other Sampler Format"]

To convert banks on an EMAX-II hard disk image file or on an EMAX-II partition of a SCSI2SD hard disk image file:
"1. Manage EMU Files and Disks" → "2. Manage EMU EMAX-II Files and Disks" → "4. Manage EMAX-II Hard Disk Images" → "1. Manage existing EMAX-II Hard Disk Images"→ [select a hard disk image file or scan for SCSI2SD and select a partition] → [press 'B'] or [select "1. Manage Banks on EMAX-II Hard Disk Image"] → [select one or more banks] → [press 'C'] or [select "2. Convert to Other Sampler Format"]

To convert banks on an EMAX-II hard disk or on an EMAX-II partition of a SCSI2SD hard disk:
"1. Manage EMU Files and Disks" → "2. Manage EMU EMAX-II Files and Disks" → "5. Manage EMAX-II Hard Disks" → [select a hard disk or scan for SCIS2SD and select a partition] → [press 'B'] or [select "1. Manage Banks on EMAX-II Hard Disk"] → [select one or more banks] → [press 'C'] or [select "2. Convert to Other Sampler Format"]

To convert banks on EMAX-II floppy disk image files:
"1. Manage EMU Files and Disks" → "2. Manage EMU EMAX-II Files and Disks" → "6. Manage EMAX-II Floppy Disk Images" → [select one or more files] → [press 'C'] or [select "2. Convert to Other Sampler Format"]

To convert banks on EMAX-II HxC floppy disk image files:
"1. Manage EMU Files and Disks" → "2. Manage EMU EMAX-II Files and Disks" → "7. Manage EMAX-II HxC Floppy Disk Images" → [select one or more files] → [press 'C'] or [select "2. Convert to Other Sampler Format"]

To convert a bank from an EMAX-II floppy (=single bank conversion mode):
"1. Manage EMU Files and Disks" → "2. Manage EMU EMAX-II Files and Disks" → "8. Manage EMAX-I/EMAX-II Floppy Disks" → [select a floppy drive] → [press 'B'] or [select "1. Manage Banks on Floppy Disk"] → [insert a disk if not inserted yet] → [select the bank] → [press 'C'] or [select "2. Convert to Other Sampler Format"]

To convert banks from a series of EMAX-II floppy disks (=multi bank conversion mode):
"1. Manage EMU Files and Disks" → "2. Manage EMU EMAX-II Files and Disks" → "8. Manage EMAX-I/EMAX-II Floppy Disks" → [select a floppy drive] → [press 'C'] or [select "6. Convert Banks of Floppy Disk(s) to Other Sampler format"]

Just like for EMAX-I floppy disks, EMXP supports two modes for converting sound banks from EMAX-II floppy disks:

- *Single bank* copy mode: in this mode, only the bank of the current floppy disk will be converted
- *Multi bank* copy mode: in this mode, EMXP will keep asking for floppy disks and keep converting the banks from these floppy disks until you cancel the loop by pressing ESC. This mode is useful if you have a lot of floppy disks to be converted and if you would like to speed up the conversion process.

If banks are being converted from EMAX-II EMX files, EMAX-II floppy disks, EMAX-II floppy disk image files or EMAX-II floppy disk image files, the banks may be spread across multiple files or disks. If this is true, EMXP will ask for the other files or disks later during the actual conversion process.

Emulator-I

Conversion to WAV files

To convert Emulator-I bank files to WAV files:
"1. Manage EMU Files and Disks" → "3. Manage EMU EMULATOR-I Files" → "1. Manage EMULATOR-I Bank Files" → [select one or more files] → [press 'W'] or [select "3. Extract all Samples to WAV Files"]

To convert Emulator-I lower/upper sound files to WAV files:
"1. Manage EMU Files and Disks" → "3. Manage EMU EMULATOR-I Files" → "2. Manage EMULATOR-I Lower/Upper Sound Files" → [select one or more files] → [press 'W'] or [select "3. Extract all Samples to WAV Files"]

To convert banks from Emulator-I floppy disk image files to WAV files:
"1. Manage EMU Files and Disks" → "3. Manage EMU EMULATOR-I Files" → "3. Manage EMULATOR-I Floppy Disk Images" → [select one or more files] → [press 'W'] or [select "3. Extract all Samples to WAV Files"]

To convert banks from Emulator-I HxC floppy disk image files to WAV files:
"1. Manage EMU Files and Disks" → "3. Manage EMU EMULATOR-I Files" → "4. Manage EMULATOR-I HxC Floppy Disk Images" → [select one or more files] → [press 'W'] or [select "3. Extract all Samples to WAV Files"]

Besides converting *all samples* of an Emulator-I bank or sound to WAV files at once, it's also possible to convert *only a few* selected samples.

To do this, go to the *samples overview of the bank* or to *the samples overview of a specific sound of the bank* and press 'W' or go to the menu and select option "1. Create WAV File(s) from selected EMULATOR-I Sample(s)"

Conversion to other sampler format

To convert Emulator-I bank files:
"1. Manage EMU Files and Disks" → "3. Manage EMU EMULATOR-I Files" → "1. Manage EMULATOR-I Bank Files" → [select one or more files] → [press 'C'] or [select "2. Convert to Other Sampler Format"]

To convert Emulator-I lower/upper sound files:
"1. Manage EMU Files and Disks" → "3. Manage EMU EMULATOR-I Files" → "2. Manage EMULATOR-I Lower/Upper Sound Files" → [select one or more files] → [press 'C'] or [select "2. Convert to Other Sampler Format"]

To convert banks from Emulator-I floppy disk image files:
"1. Manage EMU Files and Disks" → "3. Manage EMU EMULATOR-I Files" → "3. Manage EMULATOR-I Floppy Disk Images" → [select one or more files] → [press 'C'] or [select "2. Convert to Other Sampler Format"]

To convert banks from Emulator-I HxC floppy disk image files:
"1. Manage EMU Files and Disks" → "3. Manage EMU EMULATOR-I Files" → "4. Manage EMULATOR-I HxC Floppy Disk Images" → [select one or more files] → [press 'C'] or [select "2. Convert to Other Sampler Format"]

To convert individual sounds from Emulator-I bank files:
"1. Manage EMU Files and Disks" → "3. Manage EMU EMULATOR-I Files" → "1. Manage EMULATOR-I Bank Files" → [select one file] → [press 'U'] or [select "5. Show Lower/Upper Sounds"]→ [select the lower and/or upper sound'] → [press 'C'] or [select "2. Convert to Other Sampler Format"]

To convert individual sounds from Emulator-I floppy disk image files:
"1. Manage EMU Files and Disks" → "3. Manage EMU EMULATOR-I Files" → "3. Manage EMULATOR-I Floppy Disk Images" → [select one file] → [press 'U'] or [select "9. Show More Details" followed by "1. Show Lower/Upper Sounds"] → [select the lower and/or upper sound'] → [press 'C'] or [select "2. Convert to Other Sampler Format"]

To convert individual sounds from Emulator-I HxC floppy disk image files:
"1. Manage EMU Files and Disks" → "3. Manage EMU EMULATOR-I Files" → "4. Manage EMULATOR-I HxC Floppy Disk Images" → [select one file] → [press 'U'] or [select "9. Show More Details" followed by "1. Show Lower/Upper Sounds"] → [select the lower and/or upper sound'] → [press 'C'] or [select "2. Convert to Other Sampler Format"]

Emulator-II

Conversion to WAV files

To convert Emulator-II bank files to WAV files:
"1. Manage EMU Files and Disks" → "4. Manage EMU EMULATOR-II Files and Disks" → "1. Manage EMULATOR-II Bank Files" → [select one or more files] → [press 'W'] or [select "3. Extract all Samples to WAV Files"]

To convert a bank on an Emulator-II hard disk image file (e.g. DREM file) to WAV files:
"1. Manage EMU Files and Disks" → "2. Manage EMU EMULATOR-II Files and Disks" → "4. Manage EMULATOR-II Hard Disk Images (e.g. DREM)" → "1. Manage existing EMULATOR-II Hard Disk Images"→ [select a hard disk image file] → [press 'B'] or [select "1. Manage Banks on EMULATOR-II Hard Disk Image"] → [select one or more banks] → [press 'W'] or [select "3. Extract all Samples to WAV Files"]

To convert a bank on an Emulator-II hard disk to WAV files:
"1. Manage EMU Files and Disks" → "2. Manage EMU EMULATOR-II Files and Disks" → "5. Manage EMULATOR-II Hard Disks" → [select a hard disk] → [press 'B'] or [select "1. Manage Banks on EMULATOR-II Hard Disk"] → [select one or more banks] → [press 'W'] or [select "3. Extract all Samples to WAV Files"]

To convert banks from Emulator-II floppy disk image files to WAV files:
"1. Manage EMU Files and Disks" → "4. Manage EMU EMULATOR-II Files and Disks" → "2. Manage EMULATOR-II Floppy Disk Images" → [select one or more files] → [press 'W'] or [select "3. Extract all Samples to WAV Files"]

To convert banks from Emulator-II HxC floppy disk image files to WAV files:
"1. Manage EMU Files and Disks" → "4. Manage EMU EMULATOR-II Files and Disks" → "3. Manage EMULATOR-II HxC Floppy Disk Images" → [select one or more files] → [press 'W'] or [select "3. Extract all Samples to WAV Files"]

Besides converting *all samples* of an Emulator-II bank to WAV files at once, it's also possible to convert *only a few* selected samples.

To do this, go to the *samples overview of the bank* or to *the samples overview of a specific voice* and press 'W' or go to the menu and select option "1. Create WAV File(s) from selected EMULATOR-II Sample(s)"

Conversion to other sampler format

To convert Emulator-II bank files:
"1. Manage EMU Files and Disks" → "4. Manage EMU EMULATOR-II Files and Disks" → "1. Manage EMULATOR-II Bank Files" → [select one or more files] → [press 'C'] or [select "2. Convert to Other Sampler Format"]

To convert banks on an Emulator-II hard disk image file (e.g. DREM file):
"1. Manage EMU Files and Disks" → "2. Manage EMU EMULATOR-II Files and Disks" → "4. Manage EMULATOR-II Hard Disk Images (e.g. DREM)" → "1. Manage existing EMULATOR-II Hard Disk Images"→ [select a hard disk image file] → [press 'B'] or [select "1. Manage Banks on EMULATOR-II Hard Disk Image"] → [select one or more banks] → [press 'C'] or [select "2. Convert to Other Sampler Format"]

To convert banks on an Emulator-II hard disk:
"1. Manage EMU Files and Disks" → "2. Manage EMU EMULATOR-II Files and Disks" → "5. Manage EMULATOR-II Hard Disks" → [select a hard disk] → [press 'B'] or [select "1. Manage Banks on EMULATOR-II Hard Disk"] → [select one or more banks] → [press 'C'] or [select "2. Convert to Other Sampler Format"]

To convert banks from Emulator-II floppy disk image files:
"1. Manage EMU Files and Disks" → "4. Manage EMU EMULATOR-II Files and Disks" → "2. Manage EMULATOR-II Floppy Disk Images" → [select one or more files] → [press 'C'] or [select "2. Convert to Other Sampler Format"]

To convert banks from Emulator-II HxC floppy disk image files:
"1. Manage EMU Files and Disks" → "4. Manage EMU EMULATOR-II Files and Disks" → "3. Manage EMULATOR-II HxC Floppy Disk Images" → [select one or more files] → [press 'C'] or [select "2. Convert to Other Sampler Format"]

Emulator-III/IIIX/ESI

Conversion to WAV files

To convert Emulator-III bank files to WAV files:
"1. Manage EMU Files and Disks" → "5. Manage EMU EMULATOR-III/X/ESI Files and Disks" → "1. Manage EMULATOR-III Bank Files" → [select one or more files] → [press 'W'] or [select "3. Extract all Samples to WAV Files"]

To convert Emulator-IIIX bank files to WAV files:
"1. Manage EMU Files and Disks" → "5. Manage EMU EMULATOR-III/X/ESI Files and Disks" → "2. Manage EMULATOR-IIIX Bank Files" → [select one or more files] → [press 'W'] or [select "3. Extract all Samples to WAV Files"]

To convert ESI-v3 bank files to WAV files:
"1. Manage EMU Files and Disks" → "5. Manage EMU EMULATOR-III/X/ESI Files and Disks" → "3. Manage ESI-V3 Bank Files" → [select one or more files] → [press 'W'] or [select "3. Extract all Samples to WAV Files"]

To convert banks from an Emulator-III/IIIX/ESI hard disk image file or from an Emulator-III/IIIX/ESI partition of a SCSI2SD hard disk image file to WAV files:
"1. Manage EMU Files and Disks" → "5. Manage EMU EMULATOR-III/X/ESI Files and Disks" → "4. Manage EMULATOR-III/X/ESI Hard Disk Images" → "1. Manage existing EMULATOR-III/X/ESI Hard Disk Images" → [select one hard disk image file or scan for SCSI2SD and select a partition] → *to see all banks* [press "B"] or [select "1. Manage all Banks on EMULATOR-III/X/ESI Hard Disk Image"]; *to see only Emulator-III banks* [press "E"] or [select "2. Manage EMULATOR-III Banks only on Hard Disk Image"]; *to see only Emulator-IIIX banks* [press "X"] or [select "3. Manage EMULATOR-IIIX Banks only on Hard Disk Image"]; *to see only ESI-v3 banks* [press "J"] or [select "4. Manage ESI-V3 Banks only on Hard Disk Image"] → [select one or more banks] → [press 'W'] or [select "3. Extract all Samples to WAV Files"]

To convert banks from an Emulator-III/IIIX/ESI hard disk or from an Emulator-III/IIIX/ESI partition of a SCSI2SD hard disk to WAV files:
"1. Manage EMU Files and Disks" → "5. Manage EMU EMULATOR-III/X/ESI Files and Disks" → "5. Manage EMULATOR-III/X/ESI Hard Disks" → [select a hard disk or scan for SCSI2SD and select a partition] → *to see all banks* [press 'B] or [select "1. Manage all Banks on EMULATOR-III/X/ESI Hard Disk"]; *to see only Emulator-III banks* [press 'E'] or [select "2. Manage EMULATOR-III Banks only on Hard Disk"]; *to see only Emulator-IIIX banks* [press 'X'] or [select "3. Manage EMULATOR-IIIX Banks only on Hard Disk"]; *to see only ESI-v3 banks* [press 'J'] or [select "4. Manage ESI-V3 Banks only on Hard Disk"] → [select one or more banks] → [press 'W'] or [select "3. Extract all Samples to WAV Files"]

Besides converting *all samples* of an Emulator-III/IIIX/ESI-v3 bank to WAV files at once, it's also possible to convert *only a few* selected samples.

To do this, go to the *samples overview of the bank* or to *the samples overview of a specific voice* and press 'W' or go to the menu and select option "1. Create WAV File(s) from selected EMULATOR-III Sample(s)", "1. Create WAV File(s) from selected EMULATOR-IIIX Sample(s)" or "1. Create WAV File(s) from selected ESI-V3 Sample(s)"

Conversion to other sampler format

To convert Emulator-III bank files:
"1. Manage EMU Files and Disks" → "5. Manage EMU EMULATOR-III/X/ESI Files and Disks" → "1. Manage EMULATOR-III Bank Files" → [select one or more files] → [press 'C'] or [select "2. Convert to Other Sampler Format"]

To convert Emulator-IIIX bank files:
"1. Manage EMU Files and Disks" → "5. Manage EMU EMULATOR-III/X/ESI Files and Disks" → "2. Manage EMULATOR-IIIX Bank Files" → [select one or more files] → [press 'C'] or [select "2. Convert to Other Sampler Format"]

To convert ESI-v3 bank files:
"1. Manage EMU Files and Disks" → "5. Manage EMU EMULATOR-III/X/ESI Files and Disks" → "3. Manage ESI-V3 Bank Files" → [select one or more files] → [press 'C'] or [select "2. Convert to Other Sampler Format"]

To convert banks from an Emulator-III/IIIX/ESI hard disk image file or from an Emulator-III/IIIX/ESI partition of a SCSI2SD hard disk image file:
"1. Manage EMU Files and Disks" → "5. Manage EMU EMULATOR-III/X/ESI Files and Disks" → "4. Manage EMULATOR-III/X/ESI Hard Disk Images" → "1. Manage existing EMULATOR-III/X/ESI Hard Disk Images" → [select one hard disk image file or scan for SCSI2SD and select a partition] → *to see all banks* [press "B"] or [select "1. Manage all Banks on EMULATOR-III/X/ESI Hard Disk Image"]; *to see only Emulator-III banks* [press "E"] or [select "2. Manage EMULATOR-III Banks only on Hard Disk Image"]; *to see only Emulator-IIIX banks* [press "X"] or [select "3. Manage EMULATOR-IIIX Banks only on Hard Disk Image"]; *to see only ESI-v3 banks* [press "J"] or [select "4. Manage ESI-V3 Banks only on Hard Disk Image"] → [select one or more banks] → [press 'C'] or [select "2. Convert to Other Sampler Format"]

To convert banks from an Emulator-III/IIIX/ESI hard disk or from an Emulator-III/IIIX/ESI partition of a SCSI2SD hard disk:
"1. Manage EMU Files and Disks" → "5. Manage EMU EMULATOR-III/X/ESI Files and Disks" → "5. Manage EMULATOR-III/X/ESI Hard Disks" → [select a hard disk or scan for SCSI2SD and select a partition] → *to see all banks* [press 'B'] or [select "1. Manage all Banks on EMULATOR-III/X/ESI Hard Disk"]; *to see only Emulator-III banks* [press 'E'] or [select "2. Manage EMULATOR-III Banks only on Hard Disk"]; *to see only Emulator-IIIX banks* [press 'X'] or [select "3. Manage EMULATOR-IIIX Banks only on Hard Disk"]; *to see only ESI-v3 banks* [press 'J'] or [select "4. Manage ESI-V3 Banks only on Hard Disk"] → [select one or more banks] → [press 'C'] or [select "2. Convert to Other Sampler Format"]

SP-12

Conversion to WAV files

To convert SP-12 sound bank files to WAV files:
"1. Manage EMU Files and Disks" → "6. Manage EMU SP-12 Files" → "1. Manage SP-12 Sound Bank Files" → [select one or more files] → [press 'W'] or [select "3. Extract all Samples to WAV Files"]

Besides converting *all samples* of an SP-12 sound bank to WAV files at once, it's also possible to convert *only a few* selected samples.

To do this, go to the *(RAM) samples overview of the bank* or to *the (RAM) samples overview of a specific sound* and press 'W' or go the menu and select option "1. Create WAV File(s) from selected SP-12 Sample(s)"

Conversion to other sampler format

To convert Emulator-II bank files:
"1. Manage EMU Files and Disks" → "6. Manage EMU SP-12 Files" → "1. Manage SP-12 Sound Bank Files" → [select one or more files] → [press 'C'] or [select "2. Convert to Other Sampler Format"]

SoundFont2

Conversion to WAV files

To convert SoundFont2 files to WAV files:
"4. Manage SOUNDFONT2 Files" → [select one or more files] → [press 'W'] or [select "2. Extract all Samples to WAV Files"]

Besides converting *all samples* of a SoundFont2 bank to WAV files at once, it's also possible to convert *only a few* selected samples.

To do this, go to the *samples overview of the bank* or to *the samples overview of a specific instrument or instrument zone* and press 'W' or go to the menu and select option "1. Create WAV File(s) from selected SOUNDFONT2 Sample(s)"

Conversion to other sampler format

To convert SoundFont2 files:
"4. Manage SOUNDFONT2 Files" → [select one or more files] → [press 'C'] or [select "1. Convert to Other Sampler Format"]

Akai S1000

The only conversion supported for Akai S1000 items is the conversion to WAV files.

To convert Akai S1000 sample files to WAV files:
"2. Manage AKAI S1000 Files and Disks" → "3. Manage AKAI S1000 Sample Files only" → [select one or more files] → [press 'W'] or [select "4. Create WAV File(s) from AKAI S1000 Sample File(s)"]

To convert all Akai S1000 samples from one or more floppy disk images to WAV files:
"2. Manage AKAI S1000 Files and Disks" → "6. Manage AKAI S1000 Floppy Disk Images" → "1. Manage existing AKAI S1000 Floppy Disk Images" → [select one or more floppy disk image files] → [press 'W'] or [select "2. Extract all Sample Files to WAV Files"]

To convert some Akai S1000 samples from a floppy disk image to WAV files:
"2. Manage AKAI S1000 Files and Disks" → "6. Manage AKAI S1000 Floppy Disk Images" → "1. Manage existing AKAI S1000 Floppy Disk Images" → [select a floppy disk image file] → [press "S"] or [select "6. Show AKAI S1000 Sample Files only"] → [select one or more samples] → [press 'W'] or [select "2. Create WAV File(s) from AKAI S1000 Sample File(s)"]

To convert all Akai S1000 samples from one or more HxC floppy disk images to WAV files:
"2. Manage AKAI S1000 Files and Disks" → "7. Manage AKAI S1000 HxC Floppy Disk Images" → "1. Manage existing AKAI S1000 HxC Floppy Disk Images" → [select one or more HxC floppy disk image files] → [press 'W'] or [select "2. Extract all Sample Files to WAV Files"]

To convert some Akai S1000 samples from an HxC floppy disk image to WAV files:
"2. Manage AKAI S1000 Files and Disks" → "7. Manage AKAI S1000 HxC Floppy Disk Images" → "1. Manage existing AKAI S1000 HxC Floppy Disk Images" → [select an HxC floppy disk image file] → [press "S"] or [select "6. Show AKAI S1000 Sample Files only"] → [select one or more samples] → [press 'W'] or [select "2. Create WAV File(s) from AKAI S1000 Sample File(s)"]

To convert all Akai S1000 samples from a floppy disk to WAV files (single disk extract mode) :
"2. Manage AKAI S1000 Files and Disks" → "8. Manage AKAI S1000 Floppy Disks" → [select a floppy drive] → [press 'D'] or [select "1. Manage AKAI S1000 Files on Floppy Disk"] → [insert a disk if not inserted yet] → [select the volume] → [press 'W'] or [select "7. Extract all Sample Files to WAV Files"]

To convert some Akai S1000 samples from a floppy disk to WAV files:
"2. Manage AKAI S1000 Files and Disks" → "8. Manage AKAI S1000 Floppy Disks" → [select a floppy drive] → [press 'D'] or [select "1. Manage AKAI S1000 Files on Floppy Disk"[] → [insert a disk if not inserted yet] → [select the volume] → [press "S"] or [select "3. Show AKAI S1000 Sample Files only"] → [select one or more samples] → [press 'W'] or [select "2. Create WAV File(s) from AKAI S1000 Sample File(s)"]

To convert all Akai S1000 samples from multiple floppy disks to WAV files (multi disk extract mode) :
"2. Manage AKAI S1000 Files and Disks" → "8. Manage AKAI S1000 Floppy Disks" → [select a floppy drive] → [press 'W'] or [select "6. Extract all Samples from Floppy Disk(s) to WAV Files"]

For converting samples from Akai S1000 floppy disks to WAV files, EMXP supports two modes:

- *Single disk* extract mode: in this mode, only the samples of the current floppy disk will be converted
- *Multi disk* extract mode: in this mode, EMXP will keep asking for floppy disks and keep converting all samples from these floppy disks until you cancel the loop by pressing ESC. This mode is useful if you have a lot of floppy disks to be converted and if you would like to speed up the conversion process.

WAV

In this chapter we describe how EMXP *automatically* translates one or more selected WAV files into any of the supported target sampler formats.

In this conversion mode, EMXP decides itself to which key in which preset each WAV file will be assigned, except if the target sampler format is SP-12. When converting WAV files to SP-12 sound banks, EMXP will offer the choice between assigning WAV files to User sounds only, or assigning them to any sound starting with Bass 1 or User 1. See *section "7.3.6.2 Conversion from WAV files"*.
When converting to any other sampler format (except for the Emulator-I) EMXP will assign the WAV files in alphabetical order from C1 till C6, one WAV file per key. If more than 61 WAV files must be processed, a second preset will be added and the same algorithm is applied.

If you want to decide yourself to which key(s) WAV files should be assigned, and also want to have the possibility to

- change the original pitch (note/key),
- enable or disable transposition,
- assign WAV files to key *areas* instead of individual keys,
- select the layer (PRI or SEC) to which the WAV files should be assigned,

you should use the (manual) *construction* mode of EMXP instead of the automatic conversion mode.
This mode is explained in *chapter "8. USING EMXP: CONSTRUCTIONS"*.

To convert WAV files:
"3. Manage WAV Files" → "1. Manage WAV Files" → [select one or more WAV files] → [press 'C'] or [select "1.Convert selected WAV File(s) to Other Sampler Format"]
or
"3. Manage WAV Files" → "2. Basic WAV-to-Sampler Conversion (automatic)" → [select one or more WAV files]
(the two options are identical)

Please note that not all WAV files can be processed by EMXP.
EMXP can only convert WAV files with following characteristics:

- The WAV file should be either MONO or STEREO. Multi-channel .WAV files (e.g. 5.1 surround) are not supported.
- The WAV files should contain raw linear audio. Encoded audio is not supported.
- The WAV file should be 16-bit. Lower or higher precisions are not supported.

Besides the actual *sound data*, EMXP can also translate *loops* which may be present in the WAV-file.
The user can select which loop from which loop type should be converted. For more details see *sections "7.3.9 Conversion from WAV"* and *"10.3.10 Manage WAV related conversion preferences"*.

7.2.2 Selecting the target sampler format and target file/disk type

7.2.2.1 Selecting the target sampler format

After having selected the source items and having chosen the conversion option in EMXP (as described in the previous section), you will now have to specify to which target sampler format you would like to convert the items.

When converting (non-WAV) sampler sound banks EMXP will display all possible target sampler formats, as shown in the next screen. Please note that this screen can vary depending on the source sampler format, e.g. conversion to Emulator-II will not be possible if the source sampler format is Emulator-II. See also *chapter "7.1 OVERVIEW"*.

```
                        SELECT TARGET SAMPLER FORMAT
------------------------------------------------------------------------------

                  1.  Convert to EMAX-I Sampler Format
                  2.  Convert to EMAX-II Sampler Format
                  3.  Convert to EMULATOR-I Sampler Format
                  4.  Convert to EMULATOR-II Sampler Format
                  5.  Convert to EMULATOR-III Sampler Format
                  6.  Convert to EMULATOR-IIIX Sampler Format
                  7.  Convert to ESI-V3 Sampler Format
                  8.  Convert to SOUNDFONT2 Sampler Format
                  9.  Convert to SP-12 Sampler Format

------------------------------------------------------------------------------
            [1]...[9]: menu option                  ESC: Go back
------------------------------------------------------------------------------
                         Please enter a menu option:
```

When converting EMAX-I or EMAX-II bank files, there's an additional possibility to convert into Akai S1000 files. See picture below. For conversions to the Emulator-IIIX or ESI-v3 format, an additional screen will appear after selecting option 6.

```
                        SELECT TARGET SAMPLER FORMAT
------------------------------------------------------------------------------

              1.  Convert to EMAX-I Sampler Format
              2.  Convert to EMAX-II Sampler Format
              3.  Convert to EMULATOR-I Sampler Format
              4.  Convert to EMULATOR-II Sampler Format
              5.  Convert to EMULATOR-III Sampler Format
              6.  Convert to EMULATOR-IIIX/ESI-V3 Sampler Format
              7.  Convert to SOUNDFONT2 Sampler Format
              8.  Convert to AKAI S1000 Sampler Format
              9.  Convert to SP-12 Sampler Format

------------------------------------------------------------------------------
            [1]...[9]: menu option                  ESC: Go back
------------------------------------------------------------------------------
                         Please enter a menu option:
```

When converting from WAV files, the same target sampler formats are available, but the screen looks slightly different, as shown below. For conversions to the Emulator-IIIX or ESI-v3 format, an additional screen will appear after selecting option 6.

```
                    SELECT TARGET SAMPLER FORMAT
------------------------------------------------------------------------------

          1.  Generate to EMAX-I Sampler Format
          2.  Generate to EMAX-II Sampler Format
          3.  Generate to EMULATOR-I Sampler Format
          4.  Generate to EMULATOR-II Sampler Format
          5.  Generate to EMULATOR-III Sampler Format
          6.  Generate to EMULATOR-IIIX/ESI-V3 Sampler Format
          7.  Generate to SOUNDFONT2 Sampler Format
          8.  Generate to AKAI S1000 Sampler Format
          9.  Generate to SP-12 Sampler Format

------------------------------------------------------------------------------
        [1]...[9]: menu option                  ESC: Go back
------------------------------------------------------------------------------
                     Please enter a menu option:
```

7.2.2.2 Selecting the target file/disk type

After having selected the target *sampler format* (option 1 → 9) you will also have to select the *file type* or *disk type* to which you would like to convert the source items. This is not required when converting to SP-12, Akai S1000 or SoundFont2.
The available target file and disk types for each of the target sampler formats are shown in the pictures below. These pictures are valid for conversions of non-WAV sampler sound banks. For conversions of a set of WAV files, the same target file types and disk types are available, but the screens look slightly different (the menu functions are labelled "Generate to..." instead of "Convert to...").

EMAX-I

```
              PLEASE SELECT A TARGET EMAX-I FILE/DISK TYPE
------------------------------------------------------------------------------

        1.  Convert to EMAX-I Bank in Bank File(s)
        2.  Convert to EMAX-I Bank in EMX File(s)
        3.  Convert to EMAX-I Bank in Sounddesigner File(s)
        4.  Convert to EMAX-I Bank on Floppy Disk Image File(s)
        5.  Convert to EMAX-I Bank in HxC Floppy Image File(s)
        6.  Convert to EMAX-I Bank on Hard Disk Image File
        7.  Convert to EMAX-I Bank on Hard Disk
        8.  Convert to EMAX-I Bank on Floppy Disk(s)


------------------------------------------------------------------------------
         [1]...[8]: menu option                 ESC: Go back
------------------------------------------------------------------------------
                     Please enter a menu option:
```

EMAX-II

```
                PLEASE SELECT A TARGET EMAX-II FILE/DISK TYPE
--------------------------------------------------------------------------------

          1.  Convert to EMAX-II Bank in Bank File(s)
          2.  Convert to EMAX-II Bank in EMX File(s)
          3.  Convert to EMAX-II Bank on Floppy Disk Image File(s)
          4.  Convert to EMAX-II Bank in HxC Floppy Image File(s)
          5.  Convert to EMAX-II Bank on Hard Disk Image File
          6.  Convert to EMAX-II Bank on Hard Disk
          7.  Convert to EMAX-II Bank on Floppy Disk(s)




--------------------------------------------------------------------------------
            [1]...[7]: menu option                  ESC: Go back
--------------------------------------------------------------------------------
                          Please enter a menu option:
```

Emulator-I

```
               PLEASE SELECT A TARGET EMULATOR-I FILE/DISK TYPE
--------------------------------------------------------------------------------

       1.  Convert to EMULATOR-I Sound(s) in Bank File(s)
       2.  Convert to EMULATOR-I Sound(s) in Lower/upper File(s)
       3.  Convert to EMULATOR-I Sound(s) on Floppy Disk Image File(s)
       4.  Convert to EMULATOR-I Sound(s) in HxC Floppy Image File(s)



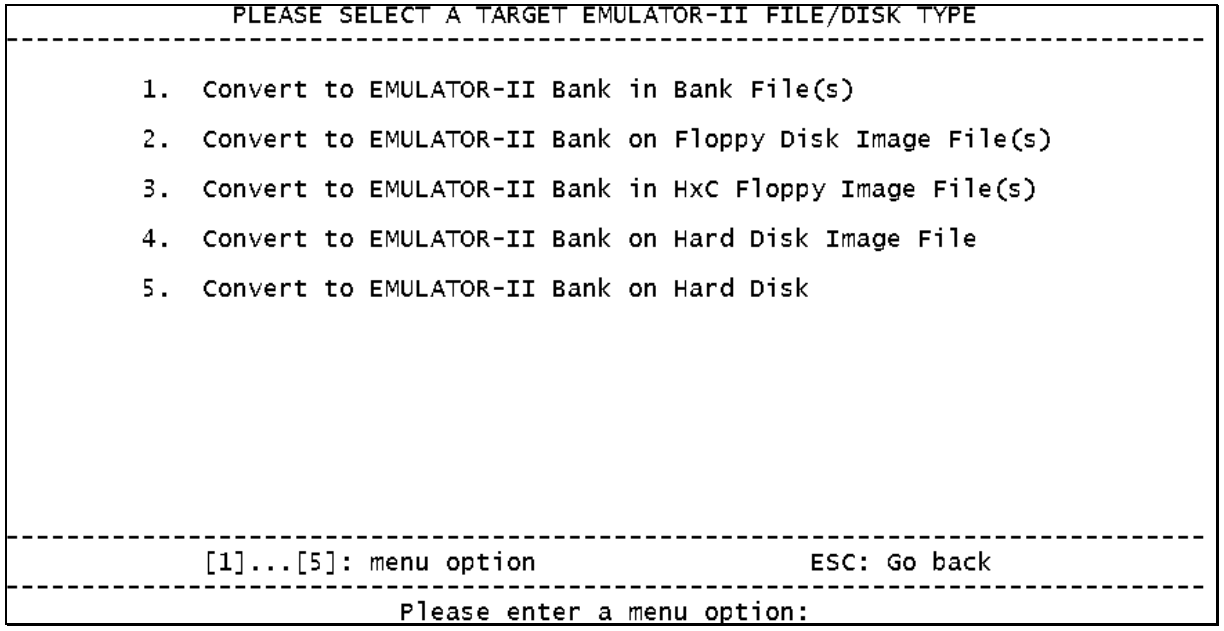




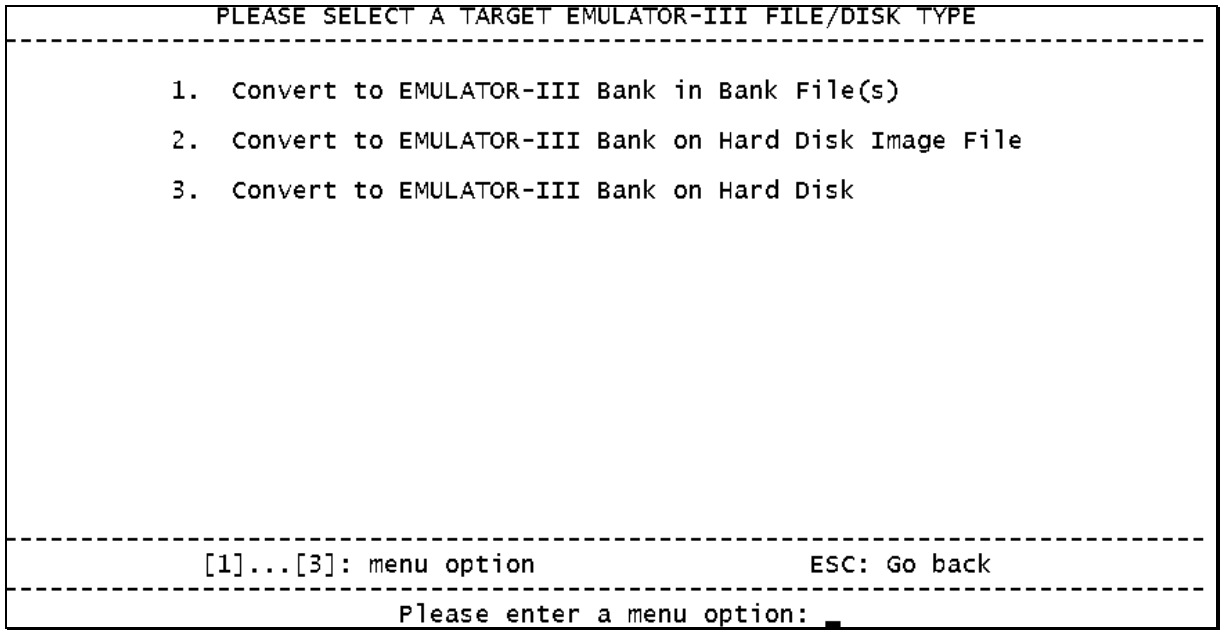


--------------------------------------------------------------------------------
            [1]...[4]: menu option                  ESC: Go back
--------------------------------------------------------------------------------
                          Please enter a menu option:
```

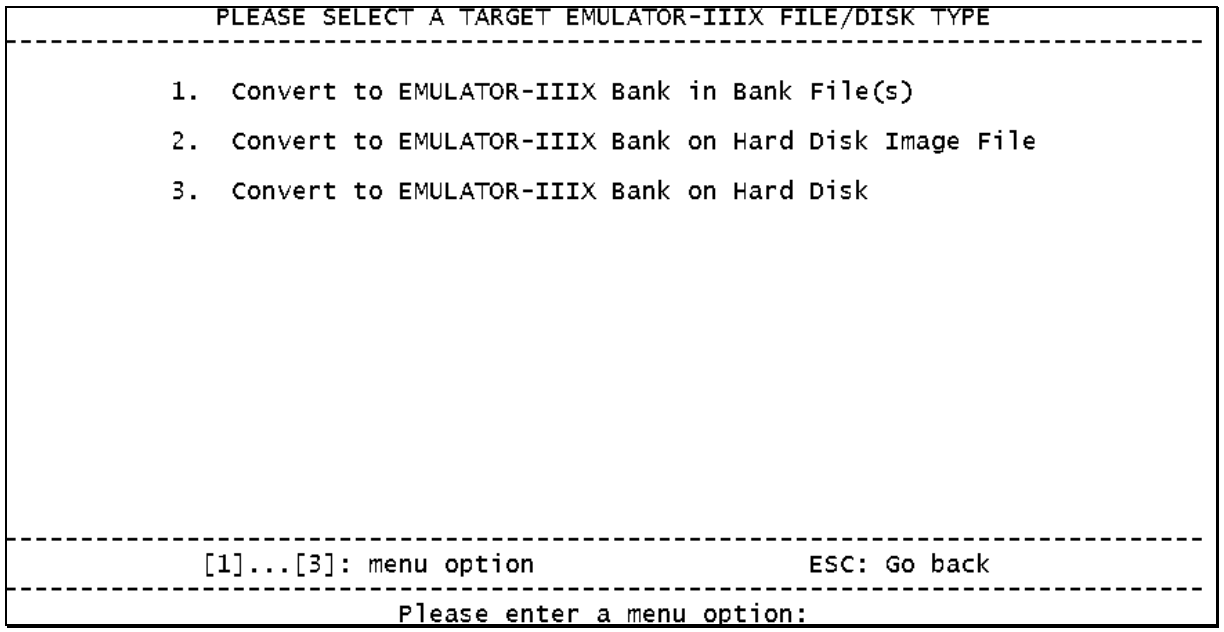
Emulator-II



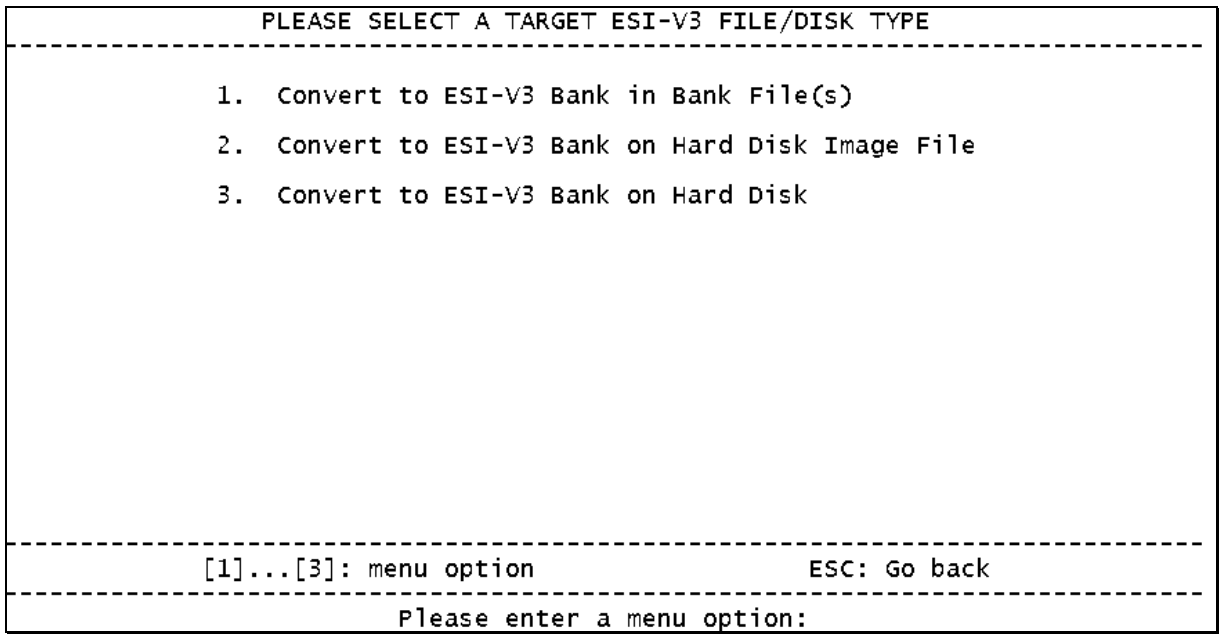
Emulator-III



Emulator-IIIX



ESI-v3

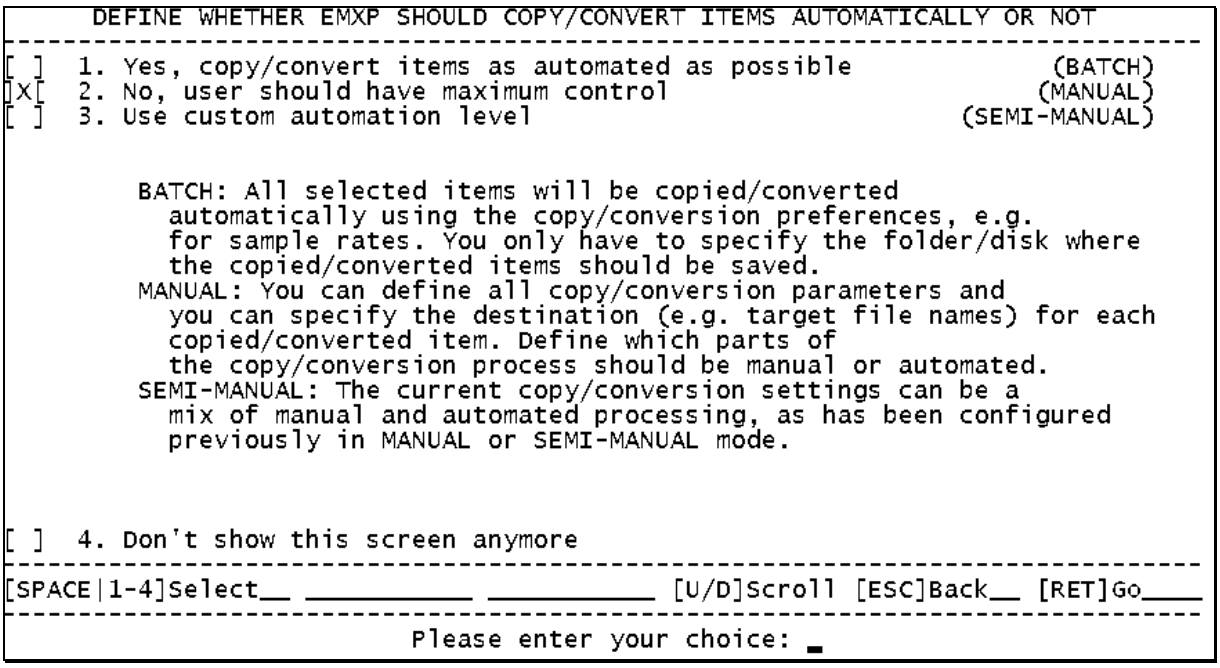


7.2.3 Batch or manual conversion process

The conversion of sampler sound banks and WAV files can be done

- *in batch mode*, which allows for a fully automated conversion of many files/banks at once
- *in manual mode*, which allows for a fully manually controlled file-per-file conversion process
- *in semi-manual mode*, which allows for a partially automated and partial manually controlled conversion process. The degree of automation can be defined by the user.

After having performed the steps described in *section "7.2.1 Selecting the source items that should be converted"* and *section "7.2.2 Selecting the target sampler format and target file/disk type"*, EMXP will ask in what mode you would like to copy the selected items.



From here on the process is similar to the process for configuring the BATCH, MANUAL or SEMI-MANUAL mode when *copying* of sound related data. We refer to *section* "6.2.2 Batch or manual copy process (not for AKAI S1000)" more particularly to sections:

- *"6.2.2.1 BATCH Mode"*, paragraphs A → D
- *"6.2.2.2 MANUAL Mode"*, paragraphs B → I (paragraph A is not applicable for conversions)
- *"6.2.2.3 Custom Automation Level Mode (and SEMI-MANUAL Mode)"*

When configuring the MANUAL or SEMI-MANUAL mode, in addition to what has been explained in *section "6.2.2 Batch or manual copy process (not for AKAI S1000)"* you will also have the possibility to define some conversion parameters like the target sampler's memory size, the target sample rate, how to deal with chorus settings and so on. These parameters vary depending on the target sampler. They are explained in the next section.

Please note that when in BATCH mode, EMXP will use the conversion parameters as defined in the Preferences menu. *EMXP will not select these parameter values itself.* E.g. if the sample rate conversion preferences for converting to EMAX-II are set to a maximum of 22050 Hz instead of the maximum value of 44100 Hz, EMXP will use the 22050 Hz setting during batch conversion.
You may have to review the target sampler's Copy/Conversion Preferences before starting a BATCH conversion.

7.3 NEXT STEPS PER TARGET SAMPLER TYPE

7.3.1 Conversion to EMAX-I and EMAX-II

Except for Akai S1000 programs and samples, sound banks of any sampler type supported by EMXP as well as WAV files can be converted into EMAX-I and EMAX-II sound banks.

7.3.1.1 Conversion from sampler sound banks

If you have selected

- the MANUAL conversion mode, or
- the SEMI-MANUAL conversion mode and you have chosen to review the copy/conversion settings now (see *section "7.2.3 Batch or manual conversion process"* and *section "6.2.2.3 Custom Automation Level Mode (and SEMI-MANUAL Mode)"*)

EMXP will ask for some sampler conversion settings now.
In the other case EMXP will simply use the Preferences settings for the parameters described below.

EMAX-I ←→ EMAX-II conversion engine and Dual/Stereo Voice setting

When converting *between* EMAX-I and EMAX-II sound banks, EMXP supports two conversion engines:

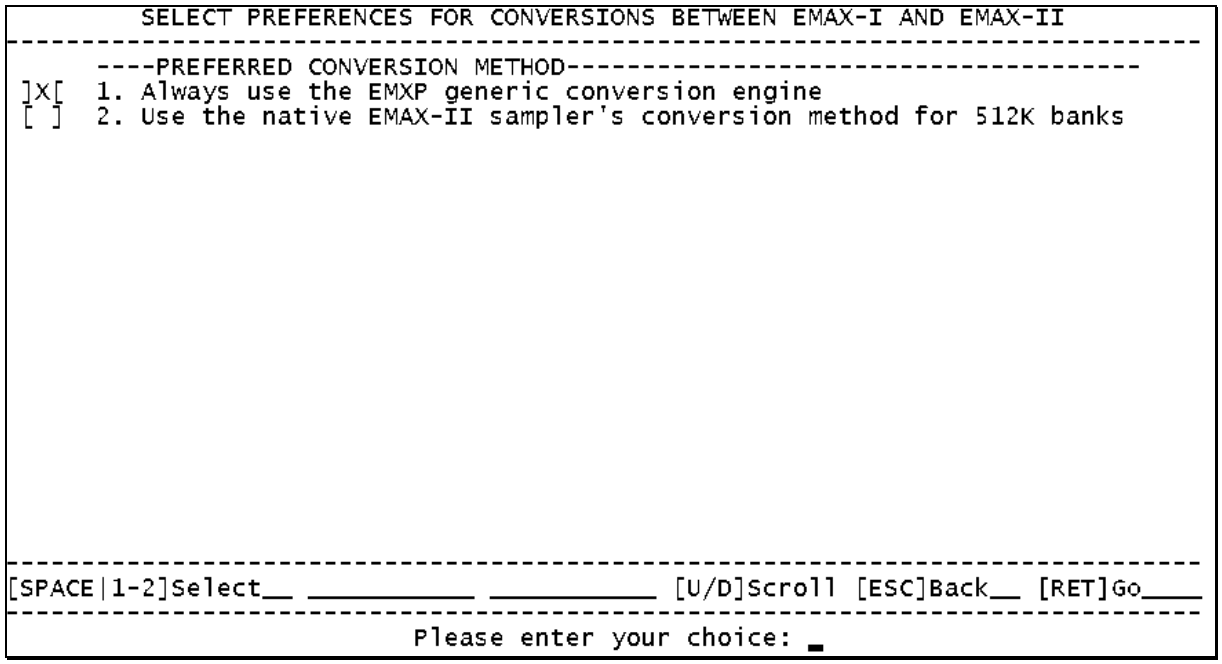
- a *native* EMAX conversion engine: this is the same conversion method as the one applied by the EMAX-II sampler when importing EMAX-I sound banks or when saving a bank as a *compressed bank.*
  The main advantage of this engine is that *sequences are converted as well.*
  The main disadvantage of this engine is that *EMAX-II banks larger than 1 MB can not be converted* into EMAX-I banks.
  Some other points of attention when using the native conversion engine are described later in this section.
- a *generic* conversion engine: this is the so-called *canonical conversion engine.* It's the same engine as the one that is being used for all other sampler conversions in EMXP.
  The main advantage of this engine is *its flexibility*: target sample rates and memory sizes can be defined, EMAX-II banks of up to 8MB can still be converted to EMAX-I banks because the engine can generate multiple EMAX-I banks from one single EMAX-II bank, each containing a number of presets and samples that fit within 512 KB.
  The main disadvantage of this engine is that it *can not translate sequences*.

Note that EMXP supports only the *generic conversion engine* when converting *non-EMAX* (I or II) sound banks to the EMAX (I or II) format.

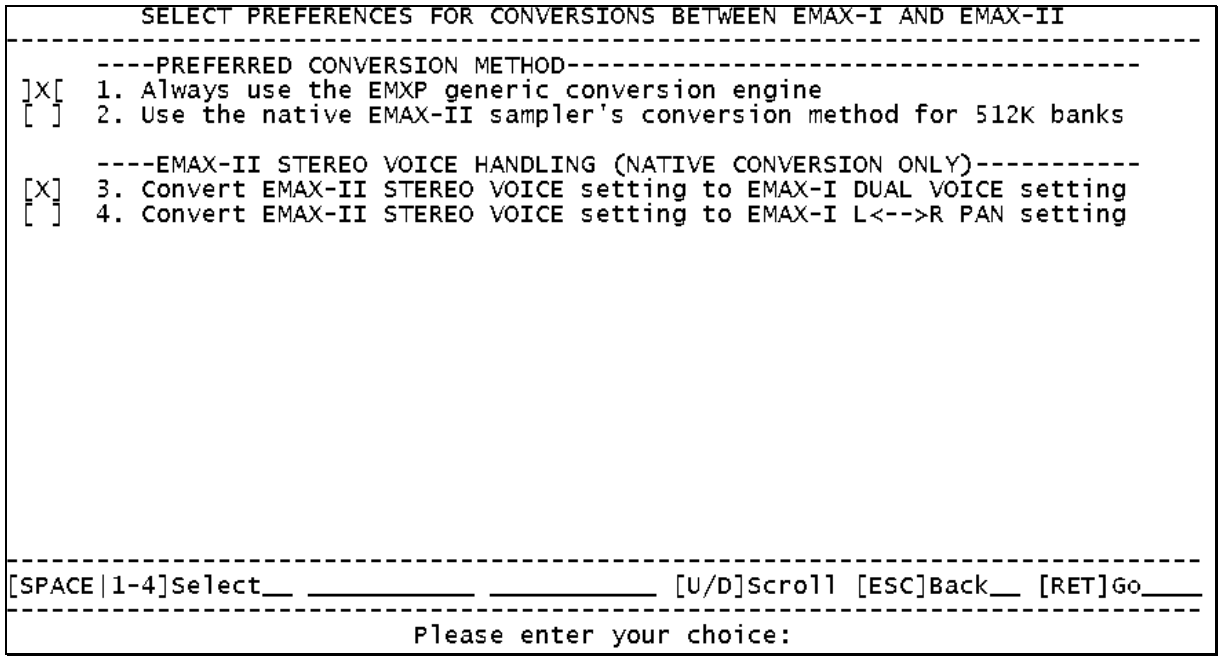
When converting EMAX-II sound banks to EMAX-I sound banks by means of the *native conversion engine*, two additional conversion parameters can be set:

- you can define how the EMAX-II Stereo Voice parameter in key areas should be converted:
  - EMAX-II Stereo Voice can be converted into EMAX-I Dual Voice - this is the default approach used by the EMAX-II sampler when *saving as compressed bank* is chosen. The disadvantage is that if the EMAX-II voices are panned to the left or right output channel, they will only sound from one channel on the EMAX-I sampler.
  - EMAX-II Stereo Voice can be converted into the PRI voice being panned to the left channel and the SEC voice being panned to the right channel. Dual Voice is set to OFF. The available polyphony is only half of the polyphony available when Dual Voice is ON though.
- you can define the EMAX-I compatibility mode of the resulting EMAX-I sound bank. This parameter can only be set in the Copy/Conversion Preferences menu. See *section "10.3.2.1 Define EMAX-I compatibility mode for compressed samples"*.

The screen used for selecting the conversion engine when converting from EMAX-I to EMAX-II is shown below.



For conversions from EMAX-II to EMAX-I, the screen also offers the possibility to select the Stereo Voice conversion method:



EMXP tries to keep the quality of the converted bank as close as possible to the quality of the original bank. However it should be clear that converting from EMAX-II to EMAX-I will result in a (very small) loss of sound quality, since the EMAX-I sound data is compressed (~12..14 bit) while the EMAX-II sound data is raw 16-bit data.
Moreover the compression algorithm, which compresses 12 or 16 bit audio data into 8 bit data, is proprietary knowledge of Emu Systems.

Fortunately EMXP uses an algorithm which is very similar to the original one. It is probably not exactly the same as the one used in Emu EMAX samplers, but no major audible differences should be expected.

Please note that a repeated translation of banks from EMAX-II to EMAX-I, and again to EMAX-II and again to EMAX-I (and so on) will result in an increasing loss of audio quality.

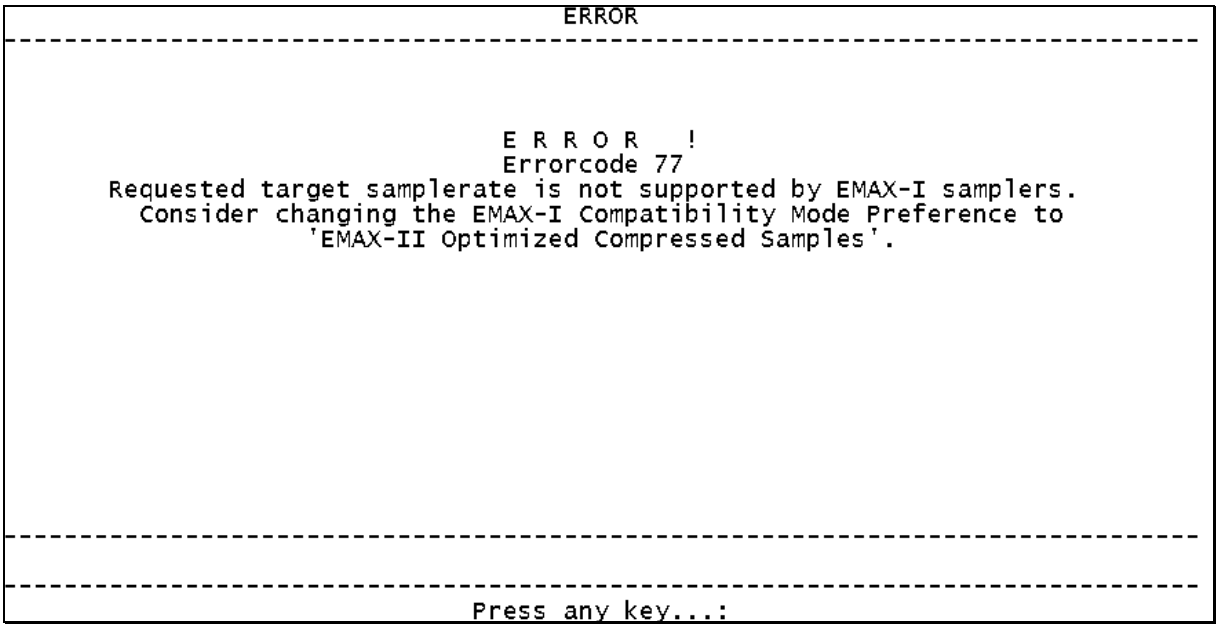
Some specific points of attention when using the *native conversion engine:*

- EMAX-I samplers do not support all sample rates supported by EMAX-II samplers. If the "EMAX-I compatibility mode for compressed samples" is set to either "EMAX-I Original" or "EMAX-I and EMAX-II Compatible" (*see section "10.3.2.1 Define EMAX-I compatibility mode for compressed samples"* , EMAX-II samples with a frequency of 39063 Hz will be re-sampled to a lower frequency.

  For more information, see *section "10.3.2.1 Define EMAX-I compatibility mode for compressed samples"* later in this document.

  This automatic sample rate conversion will NOT occur when *copying* banks instead of *converting* banks. E.g. if you copy an EMAX-I EMX file to an EMAX-I bank file, or when you copy an EMAX-I bank file to an EMAX-I hard disk, no sample rate conversion will be done.

  However, if the EMAX-I bank contains samples at 39063 Hz, the copy operation will only succeed if the EMAX-I Compatibility Mode is set to "EMAX-II Optimized Compressed Samples". If another mode has been set, an error will occur during the copy process, as illustrated in the picture below.



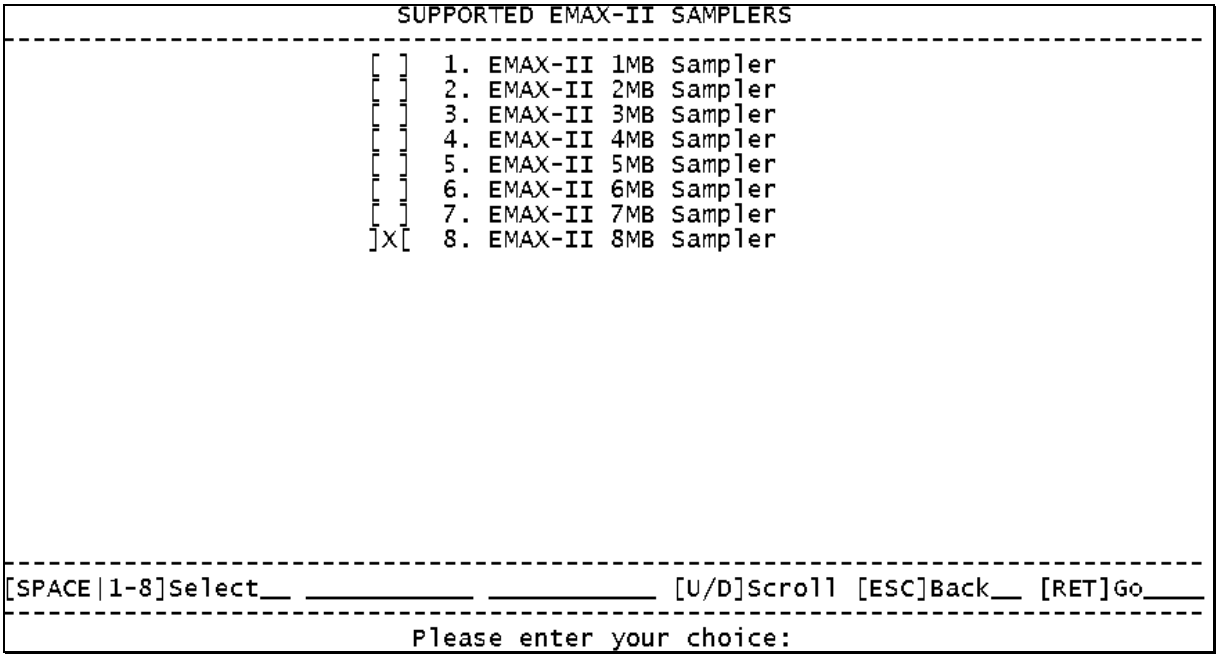
- EMAX-I samplers use less "blank offset sample points" at the beginning and at the end of each sample than EMAX-II samplers do. Again it depends on the EMAX-I compatibility mode how EMXP will deal with these blank offsets.

  For more information, see *section "10.3.2.1 Define EMAX-I compatibility mode for compressed samples"* later in this document.

- EMAX-I samplers have limited transposition possibilities, especially with samples having high sample rates. Hence there might occur some pitch problems (like non-transposition effects) on some keyboard areas after translating an original EMAX-II bank to EMAX-I.

EMAX-II memory size

If the target sampler type is EMAX-II, EMXP will ask for the EMAX-II target sampler's memory size now (except if EMAX-I sound banks are being converted to EMAX-II sound banks using *the native conversion engine*).



The default memory size is 8MB (i.e. the maximum size of a fully expanded EMAX-II Turbo sampler), but you can scale this down to 1MB. EMXP can try to create (multiple) smaller EMAX-II banks if you have limited memory size on your EMAX-II sampler. Note that even if you select a large value (e.g. 8 MB) as the maximum memory size, many sound banks created by EMXP will still load perfectly in a sampler with less RAM memory installed (e.g. 2 MB) since only the *actual total size* of the samples in the generated sound bank matters, not the maximum allowed sample size.

Sample rate

In the next step EMXP will ask for the sample rate range that should be used during the conversion (except if EMAX-I sound banks are being converted to EMAX-II sound banks using the native conversion engine).

Although EMXP is capable of keeping the sample rates of the samples as close as possible to the original sample's sample rates, there are two good reasons why you would want EMXP to lower the sample rates during the conversion:

- To keep as many presets as possible into one target EMAX sound bank. Lower sample rates take less memory space, so more samples will fit in memory. Note: if not all presets of the source bank fit into one target sound bank – even with lower sample rates – EMXP will generate multiple banks. But even then keep in mind that only the presets which *completely* fit into a sound bank will be translated by EMXP. If they don't, they will be ignored.
- To keep the original transposition settings. This reason is only applicable for conversions to EMAX-I. Lower sample rates allow for a broader transposition range. See also *section "7.7.1 EMAX-I and EMAX-II"*.

Note that EMXP will *never* increase the sample rate, unless the source sample rate is lower than the minimum sample rate supported by the EMAX-I or EMAX-II (which will e.g. never happen when converting from Emulator-I or Emulator-II).

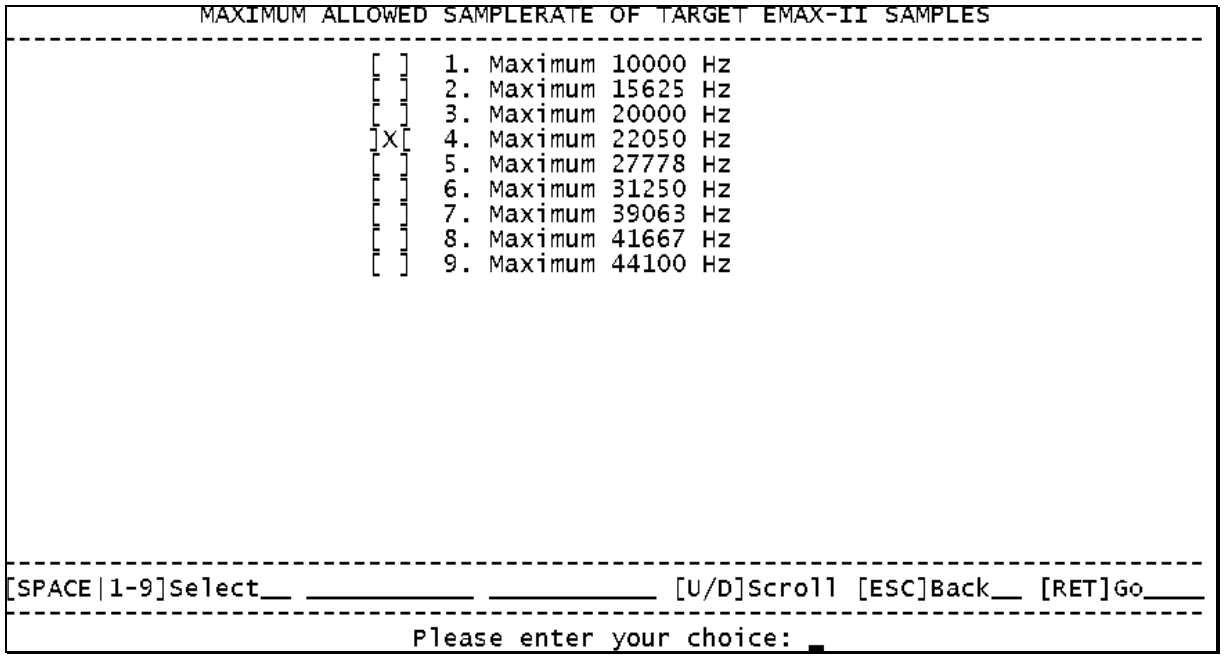
The lower the specified sample rates, the longer the conversion process will take (up to several minutes !!)

- First you have to specify the *maximum allowed sample rate* for the target samples. All converted samples will have a sample rate equal or lower than this setting. This parameter is especially important if you're having problems with preserving correct transposition values when converting to EMAX-I.

  E.g. if a source preset contains a 27778 Hz sample that has been assigned to 2 octaves (C1→ B2) with C3 as original key, the -12/+12 note transposition can only be retained on EMAX-I if the sample rate is 22050 Hz or lower. In that case, it may be required to set the maximum allowed sample rate to 22050 Hz, although you should only do this after you have tried higher values first. The reason for this is that the maximum allowed sample rate will be applicable *to all samples in the source sound bank,* not only to the samples that really *need* it. By first using a higher maximum sample rate (e.g. 44100 Hz) and allowing EMXP to downgrade sample rates to 22050 Hz by choosing this value for the *minimal allowed sample rate* (see next step), there's a chance that the sample you really want to have downgraded will actually be downgraded, while not impacting the quality of other samples at higher sample rates…

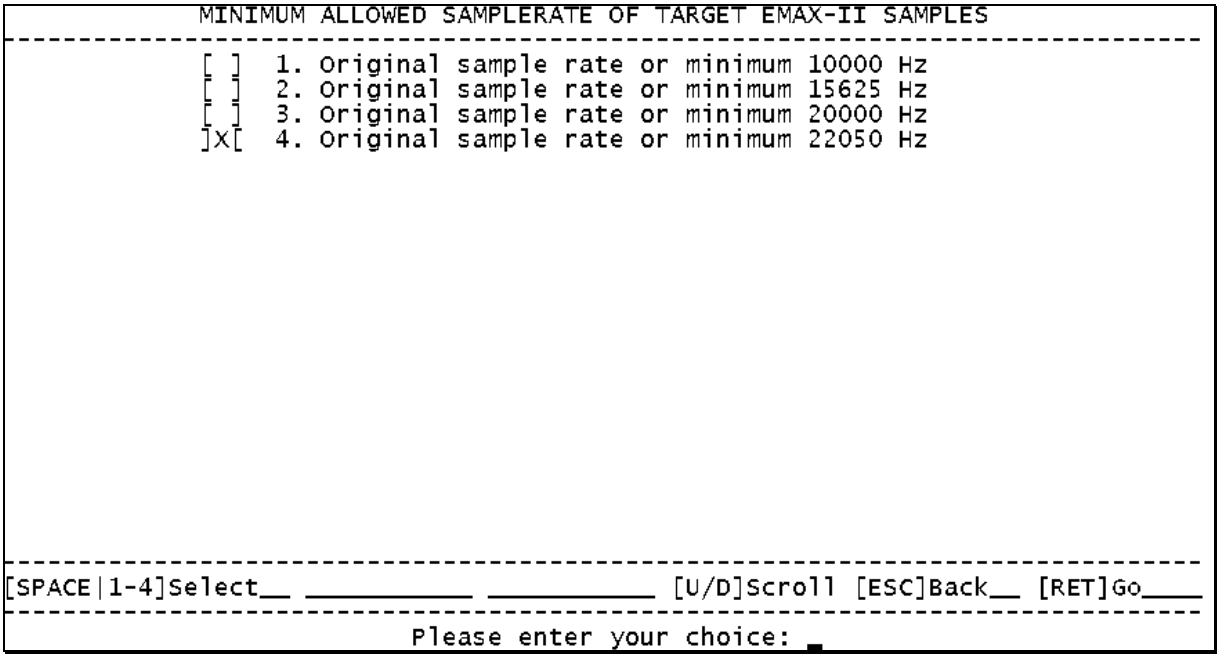
  The *maximum allowed sample rate* can also be used to decrease the target bank size. If the maximum sample rate is set to a lower value than the highest sample rate found in the original bank, the converted samples will decrease in size.
  Note however that EMXP will always try to fit the target bank in the memory size of the target sampler by down-sampling the samples, *no matter what value you have specified for the maximum allowed sample rate.*
  Even if generating *multiple target banks* from one source bank can be done in such a way that these target banks would fit in the target sampler's memory , EMXP will still try to generate only *one single* target bank if the *minimum allowed sample rate* would allow for further downgrading the sample rate.
  In this process EMXP will never use sample rates lower than the value set as *minimum allowed sample rate* though (see next paragraph).
  So why would you then lower the *maximum allowed sample rate* as well ?
  The only reason why you would decrease the *maximum allowed sample rate* (besides increasing transposition ranges) is to *further decrease* the target bank's size, even if it would already fit in the target sampler's memory. The reason for this may be that you may want to have more free memory available in the bank for adding presets and samples when editing the bank on your sampler.

  The picture below shows the maximum sample rate selection screen for EMAX-II samplers. If the target sampler is EMAX-I, the 39063 Hz setting will not be available.



- In a second step you have to specify the *minimum allowed sample rate* for the target samples. This value is very important if you try to compress samples in order to have as many presets and samples as possible in

one EMAX-I or EMAX-II sound bank. EMXP will never decrease the sample rate below this setting, *unless* the original sample rate is even lower. In that case, the original (even lower) sample rate will be used. If the original sample rate is higher than this parameter, EMXP will first try to keep this higher sample rate. It will only decrease the sample rate (step by step) if the original bank does not fit in one target bank.
Note: the number of available sample rate values can vary depending on the *maximum allowed sample rate* that you have defined in the previous step.

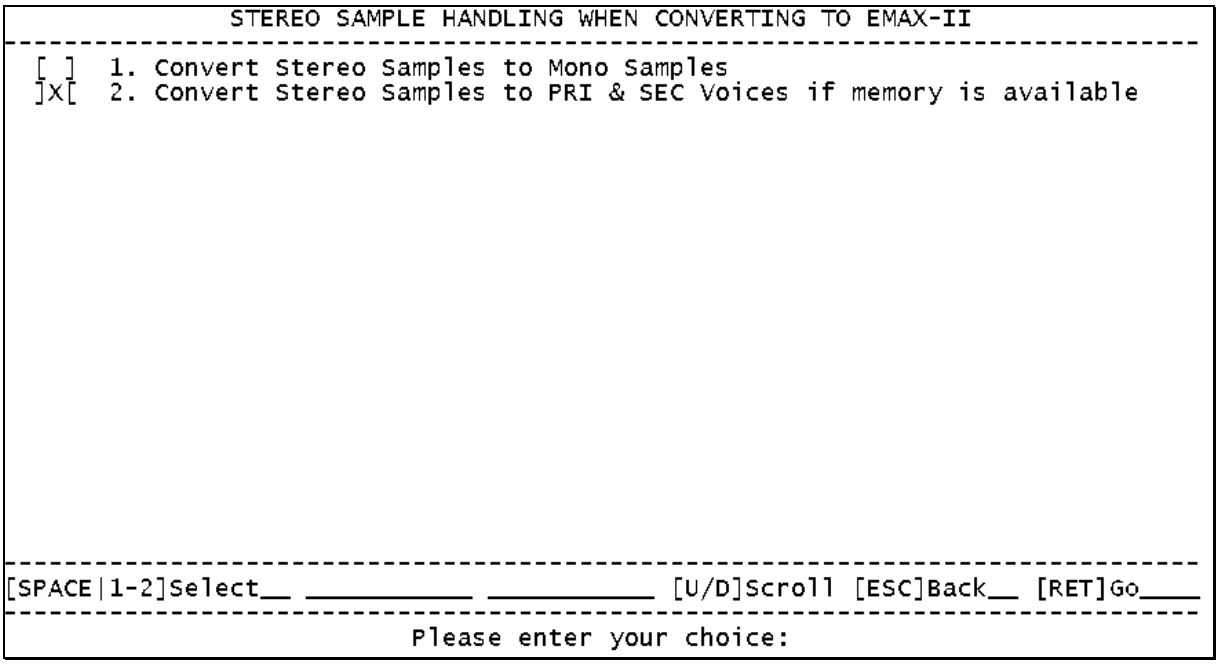


Stereo sample handling

If the source bank contains one or more STEREO samples, EMXP will give you the opportunity to either keep these stereo characteristics or convert theses samples to mono. Since EMAX-I and EMAX-II samplers do not support stereo samples by nature, the only way to preserve the stereo effects is to use primary and secondary voices for each sound channel, and to assign opposite panning settings to each voice. Using PRI/SEC voices is only possible if these voices are still available (i.e. if they are not taken by another sample yet).

EMXP will make sure that each generated preset *either* retains all stereo samples (unless no free SEC/PRI voice was available), *or* only contains mono samples (for both the original mono samples and the original stereo samples). But the retention of stereo samples can *differ across the generated presets*, i.e. the same original stereo sample can result in a PRI+SEC stereo sample in one preset, while resulting in a MONO sample in another preset. As a consequence the total size of all generated samples can be higher than the original total sample size, since each stereo sample can result in 3 mono samples (true mono, left and right). This increases the probability that the sample rate will be downgraded (see previous paragraph "Sample rate") or that multiple EMAX-I or EMAX-II banks will have to be generated.

Here's the screen in which you can specify how EMXP should deal with stereo samples:



Emulator-I Loudness Normalization and Emulator-I Key Map Definition

If you are converting Emulator-I sounds or sound banks, you have to specify whether the sample volume should be lowered during conversion or not.
When converting Emulator-I Lower/Upper sound files or individual Emulator-I sounds (Lower/Upper), you also have to specify to which part of the EMAX-I/EMAX-II keyboard the converted sounds should be assigned. See *section "7.3.10 Conversion from Emulator-I"* for more details.

SoundFont2 Modulator Conversion and Exclusive Class Conversion

If you are converting SoundFont2 sound banks, you have to specify

- to what extent default (implicit) modulators and defined (explicit) modulators should be converted. Especially some default MIDI CC modulators can result in unexpected target sampler settings.
- whether Exclusive Class generators should be converted into mono/solo keyboard settings and/or to mono/single audio output channel assignments

See *section "7.3.12 Conversion from SoundFont2"*.

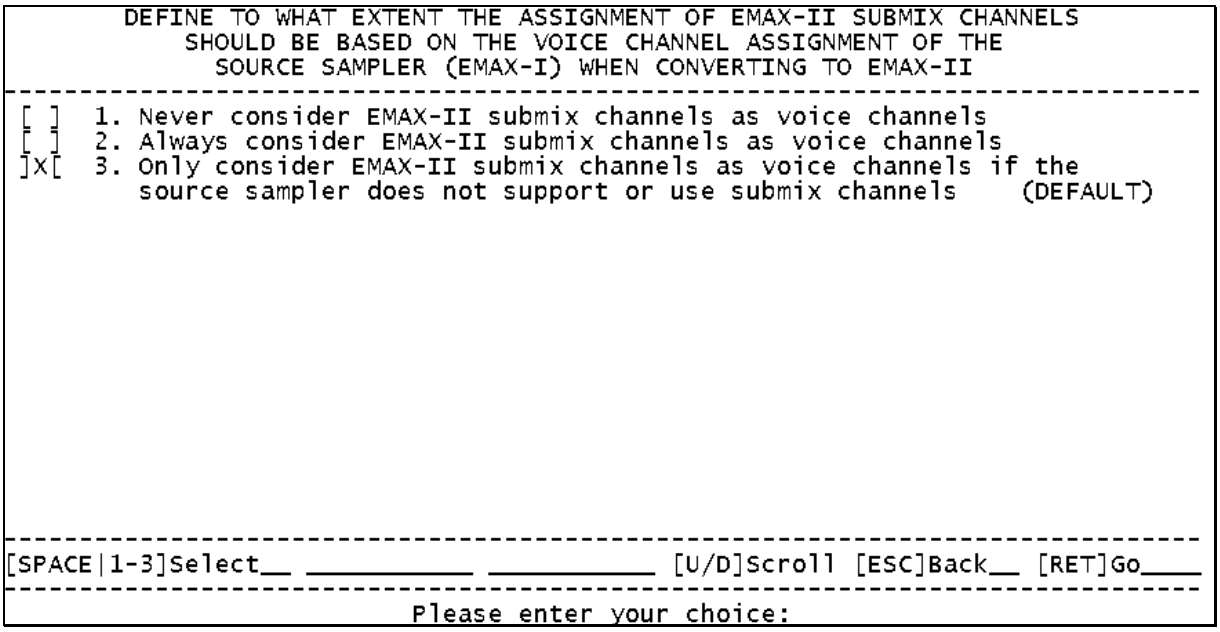
SP-12 Filter/Dynamics Conversion and SP-12 Key Map Definition

If you are converting SP-12 sound banks, you have to specify which settings for the SP-12 filters and SP-12 dynamics should be assumed. It's also necessary to specify how the individual SP-12 sounds should map to the EMAX-I/EMAX-II keyboard. See *section "7.3.11 Conversion from SP-12"* for more details.

Voice channel conversion to EMAX-II submix channels

As opposed to some other EMU samplers like the EMAX-I and Emulator-III, the EMAX-II does not support the assignment of preset voices to specific ranges of *voice channels* in order to have better control on the polyphonic behaviour of the sampler. But the EMAX-II offers 3 pairs of submix *output channels*, and it is possible to assign preset voices to one of these three submix channels

The conversion engine of EMXP can treat EMAX-II submix channels as separate groups of voice channels. The conditions under which this should be done can be defined in the following screen. This screen will only appear if the source sampler format supports assignable output channels, so it won't appear if the source sampler format is Emulator-I, SoundFont2 or EMAX-II. In the example below, the source sampler format is EMAX-I.



The following options are available:

- *Option 1*: the submix channels of the EMAX-II should never be treated as voice (polyphony) channels. Voice channel assignments of the source sampler presets will not be converted. The EMAX-II submix channel assignments will only be set if the source sampler presets have submix channel assignments.
- *Option 2:* the submix channels of the EMAX-II will always be treated as voice (polyphony) channels. Submix channel assignments in the source sampler presets (if any) will be ignored. The assignment of the EMAX-II submix channels will always be based on the voice channel assignments (polyphony) that are defined in the source sampler presets.
- *Option 3:* whether the EMAX-II submix channels will be treated as voice channels depends on whether the source sampler preset has submix channel assignments or not. This is the default setting.
    - If at least one voice in the source preset has been assigned to a submix channel, none of the submix channels in the target EMAX-II preset will be treated as voice channels.
    - But if none of the voices in the source preset has been assigned to a submix channel, the submix channel assignments of all voices in the target EMAX-II preset will be based on source voice channel assignments. This is always true if the source sampler format does not support submix channels. But it's also true if the source sampler *does* support submix channels but if none of them have been assigned in any of the voices of the source sampler preset

More information can be found in *section "10.3.2.6 Define conversion settings for conversions to EMAX-II"*.

Source ESI sampler type

If you are converting ESI-v3 sound bank, EMXP needs to know the assumed available polyphony of the ESI sampler. See *section "7.3.13 Conversion from ESI-v3"*.

SoundFont2 Chorus Effects conversion

If you are converting SoundFont2 sound banks, you have to specify how the Chorus Effects Send generators in SoundFont2 sound banks should be converted.
See *section "7.3.12.3 Conversion of SoundFont2 Effects Send Generators"*.

ESI-v3 Chorus and Panning Effects conversion and ESI-v3 non-Lowpass Filter conversion

If you are converting ESI-v3 sound banks, you have to specify

- how the Chorus FX or Panning FX processor settings in ESI-v3 sound banks should be converted
- how the cutoff frequency of ESI filters which are not lowpass filters should be converted

See *section "7.3.13 Conversion from ESI-v3"*.

Output channel assignment rules

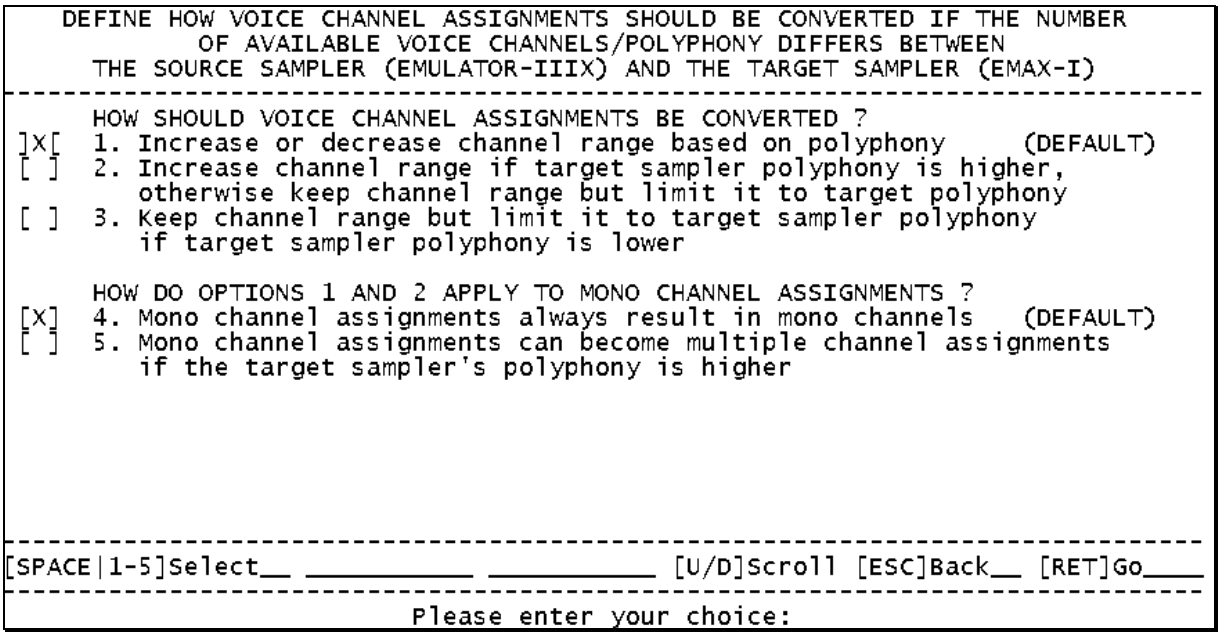
If the source sampler format supports assignable output channels while having another polyphony than the EMAX-I or EMAX-II, EMXP needs to know how the output channel assignments in the source bank should be converted to EMAX-I or EMAX-II output channel assignments.

If the target sampler format is EMAX-II, EMXP will only ask for this preference if you have defined that EMAX-II submix channels should be treated as voice output channels (*see one of the previous paragraphs*)

EMXP will show a screen in which you can select whether the source output channel assignment ranges should be scaled up or scaled down depending on the difference in polyphony between the source sampler and the EMAX-I or EMAX-II. It's also possible to make an exception for mono/solo output channel assignments in the source bank, which can be retained at all times if requested.

This selected option is not unique for conversions to the EMAX-I or EMAX-II sampler format. This preference is shared between all sampler formats. E.g. if you select options 1 and 4 here, these settings will also be applicable for conversions to Emulator-III, SP-12, and so on. But they can of course be changed again when converting to these other sampler formats.

In the example screen below, the source sampler format is Emulator-IIIX and the target sampler format is EMAX-I. But the screen looks similar for other source sampler formats.



More details about this preference can be found in *section "10.3.8.3 Define how to convert polyphony/voice channel assignments"*.

7.3.1.2 Conversion from WAV files

The available sampler conversion settings for conversions from WAV files are identical to the ones we just described for conversions from sampler sound banks. See the previous *section "7.3.1.1 Conversion from sampler sound banks"*.
However

- the *EMAX-I ←→ EMAX-II Conversion Engine* and the *Stereo Sample Handling* parameters are not applicable when converting from WAV files.
- if at least one of the selected WAV files contains one or more loops, you should specify whether the WAV loops should be converted as well and if so, which of the WAV loops should be converted to what target sample loop type. See *section "7.3.9 Conversion from WAV"*.

EMXP will put each WAV file of the first 61 selected WAV files on a different key of the first preset (called PRESET 00). 61 keys are used (C1 --> C6). If more than 61 WAV files have been selected, a second preset is created (called PRESET 01). Additional presets will be created every next set of 1 to 61 WAV files. The .WAV files are assigned to the keys and presets in *alphabetical order*.

If the WAV file is stereo, the two stereo channels are put in the primary and the secondary voice of the key. EMXP will also set the DUAL VOICE or STEREO VOICE parameter to ON.

The original pitch of each sample is preserved, independent of the key EMXP will assign the sample to.
E.g. suppose your .WAV file is sampled at C3 pitch. If EMXP puts this sample on C2, the C3 pitch can be heard on that C2 key. You can change this to whatever you want by using the "edit assignment" function on your EMAX-I or EMAX-II sampler.

Before starting the actual conversion of the selected WAV files into the EMAX-I or EMAX-II format, EMXP will check if the resulting sound bank is compatible with the target sampler's limits (e.g. number of samples, sample size, ...). In case of any detected incompatibility, an error will be shown and you won't be able to continue the conversion. A typical solution will be to reduce the number of selected WAV files... See *section "7.3.14 Validation check when converting WAV files"*.

7.3.2 Conversion to Emulator-I

Except for Akai S1000 programs and samples, sound banks of any sampler type supported by EMXP as well as WAV files can be converted into the Emulator-I format.

However it should be noted that the Emulator-I has very limited capabilities (e.g. memory size, transposition, number of samples, voice/preset parameters, ...). As a consequence many conversions will fail or will not sound like the original sounds at all.

7.3.2.1 Conversion from sampler sound banks

If you have selected

- the MANUAL conversion mode, or
- the SEMI-MANUAL conversion mode and you have chosen to review the copy/conversion settings now (see *section "7.2.3 Batch or manual conversion process"* and *section "6.2.2.3 Custom Automation Level Mode (and SEMI-MANUAL Mode)"*)

EMXP will ask for some sampler conversion settings now.
In the other case EMXP will simply use the Preferences settings for the parameters described below.

Selecting the keyboard section for conversion to Lower/Upper files

If you are converting to Emulator-I Lower/Upper Sound files, the target files will contain a single Emulator-I sound, which contains 1 to 6 samples that will be assigned to only 2 keyboard octaves. EMXP should know which part of the keyboard of each source preset should be used for conversion to these target sound files.



There are two possibilities:

- Option 1: convert keyboard range C1 → B2 of each source preset into lower/upper files (one per preset)
- Option 2: convert keyboard range C3 → B4 of each source preset into lower/upper files (one per preset)

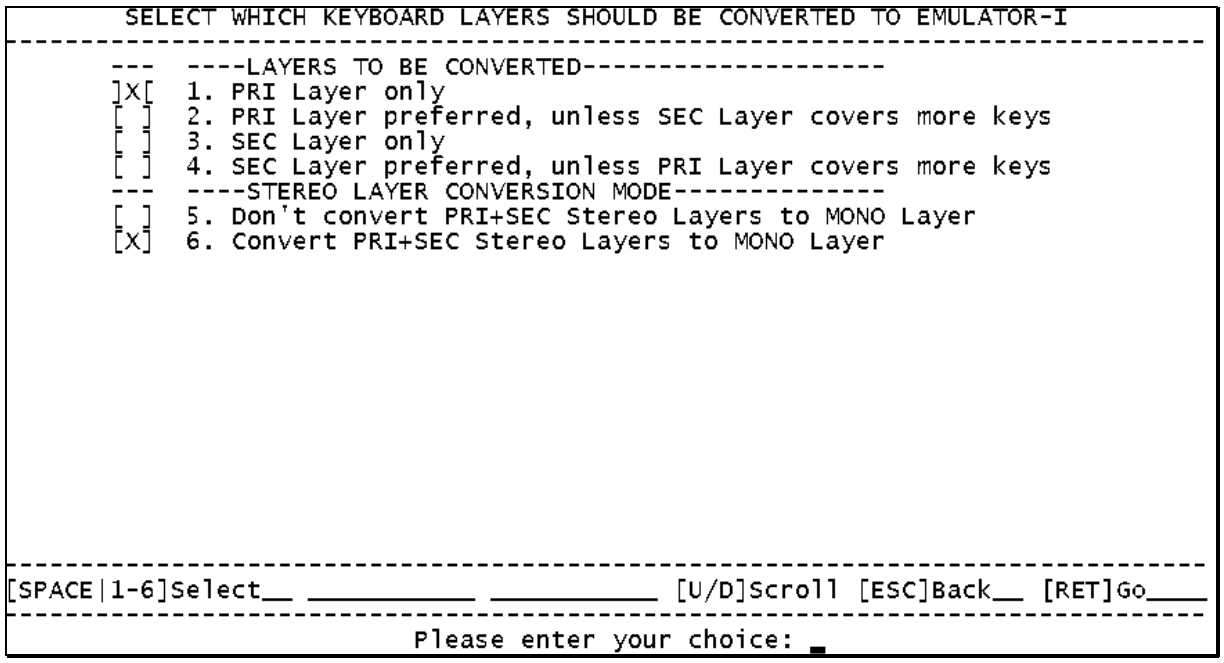
Combining both options at once is *not possible:* if you want to convert keyboard range C1 → B2 of each preset into one lower/upper file, and convert keyboard range C3 → B4 of each preset into another lower/upper file, you will have to run the conversion twice: once with option 1 and once with option 2.

When converting from SP-12 sound banks, it's *not possible* to select the keyboard section that should be converted to the Emulator-I Lower/Upper Sound files. EMXP will always assume it's *the lower part*. As a result

only the SP-12 RAM sounds or samples that have been assigned to the lower key areas in the range C1 → B2 will survive the conversion process.

Keyboard layer selection and stereo layer handling

The presets in the source sampler banks may consist of both a primary (PRI) and secondary (SEC) voice layer. Since the Emulator-I only supports one layer, EMXP will ask which layer should be converted. This screen is only displayed if the source sampler supports more than one voice layer.

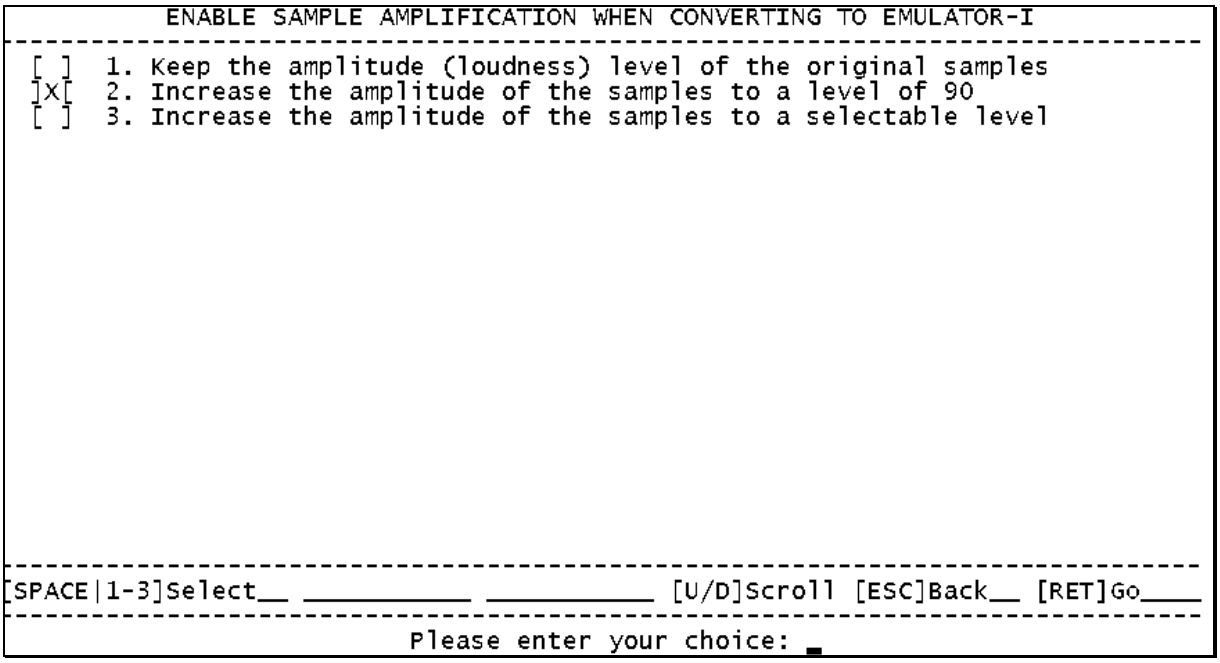


With option 1 you instruct EMXP to convert the PRI layer, no matter if there are voices in this layer or not. With option 2 you instruct EMXP to convert the PRI layer by default, but if for a certain target key area more voices are assigned to the SEC layer than to the PRI layer in the source preset, EMXP should switch to the SEC layer. Options 3 and 4 are identical, but from the perspective of the SEC layer as starting point.

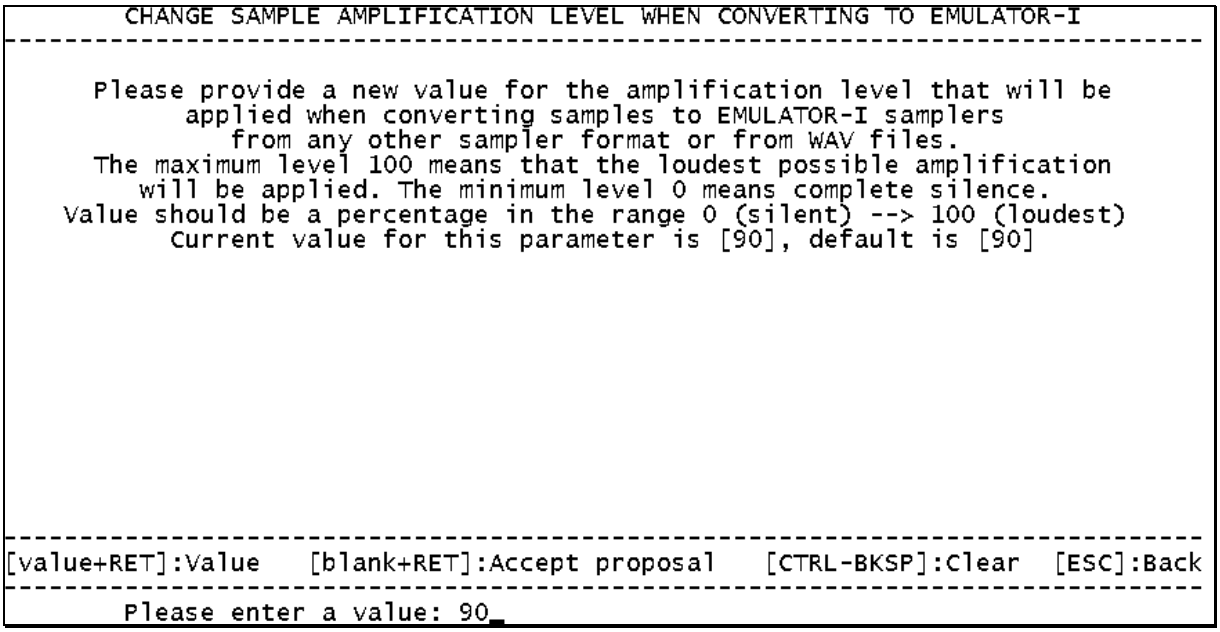
It's also possible that the source preset contains key areas in which the PRI and SEC layer behave as the left and right channel of a stereo voice. Since the Emulator-I does not support two layers, nor a stereo mode, you should also specify whether the samples of both source stereo channels should be merged into mono samples, or whether the other channel's sample should simply be ignored. E.g. if you selected option 1 (PRI layer), option 5 will simply convert the sample of the PRI layer and ignore the sample of the SEC layer, while option 6 will combine the PRI and SEC samples and convert them to mono.

Loudness normalization

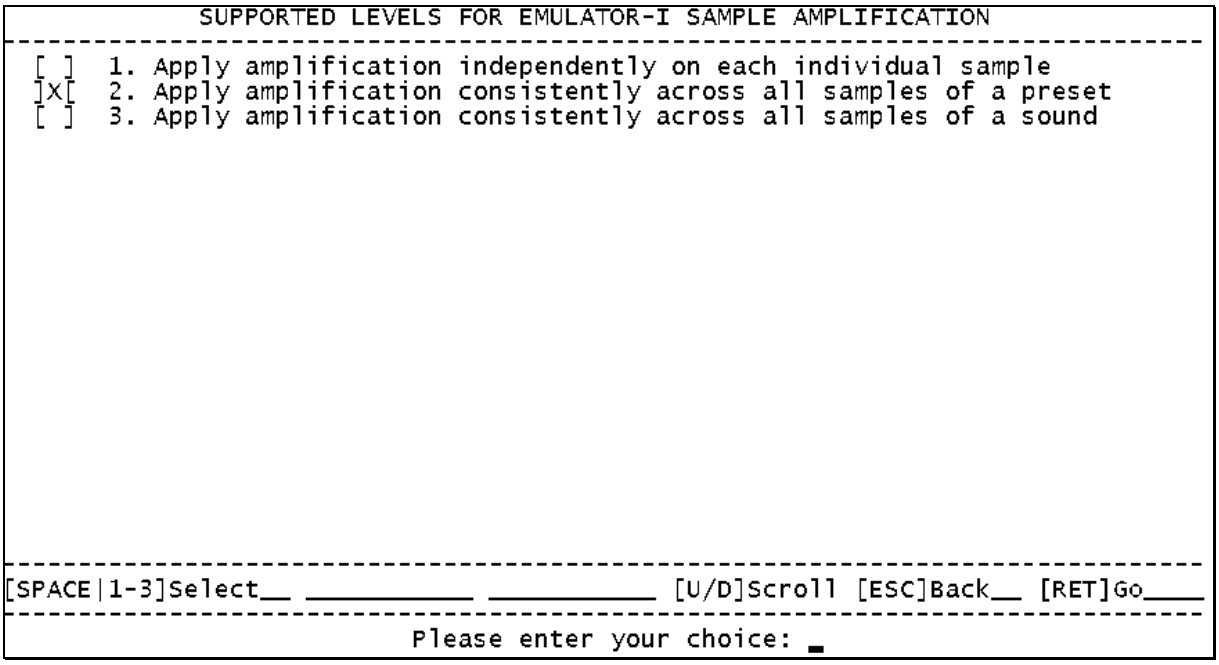
Emulator-I samples should have a high volume (loudness) in order to be played in a comfortable way on the Emulator-I sampler.
Keeping the samples of the source bank at their original loudness level may result in pretty silent sounds on the Emulator-I sampler.
Therefore EMXP offers the possibility to "boost" the volume of the samples during conversion.



When selecting option 1 the loudness of the samples will not be changed (possibly resulting in quite silent Emulator-I sounds).
Option 2 allows to boost the sample amplitude to 90 pct of the maximum volume level supported by the Emulator-I, while option 3 allows for any other amplification level which you will have to specify on the next screen (see picture below, which will only appear after selecting option 3).



If you selected option 2 or 3 in order to change the volume of the samples, EMXP can take into account *other samples* within a *keyboard half* (= Emulator-I lower sound or Emulator-I upper sound) or within the *whole preset* (= Emulator-I lower and upper sound together).
In that case, the reference peek amplitude used by EMXP is the highest amplitude of all samples within that keyboard half or within that preset. Of course it's also possible to boost *every individual sample* to the specified level.
This can be defined on the next screen.



For more information about Emulator-I sample amplification, see *section "10.3.3.1 Define sample amplification and attenuation"*.

SoundFont2 Modulator Conversion and Exclusive Class Conversion

If you are converting SoundFont2 sound banks, you have to specify

- to what extent default (implicit) modulators and defined (explicit) modulators should be converted.
- whether Exclusive Class generators should be converted into mono/solo keyboard settings

See *section "7.3.12 Conversion from SoundFont2"*.

SP-12 Filter/Dynamics Conversion and SP-12 Key Map Definition

If you are converting SP-12 sound banks, you have to specify which settings for the SP-12 filters and SP-12 dynamics should be assumed. It's also necessary to specify how the individual SP-12 sounds should map to the Emulator-I keyboard. See *section "7.3.11 Conversion from SP-12"* for more details.

ESI-v3 non-Lowpass Filter conversion

If you are converting ESI-v3 sound banks, you have to specify how the cutoff frequency of ESI filters which are not lowpass filters should be converted.
See *section "7.3.13.3 Conversion of ESI-v3 non-low pass filters"*.

Remark

When converting sound banks into the Emulator-I format you will notice that quite a lot of presets, samples and voices can not be translated or have been translated resulting in different tunings, original keys and keyboard assignments. This is due to the very limited capabilities of the Emulator-I in terms of hardware (memory size) and features. See *section "7.7.2 Emulator-I"* for more details.

7.3.2.2 Conversion from WAV files

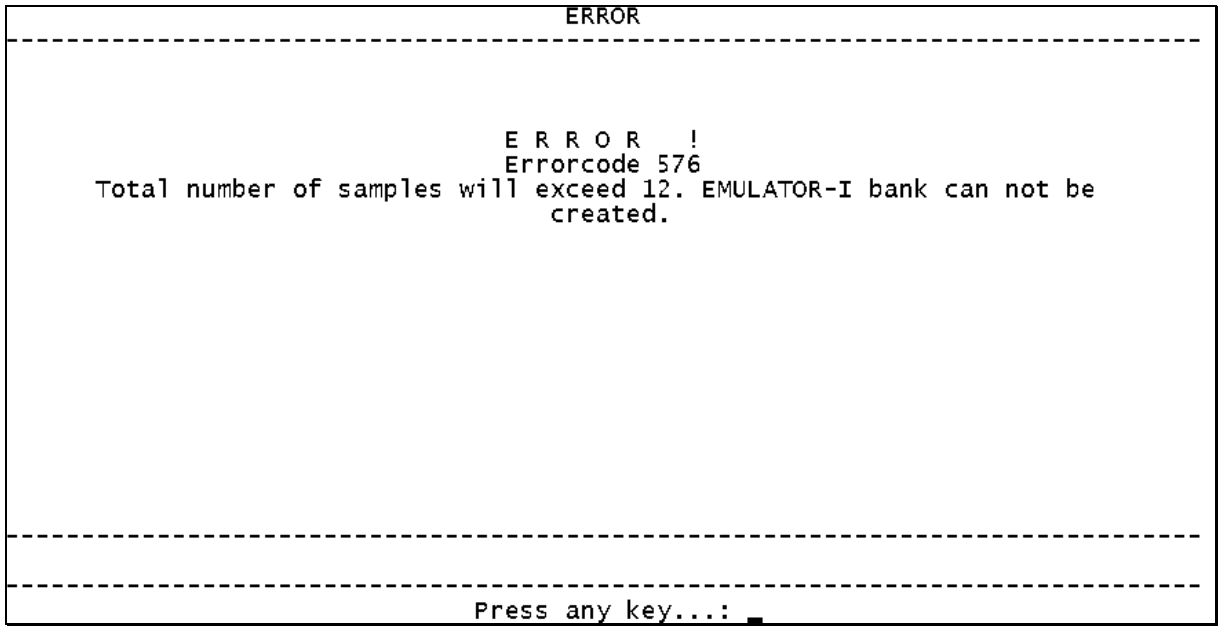
When converting WAV files into the Emulator-I format

- the loudness (sample amplification) parameters have to be set. The procedure is the same as the one we just described, see previous *section "7.3.2.1 Conversion from sampler sound banks"*.
- if at least one of the selected WAV files contains one or more loops, you should specify whether the WAV loops should be converted as well and if so, which of the WAV loops should be converted. See *section "7.3.9 Conversion from WAV"*.

EMXP will convert the sample rate of the WAV-file to 27778 Hz which is the only Emulator-I supported sample rate.

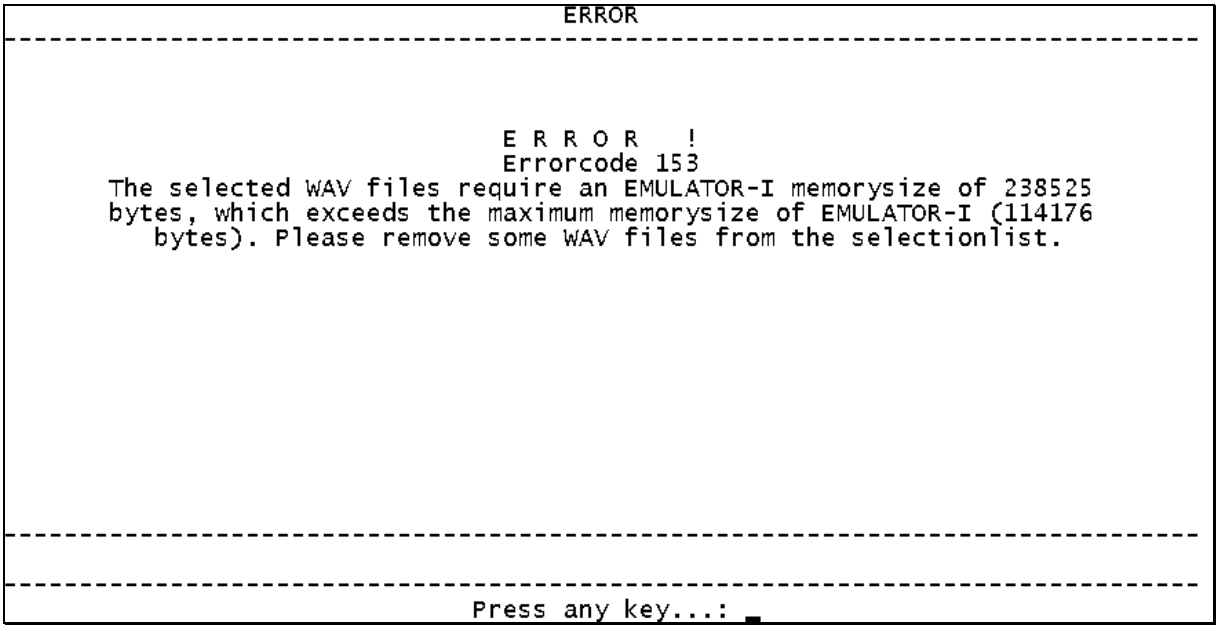
Stereo WAV files will be converted to mono.

The total number of WAV files may not exceed 12 when creating a bank file or a floppy disk image file, and may not exceed 6 when creating a lower/upper file. If more WAV files have been selected, an error will occur (see screen below).



Each 16 bit sample of a WAV file (2 bytes) will be converted to an 8 bit sample in the Emulator-I (1 byte)
The total memory required for all WAV files may not exceed 114176 bytes (samples) when creating a bank file or a floppy disk image file, and may not exceed 57088 bytes (samples) when creating a lower/upper file.
E.g. for a bank file, this means that the total size of the raw audio data in the 16-bit WAV files may not exceed 228352 bytes for mono audio, and may not exceed 456704 bytes for stereo audio.
Moreover, in case of a bank file or floppy disk image file, it should be possible to split the selected WAV files into two groups, each containing a maximum of 6 WAV files, and each not exceeding a total of 57088 bytes of required memory in the Emulator-I.

EMXP will give an error if you exceed these limits, see picture below.



If a bank file, floppy disk image file or HxC floppy disk image file is being created, EMXP will try to equally balance the number of WAV files assigned to the lower and upper section (e.g. 3 in Lower and 3 in Upper if a total of 6 WAV files must be converted).
If a (lower/upper) sound file is being created, the selected WAV files (max. 6) are simply assigned to the single sound section that is being created.

EMXP will also try to assign the WAV files in alphabetical order to the keyboard from C1 till C5.

The WAV files will be assigned to *key areas* instead of individual keys (see other samplers). The Emulator-I does not support assignment of samples to individual keys; it only supports a few combinations of fixed size key areas, e.g. 2 key areas per sound (lower/upper) each holding 12 keys.
EMXP will calculate how many key areas of which size are required for the selection of WAV files, and will try to keep the number of unused keys to a minimum.

The original pitch of each sample is preserved, independent of the key area EMXP will assign the sample to. E.g. suppose your WAV file is sampled at C3 pitch. If EMXP puts this sample on key area C1 → B1, the C3 pitch can be heard on the G1 key (for the fixed key area C→B, the Emulator-I always plays the sample at original pitch on key G – see Emulator-I user manual)

Before starting the actual conversion of the selected WAV files into the Emulator-I format, EMXP will check if the resulting sound bank is compatible with the target sampler's limits. Some examples have already been explained before in this section (e.g. number of samples, sample size, ...). As explained, in case of any detected incompatibility, an error will be shown and you won't be able to continue the conversion. A typical solution will be to reduce the number of selected WAV files... See *section "7.3.14 Validation check when converting WAV files"*.

7.3.3 Conversion to Emulator-II

Except for Emulator-II sound banks and Akai S1000 programs and samples, sound banks of any sampler type supported by EMXP as well as WAV files can be converted into Emulator-II sound banks.

7.3.3.1 Conversion from sampler sound banks

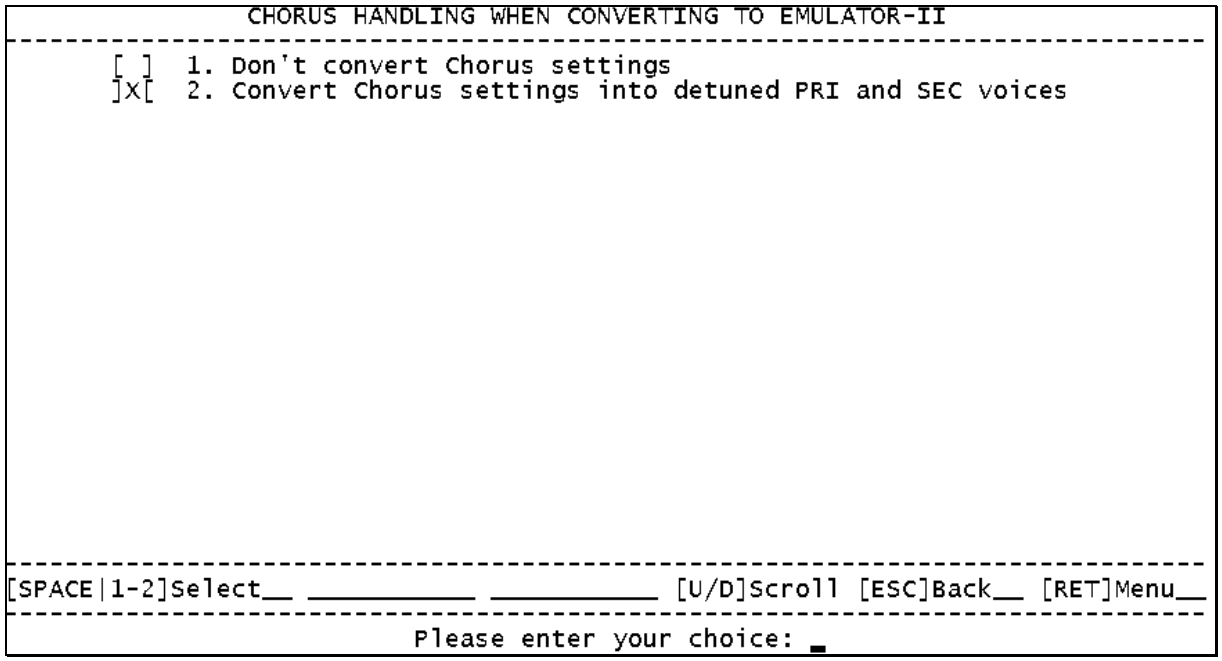
If you have selected

- the MANUAL conversion mode, or
- the SEMI-MANUAL conversion mode and you have chosen to review the copy/conversion settings now (see *section "7.2.3 Batch or manual conversion process"* and *section "6.2.2.3 Custom Automation Level Mode (and SEMI-MANUAL Mode)"*)

EMXP will ask for the some sampler conversion settings now.
In the other case EMXP will simply use the Preferences settings for this parameter.

Chorus parameter conversion

If the source bank contains some voices which have the CHORUS setting enabled, EMXP can try to simulate the chorus effect on the Emulator-II by adding some detuned voices (if an empty PRI or SEC voice would be still available). The advantage of this feature is that the target presets will sound more like the original one; the drawback however is that the polyphony will decrease (from 8 to 4 !). For that reason you can choose yourself how EMXP should handle chorus settings:



Emulator-I Loudness Normalization and Emulator-I Key Map Definition

If you are converting Emulator-I sounds or sound banks, you have to specify whether the sample volume should be lowered during conversion or not.
When converting Emulator-I Lower/Upper sound files or individual Emulator-I sounds (Lower/Upper), you also have to specify to which part of the Emulator-II keyboard the converted sounds should be assigned. See *section "7.3.10 Conversion from Emulator-I"* for more details.

SoundFont2 Modulator Conversion and Exclusive Class Conversion

If you are converting SoundFont2 sound banks, you have to specify

- to what extent default (implicit) modulators and defined (explicit) modulators should be converted. Especially some default MIDI CC modulators can result in unexpected target sampler settings.
- whether Exclusive Class generators should be converted into mono/solo keyboard settings and/or to mono/single audio output channel assignments

See *section "7.3.12 Conversion from SoundFont2"*.

SP-12 Filter/Dynamics Conversion and SP-12 Key Map Definition

If you are converting SP-12 sound banks, you have to specify which settings for the SP-12 filters and SP-12 dynamics should be assumed. It's also necessary to specify how the individual SP-12 sounds should map to the Emulator-II keyboard. See *section "7.3.11 Conversion from SP-12"* for more details.

Source ESI sampler type

If you are converting ESI-v3 sound bank, EMXP needs to know the assumed available polyphony of the ESI sampler. See *section "7.3.13 Conversion from ESI-v3"*.

ESI-v3 non-Lowpass Filter conversion

If you are converting ESI-v3 sound banks, you have to specify how the cutoff frequency of ESI filters which are not lowpass filters should be converted.
See *section "7.3.13.3 Conversion of ESI-v3 non-low pass filters"*.

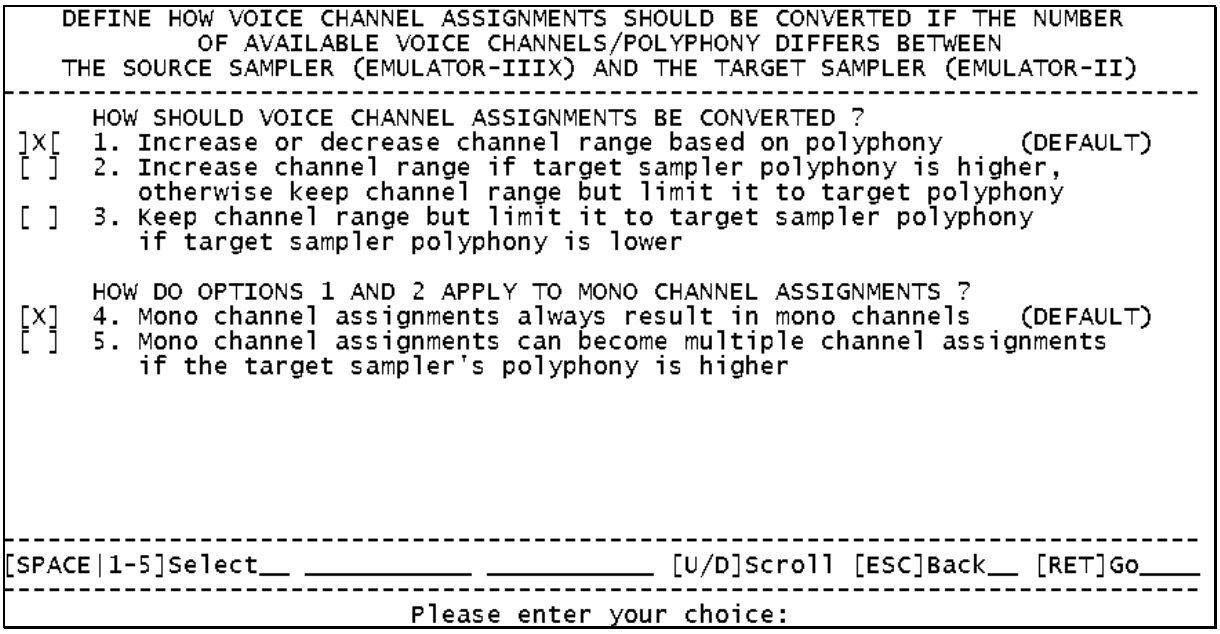
Output channel assignment rules

If the source sampler format supports assignable output channels while having another polyphony than the Emulator-II, EMXP needs to know how the output channel assignments in the source bank should be converted to Emulator-II output channel assignments.

EMXP will show a screen in which you can select whether the source output channel assignment ranges should be scaled up or scaled down depending on the difference in polyphony between the source sampler and the Emulator-II. It's also possible to make an exception for mono/solo output channel assignments in the source bank, which can be retained at all times if requested.

This selected option is not unique for conversions to the Emulator-II sampler format. This preference is shared between all sampler formats. E.g. if you select options 1 and 4 here, these settings will also be applicable for conversions to Emulator-III, SP-12, and so on. But they can of course be changed again when converting to these other sampler formats.

In the example screen below, the source sampler format is Emulator-IIIX. But the screen looks similar for other source sampler formats.



More details about this preference can be found in *section "10.3.8.3 Define how to convert polyphony/voice channel assignments"*.

Remark

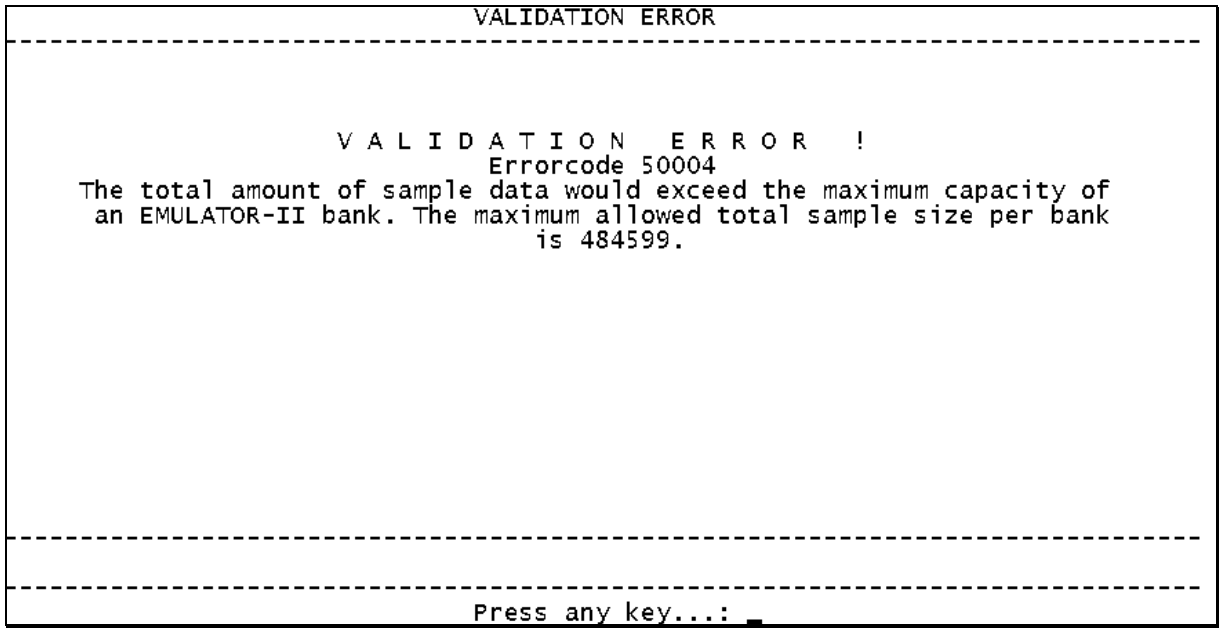
When converting sound banks to the Emulator-II format you will notice that quite a lot of presets, samples and voices can not be translated. This is due to the limited capabilities of the Emulator-II, both in terms of hardware (memory size) and sound processing (e.g. limited pitch shifting). See *section "7.7.3 Emulator-II"* for more details.

7.3.3.2 Conversion from WAV files

When converting WAV files into the Emulator-II format and if at least one of the selected WAV files contains one or more loops, you should specify whether the WAV loops should be converted as well and if so, which of the WAV loops should be converted to what target sample loop type. See *section "7.3.9 Conversion from WAV"*.

EMXP will convert the sample rate of the WAV-file to 27778 Hz (the only Emulator-II supported sample rate).

Total memory required for all selected WAV files may not exceed 484000 bytes (samples). This means that the total size of the audio in the 16-bit WAV files can not exceed 968000 bytes.
EMXP will raise an error if you exceed this limit.



EMXP will put each WAV file of the first 61 selected WAV files on a different key of the first preset (called PRESET 00). 61 keys are used (C1 --> C6). If more than 61 WAV files have been selected, a second preset is created (called PRESET 01). Additional presets will be created every next set of 1 to 61 WAV files. The .WAV files are assigned to the keys and presets in *alphabetical order*.

Stereo WAV files will be converted to mono.

The original pitch of each sample is preserved, independent of the key EMXP will assign the sample to. E.g. suppose your WAV file is sampled at C3 pitch. If EMXP puts this sample on C2, the C3 pitch can be heard on that C2 key. You can change this to whatever you want by using the "edit assignment" function on your Emulator-II sampler.

Before starting the actual conversion of the selected WAV files into the Emulator-II format, EMXP will check if the resulting sound bank is compatible with the target sampler's limits. The example regarding the total sample size has already been shown in this section. In case of any detected incompatibility, an error will be shown and you won't be able to continue the conversion. A typical solution will be to reduce the number of selected WAV files... See *section "7.3.14 Validation check when converting WAV files"*.

7.3.4 Conversion to Emulator-III, Emulator-IIIX and ESI-v3

Except for Akai S1000 programs and samples, sound banks of any sampler type supported by EMXP as well as WAV files can be converted into Emulator-III, Emulator-IIIX or ESI-v3 sound banks.

7.3.4.1 Conversion from sampler sound banks

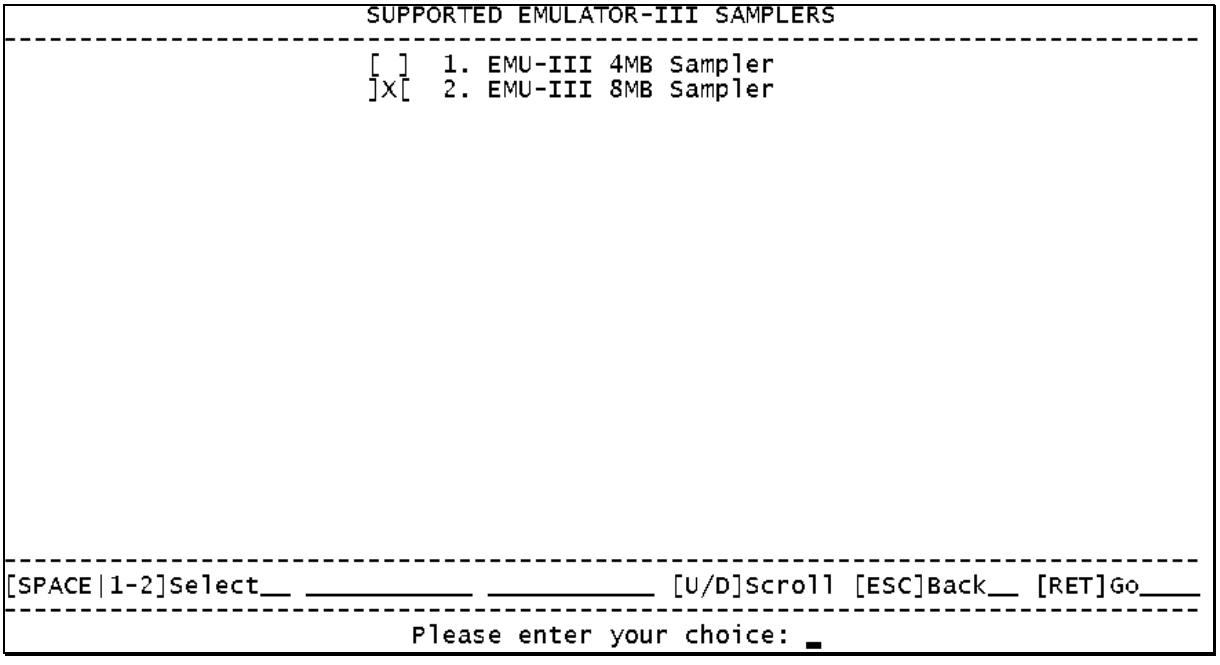
If you have selected

- the MANUAL conversion mode, or
- the SEMI-MANUAL conversion mode and you have chosen to review the copy/conversion settings now (see *section "7.2.3 Batch or manual conversion process"* and *section "6.2.2.3 Custom Automation Level Mode (and SEMI-MANUAL Mode)"*)

EMXP will ask for some sampler conversion settings now.
In the other case EMXP will simply use the Preferences settings for these parameters.

EMULATOR-III, EMULATOR-IIIX or ESI memory size

EMXP will ask for the Emulator-III, Emulator-IIIX or ESI target sampler's memory size. The available sizes differ depending on the sampler format and sampler type. The pictures below show the available sizes for the - Emulator-III, Emulator-IIIX and ESI-v3 sampler formats.
Since the Emulator-IIIX fomat is also the ESI-v2 format supported by ESI-32, ESI-2000 and ESI-4000 samplers, each memory size displayed on the screen is succeeded by an indication (between brackets) stating which hardware samplers support that particular memory size.
A similar approach is true for the ESI-v3 format, which is supported by ESI-32, ESI-2000 and ESI-4000 samplers.



```
                    SUPPORTED EMULATOR-IIIX SAMPLER SIZES
-------------------------------------------------------------------------------
              [ ]  01. EMU-IIIX 2MB        (ESI32)
              [ ]  02. EMU-IIIX 4MB        (ESI32, ESI4K)
              [ ]  03. EMU-IIIX 8MB        (EIIIX, ESI32, ESI4K)
              [ ]  04. EMU-IIIX 16MB       (EIIIX, ESI4K)
              [ ]  05. EMU-IIIX 18MB       (ESI4K)
              [ ]  06. EMU-IIIX 24MB       (EIIIX)
              ]X[  07. EMU-IIIX 32MB       (EIIIX, ESI32, ESI4K)
              [ ]  08. EMU-IIIX 64MB       (ESI4K)
              [ ]  09. EMU-IIIX 66MB       (ESI4K)
              [ ]  10. EMU-IIIX 72MB       (ESI4K)
              [ ]  11. EMU-IIIX 128MB      (ESI4K)









-------------------------------------------------------------------------------
[SPACE|01-11]Select _____________ _____________ [U/D]Scroll [ESC]Back__ [RET]Go____
-------------------------------------------------------------------------------
                          Please enter your choice:
```

```
                    SUPPORTED ESI-V3 SAMPLER SIZES
-------------------------------------------------------------------------------
              [ ]  01. ESI-V3 2MB        (ESI32)
              [ ]  02. ESI-V3 4MB        (ESI32, ESI4K)
              [ ]  03. ESI-V3 8MB        (ESI32, ESI4K)
              [ ]  04. ESI-V3 16MB       (ESI4K)
              [ ]  05. ESI-V3 18MB       (ESI4K)
              ]X[  06. ESI-V3 32MB       (ESI32, ESI4K)
              [ ]  07. ESI-V3 64MB       (ESI4K)
              [ ]  08. ESI-V3 66MB       (ESI4K)
              [ ]  09. ESI-V3 72MB       (ESI4K)
              [ ]  10. ESI-V3 128MB      (ESI4K)









-------------------------------------------------------------------------------
[SPACE|01-10]Select _____________ _____________ [U/D]Scroll [ESC]Back__ [RET]Go____
-------------------------------------------------------------------------------
                          Please enter your choice:
```

For the Emulator-III and Emulator-IIIX sampler format, the default memory size is the largest available size on the Emulator-III and Emulator-IIIX samplers, i.e. the memory available in a fully expanded sampler (8MB for Emulator-III, 32MB for Emulator-IIIX). But you can scale this down to lower values, or even scale it up to larger sizes (for Emulator-IIIX sound banks on ESI samplers).
For the ESI-v3 sampler format, 32 MB is the default memory size because it's the maximum supported sample size on ESI-32 samplers. It's possible to increase the size however when using an ESI-2000 or ESI-4000 sampler.

Note that even if you select a large value (e.g. 32 MB) as the maximum memory size, many sound banks created by EMXP will still load perfectly in a sampler with less RAM memory installed (e.g. 8 MB) since only the *actual total size* of the samples in the generated sound bank matters, not the maximum allowed sample size.

Sample rate

In the next step EMXP will ask for the sample rate range that should be used during the conversion.

Although EMXP is capable of keeping the sample rates of the samples as close as possible to the original sample's sample rates, there are two good reasons why you would want EMXP to lower the sample rates during the conversion:

- To keep as many presets as possible into one target Emulator-III, Emulator-IIIX or ESI-v3 sound bank. Lower sample rates take less memory space, so more samples will fit in memory. Note: if not all presets of the source bank fit into one target sound bank – even with lower sample rates – EMXP will generate multiple files. But even then keep in mind that only the presets which *completely* fit into a sound bank will be translated by EMXP. If they don't, they will be ignored.
- To keep the original transposition settings. This reason is only applicable for conversions to Emulator-III (not Emulator-IIIX or ESI). Lower sample rates allow for a broader transposition range. See also *section "7.7.4 Emulator-III, Emulator-IIIX"*

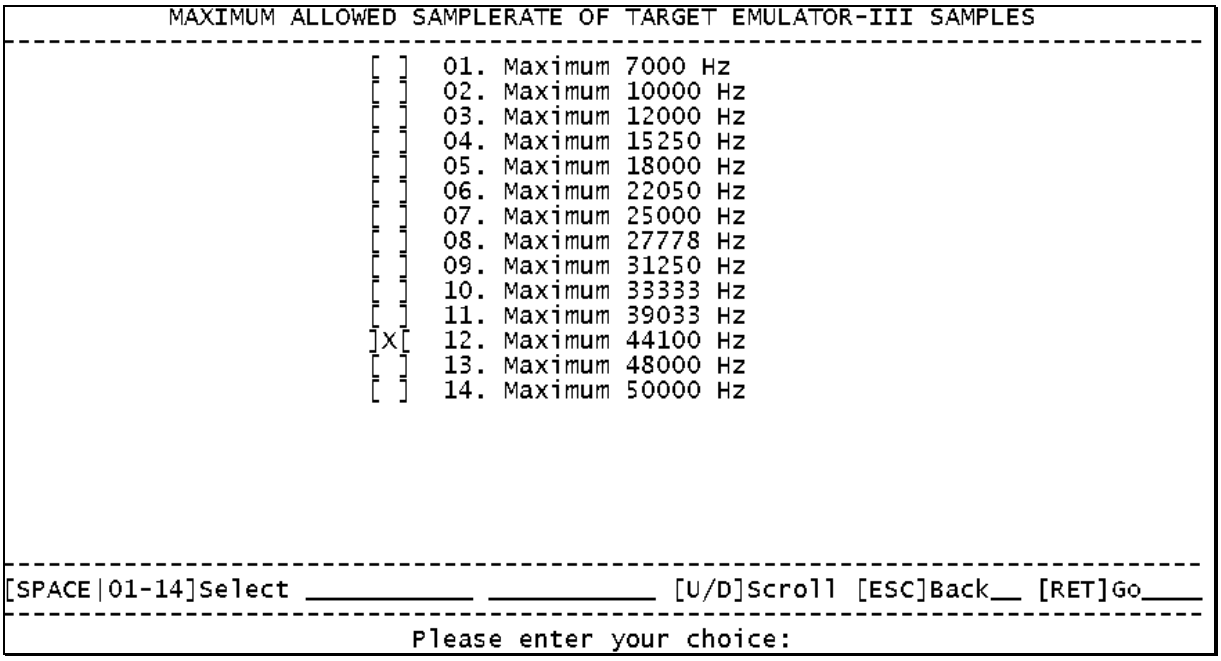
Note that EMXP will *never* increase the sample rate, unless the source sample rate is lower than the minimum sample rate supported by the Emulator-III, Emulator-IIIX or ESI samplers (which will e.g. never happen when converting from Emulator-I or Emulator-II).

The lower the specified sample rates, the longer the conversion process will take (up to several minutes !!)

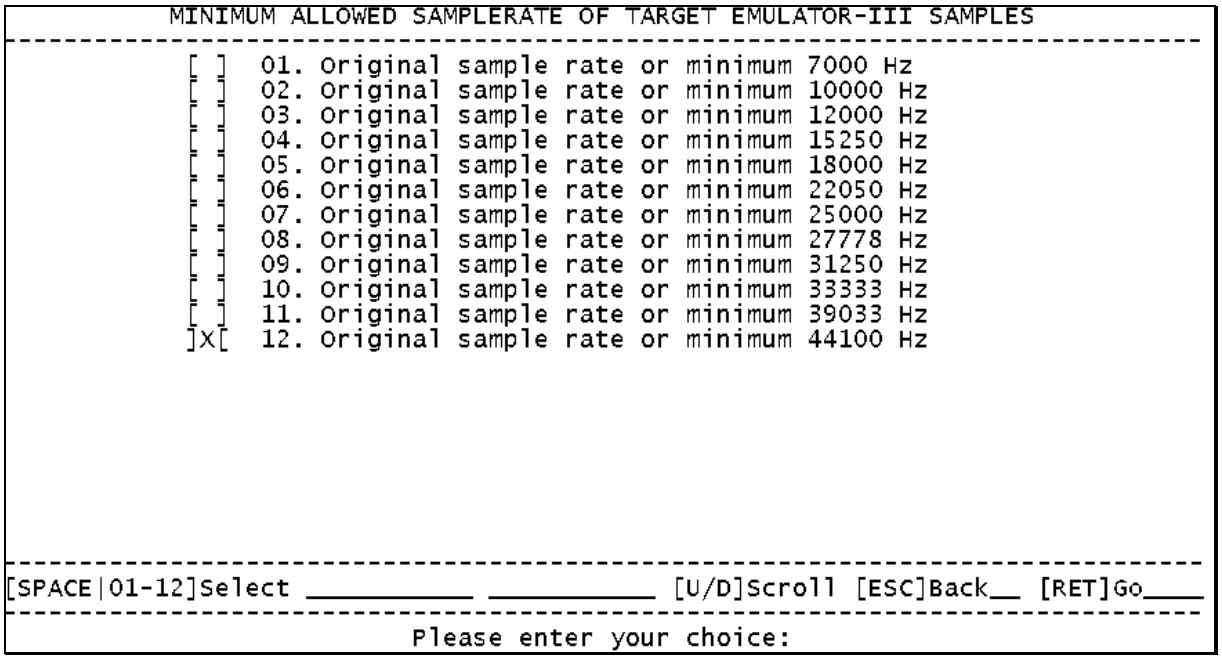
- First you have to specify the *maximum allowed sample rate* for the target samples. All converted samples will have a sample rate equal or lower than this setting. This parameter is especially important if you're having problems with preserving correct transposition values when converting to Emulator-III.

  In that case, it may be required to set the maximum allowed sample rate to a lower value, although you should only do this after you have tried higher values first. The reason for this is that the maximum allowed sample rate will be applicable *to all samples in the source sound bank*, not only to the samples that really *need* it. By first using a higher maximum sample rate and allowing EMXP to downgrade sample rates to the value defined as the *minimal allowed sample rate* (see next step), there's a chance that the sample you really want to have downgraded will actually be downgraded, while not impacting the quality of other samples at higher sample rates…

  The *maximum allowed sample rate* can also be used to decrease the target bank size. If the maximum sample rate is set to a lower value than the highest sample rate found in the original bank, the converted samples will decrease in size.
  Note however that EMXP will always try to fit the target bank in the memory size of the target sampler by down-sampling the samples, *no matter what value you have specified for the maximum allowed sample rate.*
  Even if generating *multiple target banks* from one source bank can be done in such a way that these target banks would fit in the target sampler's memory , EMXP will still try to generate only *one single* target bank if the *minimum allowed sample rate* would allow for further downgrading the sample rate.
  In this process EMXP will never use sample rates lower than the value set as *minimum allowed sample rate* though (see next paragraph).
  So why would you then lower the *maximum allowed sample rate* as well ?
  The only reason why you would decrease the *maximum allowed sample rate* (besides increasing transposition ranges) is to *further decrease* the target bank's size, even if it would already fit in the target sampler's memory. The reason for this may be that you may want to have more free memory available in the bank for adding presets and samples when editing the bank on your sampler.



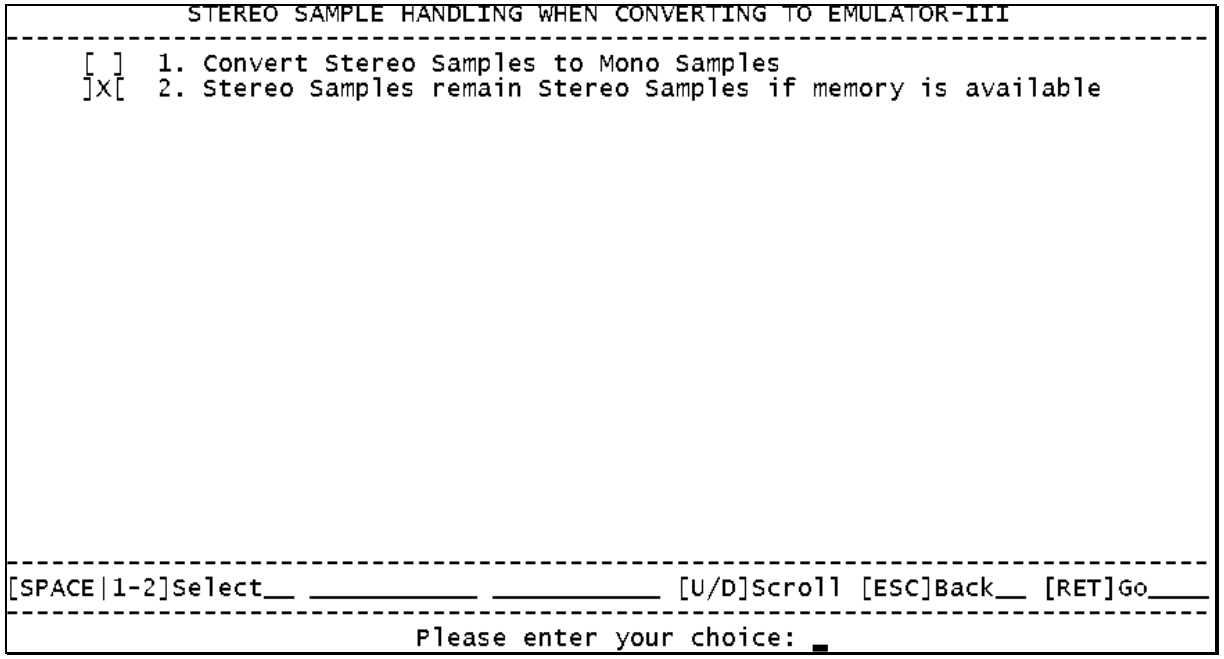
- In a second step you have to specify the *minimum allowed sample rate* for the target samples. This value is very important if you try to compress samples in order to have as many presets and samples as possible in one Emulator-III, Emulator-IIIX or ESI-v3 sound bank. EMXP will never decrease the sample rate below this setting, *unless* the original sample rate is even lower. In that case, the original (even lower) sample rate will be used. If the original sample rate is higher than this parameter, EMXP will first try to keep this higher sample rate. It will only decrease the sample rate (step by step) if the original bank does not fit in one target bank image.
  Note: the number of available sample rate values depends on the *maximum allowed sample rate* that you have defined in the previous step.



Stereo sample handling

If the source bank contains some STEREO samples, EMXP will give you the opportunity to either keep these stereo characteristics or convert theses samples to mono (to gain some memory).
EMXP will make sure that each generated preset *either* retains all stereo samples *or* only contains mono samples (for both the original mono samples and the original stereo samples). But the retention of stereo samples can *differ across the generated presets*, i.e. the same original stereo sample can result in a stereo sample in one preset, while resulting in a mono sample in another preset. As a consequence the total size of all generated samples can be higher than the original total sample size, since each stereo sample can result in 2 samples (one mono, one stereo). This increases the probability that the sample rate will be downgraded (see previous paragraph "Sample rate conversion") or that multiple Emulator-III/X/ESI-v3 banks will have to be generated.

Here's the screen in which you can specify how EMXP should deal with stereo samples:



Emulator-I Loudness Normalization and Emulator-I Key Map Definition

If you are converting Emulator-I sounds or sound banks, you have to specify whether the sample volume should be lowered during conversion or not.
When converting Emulator-I Lower/Upper sound files or individual Emulator-I sounds (Lower/Upper), you also have to specify to which part of the Emulator-III/Emulator-IIIX keyboard the converted sounds should be assigned. See *section "7.3.10 Conversion from Emulator-I"* for more details.

SoundFont2 Modulator Conversion and Exclusive Class Conversion

If you are converting SoundFont2 sound banks, you have to specify

- to what extent default (implicit) modulators and defined (explicit) modulators should be converted. Especially some default MIDI CC modulators can result in unexpected target sampler settings.
- whether Exclusive Class generators should be converted into mono/solo keyboard settings and/or to mono/single audio output channel assignments

See *section "7.3.12 Conversion from SoundFont2"*.

SP-12 Filter/Dynamics Conversion and SP-12 Key Map Definition

If you are converting SP-12 sound banks, you have to specify which settings for the SP-12 filters and SP-12 dynamics should be assumed. It's also necessary to specify how the individual SP-12 sounds should map to the Emulator-III/Emulator-IIIX keyboard. See *section "7.3.11 Conversion from SP-12"* for more details.

Source ESI sampler type

If you are converting ESI-v3 sound bank, EMXP needs to know the assumed available polyphony of the ESI sampler. See *section "7.3.13 Conversion from ESI-v3"*.

Target ESI sampler type

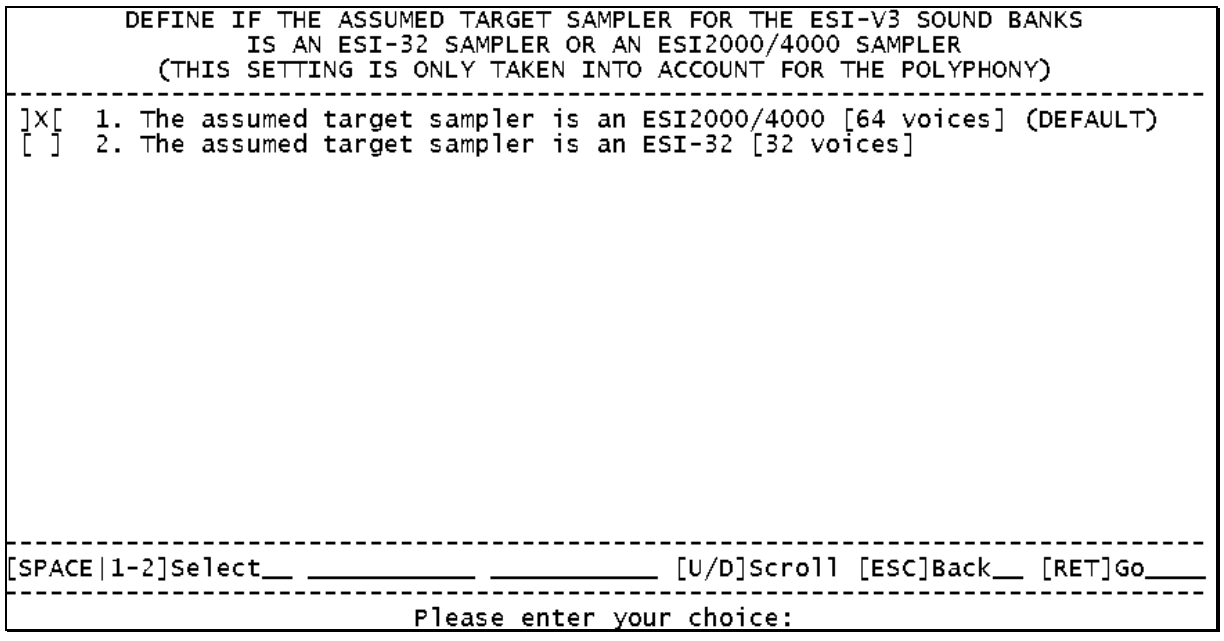
When converting to the ESI-v3 sampler format, EMXP needs to know the available polyphony of the ESI sampler if the source sampler format supports voice assignments to specific output channel ranges.
For more information about how EMXP deals with polyphony and with output channels, see *section "10.3.8.3 Define how to convert polyphony/voice channel assignments"* and *paragraph "Output channel assignment rules"* later in this chapter.

The ESI-v3 sampler format is supported by all ESI samplers running the v3.x operating system, but the polyphony of the sampler depends on the ESI model:

- ESI-32 samplers have 32 (mono) polyphonic voices available
- ESI-2000 and ESI-4000 samplers have 64 (mono) polyphonic voices available

Of course ESI-v3 sound banks generated for ESI-32 samplers can perfectly be used on ESI-2000 and ESI-4000 samplers, and ESI-v3 sound banks generated for ESI-2000/ESI-4000 samplers can perfectly be used on ESI-32 samplers.
Only the conversion of the output/voice channel assignments to ESI-v3 polyphonic channel groups will be different depending on the selected target ESI model. E.g. when converting an Emulator-IIIX sound bank which contains a channel assignment to 4 output channels (of the maximum 32 available channels), this can result in either a POLY4 or a POLY8 channel group assignment in the ESI-v3 sound bank, depending on the ESI polyphony. In this example we assume that the output channel conversion preference is set option 1 "upscale/downscale" (see *section "10.3.8.3 Define how to convert polyphony/voice channel assignments").*

The default ESI model (and hence polyphony) which will be assumed by EMXP when creating ESI-v3 sound banks can be defined in the preference screen below



Two options are provided:

- *Option 1*: the generated ESI-v3 sound banks are intended to be used on ESI-2000/ESI-4000 samplers. 64 voices of polyphony will be assumed. This is the default option.
- *Option 2*: the generated ESI-V3 sound banks are intended to be used on ESI-32 samplers. 32 voices of polyphony will be assumed.

This preference can also be set in the Preferences menu. See *section "10.3.5.6 Define conversion settings for conversions to ESI-v3"*.

Availability of the ESI turbo option with FX processors and submix channels

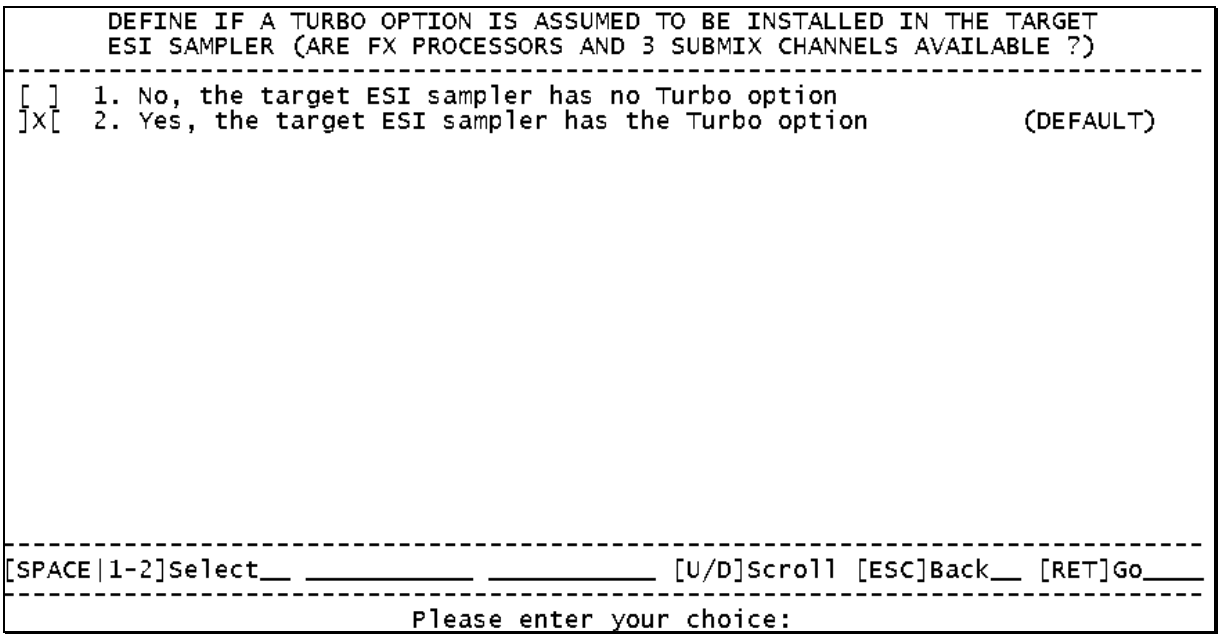
When converting sound banks from sampler types which support

- effects processors, e.g. for reverb, delay, chorus, ... effects
- multiple submix output channels

to the ESI-v3 sampler format, EMXP can convert these settings to ESI FX processor parameters and up to 3 ESI submix output channels. But this only makes sense if the target ESI sampler is equipped with FX processors and 3 submix output channels. These were available as part of the Turbo expansion option.

If no Turbo option is installed in the target ESI sampler, EMXP can try to convert the effects processor settings to normal voice-level ESI-v3 parameters (as described in *section "10.3.8.1 Define how to convert from source sampler FX processor settings"*), and can limit the number of submix channels to 1 instead of 3.

Whether EXMP should assume that the Turbo option is installed or not, can be defined in the following preference screen:



Two options are provided:

- *Option 1*: the target ESI sampler doesn't have the Turbo expansion option installed. No FX processors are available, and only one submix output channel can be used.
- *Option 2*: the target ESI sampler consists of a the Turbo expansion option. Two stereo FX processors are available, as well as 3 submix output channels. This is the default setting, and is the common situation when using ESI-v3 sound banks on ES-32 samplers (since the v3.x upgrade of the ESI-32 was typically done by installing the Turbo option)

This preference can also be set in the Preferences menu. See *section "10.3.5.6 Define conversion settings for conversions to ESI-v3"*.

SoundFont2 Chorus Effects conversion

If you are converting SoundFont2 sound banks, you have to specify how the Chorus Effects Send generators in SoundFont2 sound banks should be converted.
See *section "7.3.12.3 Conversion of SoundFont2 Effects Send Generators"*.

ESI-v3 Chorus and Panning Effects conversion and ESI-v3 non-Lowpass Filter conversion

If you are converting ESI-v3 sound banks to the Emulator-III or Emulator-IIIX sampler format, you have to specify

- how the Chorus FX or Panning FX processor settings in ESI-v3 sound banks should be converted
- how the cutoff frequency of ESI filters which are not lowpass filters should be converted

See *section "7.3.13 Conversion from ESI-v3"*.

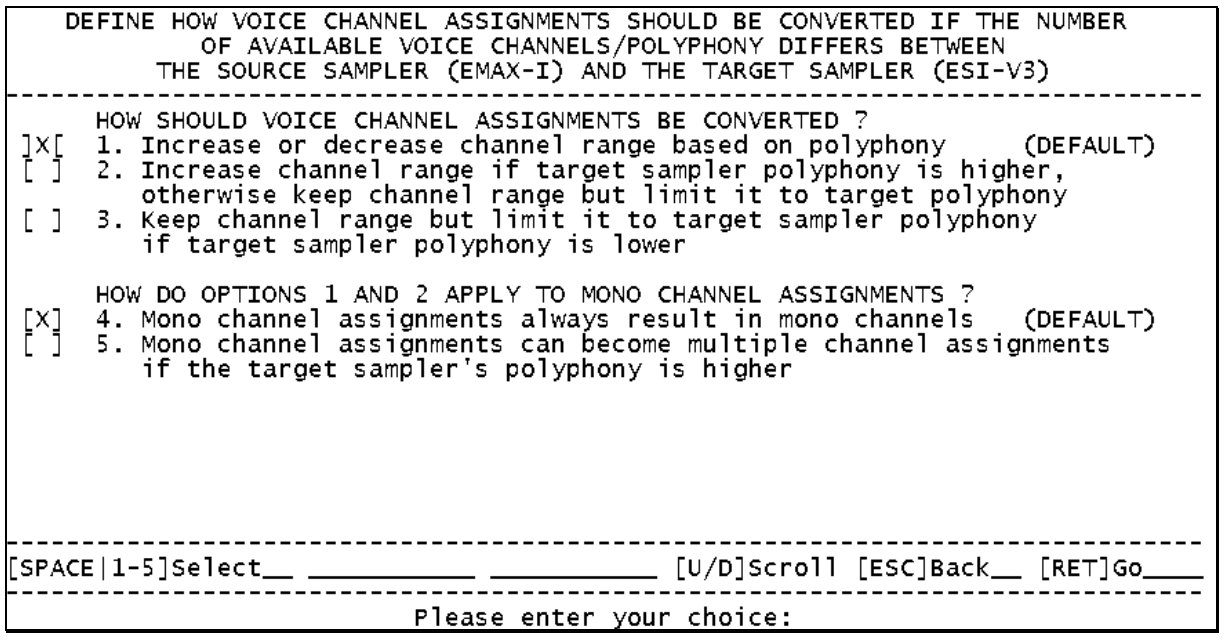
Output channel assignment rules

If the source sampler format supports assignable output channels while having another polyphony than the Emulator-III, Emulator-IIIX or ESI samplers, EMXP needs to know how the output channel assignments in the source bank should be converted to Emulator-III, Emulator-IIIX or ESI-v3 output channel assignments.

EMXP will show a screen in which you can select whether the source output channel assignment ranges should be scaled up or scaled down depending on the difference in polyphony between the source sampler and the Emulator-III, Emulator-IIIX or ESI samplers. It's also possible to make an exception for mono/solo output channel assignments in the source bank, which can be retained at all times if requested.

This selected option is not unique for conversions to the Emulator-III/X/ESI sampler format. This preference is shared between all sampler formats. E.g. if you select options 1 and 4 here, these settings will also be applicable for conversions to EMAX-I, SP-12, and so on. But they can of course be changed again when converting to these other sampler formats.

In the example screen below, the source sampler format is EMAX-I and the target sampler format is ESI-v3. But the screen looks similar for other source sampler formats.



More details about this preference can be found in *section "10.3.8.3 Define how to convert polyphony/voice channel assignments"*.

Defining Emulator-III/IIIX/ESI-v3 bank naming convention

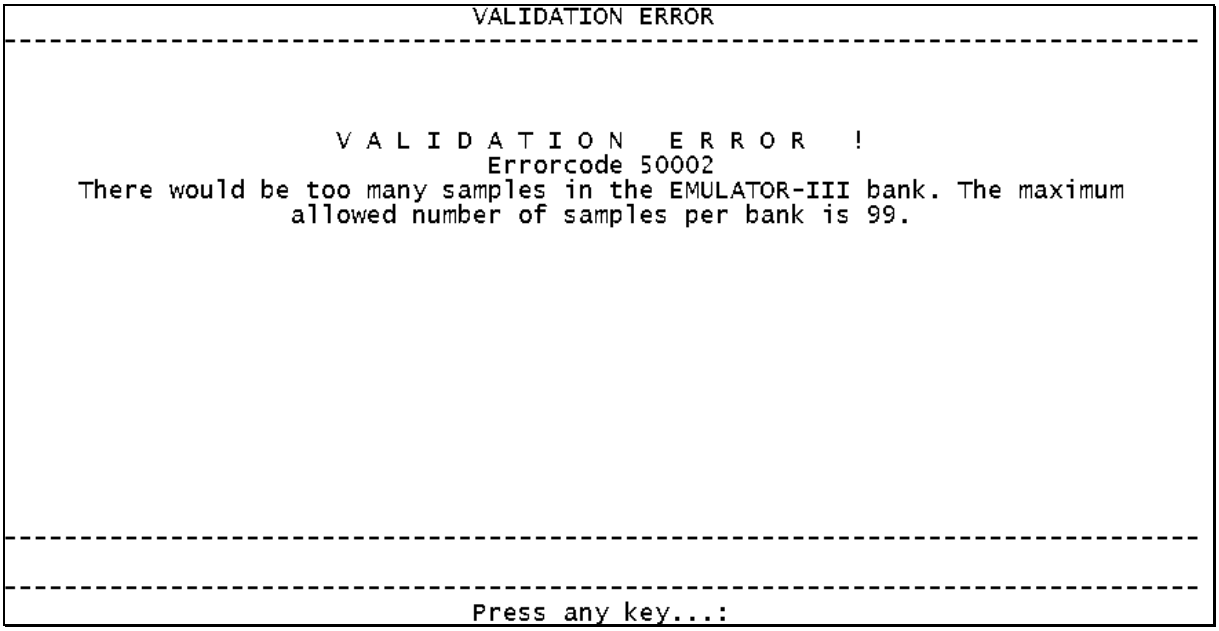
If the converted banks should be saved on an Emulator-III/IIIX/ESI hard disk or hard disk image, you will be asked whether the bank names should be corrected in the same way as the Emulator-IIIX and ESI samplers are doing when saving banks to hard disks.
The procedure is identical to the one for *copying* Emulator-III/IIIX/ESI-v3 banks to hard disks or hard disk images. See paragraph E in *section "6.2.2.2 MANUAL Mode"* for more details.

7.3.4.2 Conversion from WAV files

The available sampler conversion settings for conversions from WAV files are identical to the ones we just described for conversions from sampler sound banks. See previous *section "7.3.4.1 Conversion from sampler sound banks"*.
However:

- the *Stereo Sample Handling* parameter is not applicable when converting from WAV files.
- if at least one of the selected WAV files contains one or more loops, you should specify whether the WAV loops should be converted as well and if so, which of the WAV loops should be converted to what target sample loop type. See *section "7.3.9 Conversion from WAV"*.

EMXP will translate a maximum of 99 samples (WAV-files) into one Emulator-III sound bank and a maximum of 999 samples (WAV-files) into an Emulator-IIIX or ESI-v3 sound bank. EMXP will show an error if you exceed this limit.



EMXP will convert the sample rate of the WAV-file to an Emulator-III/Emulator-IIIX/ESI supported sample rate, depending on the target sample rates that you have set before. All sample rates below 7000 Hz will be upgraded to 7000 Hz. All sample rates above 50000 Hz will be downgraded to 50000 Hz.

Total memory required for all selected WAV files may not exceed the maximum memory size that you have set before. EMXP will show an error if you exceed this limit.
Stereo WAV files will be converted into stereo Emulator-III/Emulator-IIIX/ESI-v3 samples; mono WAV files remain mono samples.

EMXP will put each WAV file of the first 61 selected WAV files on a different key of the first preset (called PRESET 00). 61 keys are used (C1 --> C6). If more than 61 WAV files have been selected, a second preset is created (called PRESET 01). Additional presets will be created every next set of 1 to 61 WAV files. The .WAV files are assigned to the keys and presets in *alphabetical order*.

The original pitch of each sample is preserved, independent of the key you will assign the sample to. You can influence this pitch later by changing the “original key” parameter in the “place sample” module of any Emulator-III/X/ESI sampler.

Before starting the actual conversion of the selected WAV files into the Emulator-III, Emulator-IIIX or ESI-v3 format, EMXP will check if the resulting sound bank is compatible with the target sampler's limits, as has already been illustrated before in this section (e.g. maximum number of samples). In case of any detected incompatibility, an error will be shown and you won't be able to continue the conversion. A typical solution will be to reduce the number of selected WAV files... See *section "7.3.14 Validation check when converting WAV files"*.

7.3.5 Conversion to SoundFont2

Except for SoundFont2 sound banks and Akai S1000 programs and samples, sound banks of any sampler type supported by EMXP as well as WAV files can be converted into SoundFont2 sound banks.

SoundFont version 1.xx files are not supported. All known SoundFont2 versions, from v2.00 to v2.04, are supported, but when using v2.04 files only the 16 bit portion of the 24 bit sound data is processed.

7.3.5.1 Conversion from sampler sound banks

The conversion parameters that may be applicable when converting to the SoundFont2 format are the conversion parameters related to the Emulator-I or SP-12 source sampler format, conversion parameters related to SoundFont2 Exclusive Class and Chorus Effects Send generators, and a sample naming rule parameter for generating SoundFont2 samples.

Emulator-I Loudness Normalization and Emulator-I Key Map Definition

If you are converting Emulator-I sounds or sound banks, you have to specify whether the sample volume should be lowered during conversion or not.
When converting Emulator-I Lower/Upper sound files or individual Emulator-I sounds (Lower/Upper), you also have to specify to which part of the SoundFont2 keyboard the converted sounds should be assigned. See *section "7.3.10 Conversion from Emulator-I"* for more details.

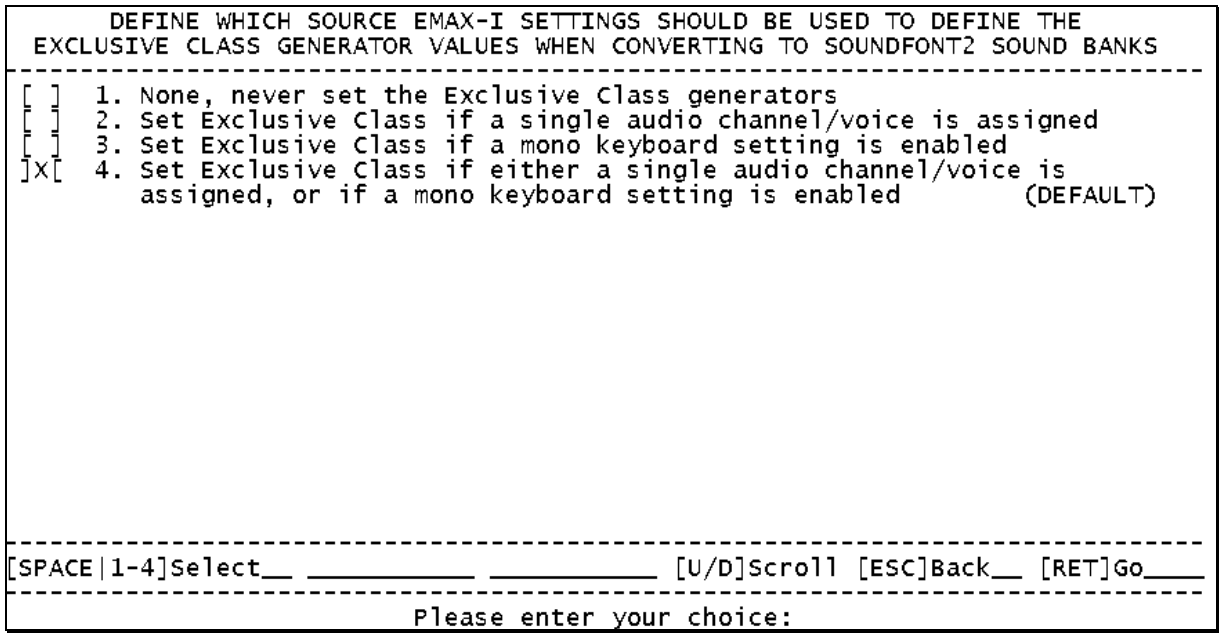
SoundFont2 Exclusive Class Generators

When converting from a sampler format which supports either assignable output channels or mono/solo keyboard settings, EMXP will ask to what extent these parameters should be converted to SoundFont2 Exclusive Class generators.

As opposed to many Emu sampler formats, the SoundFont2 sampler format does not support the concept of *assigning instrument zones to specific voice channels* within the sampler's polyphony boundaries.

The SoundFont2 sampler format however supports a specific type of generator called Exclusive Class: whenever a key is pressed in an instrument zone which shares the same exclusive class with other instrument zones, the voice channel of the previously pressed key in one of these zones is "stolen". In practice this results in a monophonic behaviour across these instrument zones.

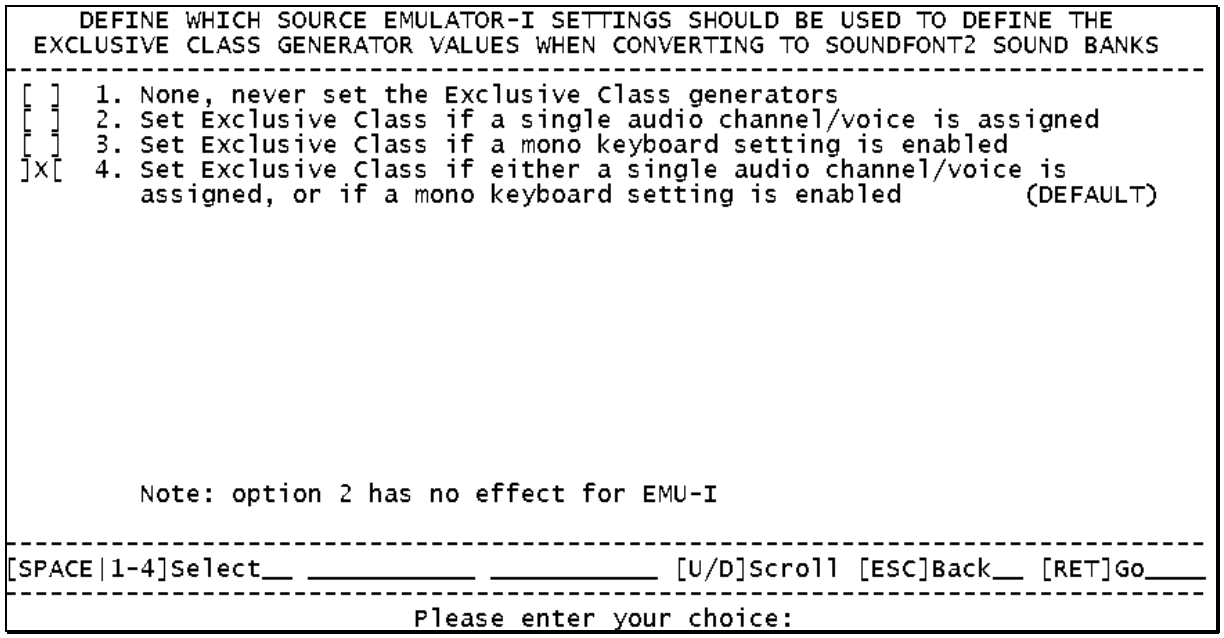
When converting to SoundFont2 sound banks, the extent to which source (mono/single) output channel assignments and/or mono/solo keyboard voice settings should be converted into Exclusive Class generators can be defined with a conversion preference in the screen below. In this example the source sampler format is EMAX-I, but the screen looks similar for other source sampler types.



The following options are available:

- *Option 1*: exclusive class generators are never generated; the voice channel assignments of the source sampler presets (even mono channel assignments) are ignored, full polyphony is assumed at all times.
- *Option 2*: each single (mono) voice channel that has been assigned in the source preset, will result in an exclusive class in the target SoundFont2 preset. Different voice channel numbers result in different exclusive class values. Mono/Solo voice parameter settings in the source sampler presets are ignored.
- *Option 3*: exclusive class generators are only generated for voices which have a mono (solo) parameter enabled. Each solo/mono voice results in a different exclusive class generator value. The voice channel assignments of the source sampler presets (even mono channel assignments) are ignored.
- *Option 4*: this option combines the behaviour of option 2 and option 3. This is the default setting.

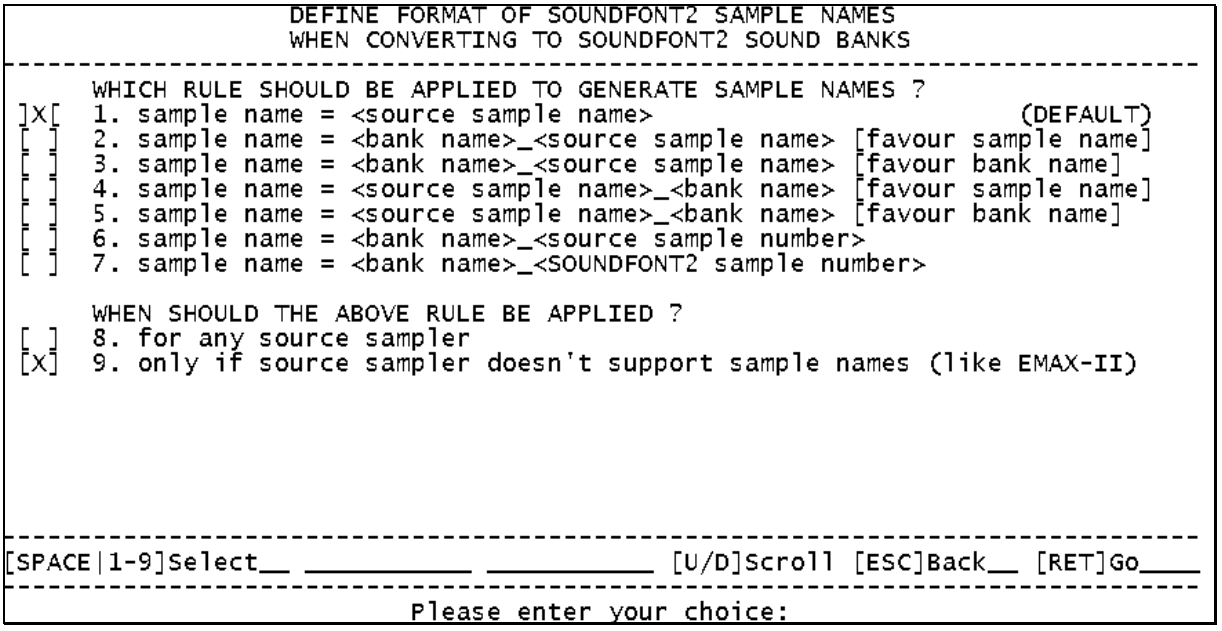
While some source sampler formats support both assignable output channels and mono/solo keyboard parameters, there are also sampler formats which only support assignable output channels (but no mono/solo keyboard parameters) or which only support mono/solo keyboard parameters (but no assignable output channels). In this case, the 4 options are still provided, but option 2 or 3 may not have any effect. A warning will be shown at the bottom of the screen, as illustrated for the Emulator-I in the screen below.



This preference can also be set in the Preferences menu. See *section "10.3.7.5 Define how SoundFont2 exclusive class generators should be converted"*.

SoundFont2 Sample Naming Rule

When converting to SoundFont2 sound banks, it's possible to define how the target sample names should be formatted. By default EMXP simply uses the names of the samples in the source sound bank, but since many Emu samplers don't support sample names, this typically results in sample names like "SAMPLE 1", "SAMPLE 2", ...



Options 1→7 can be used to select the sample naming rule.

- Option 1 is the default rule and will assign the source sample names to the SoundFont2 samples
- Options 2→7 offer a variety of naming patterns, based on the bank name and the source sample name, source sample number or SoundFont2 sample number. If applying the rule would result in a sample name which exceeds the maximum SoundFont2 sample name, either the bank name part or the source sample name part can be truncated in options 2→5 (in options 6 and 7, it's always the bank name that would be truncated)

Options 8→9 can be used to specify when this sample naming rule should be applied. Some source sampler formats support sample names, so in these cases it may be more appropriate to simply use these (meaningful) source sample names.

- Use *option8* if the naming rule should be used in conversion from any sampler format. If you have selected items from a source sampler which supports sample names, this will be mentioned in option 8.
- Use *option 9* if the naming rule should only be used if the source sampler does not support sample names. This is true for the EMAX-I, EMAX-II, Emulator-I and Emulator-II. If you have selected items from a source sampler which does not support sample names, this will be mentioned in option 9. In the screen shown here, EMAX-II sound banks have been selected. If you have selected Emulator-III, Emulator-IIIX, ESI-v3 or SP-12 source banks "(not applicable)" will be mentioned.

More details can be found *in section "10.3.7.3 Define how SoundFont2 sample names should look like"*.

SP-12 Filter/Dynamics Conversion and SP-12 Key Map Definition

If you are converting SP-12 sound banks, you have to specify which settings for the SP-12 filters and SP-12 dynamics should be assumed. It's also necessary to specify how the individual SP-12 sounds should map to the SoundFont2 keyboard. See *section "7.3.11 Conversion from SP-12"* for more details.

Chorus effects conversion

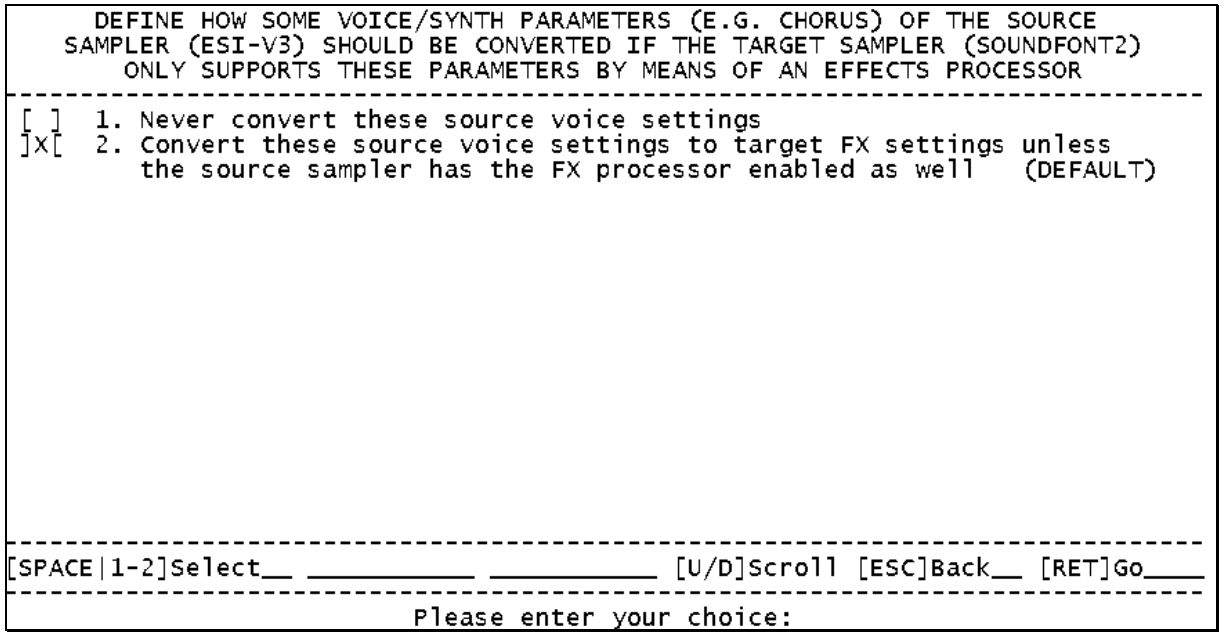
Some Emu samplers support Chorus by means of a voice-level parameter (as opposed to or complementary with a Chorus effect generated by a generic FX processor):

- EMAX-I
- EMAX-II
- Emulator-III
- Emulator-IIIX
- ESI-v3 (which supports Chorus both by means of a voice-level parameter and an FX processor)

The SoundFont2 sampler format however supports the Chorus effect only by means of an FX processor. This processor is controlled by SoundFont2 Chorus Effect Send generators.

EMXP should know to what extent these voice-level parameters should be converted to SoundFont2 Chorus Effects Sent generators.

This *voice-to-FX emulation conversion* mode can be defined in the preference screen below. In the example below the source sampler format is ESI-v3 but the screen looks similar for EMAX-I, EMAX-II, Emulator-III or Emulator-IIIX.



The following options are available:

- Choose *option 1* to disable the voice-to-FX emulation conversion mode.
- Choose *option 2* to enable the voice-to-FX emulation conversion mode. This is the default setting. The emulation will only be done if no Chorus effects processor is available or enabled in the preset of the source sampler voice. If the Chorus FX processor is enabled as well, EMXP will simply convert the Chorus FX processor settings (e.g. when converting ESI-v3 banks with an FX processor enabled)

This preference can also be set in the Preferences menu. See *section "10.3.8.2 Define how to convert to target sampler FX processor settings"*.

ESI-v3 non-Lowpass Filter conversion

If you are converting ESI-v3 sound banks, you have to specify how the cutoff frequency of ESI filters which are not lowpass filters should be converted.
See *section "7.3.13.3 Conversion of ESI-v3 non-low pass filters"*.

7.3.5.2 Conversion from WAV files

There are no limitations regarding the conversion from WAV files to the SoundFont2 format.

However if at least one of the selected WAV files contains one or more loops, you should specify whether the WAV loops should be converted as well and if so, which of the WAV loops should be converted to what target sample loop type. See *section "7.3.9 Conversion from WAV"*.

EMXP will put each WAV file of the first 61 selected WAV files on a different key of the first preset (called PRESET 00). 61 keys are used (C1 --> C6). If more than 61 WAV files have been selected, a second preset is created (called PRESET 01). Additional presets will be created every next set of 1 to 61 WAV files. The .WAV files are assigned to the keys and presets in *alphabetical order*.

Stereo WAV files will be converted into stereo linked SoundFont2 samples; mono WAV files remain mono samples.

The original pitch of each sample is preserved, independent of the key you will assign the sample to.

Before starting the actual conversion of the selected WAV files into the SoundFont2 format, EMXP will check if the resulting sound bank is compatible with the target sampler's limits. In case of any detected incompatibility, an error will be shown and you won't be able to continue the conversion. A typical solution will be to reduce the number of selected WAV files... See *section "7.3.14 Validation check when converting WAV files"*.

7.3.6 Conversion to SP-12

Except for Akai S1000 programs and samples, sound banks of any sampler type supported by EMXP as well as WAV files can be converted into the SP-12 format.

However it should be noted that the SP-12 has very limited capabilities (e.g. memory size, number of sound and samples, only a few configurable sound parameters, ...). As a consequence many conversions will fail or will not sound like the original sounds at all.

7.3.6.1 Conversion from sampler sound banks

If you have selected

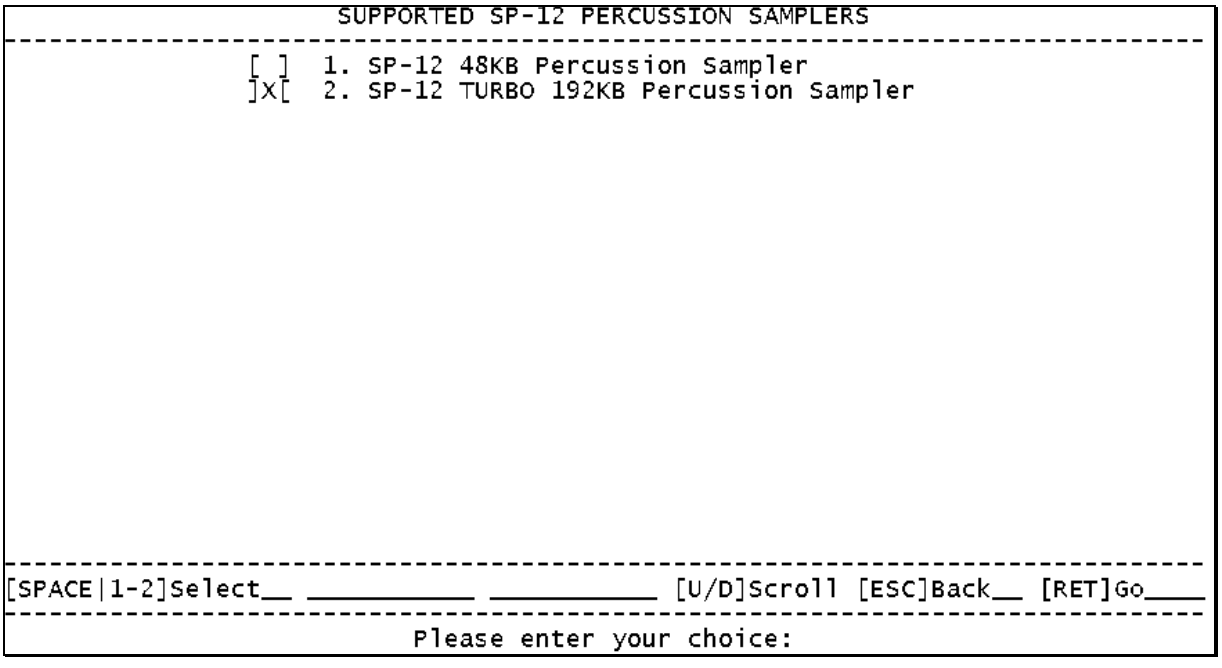
- the MANUAL conversion mode, or
- the SEMI-MANUAL conversion mode and you have chosen to review the copy/conversion settings now (see *section "7.2.3 Batch or manual conversion process"* and *section "6.2.2.3 Custom Automation Level Mode (and SEMI-MANUAL Mode)"*)

EMXP will ask for some sampler conversion settings now.
In the other case EMXP will simply use the Preferences settings for the parameters described below.

SP-12 memory size

EMXP will ask for the SP-12 target sampler's memory size. There are two versions of the SP-12:

- Standard SP-12, with a memory size of 48 KB for samples (1.25 sec)
- Turbo SP-12, with a memory size of 192 KB for samples (5 sec in total, but a single sample can not exceed 2.5 sec)



The default memory size is 192 KB, i.e. the memory available in a Turbo SP-12, but you can scale this down to 48 KB. Note that even the “192 KB files” may load perfectly in a standard SP-12, as long as the size of the sound bank does not exceed 48 KB...

Emulator-I Loudness Normalization

If you are converting Emulator-I sounds or sound banks, you have to specify whether the sample volume should be lowered during conversion or not. See *section "7.3.10 Conversion from Emulator-I"* for more details.

SoundFont2 Modulator Conversion and Exclusive Class Conversion

If you are converting SoundFont2 sound banks, you have to specify

- to what extent default (implicit) modulators and defined (explicit) modulators should be converted. Especially some default MIDI CC modulators can result in unexpected target sampler settings.
- whether Exclusive Class generators should be converted into mono/solo keyboard settings and/or to mono/single audio output channel assignments

See *section "7.3.12 Conversion from SoundFont2"*.

Key Map Definition

When converting sound banks from any sampler format to the SP-12 format, EMXP should know how the voices on each key of the source sampler's keyboard (or the sounds of the source SP-12 sound bank) should be assigned to sound locations in the target SP-12 sound bank.
Different possibilities are provided, depending on whether the source sound bank is in SP-12 or in another sampler format.

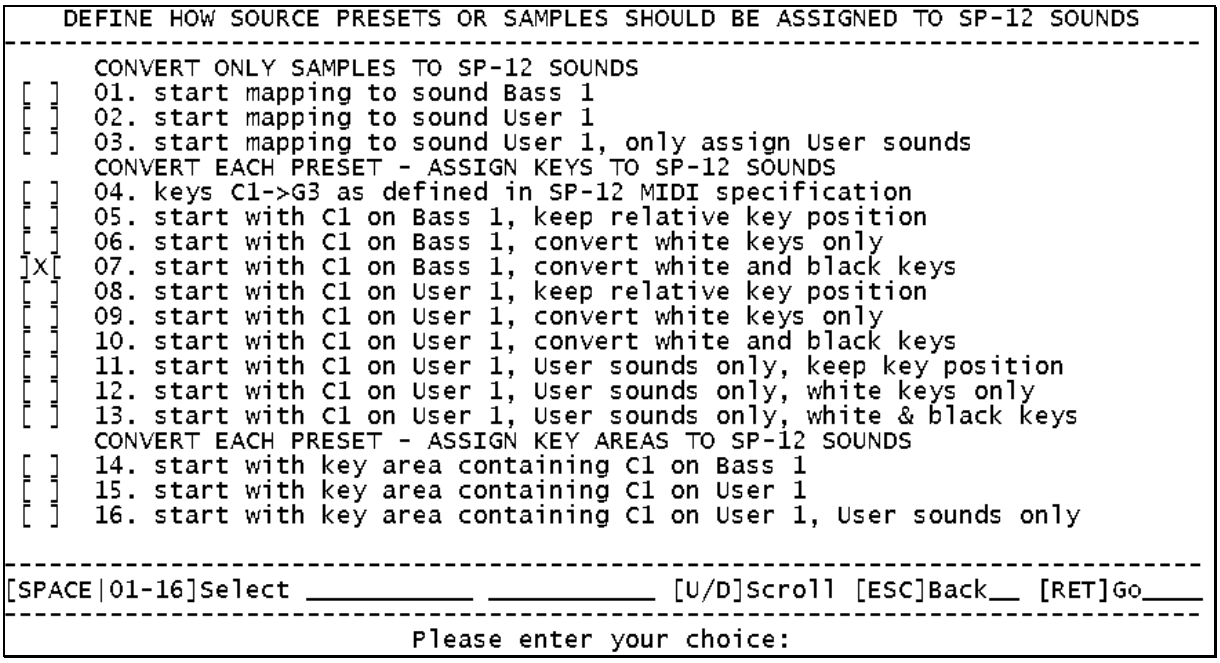
Let's first explain the key map options for conversions from **non-SP-12 samplers**.

You can choose between assigning either *individual keys*, *complete key areas* or *samples* to each target SP-12 sound:

- Options 1 → 3 can be used for mapping samples to sounds
- Options 4 → 13 can be used for mapping individual keys to sounds
- Options 14 → 16 can be used for mapping key areas to sounds

When converting *individual keys* or *complete key areas*:

- EMXP needs to know from what key range on the source keyboard the voices/samples should be converted to SP-12 sounds. This range is determined by a *first key* and a *last key*. By default the first key is set to C1 and the last key is set to C7, but you can change these settings in the Copy/Conversion Preferences (see *sections "10.3.6.4 Define start key for key mappings to SP-12" and "10.3.6.5 Define end key for key mappings to SP-12").* In the description below, C1 is assumed to be the first key, and C7 is assumed to be that last key.
  Some additional remarks:
  - If the source sampler's maximum keyboard range is smaller than the configured *first* and *last key* for conversions to SP-12, EMXP will automatically correct the key range (e.g. for Emulator-I and Emulator-II).
  - If individual Lower or Upper Emulator-I sounds have been selected as the source object for conversions, EMXP will ignore the *first and last key* settings. All keys of the selected sound will be subject of conversion to SP-12.
- Each preset in the source sampler sound bank will be converted to a separate SP-12 sound bank (for Emulator-I banks, there is only one preset); if the number of voices or their total (sample) size would not fit in the target SP-12 memory size, only the voices/samples that actually fit will be assigned to SP-12 sounds (the other ones will be skipped). The selection of keys or key areas that should get priority in the conversion can be defined by the user in one of the next screens (see paragraph "*priority setting for selection of source keys, key areas or samples"* below).



Note: the above picture looks slightly different if individual Lower or Upper Emulator-I sounds are being converted, but basically the same options are available.

Converting individual keys

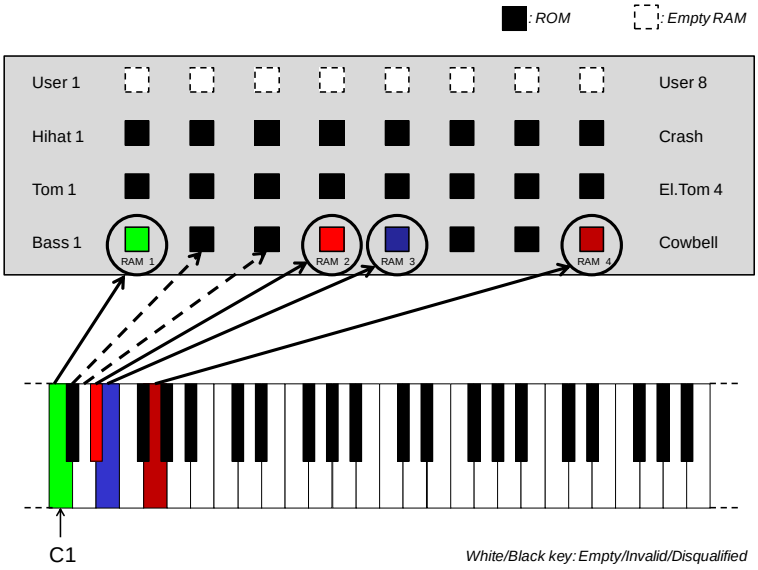
Let's first have a look at options 4 → 13, in which the voice and sample of each individual key of the source preset (within the user-definable key range, here from C1 to max. C7) will be assigned to an individual sound in the target SP-12 sound bank, until there's no more memory available.
(In the examples below, we assume that the priority of the keys that should be converted is simply defined by the *key order*. See paragraph "*priority setting for selection of source keys, key areas or samples"* below for more options)

When selecting option 4, each key is mapped to a target SP-12 sound as defined by the SP-12 MIDI specification (but taking into account the user-definable *first key* and *last key*). The key-to-sound mapping table for this option can be found in *section "10.3.6.3 Define key/sample mapping for conversions from other format to SP-12"*.

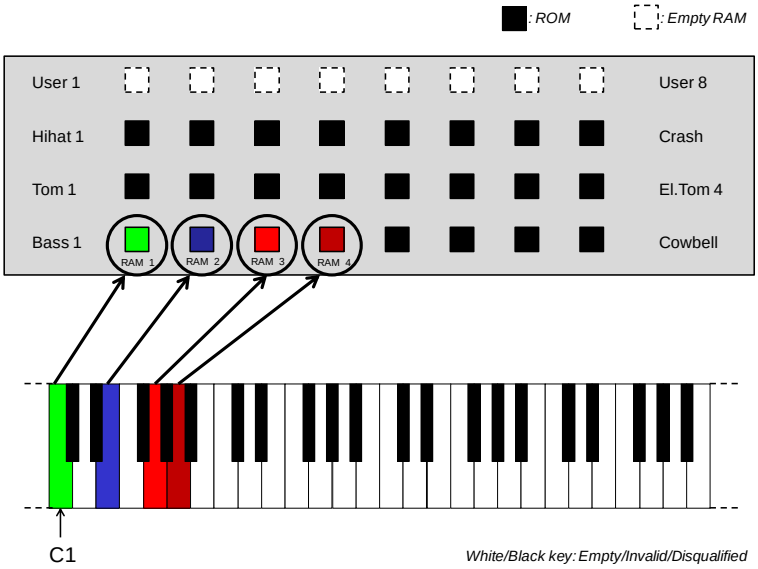
When selecting options 5 → 7, EMXP will assign the keys (in the range *first key - last key)* to SP-12 sounds starting with sound Bass 1, followed by sound Bass 2, and so on.
When selecting options 8 → 10, EMXP will assign the keys (in the range *first key - last key)* to SP-12 sounds starting with sound User 1, followed by sounds User 2 → sound User 8. Then EMXP will continue with assigning to the sounds starting with Bass 1 and ending with Crash.
When selecting options 11 → 13, EMXP will assign the keys (in the range *first key - last key)* to SP-12 sounds starting with sound User 1, followed by sounds User 2 → sound User 8. No assignments will be made to sounds Bass 1 → Crash, e.g. because they should be preserved for the factory SP-12 ROM sounds.

No matter if the mapping starts with assignments to sound Bass 1 or to sound User 1, there are three mapping modes available:

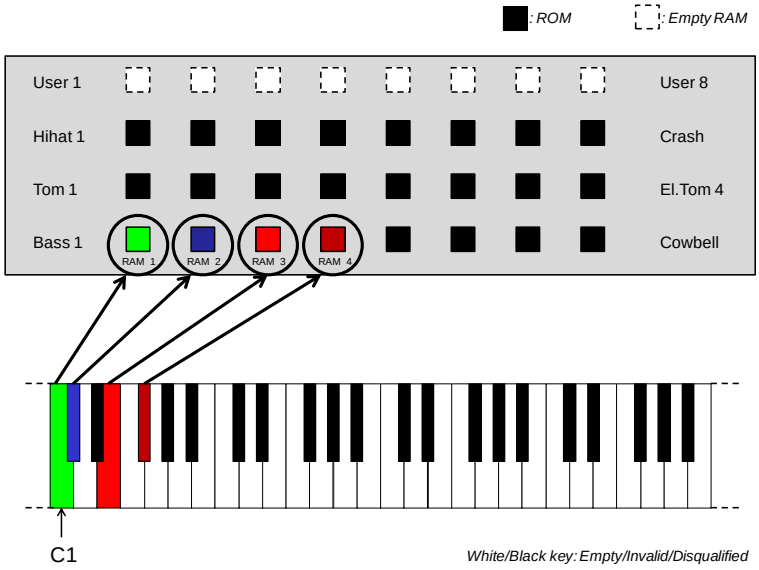
- Options 5, 8 and 11: each key (starting with the *first key*) will be assigned to an individual SP-12 sound, starting with Bass 1 or User 1 depending on the selected option. No more than 32 keys (or 8 keys when option 11 has been selected) will be taken into account, perhaps less if the *last key* restricts the key range even more. If the source key is empty, if it contains an invalid voice, if the key won't be converted due to the prioritization algorithm or if the key 's sample doesn't fit in the SP-12 memory size, the SP-12 sound will remain empty (or will remain containing a ROM sound). This is illustrated in the picture below, in which the keys starting with C1 are mapped to the sounds starting with Bass 1 (option 5).



- Options 6, 9 and 12: each *white* key (starting with the *first key*) will be assigned to an individual SP-12 sound, starting with Bass 1 or User 1 depending on the selected option. *Each successive target SP-12 sound will be assigned a white key*, until no more assignable white keys are available within the key range defined by the *first key* and *last key*. If a source white key is empty, if it contains an invalid voice, if the key won't be converted due to the prioritization algorithm or if the key 's sample doesn't fit in the SP-12 memory size, it will be ignored. This is illustrated in the picture below, in which the white keys starting with C1 are mapped to the sounds starting with Bass 1 (option 6).



- Options 7, 10 and 13: each key (both white and black keys, starting with the *first key*) will be assigned to an individual SP-12 sound, starting with Bass 1 or User 1 depending on the selected option. *Each successive target SP-12 sound will be assigned a key*, until no more assignable keys are available within the key range defined by the *first key* and *last key*. If a source key is empty, if it contains an invalid voice, if the key won't be converted due to the prioritization algorithm or if the key 's sample doesn't fit in the SP-12 memory size, it will be ignored. This is illustrated in the picture below, in which the keys starting with C1 are mapped to the sounds starting with Bass 1 (option 7).

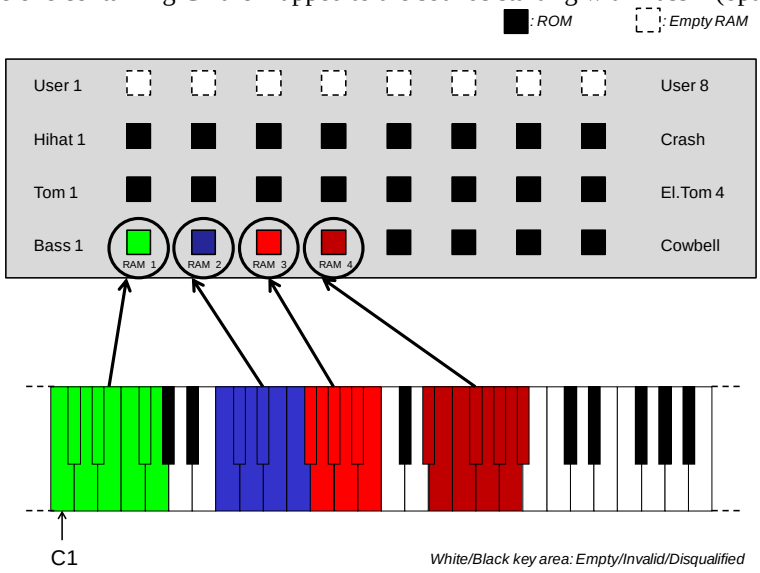


Converting key areas

When selecting options 14 → 16, each voice and sample which is common to all keys of the same key area will be converted and assigned to a single SP-12 sound, starting with assignments to:

- sound Bass 1, then Bass 2, ... until User 8 if option 14 is selected
- sound User 1, then User 2 until User 8, followed by Bass 1 until Crash if option 15 is selected
- sound User 1, then User 2 until User 8 if option 16 is selected (sounds Bass 1 → Crash will not be assigned any key, e.g. in order to preserve their ROM sounds)

Each successive target SP-12 sound will be assigned a complete key area, until no more assignable key areas are available within the key range defined by the *first key* and *last key*. If a source key area is empty, if it contains an invalid voice, if the key area won't be converted due to the prioritization algorithm or if the key area's sample doesn't fit in the SP-12 memory size, it will be ignored. This is illustrated in the picture below, in which the key areas starting with the one containing C1 are mapped to the sounds starting with Bass 1 (option 14).



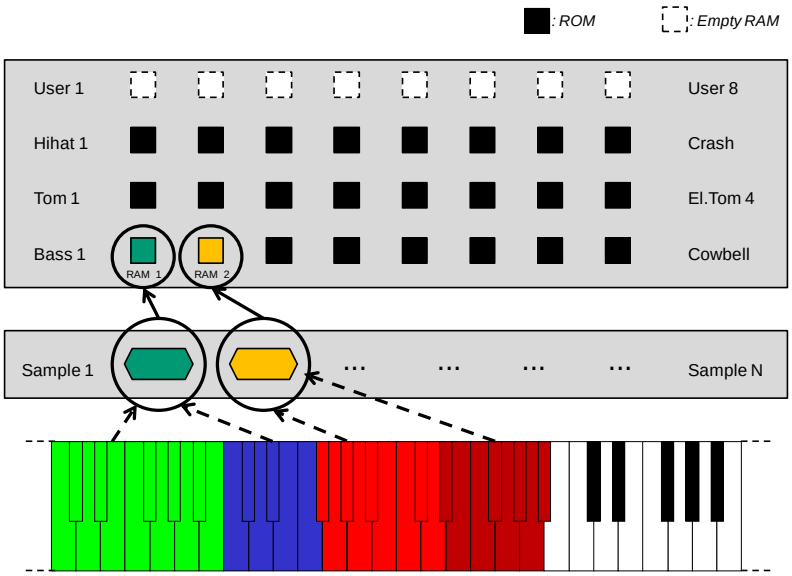
Converting samples

Besides mapping the keys and key areas to individual SP-12 sounds - one preset per target SP-12 sound bank - it's also possible to map only the basic samples. Depending on the source sampler, multiple presets, key areas, keys and voices can share the same basic sample.
When selecting option 1 → 3 each basic sample will be converted only once to a target SP-12 sound. Note however that the *voice parameters* will not be converted, not even the sample loop settings. The target SP-12 sounds will get default sound and sample parameters instead.

- When selecting option 1, the samples will be assigned to the SP-12 sounds starting with Bass 1, then Bass 2 and so on until User 8
- When selecting option 2, the samples will be assigned to the SP-12 sounds starting with User 1, then User 2 and so on until User 8. The assignments will continue with Bass 1 until Crash.
- When selecting option 3, the samples will be assigned to the SP-12 sounds starting with User 1, then User 2 and so on until User 8. The sounds Bass 1 until Crash will not get any sample assigned, e.g. to preserve their ROM sounds.

If the number of candidate source samples exceeds the 32 (or 8) available SP-12sounds, or if their size exceeds the total SP-12 memory size, EMXP will create additional SP-12 sound banks. EMXP will cluster the samples to SP-12 sound banks in such a way that as much memory as possible in each SP-12 sound bank is actually be used.

The picture below illustrates option 1.



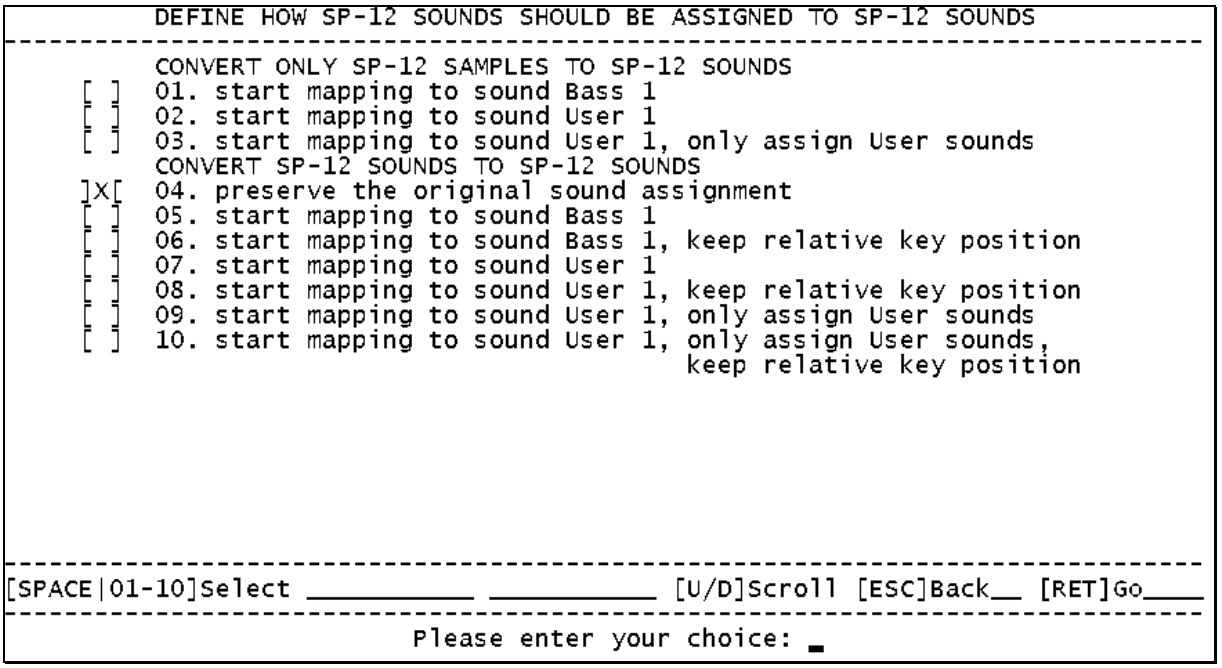
A more detailed explanation of all possibilities can be found in *section "10.3.6.3 Define key/sample mapping for conversions from other format to SP-12"*.

For conversions between **SP-12** sound banks, the possibilities are slightly different. This kind of conversion can typically be requested to

- convert a Turbo SP-12 sound bank into one or more Standard SP-12 sound banks
- change the positions of the sounds in the SP-12 sound bank

You can choose between assigning either *sounds* or *samples* to each target SP-12 sound:

- Options 1 → 3 can be used for mapping samples to sounds
- Options 4 → 10 can be used for mapping individual sounds to sounds

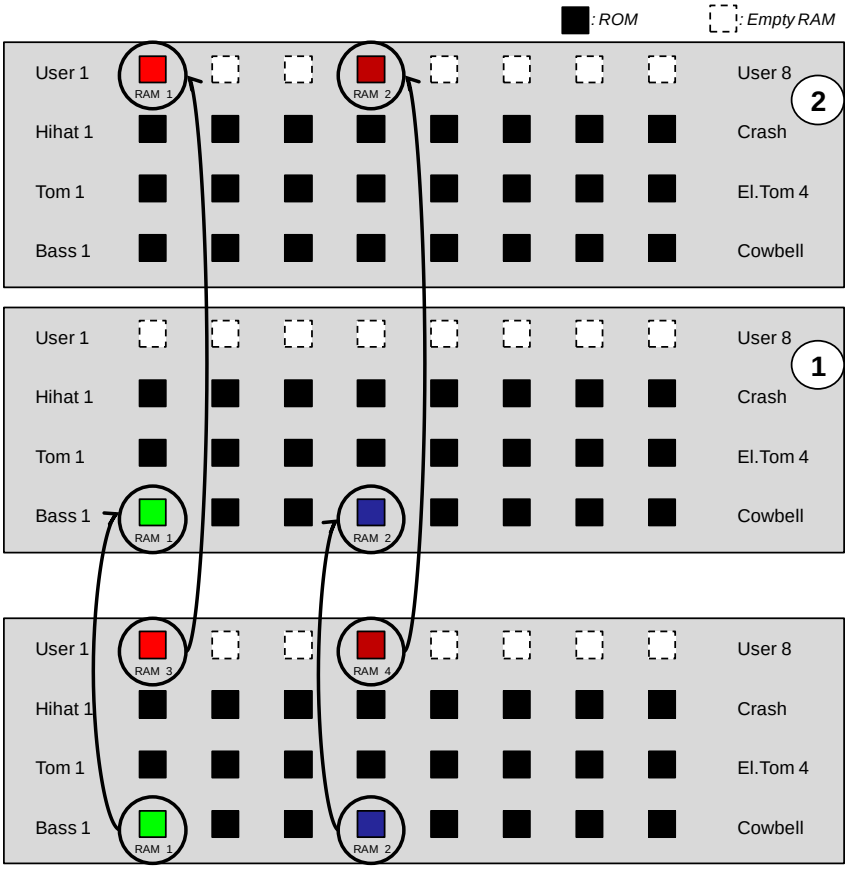


Converting sounds

When converting *individual sounds* EMXP will always start with the conversion of sound Bass 1 in the *source* bank, and continue with Bass 2 until User 8.
However it's possible to define the *first target sound* to which the sound assignments should start (see below).

If the number of candidate source SP-12 sounds exceeds the 32 (or 8) available target SP-12sounds, or if their size exceeds the total target SP-12 memory size, EMXP will create additional SP-12 sound banks. EMXP will cluster the sounds to the SP-12 sound banks in such a way that as much memory as possible in each SP-12 sound bank is actually be used.

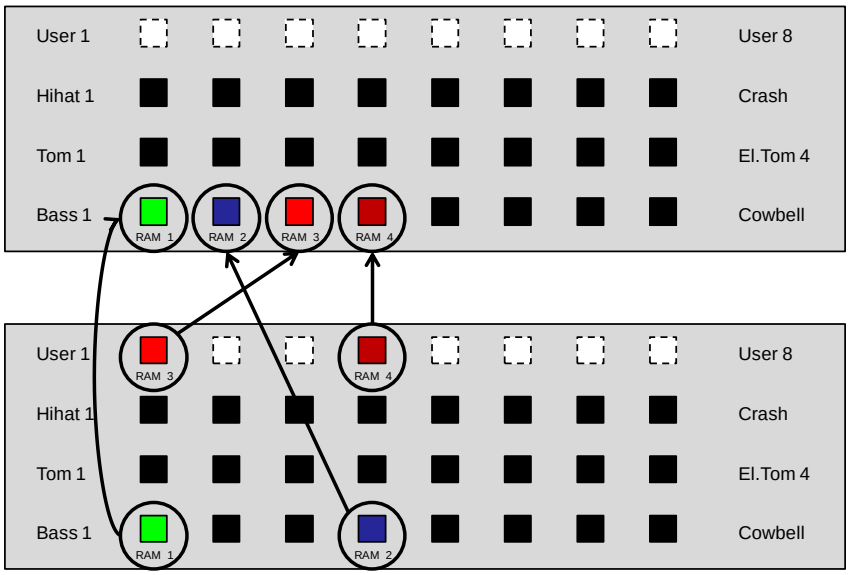
When selecting option 4, each source sound is mapped to exactly the same sound in the target SP-12 sound bank. This is even true if a single (Turbo) bank is converted into multiple (Standard) banks. E.g. if after conversion sound Bass 1 ends up in the first generated SP-12 bank, while sound User 1 ends up in the second generated SP-12 bank, Bass 1 will still be Bass 1 in the first generated bank, while User 1 in the first generated bank will be empty. In the second generated bank however, User 1 will contain the source User 1 sound, while the Bass 1 sound will be empty (or a ROM sound). This is illustrated in the picture below.



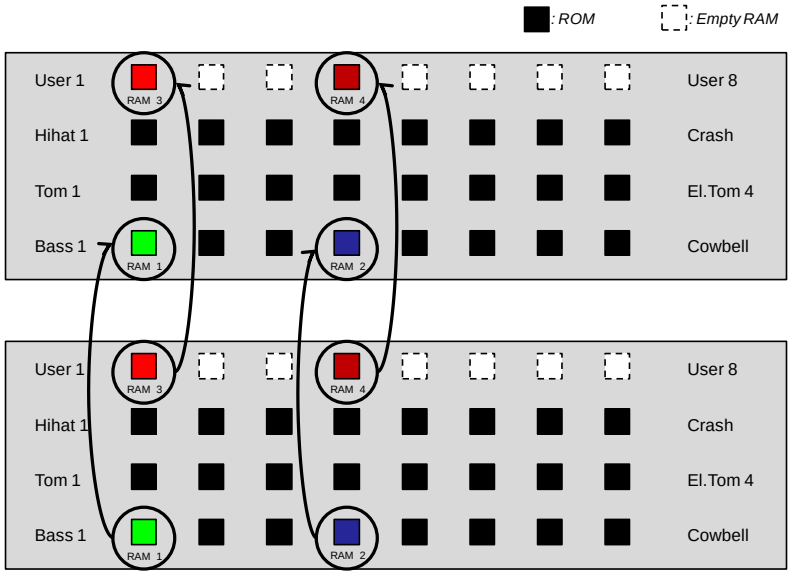
When selecting options 5 → 6, EMXP will assign the source SP-12 sounds (starting with source Bass 1) to target SP-12 sounds starting with sound Bass 1, followed by sound Bass 2, and so on. If multiple target SP-12 banks are being generated, the assignment process will start again with assigning to Bass 1 in every conversion cycle Since in option 6 the relative key position is retained, this option gives the same result as option 4 !
When selecting options 7 → 8, EMXP will assign the source SP-12 sounds (starting with source Bass 1) to target SP-12 sounds starting with sound User 1, followed by sounds User 2 → sound User 8. Then EMXP will continue with assigning to the sounds Bass 1 → Crash. If multiple target SP-12 banks are being generated, the assignment process will start again with assigning to User 1 in every conversion cycle.
When selecting options 9 → 10, EMXP will assign the source SP-12 sounds (starting with source Bass 1) to target SP-12 sounds starting with sound User 1, followed by sounds User 2 → sound User 8.. No assignments will be made to sounds Bass 1 → Crash, e.g. because they should be preserved for the factory SP-12 ROM sounds. If multiple target SP-12 banks are being generated, the assignment process will start again with assigning to User 1 in every conversion cycle.

No matter if the mapping starts with assignments to sound Bass 1 or to sound User 1, there are two mapping modes available:

- Options 5, 7 and 9: *Each successive target SP-12 sound in each generated target SP-12 sound bank will be assigned a source sound*, until no more assignable source sounds are available for the current target SP-12 sound bank. If a source sound is empty, if it's a ROM sound, if it contains an invalid sound, if the sound won't be converted to the current target SP-12 sound bank due to the sound clustering algorithm or if the source sound doesn't fit in the target SP-12 memory size, it will be ignored (but unless the sound's size does not fit in the target SP-12 memory size, the sound will be converted to one of the other target SP-12 sound banks !). This is illustrated in the picture below, in which the source sounds are mapped to the target sounds starting with Bass 1 (option 5). In this example, all sounds fit in one target SP-12 sound bank.



- Options 6, 8 and 10: Each source SP-12 sound will be assigned to a target SP-12 sound until no more assignable source sounds are available for the current target SP-12 sound bank. If the source sound is empty, if it's a ROM sound, if it contains an invalid sound, if the sound won't be converted to the current target SP-12 sound bank due to the sound clustering algorithm or if the source sound doesn't fit in the target SP-12 memory size, *the target SP-12 sound will remain empty (or preserve its ROM sound)* and - unless the source sound's size does not fit in the target SP-12 memory size - the ignored source sound will be converted to one of the other target SP-12 sound banks !. This is illustrated in the picture below, in which the source sounds are mapped to the target sounds starting with Bass 1 (option 6). In this example, all sounds fit in one target SP-12 sound bank.



Converting samples

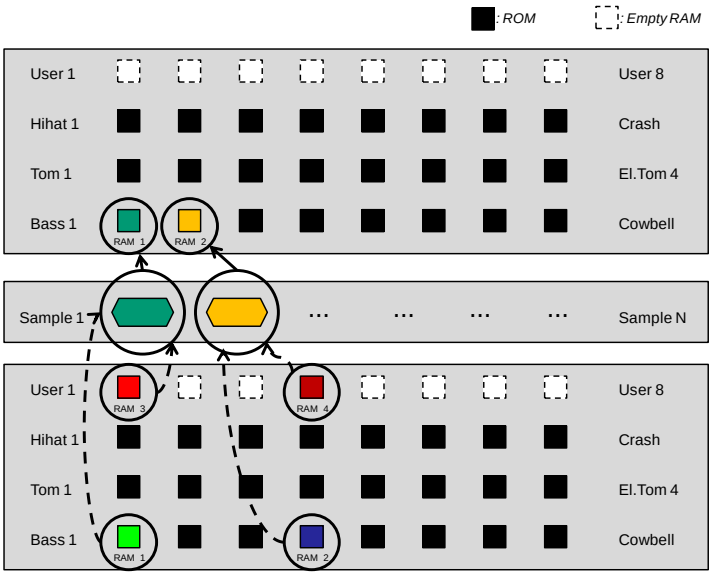
Besides mapping SP-12 sounds to SP-12 sounds it's also possible to map only the basic samples of the source SP-12 sound bank. Multiple SP-12 sounds may share the same basic sample.
When selecting option 1 → 3 each basic sample will be converted only once to a target SP-12 sound. Note however that the *sound parameters* will not be converted, not even the sample loop settings. The target SP-12 sounds will get default sound and sample parameters instead.

- When selecting option 1, the samples will be assigned to the SP-12 sounds starting with Bass 1, then Bass 2 and so on until User 8
- When selecting option 2, the samples will be assigned to the SP-12 sounds starting with User 1, then User 2 and so on until User 8. The assignments will continue with Bass 1 until Crash.

- When selecting option 3, the samples will be assigned to the SP-12 sounds starting with User 1, then User 2 and so on until User 8. The sounds Bass 1 until Crash will not get any sample assigned, e.g. to preserve their ROM sounds.

If the number of candidate source samples exceeds the 32 (or 8) available SP-12sounds, or if their size exceeds the total SP-12 memory size, EMXP will create additional SP-12 sound banks. EMXP will cluster the samples to SP-12 sound banks in such a way that as much memory as possible in each SP-12 sound bank is actually be used.

The picture below illustrates option 1.



A more detailed explanation of all possibilities can be found in *section "10.3.6.1 Define key/sample (sample/key) mapping for conversions from SP-12 to SP-12".*

Keyboard layer selection and stereo layer handling

```
          SELECT WHICH KEYBOARD LAYERS SHOULD BE CONVERTED TO SP-12
--------------------------------------------------------------------------------
      ---  ----LAYERS TO BE CONVERTED-------------------
      ]X[  1. PRI Layer only
      [ ]  2. PRI Layer preferred, unless SEC Layer covers more keys
      [ ]  3. SEC Layer only
      [ ]  4. SEC Layer preferred, unless PRI Layer covers more keys
      ---  ----STEREO LAYER CONVERSION MODE--------------
      [ ]  5. Don't convert PRI+SEC Stereo Layers to MONO Layer
      [X]  6. Convert PRI+SEC Stereo Layers to MONO Layer









--------------------------------------------------------------------------------
[SPACE|1-6]Select__ _____________ _____________ [U/D]Scroll [ESC]Back__ [RET]Go____
--------------------------------------------------------------------------------
                          Please enter your choice: _
```

The presets in the source sampler banks may consist of both a primary (PRI) and secondary (SEC) voice layer. Since the SP-12 only supports one layer, EMXP will ask which layer should be converted. This screen is only displayed if the source sampler supports more than one voice layer.

With option 1 you instruct EMXP to convert the PRI layer, no matter if there are voices in this layer or not. With option 2 you instruct EMXP to convert the PRI layer by default, but if for a certain target key area more voices are assigned to the SEC layer than to the PRI layer in the source preset, EMXP should switch to the SEC layer. Options 3 and 4 are identical, but from the perspective of the SEC layer as starting point.

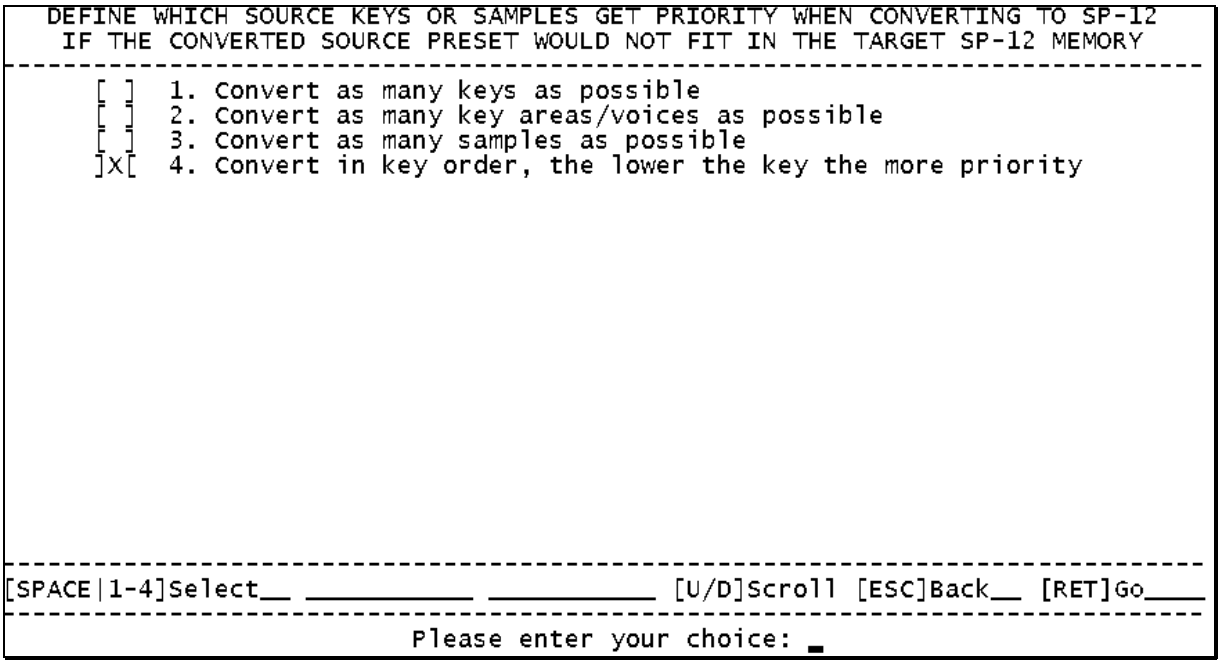
It's also possible that the source preset contains key areas in which the PRI and SEC layer behave as the left and right channel of a stereo voice. Since the SP-12 does not support two layers, nor a stereo mode, you should also specify whether the samples of both source stereo channels should be merged into mono samples, or whether the other channel's sample should simply be ignored. E.g. if you selected option 1 (PRI layer), option 5 will simply convert the sample of the PRI layer and ignore the sample of the SEC layer, while option 6 will combine the PRI and SEC samples and convert them to mono.

Priority setting for selection of source keys, key areas or samples

When converting *keys* or *key areas* from source sampler *presets* to SP-12 sounds, there's a big chance that not all of the candidate keys /key areas (within the range defined by the *first* key and *last* key - see preferences in *sections "10.3.6.4 Define start key for key mappings to SP-12" and "10.3.6.5 Define end key for key mappings to SP-12")* will fit in the SP-12 sampler memory, because the SP-12's total memory size is very limited.
This means that EMXP will have to make a selection of keys or key areas which are considered to be more *important* than other ones. The "less important" ones will not be converted.

EMXP applies a *clustering algorithm* for determining the keys or key areas that will be converted. The main input parameters for this algorithm are the size of each sample and the total available size of each hardware memory segment in the SP-12. When converting to a Turbo SP-12 sampler (which contains 2 isolated memory segments) the algorithm is based on some simplified statistical clustering/partitioning formulas which only *approximate* the best distribution of samples across the memory segments.

You can influence this clustering algorithm by telling EMXP which of four possible scenarios you prefer.



This screen is not shown when converting SP-12 sound banks to SP-12 sound banks.

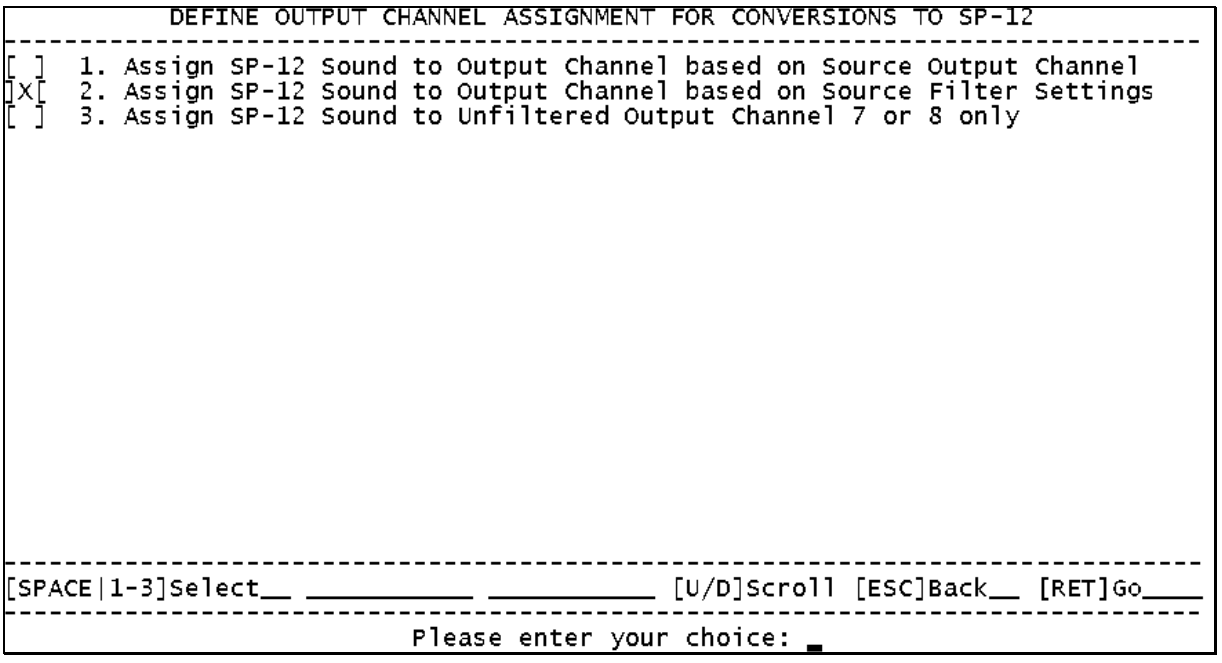
- When selecting option 1, EMXP will try to assign as many keys (within the range *first key - last key)* to SP-12 sounds. The algorithm will take into account:
    - the sample sizes of the samples used by the keys: smaller samples have higher priority;
    - the number of keys using the same sample: if more keys use the same sample, the sample gets a higher priority
- When selecting option 2, EMXP will try to assign as many key areas (within the range *first key - last key)* to SP-12 sounds. The algorithm will take into account:
    - the sample sizes of the samples used by the key areas: smaller samples have higher priority;
    - the number of key areas using the same sample: if more key areas use the same sample, the sample gets a higher priority. The number of keys in the key areas is not relevant.
- When selecting option 3, EMXP will try to assign as many samples (used by the keys within the range *first key - last key)* to SP-12 sounds. The algorithm will only take into account the sample sizes: smaller samples have higher priority.
- When selecting option 4, EMXP will convert key by key or key area by key area (within the range *first key - last key)* in the order of the keyboard. If the sample of the key/key area still fits in the available memory, the key or key area will be converted. If the sample doesn't fit anymore, EMXP will jump to the next key/key area. This is the default setting.

Filter / Output Channel settings

The SP-12 has no configurable filter settings, although it contains filter ICs. The settings of these filters can not be changed. Four different filter setups have been pre-configured in the SP-12 hardware, and these are hardwired to the 8 output channels. See *section "7.7.5 SP-12"* for a detailed overview of these four filter setups. Some SP-12 units have been modified (after market) with switches which allow to enable or disable these hard wirings.

A consequence of this design decision by is that there are no filter parameters in the SP-12 sound bank memory. However EMXP can try to convert the source voice's filter settings by assigning the converted voice to the *output channel* whose filter characteristics resemble the source filter settings best.

The screen below is not shown when converting SP-12 sound banks to SP-12 sound banks - in that case, the original output channel assignments will be retained (=option 1 in the screen below).



Three options are available:

- When selecting option 1, the filter settings of the source voices are ignored. EMXP will assign each SP-12 sound to the output channel which corresponds to the source voice's output channel. As a result, the converted sound may be filtered in completely different way than the source voice.
- When selecting option 2, EMXP will assign each SP-12 sound to the output channel whose filter characteristics resemble the source voice's filter settings best. This is the default setting.
- When selecting option 3, the filter settings of the source voices are ignored. EMXP will assign each SP-12 sound to either output channel 7 or 8 (EMXP tries to assign an equal number of sounds to channel 7 and channel 8). As a result, the converted sound will not be filtered.

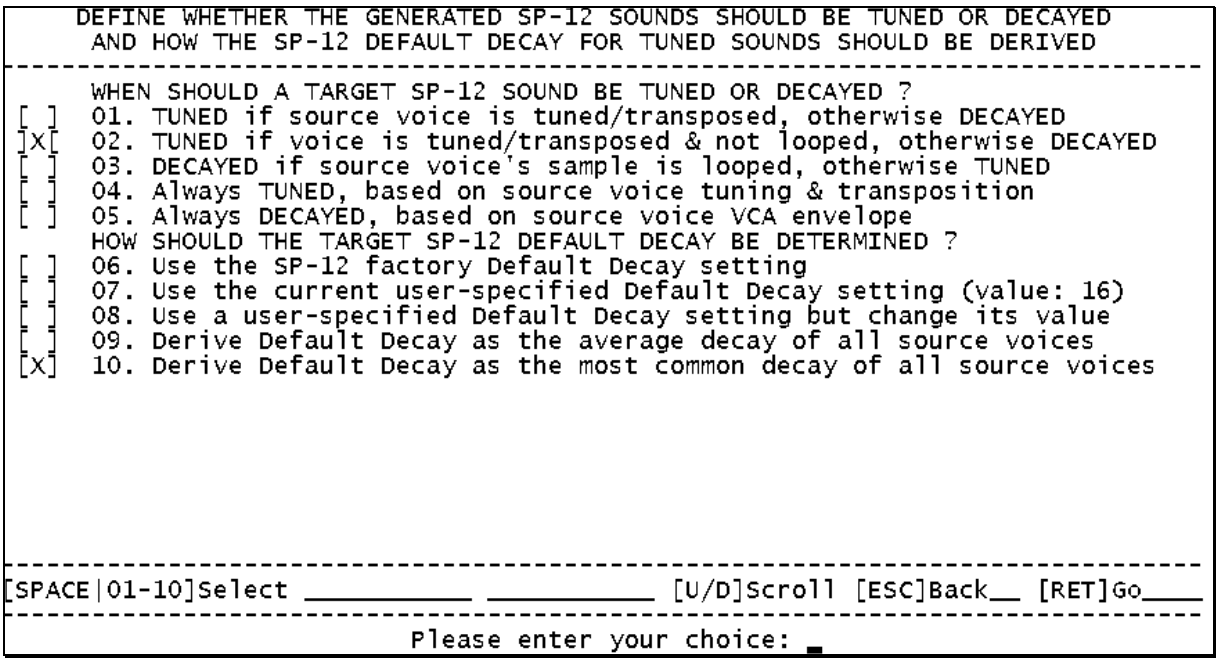
Tune/Decay

The SP-12 has quite limited tuning and transposition possibilities, and the flexibility of its volume envelopes is also limited:

- Tuning is limited to transposing 16 semitones down, and transposing 12 semitones up. No fine-tuning in units of cents is possible.
- The volume envelopes are limited to a single *decay* parameter. This parameter influences the VCA envelope's Hold, Decay and Release phase at once.
- Due to a bug in the SP-12 operating system, only a few of the tuning and decay values are written correctly when saving sounds to disk or transferring them via MIDI, or are interpreted correctly when reading sounds from disk or transferring them via MIDI. The SP-12 multi-pitch settings are not saved at all.
- Moreover you basically have to decide for each sound whether the sound should be tuned/transposed or whether it should be decayed. While it is possible to tune and decay a sound at the same time, it's not possible to have different decay settings for different sounds if the sounds are tuned as well - in that case the decay setting is shared by all SP-12 sounds, and it is defined by the *Default Decay* parameter on the SP-12.

Due to these limitations, EMXP allows you to define how the pitch settings (both keyboard pitch and additional fine tuning) and VCA envelopes of the source sampler voices should be converted to SP-12 tune/decay settings.

This possibility is not offered for conversions from SP-12 sound banks to SP-12 sound banks. In that case, the original tune/decay settings will be retained.



With options 1 → 5 you can define under which conditions a sound should be tuned or decayed. But keep in mind that no matter if a sound will be tuned or decayed, the tuning and decay may still deviate from the source voice's pitch and VCA envelope settings, due to the limited tuning and decay capabilities of the SP-12.

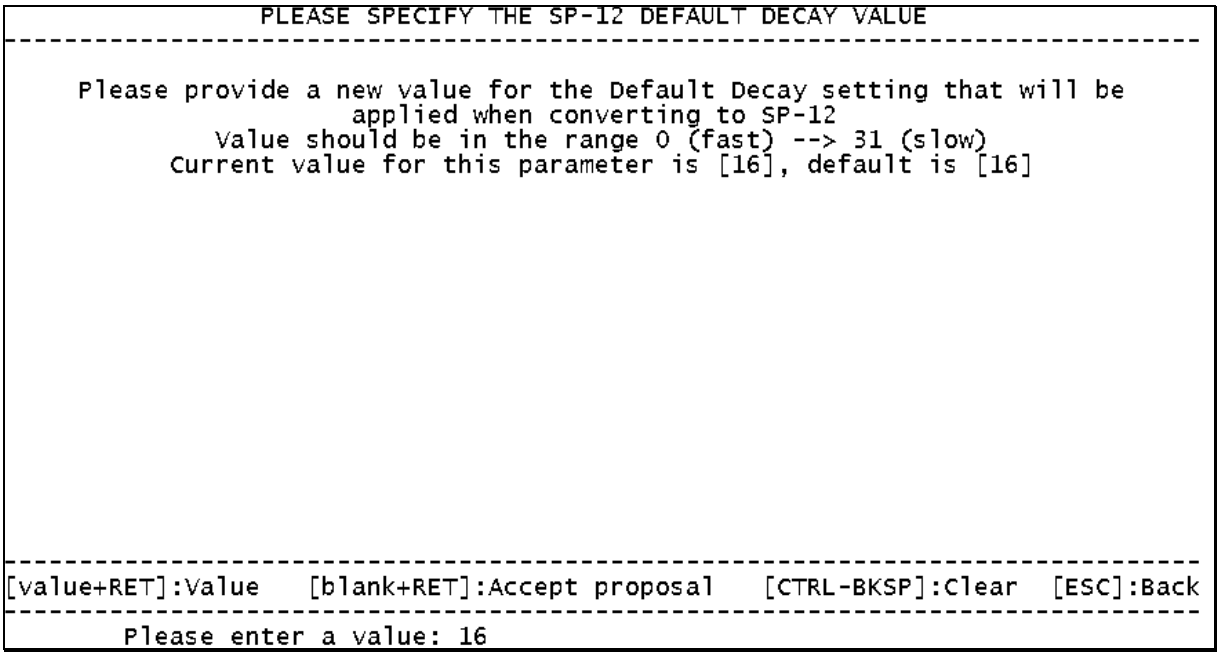
- *Option 1*: if the source voice is either explicitly tuned (e.g. +10 cents) or if the key which is being converted is not at original pitch of the sample (i.e. normal keyboard transposition), EMXP will generate a *tuned* SP-12 sound. If these conditions are not met, EMXP will generate a *decayed* SP-12 sound.
- *Option 2*: this option is similar to option 1, but EMXP will not generate a *tuned* SP-12 sound if the source voice's sample is looped (even if this voice is tuned/transposed). The SP-12 tends to "hold" (play) a looped sound for a very long time (multiple loops) if the decay setting is above 16. This is true both for tuned looped sounds which rely on the *default decay* and for decayed looped sounds which rely on the sound's individual *decay* setting. But since the *default decay* is typically set to a high value (e.g. 31), every *tuned* ànd *looped* sound would play too long. To avoid this situation, you can exclude looped sounds from being tuned. This is the default setting.
- *Option 3*: if the source voice's sample is looped, EMXP will generate a *decayed* SP-12 sound. Under all other conditions, a *tuned* SP-12 sound will be generated. For more information, see option 2.
- *Option 4*: all generated SP-12 sounds will be *tuned*. Their decay is defined by the *default decay* setting.
- *Option 5:* all generated SP-12 sounds will be *decayed* and they will not be transposed.

***Caution when deciding to generate tuned SP-12 sounds*:**
Although EMXP correctly converts the transposition settings of a transposed source voice to an SP-12 tuning value within a range of -16 semitones → +15 semitones of the original pitch, the SP-12 will ignore most of these tuning values. Instead it will round the values to LO, MID and HI settings.
In practice this means that even when converting a transposed key area of 8 keys to 8 *tuned* SP-12 sounds (e.g. User 1 → User 8), it will not be possible to play the 8 sound pads as if they were a normal transposed keyboard.

Caution when deciding to generate decayed SP-12 sounds:
Although EMXP correctly generates SP-12 decay values within a range of 0 → 31, the SP-12 will ignore most of these decay values. Instead it will round the values to LO, MID and HI settings.

With options 6 → 10 you can define how the *default decay* value of the target SP-12 sound bank should be determined by EMXP. This is the decay setting that will be used and shared by all *tuned* SP-12 sounds.

- *Option 1:* the factory setting will be used. This is the maximum possible decay setting (31).
- *Option 2:* the default decay will be set to the current user-defined value (which is mentioned between brackets). Use option 3 to change this value.
- *Option 3:* the default decay will be set to a user-defined value which can be defined in the next screen



- *Option 4:* to calculate the default decay, the VCA envelopes of all voices (of the source preset) that will be converted to *tuned SP-12 sounds* will be taken into account , especially their Hold, Decay and Release values. An average VCA envelope will be derived. The SP-12 decay value closest to this average VCA envelope will be used as default decay setting.
- *Option 5:* to calculate the default decay, the VCA envelopes of all voices (of the source preset) that will be converted to *tuned SP-12 sounds* will be taken into account , especially their Hold, Decay and Release values. For each of these VCA envelopes, the SP-12 decay value closest to the VCA envelope will be determined. The most common/popular derived decay value will be used as default decay value. This is the default setting.

Source ESI sampler type

If you are converting ESI-v3 sound bank, EMXP needs to know the assumed available polyphony of the ESI sampler. See *section "7.3.13 Conversion from ESI-v3"*.

ESI-v3 non-Lowpass Filter conversion

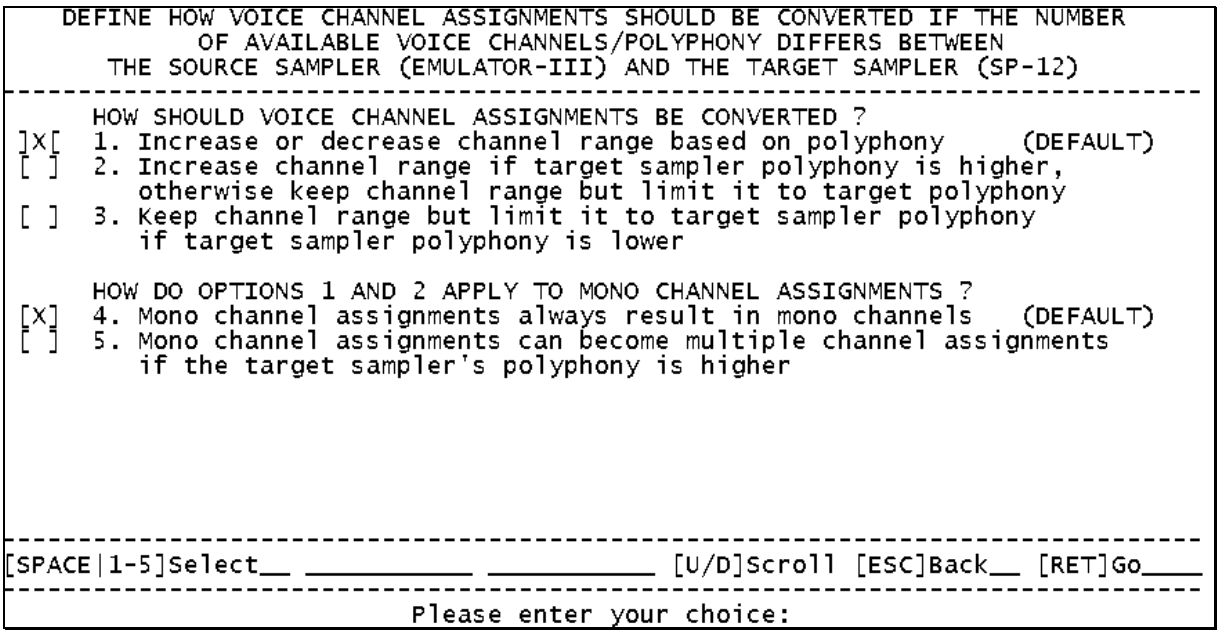
If you are converting ESI-v3 sound banks, and if you selected the option to assign SP-12 output channels based on source filter settings (see *paragraph "Filter / Output Channel settings"* before), you have to specify how the cutoff frequency of ESI filters which are not lowpass filters should be converted.
See *section "7.3.13.3 Conversion of ESI-v3 non-low pass filters"*.

Output channel assignment rules

If you have selected the option to assign SP-12 output channels based on the source sampler output channel assignments (see *paragraph "Filter / Output Channel settings"* before), and the source sampler format supports assignable output channels while having another polyphony than the SP-12, EMXP needs to know how the output channel assignments in the source bank should be converted to SP-12 output channel assignments.

EMXP will show a screen in which you can select whether the source output channel assignment ranges should be scaled up or scaled down depending on the difference in polyphony between the source sampler and the SP-12. It's also possible to make an exception for mono/solo output channel assignments in the source bank, which can be retained at all times if requested.

This selected option is not unique for conversions to the SP-12 sampler format. This preference is shared between all sampler formats. E.g. if you select options 1 and 4 here, these settings will also be applicable for conversions to EMAX-I, Emulator-IIIX, and so on. But they can of course be changed again when converting to these other sampler formats.
In the example screen below, the source sampler format is Emulator-III.



More details about this preference can be found in *section "10.3.8.3 Define how to convert polyphony/voice channel assignments"*.

Remark

When converting sound banks to the SP-12 format you will notice that quite a lot of presets, samples and voices can not be translated. This is due to the limited capabilities of the SP-12, both in terms of hardware (memory size) and sound processing (e.g. limited to no VCA and VCF settings). *See section "7.7.5 SP-12"* for more details.

7.3.6.2 Conversion from WAV files

When converting WAV files into the SP-12 format, and if you have selected

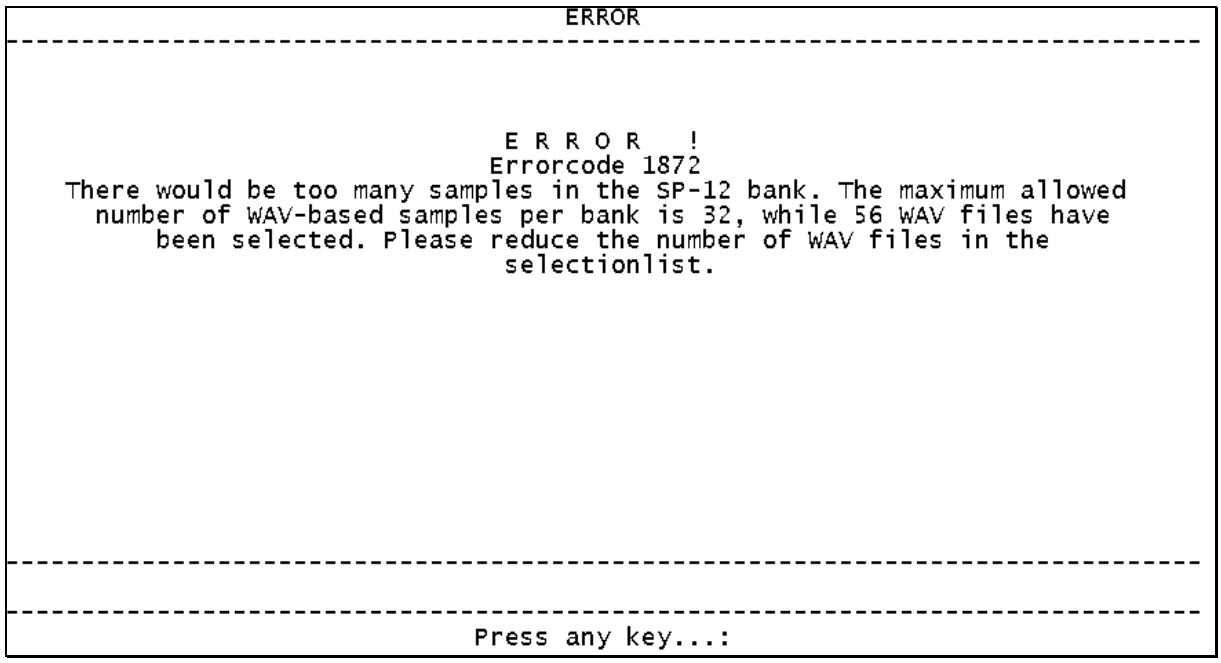
- the MANUAL conversion mode, or
- the SEMI-MANUAL conversion mode and you have chosen to review the copy/conversion settings now (see *section "7.2.3 Batch or manual conversion process"* and *section "6.2.2.3 Custom Automation Level Mode (and SEMI-MANUAL Mode)"*)

EMXP will ask for some SP-12 specific conversion settings now. In the other case EMXP will simply use the Preferences settings for the parameters described below.
The following parameters can be set:

- the target SP-12 sampler memory size. The procedure is the same as the one we just described, see previous *section"7.3.6.1 Conversion from sampler sound banks"*.
- the *WAV-to-sound* mapping. See below for more details.
- the *Tune/Decay* settings. See below for more details.
- if at least one of the selected WAV files contains one or more loops, you should specify whether the WAV loops should be converted as well and if so, which of the WAV loops should be converted. See *section "7.3.9 Conversion from WAV*.

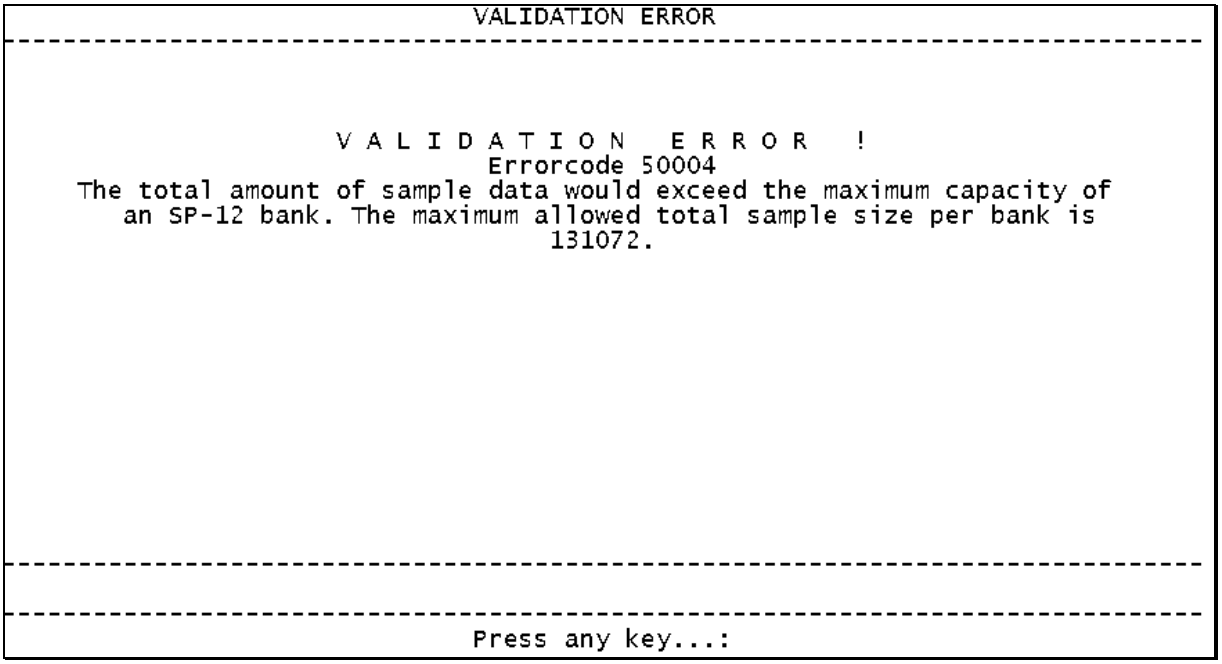
The SP-12 will always play the full sample length (i.e. from the very first to the very last sample point) during the first loop cycle; the loop will only start after playing the full sample length once. If the WAV-loop's end point does not match the last sample point (which is often the case), unexpected results can appear.

EMXP will convert the sample rate of the WAV-file to 26040 Hz which is the only SP-12 supported sample rate. Stereo WAV files will be converted to mono.
The total number of WAV files may not exceed 32 when creating an SP-12 sound bank file. If more WAV files have been selected, an error will occur (see screen below).



Each 16 bit sample of a WAV file (2 bytes) will be converted to a 12 bit sample in the SP-12 (1,5 bytes)
The total memory required for all WAV files may not exceed 199608 bytes when creating a Turbo SP-12 sound bank file, and may not exceed 49152 bytes when creating a Standard SP-12 sound bank file. Moreover, a single WAV file may not result in SP-12 samples larger than 98304 bytes.

EMXP will give an error if you exceed these limits, see picture below.



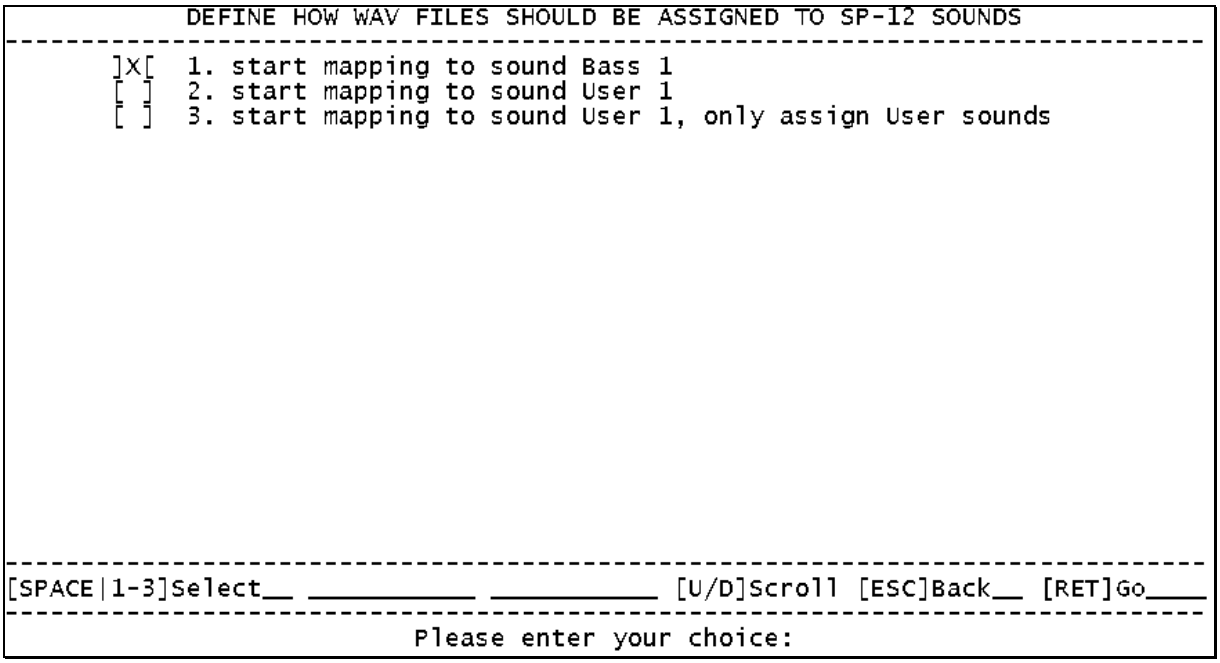
EMXP will also assign the WAV files in alphabetical order to the SP-12 sounds as specified in the *"WAV-to-sound"* paragraph below.

The original pitch of each sample is preserved, independent of the SP-12 sound EMXP will assign the sample to.

Before starting the actual conversion of the selected WAV files into the Emulator-I format, EMXP will check if the resulting sound bank is compatible with the target sampler's limits. Some examples have already been explained before in this section (e.g. number of samples, sample size, ...). As explained, in case of any detected incompatibility, an error will be shown and you won't be able to continue the conversion. A typical solution will be to reduce the number of selected WAV files... See *section "7.3.14 Validation check when converting WAV files"*.

WAV-to-Sound Mapping

When converting WAV-files to the SP-12 format, EMXP should know how the WAV-files should be assigned to sound locations in the target SP-12 sound bank.
Three possibilities are provided. No matter what possibility is selected, the WAV-files will always be assigned to SP-12 sounds in alphabetical order of the WAV-file name.



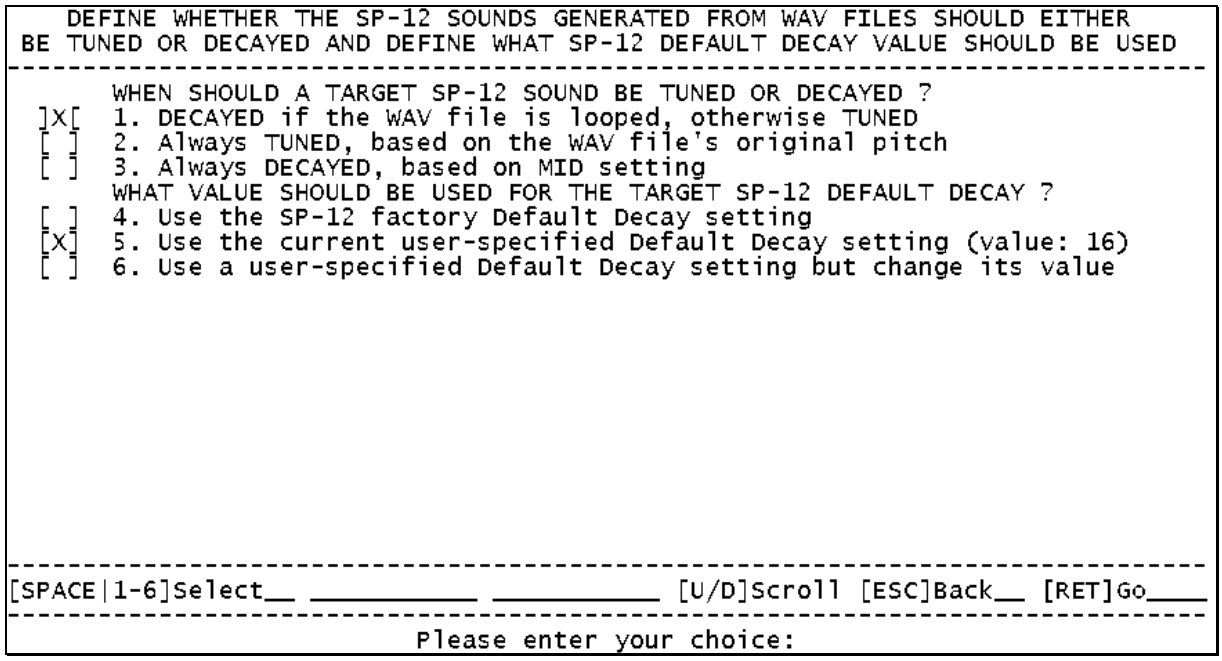
Each WAV-file will be converted to an SP-12 sound. The target SP-12 sounds will get default sound and sample parameters, but you have the possibility to convert the WAV loops (see *section "7.3.9 Conversion from WAV")* and you can define whether the SP-12 sound should be tuned or decayed (see next paragraph).

- When selecting option 1, the WAV-files will be assigned to the SP-12 sounds starting with Bass 1, then Bass 2 and so on until User 8
- When selecting option 2, the WAV-files will be assigned to the SP-12 sounds starting with User 1, then User 2 and so on until User 8. The assignments will continue with Bass 1 until Crash.
- When selecting option 3, the WAV-files will be assigned to the SP-12 sounds starting with User 1, then User 2 and so on until User 8. The sounds Bass 1 until Crash will not get any WAV-file assigned, e.g. to preserve their ROM sounds.

Tune/Decay

As explained in the paragraph "Tune/Decay" of *section "7.3.6.1 Conversion from sampler sound banks"*, the SP-12 has some limitations regarding the tuning and the VCA envelope settings of a sound. One of these constraints is that you have to decide for each sound whether the sound should be tuned/transposed or whether it should be decayed. While it is possible to tune and decay a sound at the same time, it's not possible to have different decay settings for different sounds if the sounds are tuned as well - in that case the decay setting is shared by all SP-12 sounds, and it is defined by the *Default Decay* parameter on the SP-12.

Although the WAV-files will always be converted to untransposed SP-12 sounds (i.e. their tuning will always be at original pitch), EMXP still needs to know whether the sounds should be tuned or decayed.

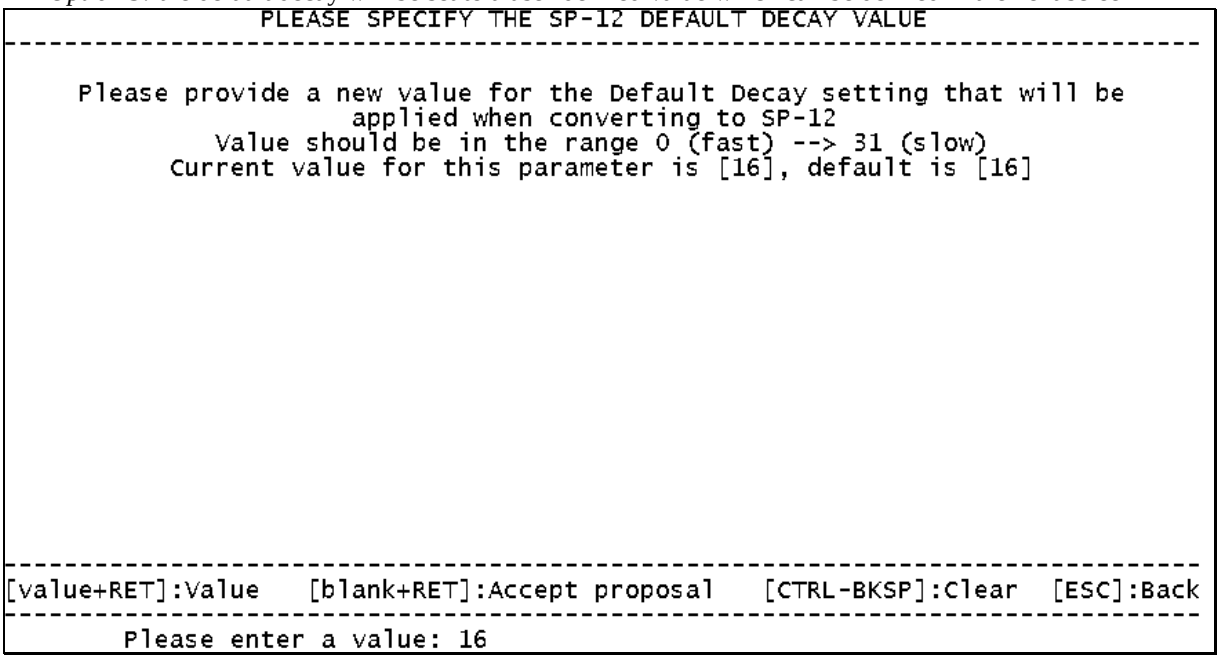


With options 1 → 3 you can define under which conditions a sound should be tuned or decayed.

- *Option 1*: if the WAV-file is looped, EMXP will generate a *decayed* SP-12 sound, if the WAV-file is not looped, a *tuned* SP-12 sound will be generated. The SP-12 tends to "hold" (play) a looped sound for a very long time (multiple loops) if the decay setting is above 16. This is true both for tuned looped sounds which rely on the *default decay* and for decayed looped sounds which rely on the sound's individual *decay* setting. But since the *default decay* is typically set to a high value (e.g. 31), every *tuned* ànd *looped* sound would play too long. To avoid this situation, you can exclude looped sounds from being tuned. This is the default setting.
- *Option 2*: all generated SP-12 sounds will be *tuned*. Their decay is defined by the *default decay* setting.
- *Option 3:* all generated SP-12 sounds will be *decayed*. The decay value will be set to 16 (i.e. the MID value on the SP-12)

With options 4 → 6 you can define how the *default decay* value of the target SP-12 sound bank should be determined by EMXP. This is the decay setting that will be used and shared by all *tuned* SP-12 sounds.

- *Option 1:* the factory setting will be used. This is the maximum possible decay setting (31).
- *Option 2:* the default decay will be set to the current user-defined value (which is mentioned between brackets). Use option 3 to change this value.
- *Option 3:* the default decay will be set to a user-defined value which can be defined in the next screen

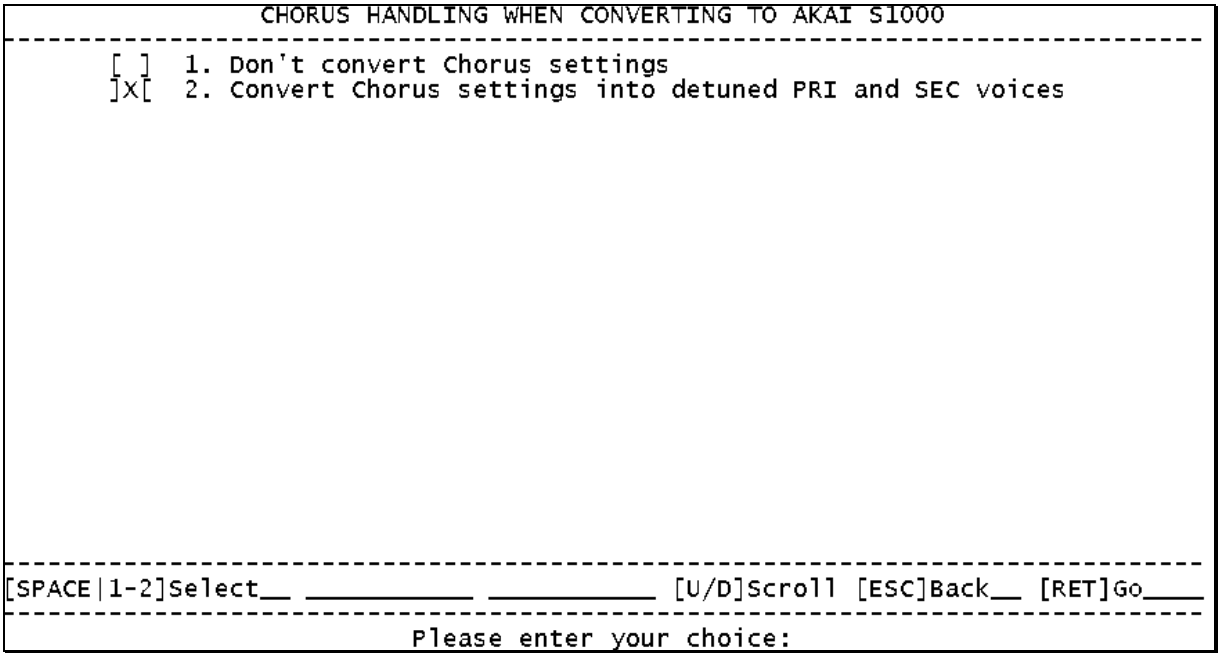


7.3.7 Conversion to Akai S1000

Support for Akai S1000 conversions is limited in EMXP.
EMXP only supports the conversion from EMAX-I/EMAX-II bank files to Akai S1000 programs and samples, and from WAV files to Akai S1000 samples. No other source formats besides EMAX-I, EMAX-II and WAV are supported, nor can Akai S1000 files be converted into any sampler format.

7.3.7.1 Conversion from sampler sound banks

First EMXP will ask how to deal with chorus settings. If the chorus effect is enabled on one or more the source bank's voices, EMXP can emulate this chorus effect in the target Akai program by using two layers with the same sample but with different tuning settings.



During conversion, EMXP will create

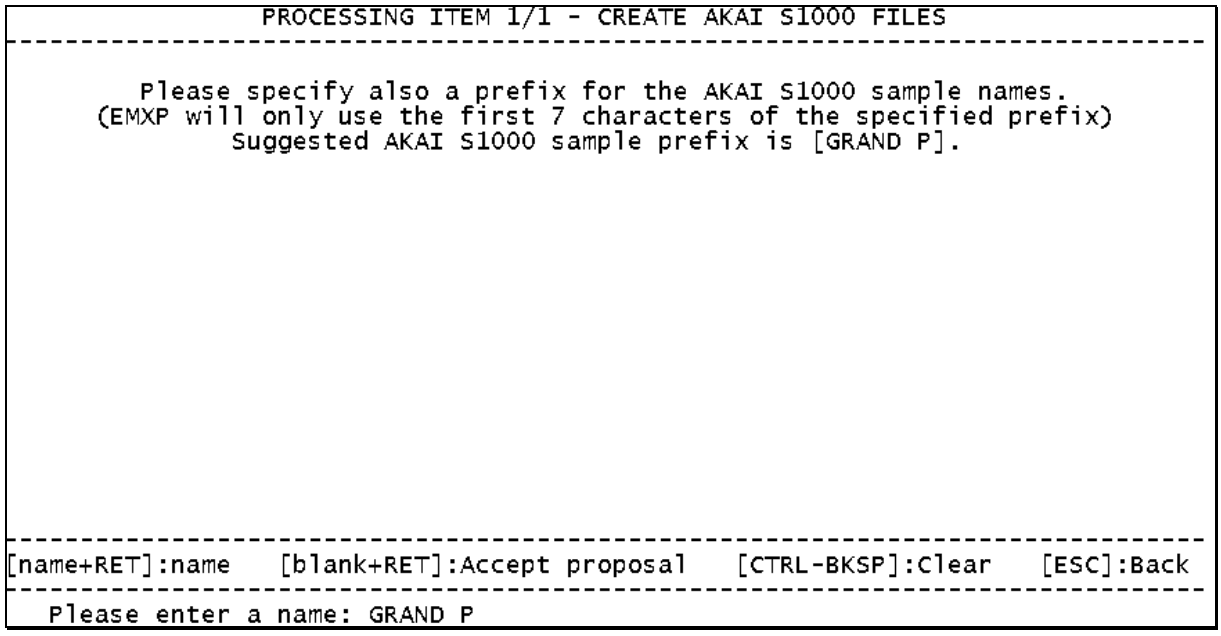
- one Akai S1000 Program file for each EMAX preset in the bank
- one Akai S1000 Sample file for each EMAX sample in the bank

EMXP will automatically generate filenames for these files based on a prefix. If you have chosen to define the target file names yourself (in MANUAL of SEMI-MANUAL mode), EMXP will explicitly ask you for this prefix now.

Besides the names of the files that will be generated on your computer, Akai S1000 files also contain program and sample file names *within* these files:

- The names of the Akai S1000 *programs within* the generated Akai S1000 files will be derived from the EMAX preset names. EMXP will make sure that two different EMAX presets with the same name will result in two different Akai S1000 files with different program names.
- The names of the Akai S1000 *samples within* the generated Akai S1000 files will be based on the sample number within the EMAX bank. This number will be joined to a *prefix* that you will have to provide now as well if you have chosen to define the target file names yourself in MANUAL or SEMI-MANUAL mode - see picture below.

The maximum size of these program and sample names is defined by a preference (either 10 or 12 characters) For more details, see *section "10.3.9.3 Define maximum size of Akai S1000 file names on floppy or floppy image"*.



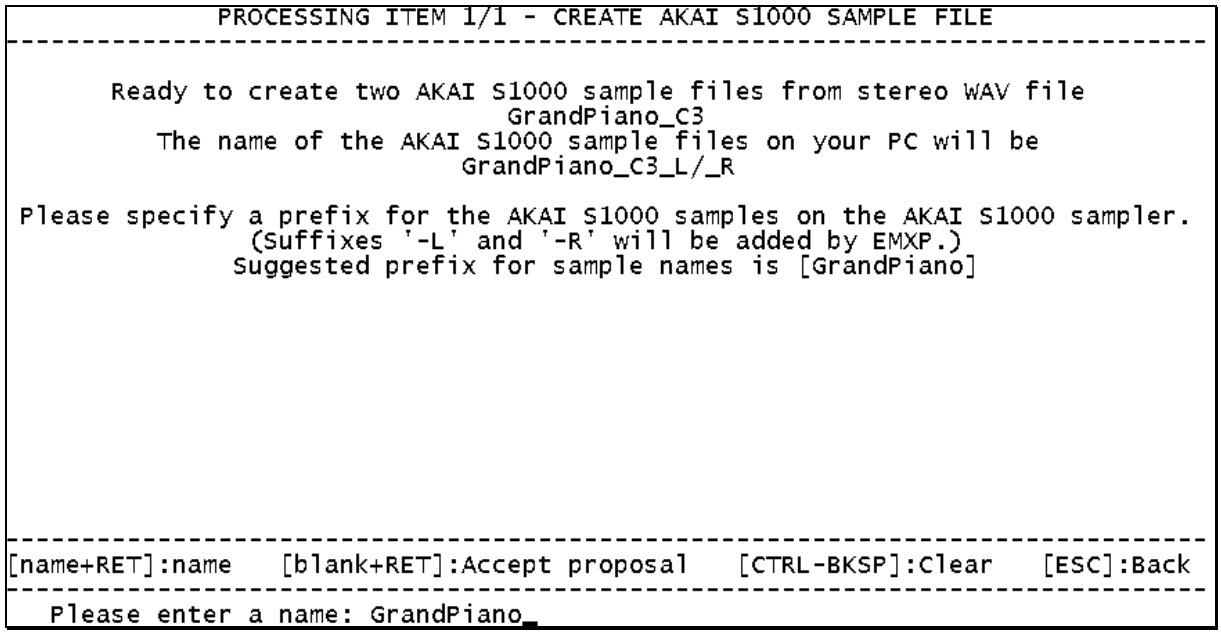
7.3.7.2 Conversion from WAV files

EMXP generates one Akai S1000 sample file (.S or .AKS) per channel of a WAV file. If the WAV file is mono, a single Akai S1000 sample file is created; if the WAV file is stereo, two Akai S1000 sample files will be generated.
No program file is generated (i.e. no key assignments).

If at least one of the selected WAV files contains one or more loops, you should specify whether the WAV loops should be converted as well and if so, which of the WAV loops should be converted to what target sample loop type. See *section "7.3.9 Conversion from WAV"*. A maximum of 8 WAV loops can be converted to a single Akai S1000 sample.

If you have chosen to define the target file names yourself (in MANUAL of SEMI-MANUAL mode), EMXP will explicitly ask you for the sample file name (mono) of sample file name prefix (stereo) now. In automated mode EMXP will choose this file name/prefix itself.
If the WAV file is stereo, EMXP will add the _L and _R suffixes to the prefix.

Besides the names of the sample files that will be generated on your computer, Akai S1000 sample files also contain a file name *internally*. Again, if you have selected to specify the target file names yourself, EMXP will now ask you to enter the internal sample file name (or prefix). See picture below, which is an example of a conversion of a stereo WAV file into 2 Akai S1000 sample files.



EMXP will convert the sample rate of the WAV-file to an Akai S1000 supported sample rate, which should be within the range of 8000 Hz to 65540 Hz. If the WAV-file's sample rate is lower than 8000 Hz, the sample rate will be increased to 8000 Hz; if the WAV-file's sample rate is higher than 65540 Hz, the sample rate will be decreased to 65540 Hz. If the sample rate is not exactly 22050 Hz or 44100 Hz, EMXP will also change the Akai S1000 sample's pitch parameters to make sure the Akai S1000's "re-sampling" tuning offsets will be compensated in a way that the target sample will play at the same pitch as the original WAV-file.

7.3.8 Conversion to WAV

EMXP supports sample conversion to WAV files from any supported sampler type (including Akai S1000). As explained in *section "7.2.1 Selecting the source items that should be converted"*, it's possible to:

- convert *all samples* of a sound bank at once
- convert *only some selected* samples of a sound bank (this is always true for Akai S1000)

No matter what option you have chosen, the conversion procedure is exactly the same in both cases.

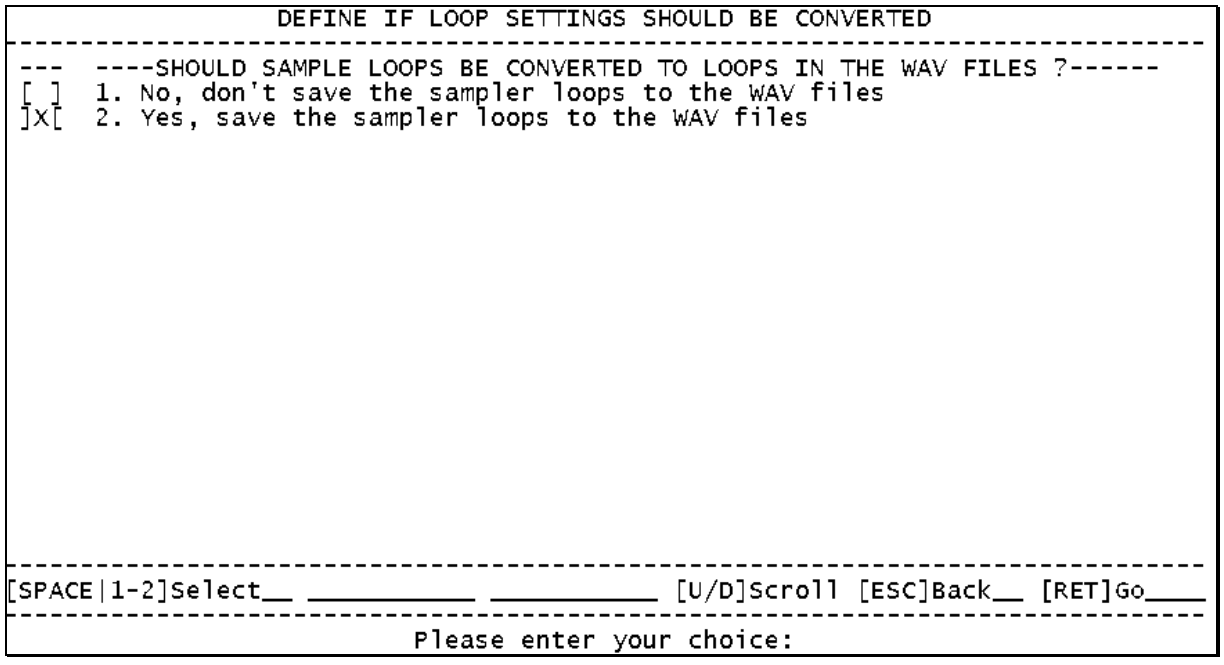
If you have selected

- the MANUAL conversion mode, or
- the SEMI-MANUAL conversion mode and you have chosen to review the copy/conversion settings now (see *section "7.2.3 Batch or manual conversion process"* and *section "6.2.2.3 Custom Automation Level Mode (and SEMI-MANUAL Mode)"*)

EMXP will ask for some WAV conversion settings now.
In the other case EMXP will simply use the Preferences settings for these parameters.

Loop Conversion

If the source samples have loops enabled, EMXP can save these loops in the target WAV file. Whether EMXP should save the loop definitions can be defined in the screen shown below. This screen is always shown in MANUAL or SEMI-MANUAL conversion mode, no matter if any or the selected source samples have loops enabled or not.



Following rules are applied by EMXP when converting loops to WAV files:

- By default loops are translated to *forward* loops (type 00) in the WAV file, unless the source sample's loop has been defined as a forward/backward loop (Emulator-II and Emulator-III only). In that case the loop will be translated into an *alternating* loop (type 01) in the WAV file.
- Whether the source loop is a "sustain" loop or rather an "in release" loop is not translated to the WAV file - both loop types result in standard WAV loops
- If the "sustain" loop differs from the "in release" loop in the source EMAX-I or EMAX-II sample, and both loops are enabled, EMXP will convert both loops to the WAV file. However this will only be done if the "sustain" and "in release" loop ranges are not overlapping. If there's an overlap, only the "sustain" loop will be converted.

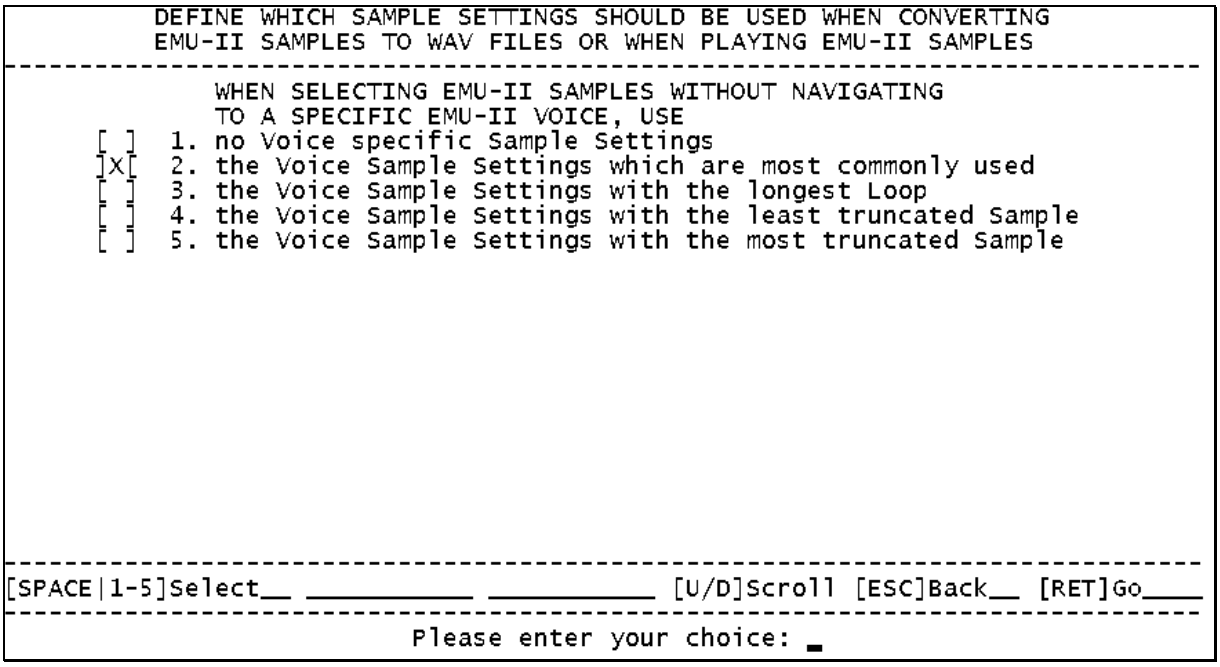
- Except for Akai S1000 samples, the WAV loop length will be set to *endless/indefinite*. For Akai S1000 samples the WAV loop length will be set to the same value as the one defined for the Akai S1000 loop (which is either endless (HOLD) or a length between 0 and 10 seconds)
- Besides loop settings, the "SMPL" chunk in the WAV file format also contains SMPTE information and MIDI note and fine tuning settings. However EMXP is not converting these parameters from the source samples. Default values are used in the generated WAV files: SMPTE is disabled, SMPTE Offset is set to 0, MIDI note is set to 60 (C3/C4) and MIDI tuning is set to 0.
- When converting stereo Emulator-III/Emulator-IIIX/ESI-v3 samples to WAV files, the loop parameters of the *left* channel will be converted unless the loop has only be defined on the right channel. In that case the *right* channel's loop parameters will be applied. Note however that in normal circumstances the loop parameters of the left and right channels should be identical in a stereo Emulator-III/IIIX/ESI-v3 sample.
- When converting stereo SoundFont2 samples to WAV files (see *SoundFont2 Stereo Handling* below), the loop parameters of the *first selected sample of each stereo pair* will be converted. If you selected only the *left sample* (and EMXP automatically finds and adds the *right sample)*, the *left sample's* loop parameters will be used. If you only selected the *right sample* (and EMXP automatically finds and adds the *left sample)*, the *right sample's* loop parameters will be used. If you selected both *left and right samples*, the first selected sample of this pair (in order of appearance in the sample overview screen) will be used as a starting point for the loop parameters. Note however that in normal circumstances the loop parameters of the left and right channels should be identical in a stereo SoundFont2 sample.

Generic or Voice/Zone/Sound specific Sample Conversion (Emulator-II, SoundFont2 and SP-12 only)

In **Emulator-II** sound banks, the same sample can be used in (shared by) multiple voices. Sample parameters like *sample start and sample length (truncation), loop start and loop length,* and *loop type (forward or forward/backward; sustain or in release)* can have different values for the same sample, depending on the voice on which they have been defined.
The same is true for **SoundFont2** sound banks, in which the same sample can be shared by different instruments/instrument zones. While a sample has a sample start and sample length, and can have an overall loop start and loop length, it's perfectly possible to define zone-specific offsets for these parameters which can be different per instrument/instrument zone. Moreover a loop is always enabled/disabled on instrument zone level, and the type of loop is zone-specific as well.
In **SP-12** sound banks, the same sample can also be used in (shared by) multiple sounds. They can't be truncated in a different way across multiple sounds however. And while in theory the same sample can have different loop settings in different sounds, in practice you won't be able to define this different loops on the SP-12. As a consequence the same sample will normally have the same parameters in all SP-12 sounds that are based on that sample. Nevertheless EMXP assumes that the "theoretical" situation may occur from time to time, so it deals with SP-12-to-WAV conversions in the same way as it does for the Emulator-II and SoundFont2 files.

If the Emulator-II, SoundFont2 or SP-12 samples that should be converted to WAV-files have been selected

- from a **specific Emulator-II voice , SoundFont2 instrument zone or SP-12 sound** (by navigating first to a specific voice, instrument zone or sound and selecting the sample belonging to that voice, zone or sound), EMXP will *always use the voice/zone/sound specific settings* for that sample.
  E.g. if an Emulator-II sample X has been truncated and has a short forward loop defined on voice Y, and you select that sample by navigating to the sample of voice Y, EMXP will extract the truncated version of the sample and will save the short forward loop to the WAV file.
- from a **voice / zone / sound-independent sample overview** in EMXP, or simply by selecting one of the **"Extract all samples..."** menu functions, you can choose which sample parameters should be used for the conversion to WAV files. This can be done in the screen shown below:



(the screen shown here is valid for Emulator-II sample conversions; for SoundFont2 and SP-12 sample conversions the screen looks similar, but the terminology is slightly different)

Following options are available:

1. *Don't use any voice/zone specific sample settings*
   When using this option, no sample truncation will be applied and no loops will be converted to the WAV-files.
2. *Use the sample settings which are used by most voices/zones*
   This is the factory default setting. EMXP will look for the sample settings which are used by most Emulator-II voices, SoundFont2 instrument zones or SP-12 sounds in the sound bank. These settings will be used for conversion to the WAV file. If different sample settings are equally common, EMXP will use the most common settings belonging to the sample with the longest loop; if there are multiple of these as well, the one with the least truncation will be used.
3. *Use the sample settings of the voice/zone for which the sample loop length is the longest (number of sample points)*
   When this option is selected, EMXP will look for the voice/zone/sound specific sample with the longest (enabled) loop. The settings of this sample will be used for conversion to the WAV file. If different voice/zone/sound specific samples have the same loop length, EMXP will use the sample with the longest loop which is most commonly used by the voices/zones/sounds; if there are multiple of these as well, the one with the least truncation will be used.
4. *Use the sample settings of the voice/zone/sound in which the sample has not been truncated or - if all voices/zones/sounds use truncated samples - use the settings of the voice/zone/sound in which the truncation is the smallest of all truncations (i.e. the remaining sample is the longest)*
   When this option is selected, EMXP will look for the voice/zone/sound specific sample with the longest sample length (i.e. the least truncated one). The settings of this sample will be used for conversion to the WAV file. If different voice/zone/sound specific samples have the same longest sample length, EMXP will use the sample with the longest sample length which is most commonly used by the voices/zones/sounds; if there are multiple of these as well, the one with the longest loop will be used.
5. *Use the sample settings of the voice/zone/sound in which the truncation of the sample is the longest of all truncations (i.e. the remaining sample is the shortest)*
   When this option is selected, EMXP will look for the voice/zone/sound specific sample with the shortest sample length (i.e. the most truncated one). The settings of this sample will be used for conversion to the WAV file. If different voice/zone/sound specific samples have the same shortest sample length, EMXP will use the sample with the shortest sample length which is most commonly used by the voices/zones/sounds; if there are multiple of these as well, the one with the longest loop will be used.

Note that for SP-12-to-WAV conversions, only options 1 and 2 make sense. Simply stated option 1 will ignore any truncation or loop in the samples, while option 2 will apply the truncation and loops belonging to the sample (as stated above, all sounds use the same truncation and loop settings if they share a sample).

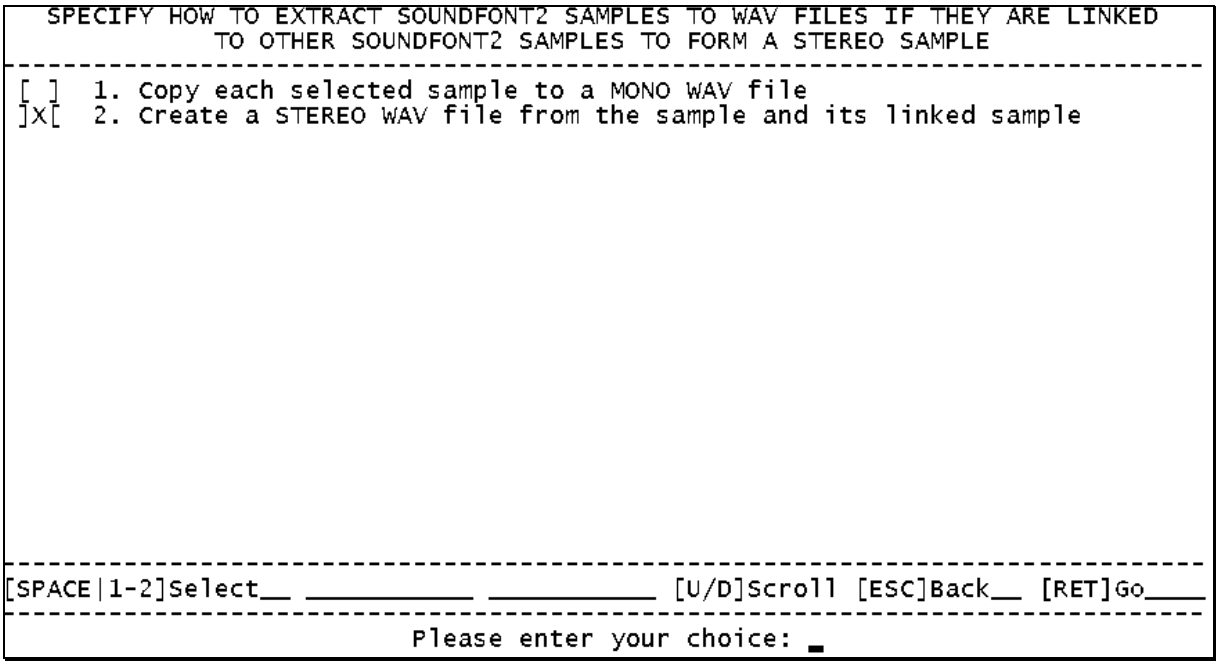
Note also that these settings will be used for *playing* samples in the EMXP audio player as well.

Emulator-I Loudness Normalization

If you are converting samples from Emulator-I sounds or sound banks, you have to specify whether the sample volume should be lowered during conversion or not. See *section "7.3.10 Conversion from Emulator-I"* for more details.

SoundFont2 Stereo Handling

If you are converting samples from SoundFont2 sound banks, you have to specify whether you would like to convert every pair of samples that have been *stereo linked* in the SoundFont2 bank to stereo WAV files, or rather each individual sample of a stereo pair to a mono WAV file. These settings will also be used when *playing* SoundFont2 samples in the EMXP audio player.



WAV Naming

By default, EMXP will assign a name to each generated WAV file based on

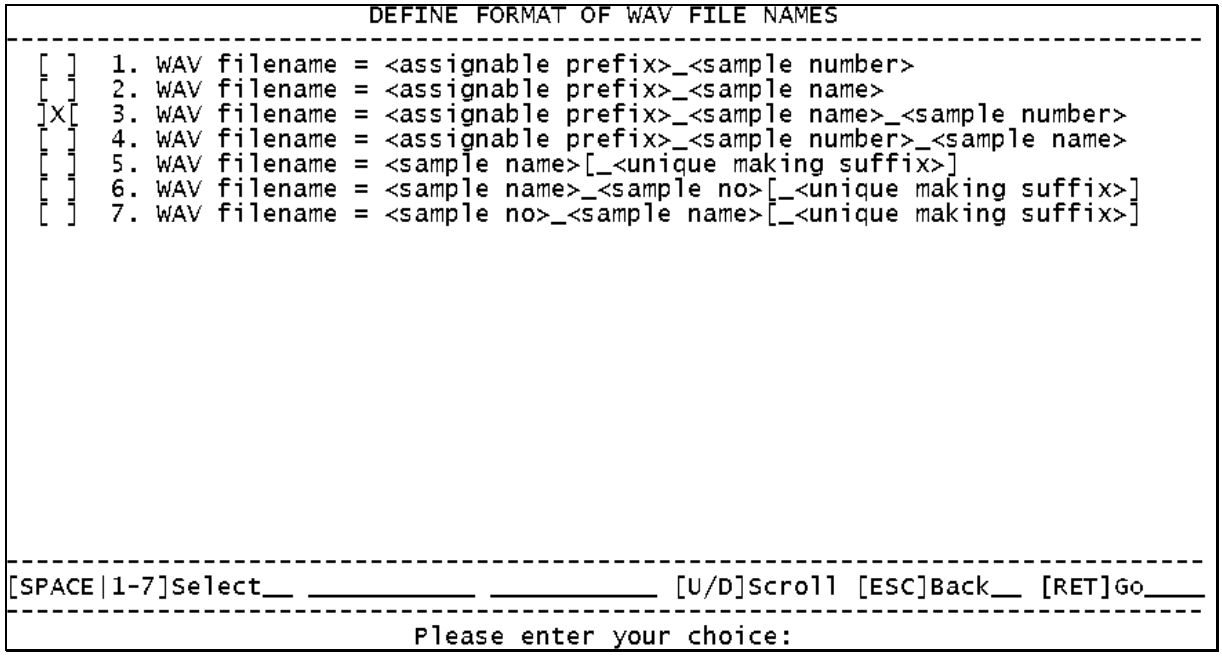
- the prefix that you have entered (or that has been automatically derived from the source item's name)
- a suffix consisting of the sample number

E.g. if the prefix is "Piano" and you have selected samples S03 and S04 to be converted to WAV files, the two WAV files will have following names: "Piano_S3.WAV" and "Piano_S4.WAV".

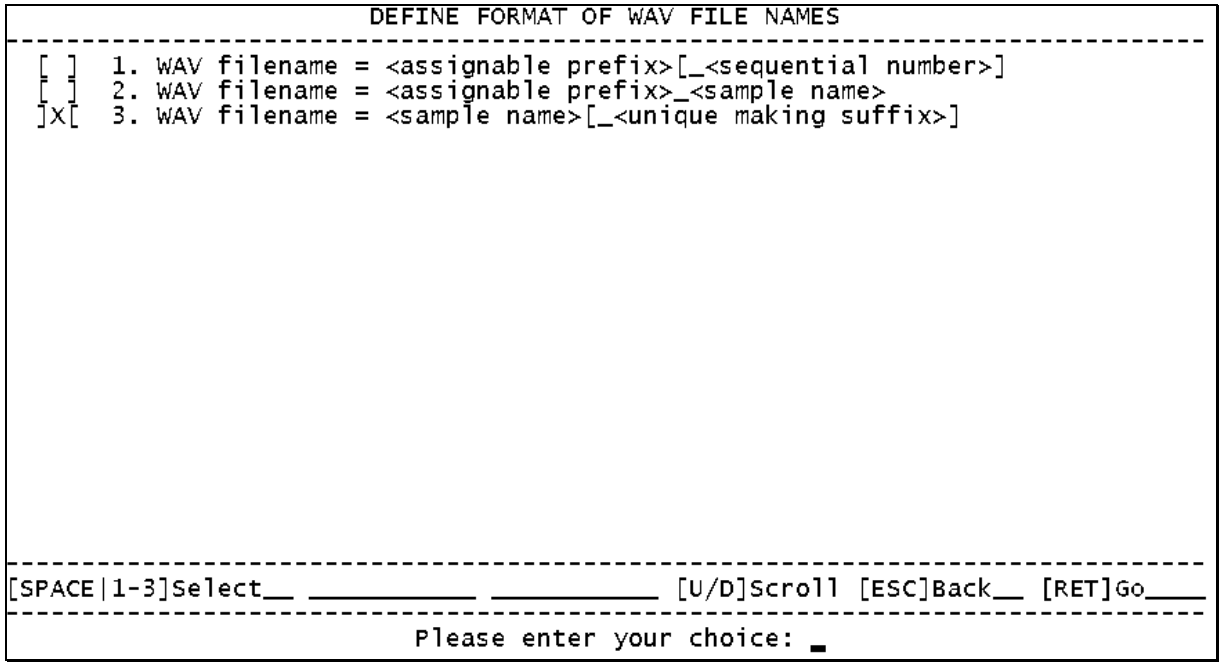
Samples in Emulator-III, Emulator-IIIX, ESI-v3, Akai S1000 or SoundFont2 format not only have *a sample number* but they also have a *sample name.*
For samples in SP-12 format, EMXP derives the sample name from the sound(s) to which the sample is assigned. From that perspective SP-12 samples have both a *sample number* and a *sample name* as well.

EMXP offers the possibility to customize the way the WAV file names should be generated for these sampler formats.

Here are the possibilities for the Emulator-III, Emulator-IIIX, ESI-v3, SoundFont2 and SP-12 sampler formats:



For Akai S1000 samples, the options are more limited:



7.3.9 Conversion from WAV

When converting one or more WAV files to any other sampler format, EMXP can convert the loop(s) which may have been defined in these WAV-files to sampler loops as well.

Only *standard WAV-loops* are supported:

- loop type 00: normal forward loops
- loop type 01: alternating loops (forward/backward)
- loop type 02: backward loops

Other loop types and so-called sampler-specific loop types (types 32 and higher) in a WAV file are *not recognized* by EMXP and will be ignored.

To define loops in WAV files, you will need a sound editor which supports WAV loops[9] (many sound editors lack this feature !).

WAV files can contain many loops. However EMXP will convert *not more than one loop* per WAV file to a target sampler loop. The only exception is a conversion from WAV files to the Akai S1000 format, where a maximum of 8 loops can be converted.

The loop definitions of a WAV-file are part of the "SMPL" chunk of the WAV data format. This chunk also includes SMPTE information and the MIDI note and fine tuning which should be applied when playing the WAV-file. Please note that EMXP ignores these parameters when converting WAV-files to samples.

If you have selected

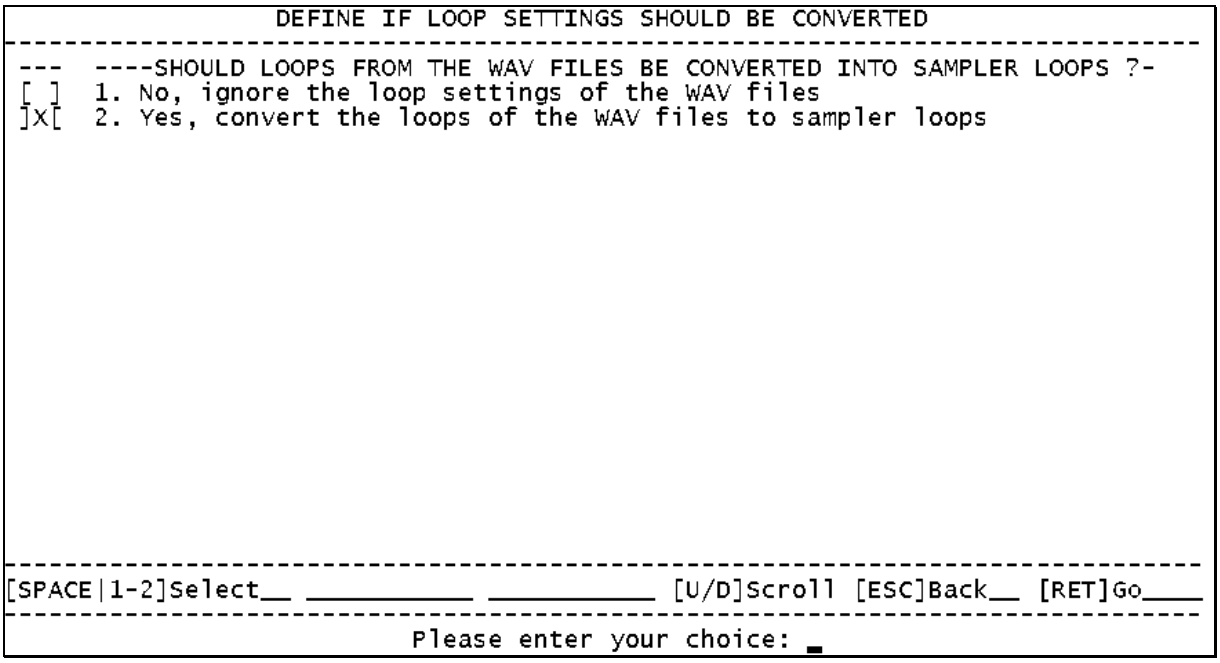
- the MANUAL conversion mode, or
- the SEMI-MANUAL conversion mode and you have chosen to review the copy/conversion settings now (see *section "7.2.3 Batch or manual conversion process"* and *section "6.2.2.3 Custom Automation Level Mode (and SEMI-MANUAL Mode)"*)

EMXP will ask for some WAV loop conversion settings. In the other case EMXP will simply use the Preferences settings for these parameters.
Depending on the target sampler format, some other settings will have to be provided as well, but for those settings we refer to each of the *"Conversion from WAV files"* paragraphs in the previous sections.

Loop Conversion

If WAV files contain loops, EMXP can convert these loops to sample loops in the target sampler format. Whether EMXP should convert the WAV loop definitions can be defined in the screen shown below. This screen is only shown if at least one of the selected WAV files contains at least one loop.

[9] An example of a free (donation ware) sound editor which supports WAV loops is Wavosaur. The number of loops per WAV file is limited to 1 though.



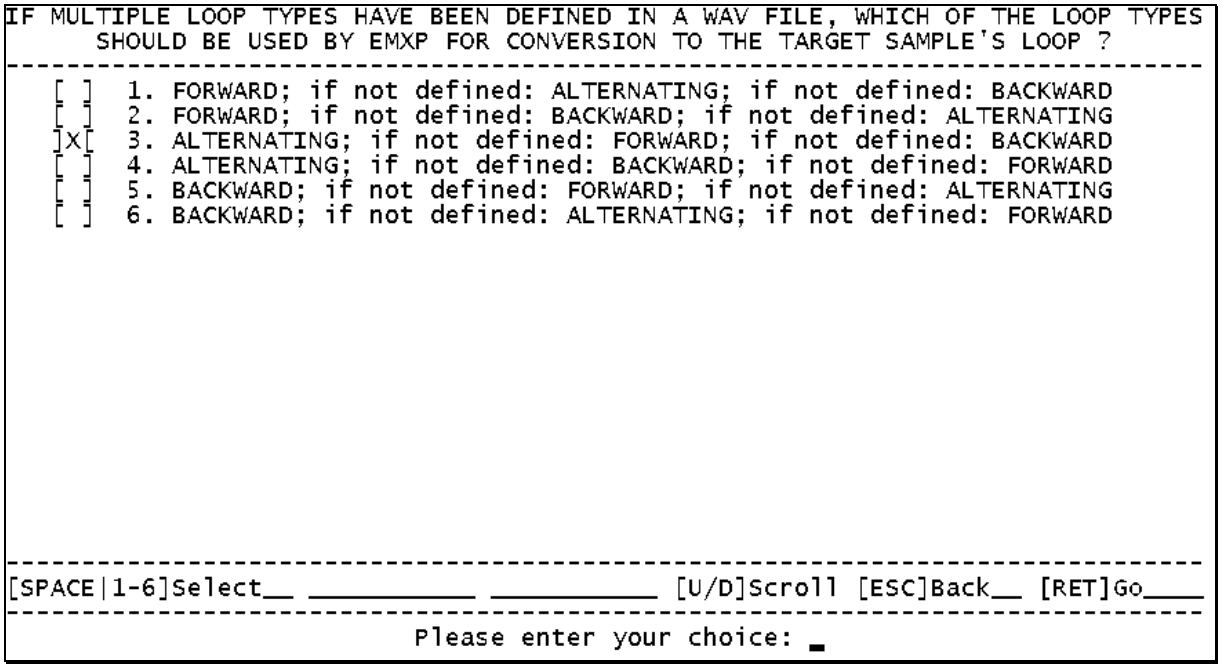
WAV Loop Type (only if multiple loop types are detected)

If WAV loops should be converted to sample loops (see previous section "**Loop Conversion**"), and if at least one of the selected WAV files contains loops of *different types*, you should define from which loop type EMXP should convert the WAV loop to a sample loop.
(In practice, WAV files almost never contain more than one loop. As a consequence, the screen explained below will rarely pop up in EMXP)

Since EMXP will convert

- *maximum 1 loop* per WAV file to a sample loop for all target sampler formats except Akai S1000
- *maximum 8 loops* per WAV file to sample loops for Akai S1000

EMXP should know which of the loops in the WAV files should be converted.
This selection can be done in the screen shown below.
When *playing* WAV files in the EMXP audio player, the same settings will be used.



Note that the selected option will be used for *all* selected WAV files - it's not possible to specify the source loop type for each selected WAV file individually.

Following options are available:

- *Option 1:* use the forward loop of the WAV file if a forward loop is available. If not, use the alternating loop if an alternating loop is available. If not, use the backward loop if a backward loop is available.
- *Option 2:* use the forward loop of the WAV file if a forward loop is available. If not, use the backward loop if a backward loop is available. If not, use the alternating loop if an alternating loop is available.
- *Option 3:* use the alternating loop of the WAV file if an alternating loop is available. If not, use the forward loop if a forward loop is available. If not, use the backward loop if a backward loop is available.
- *Option 4:* use the alternating loop of the WAV file if an alternating loop is available. If not, use the backward loop if a backward loop is available. If not, use the alternating loop if an alternating loop is available.
- *Option 5:* use the backward loop of the WAV file if a backward loop is available. If not, use the forward loop if a forward loop is available. If not, use the alternating loop if an alternating loop is available.
- *Option 6:* use the backward loop of the WAV file if a backward loop is available. If not, use the alternating loop if an alternating loop is available. If not, use the forward loop if a forward loop is available.

EMXP will use the *first detected* loop type according to the search order defined by the selected option above.

If a WAV file contains more than one loop of *the same loop type* (e.g. 2 forward loops), you can define which of the loops within that loop type should be used: see next section **"WAV Loop Number"**.

When converting to Akai S1000 samples, EMXP will continue looking for loops according to the selected search order, until the maximum amount of 8 loops have been converted or until no more loops are available in the WAV file.
If a WAV file contains multiple loops with an indefinite (endless) duration, multiple "HOLD" loops will be created in the Akai S1000 sample file. When playing this sample on an Akai S1000 sampler, only the first of these "HOLD" loops will actually play as a continuous loop !

Example:
Suppose one of the WAV files contains both a *forward loop* and an *alternating loop,* another WAV file contains a *forward loop* and a *backward loop,* some WAV files have only a *forward loop* defined and the remaining WAV files have *no loops* defined.
Suppose also that we are converting the WAV files to a non-Akai S1000 sampler format.

- If option 3 is selected:
  - The *alternating* loop of the first WAV file is converted
  - The *forward* loop of the second WAV file is converted
  - The *forward* loops of all other loop-enabled WAV files are converted
- If option 6 is selected:
  - The *alternating* loop of the first WAV file is converted
  - The *backward* loop of the second WAV file is converted
  - The *forward* loops of all other loop-enabled WAV files are converted
- If option 1 is selected, the *forward* loops of all loop-enabled WAV files are converted

If we are converting the WAV files to the Akai S1000 sampler format, *all* loops of *all loop-enabled* WAV files will be converted. The option selected in the above screen defines which loop will become Akai loop number 1, which one will become Akai loop number 2, and so on.

WAV Loop Number (only if multiple loops of the same loop type are detected)

If WAV loops should be converted to sample loops (see the **"Loop Conversion"** section before), and if at least one of the selected WAV files contains *multiple loops* of the *same type* (e.g. 2 forward loops), you should define which of these loops should be converted to a sample loop by EMXP.
(In practice, WAV files almost never contain more than one loop. As a consequence, the screen explained below will rarely pop up in EMXP)
As explained in the previous section, EMXP will convert

- *maximum 1 loop* per WAV file to a sample loop for all target sampler formats except Akai S1000
- *maximum 8 loops* per WAV file to sample loops for Akai S1000

If a WAV file contains more than one loop, EMXP should know which of the loop(s) should be converted to sampler loops. This selection can be done in the screen shown below. When *playing* WAV files in the EMXP audio player, the same settings will be used.

```
                DEFINE WHICH WAV LOOPS SHOULD BE CONVERTED
             IF MULTIPLE LOOPS HAVE BEEN DEFINED IN THE WAV FILES
-------------------------------------------------------------------------------
 ---   ----FOR CONVERTING FORWARD LOOPS (IF ANY DEFINED)---------------------
 ]X[   01. Use the loop with the highest number of cycles (e.g. indefinite)
 [ ]   02. Use the loop with the longest length (number of sample points)
 [ ]   03. Use the first loop
 [ ]   04. Select a specific loop number
 ---   ----FOR CONVERTING BACKWARD LOOPS (IF ANY DEFINED)--------------------
 [X]   05. Use the loop with the highest number of cycles (e.g. indefinite)
 [ ]   06. Use the loop with the longest length (number of sample points)
 [ ]   07. Use the first loop
 [ ]   08. Select a specific loop number
 ---   ----FOR CONVERTING ALTERNATING LOOPS (IF ANY DEFINED)-----------------
 [ ]   09. Use the loop with the highest number of cycles (e.g. indefinite)
 [ ]   10. Use the loop with the longest length (number of sample points)
 [X]   11. Use loop 3
 [ ]   12. Select a specific loop number




-------------------------------------------------------------------------------
[SPACE|01-12]Select _____________ _____________ [U/D]Scroll [ESC]Back__ [RET]Go____
-------------------------------------------------------------------------------
                            Please enter your choice:
```

The above screen will be used when converting to non-Akai S1000 sampler formats

```
                DEFINE WHICH WAV LOOPS SHOULD BE CONVERTED
             IF MULTIPLE LOOPS HAVE BEEN DEFINED IN THE WAV FILES
-------------------------------------------------------------------------------
 ---   ----FOR CONVERTING FORWARD LOOPS (IF ANY DEFINED)---------------------
 ]X[   01. Use the loops with the highest number of cycles (e.g. indefinite)
 [ ]   02. Use the loops with the longest length (number of sample points)
 [ ]   03. Use the first loops
 [ ]   04. Select a specific range of loops
 ---   ----FOR CONVERTING BACKWARD LOOPS (IF ANY DEFINED)--------------------
 [X]   05. Use the loops with the highest number of cycles (e.g. indefinite)
 [ ]   06. Use the loops with the longest length (number of sample points)
 [ ]   07. Use the first loops
 [ ]   08. Select a specific range of loops
 ---   ----FOR CONVERTING ALTERNATING LOOPS (IF ANY DEFINED)-----------------
 [ ]   09. Use the loops with the highest number of cycles (e.g. indefinite)
 [ ]   10. Use the loops with the longest length (number of sample points)
 [X]   11. Use loops starting at loop 3
 [ ]   12. Select a specific range of loops




-------------------------------------------------------------------------------
[SPACE|01-12]Select _____________ _____________ [U/D]Scroll [ESC]Back__ [RET]Go____
-------------------------------------------------------------------------------
                            Please enter your choice:
```

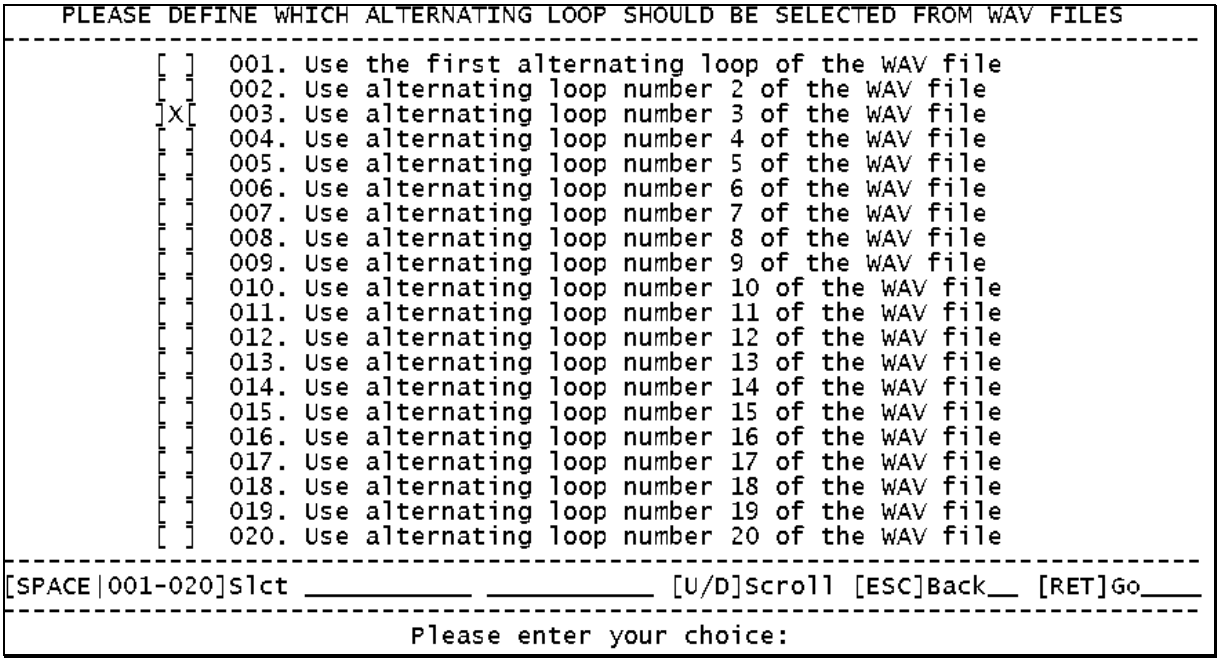
The above screen will be used when converting to the Akai S1000 sampler format

Note that the selected options will be used for *all* selected WAV files - it's not possible to specify the source loop for each selected WAV file individually.

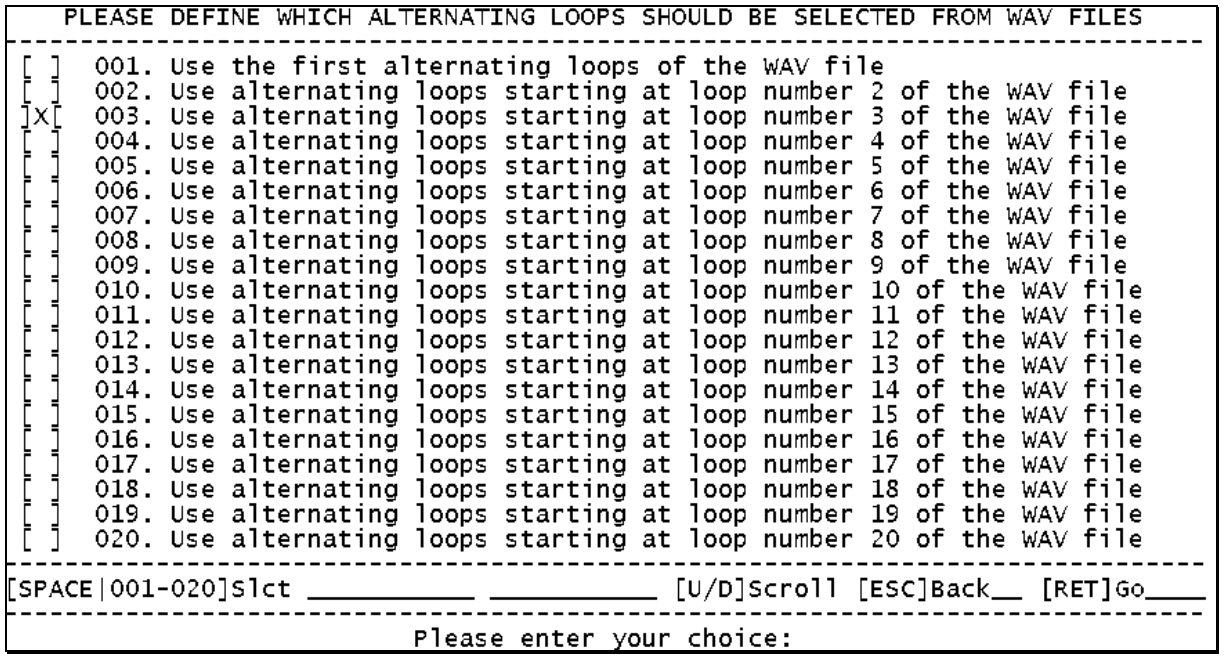
Note as well that the selection should be done for each of the three supported WAV loop types (forward, alternating, backward), even if some of these loop types have not been detected in the selected WAV files - the selected option for these loop types will be ignored of course.

For each loop type, following options are available:

- *Options 1, 5, 9:* convert the loop with the longest duration, e.g. the one which is defined as being indefinite/endless.
  If multiple loops have the same duration, the one with the lowest loop start sample point will be used.
  When converting to Akai S1000 samples, multiple loops will be converted: the one with the longest duration, the one with the second longest duration, and so on (with a maximum of 8 loops).
- *Options 2, 6, 10:* convert the loop with the longest loop length, i.e. the one with the highest number of sample points between the loop start and the loop end.
  If multiple loops have the same length, the one with the lowest loop start sample point will be used.
  When converting to Akai S1000 samples, multiple loops will be converted: the one with the longest length, the one with the second longest length, and so on (with a maximum of 8 loops).
- *Options 4, 8, 12:* convert a specific loop, depending on the loop start sample point. One of the first 240 loops can be selected, as well as the last loop. If you select this option, a second screen will be displayed, in which you can select which loop you would like to be converted. See screens shown below.
  When converting to Akai S1000 samples, up to 8 loops will be converted, starting chronologically with the loop you have selected in this option. E.g. if you select alternating loop 3, and 7 alternating loops are defined in the WAV file, loops 3 → 7 will be converted.
- *Options 3, 7, 11:* this option is automatically selected immediately after you have chosen a specific loop in option 4, 8 or 12. It indicates which loop number you have chosen in option 4, 8 or 12.



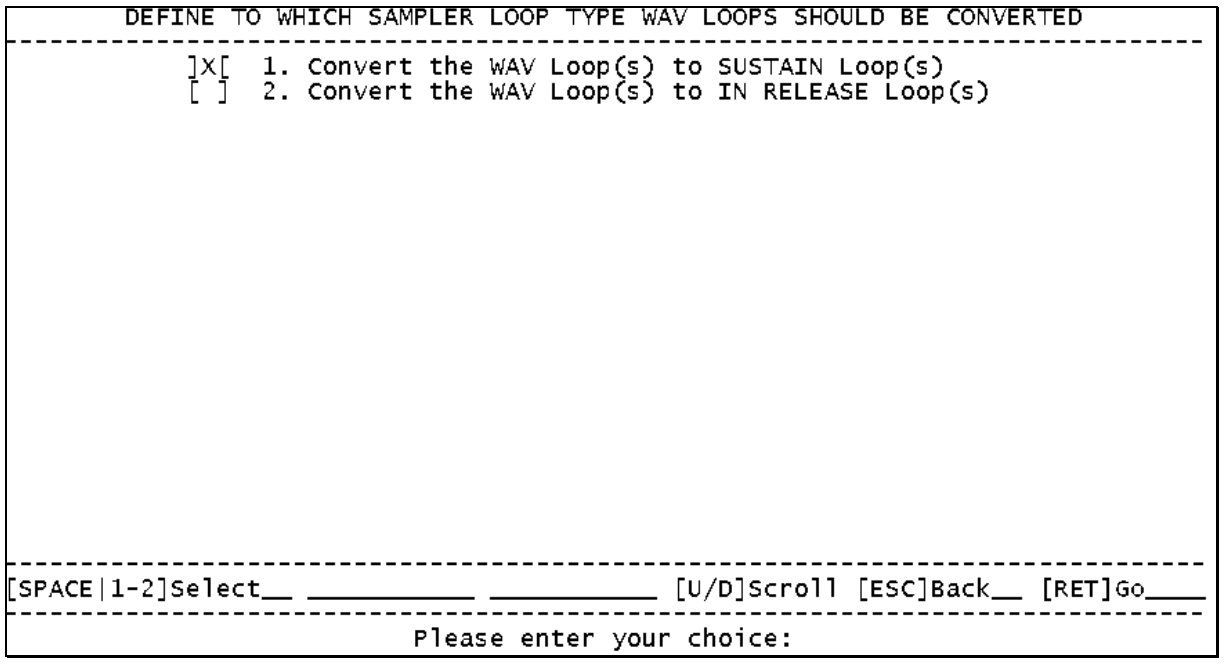
The above screen will be displayed for selecting a specific loop when converting to non-Akai S1000 sampler formats (in this example a specific loop is being selected for the alternating WAV loop type)



The above screen will be displayed for selecting a specific range of loops when converting to the Akai S1000 sampler format (in this example a specific loop range is being selected for the alternating WAV loop type)

Target Sampler Loop Type

If WAV loops should be converted to sample loops (see the **"Loop Conversion"** section before), and if the target sampler supports both *sustain loops* and *in release loops*, you should define to which of these loop types the WAV loops should be converted.
This selection can be done in the screen shown below.



The terms *sustain loop* and *in release loop* are typically used in EMU samplers.
On Akai S1000 samplers, they should be interpreted as follows:

- Sustain means *until release* on Akai S1000 samplers
- In release means *in release* on Akai S1000 samplers

In SoundFont2 files, they should be interpreted as follows:

- Sustain means *sustain* in SoundFont2 files
- In release means *continuous* in SoundFont2 files

7.3.10 Conversion from Emulator-I

No matter to which sampler type you are converting sound banks, if the source items are in Emulator-I format, you will have to decide

- what to do with the volume level of the samples during conversion
- to which part of the target sampler's keyboard the selected Emulator-I sounds or Lower/Upper sound files should be mapped (this is not required when converting full Emulator-I banks, or when converting to SP-12)

Emulator-I samples typically have a high volume (loudness) in order to be played in a comfortable way on the Emulator-I sampler.
When converting these samples to any other sampler format (including WAV), the resulting samples may sound very loud on the target sampler or on the computer.
Therefore EMXP offers the possibility to lower (attenuate) the volume of the samples during conversion.

If you have selected

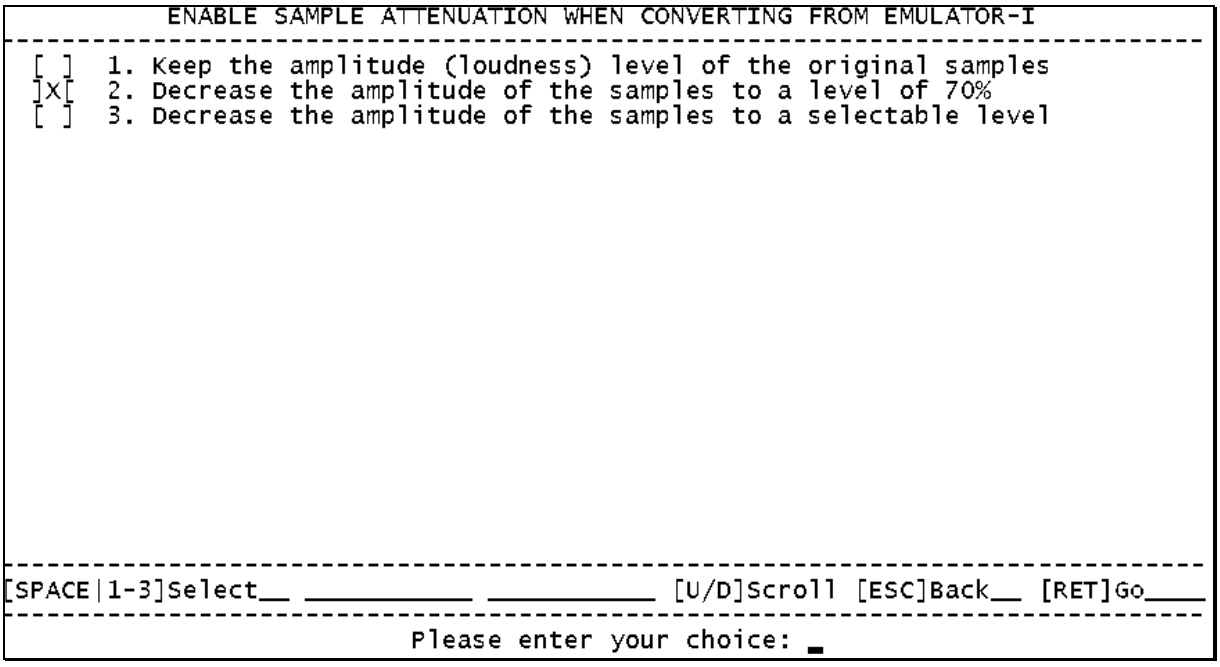
- the MANUAL conversion mode, or
- the SEMI-MANUAL conversion mode and you have chosen to review the copy/conversion settings now (see *section "7.2.3 Batch or manual conversion process"* and *section "6.2.2.3 Custom Automation Level Mode (and SEMI-MANUAL Mode)"*)

EMXP will always ask for the Emulator-I Sound-to-Keyboard settings and the Emulator-I loudness attenuation parameter (in addition to the other sampler conversion parameters related to the target sampler, as explained in the sections before)

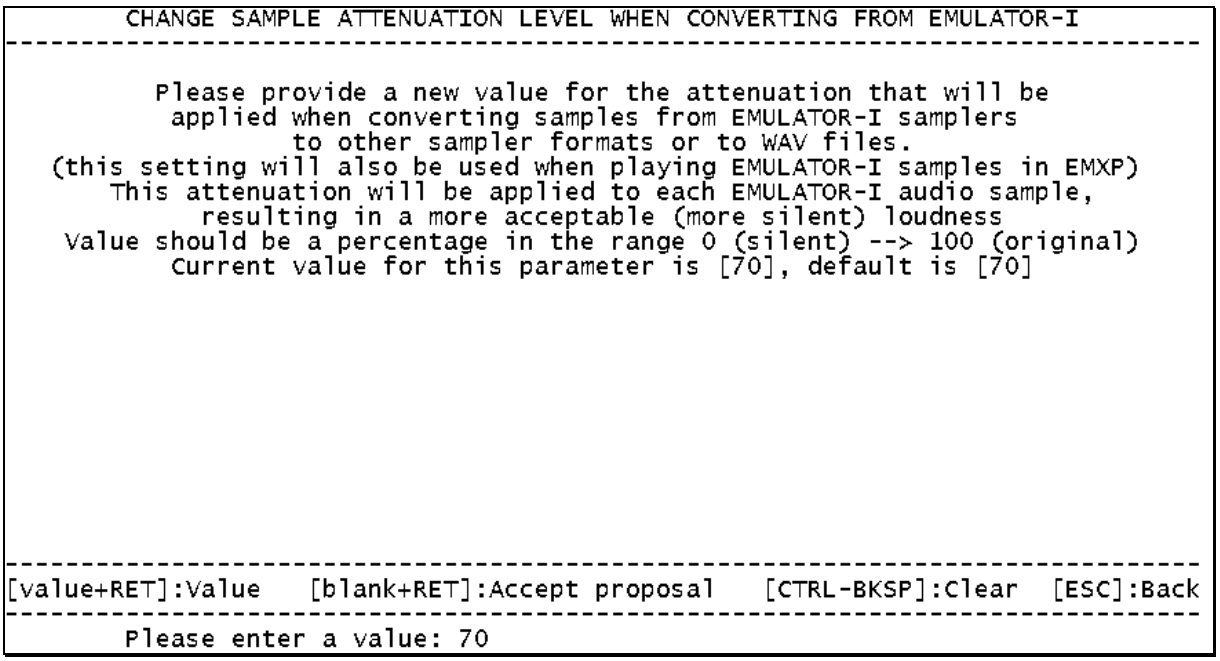
In the other case EMXP will simply use the Preferences settings for this loudness attenuation parameter.

The settings defined for conversions from Emulator-I will also be used when *playing* Emulator-I samples in the EMXP audio payer.

Emulator-I Loudness Attenuation



When selecting option 1 the loudness of the samples will not be changed (possibly resulting in loud target samples).
Option 2 allows to lower the sample amplitude to 70 pct of the original level, while option 3 allows for any other attenuation level which you will have to specify on the next screen (see picture below, which will only appear after selecting option 3).



For more information about Emulator-I sample attenuation, see *section "10.3.3.1 Define sample amplification and attenuation"*.

Emulator-I Sound-to-Keyboard Mapping

When converting individually selected Emulator-I sounds (lower/upper) or Emulator-I Lower/Upper sound files, EMXP needs to know to which keyboard half of the target sampler the sounds should be assigned.
This assignment is not required when converting to the SP-12 format.

The procedure is identical to the one explained in paragraph A of *section"6.2.2.1 BATCH Mode"*.

7.3.11 Conversion from SP-12

Except for conversions to SP-12, no matter to which sampler type you are converting sound banks, if the source items are in SP-12 format, you will have to decide

- how the source SP-12 sounds or samples should map to the target sampler's keyboard
- how to deal with the SP-12 output channel dependent filter settings, and what setting for the SP-12 dynamics parameter should be assumed.

If you have selected

- the MANUAL conversion mode, or
- the SEMI-MANUAL conversion mode and you have chosen to review the copy/conversion settings now (see *section "7.2.3 Batch or manual conversion process"* and *section "6.2.2.3 Custom Automation Level Mode (and SEMI-MANUAL Mode)"*)

EMXP will always ask for the SP-12 Keymap settings and the SP-12 Filter & Dynamics settings (in addition to the other sampler conversion parameters related to the target sampler, as explained in the sections before)

In the other case EMXP will simply use the Preferences settings for this loudness attenuation parameter.

SP-12 Keymap

When converting sound banks from the SP-12 format to any non-SP-12 sampler format, EMXP should know how the different sounds or samples in the SP-12 sound bank should be assigned to keys on the target sampler's keyboard.
Different possibilities are provided, depending on whether the target sound bank is in Emulator-I or in another sampler format. For SP-12 as a target format, see *section"7.3.6 Conversion to SP-12"*.

Let's first explain the key map options for conversions to **non-Emulator-I samplers**.

No matter which key map option is chosen, EMXP needs to know which key on the target keyboard is the *first key* to which sounds or samples should be assigned. By default this start key is set to C1, but you can change this setting in the Copy/Conversion Preferences (see *section "10.3.6.14 Define start key for key mappings from SP-12 to non-Emulator-I"*). In the description below, C1 is assumed to be the start key.

You can choose between assigning either *sounds* or *samples* to the target keys. Options 1 → 7 can be used for mapping sounds to keys, while options 8 → 9 can be used for mapping samples to keys.
Note that only RAM sounds or samples will be converted and assigned to the target keys. ROM sounds/samples are always ignored and skipped during the conversion.

The SP-12 sounds or samples will always be converted to only *one single preset* in the target sampler.

```
     DEFINE HOW SP-12 SAMPLES OR SOUNDS SHOULD BE ASSIGNED TO TARGET KEYS
--------------------------------------------------------------------------------
        ASSIGN RAM SOUNDS ONLY
   [ ]  1. to keys C1->G3 according to SP-12 MIDI specification
   [ ]  2. start with Bass 1 on C1, keep relative sound position
   [ ]  3. start with Bass 1 on C1, use white keys only
   ]X[  4. start with Bass 1 on C1, use white and black keys
   [ ]  5. start with User 1 on C1, keep relative sound position
   [ ]  6. start with User 1 on C1, use white keys only
   [ ]  7. start with User 1 on C1, use white and black keys
        ASSIGN BASIC RAM SAMPLES ONLY
   [ ]  8. start on C1, use white keys only
   [ ]  9. start on C1, use white and black keys




        (Note: the Start Key (C1) can be changed in the Preferences Menu)

--------------------------------------------------------------------------------
[SPACE|1-9]Select__ ___________ ___________ [U/D]Scroll [ESC]Back__ [RET]Go____
--------------------------------------------------------------------------------
                            Please enter your choice:
```

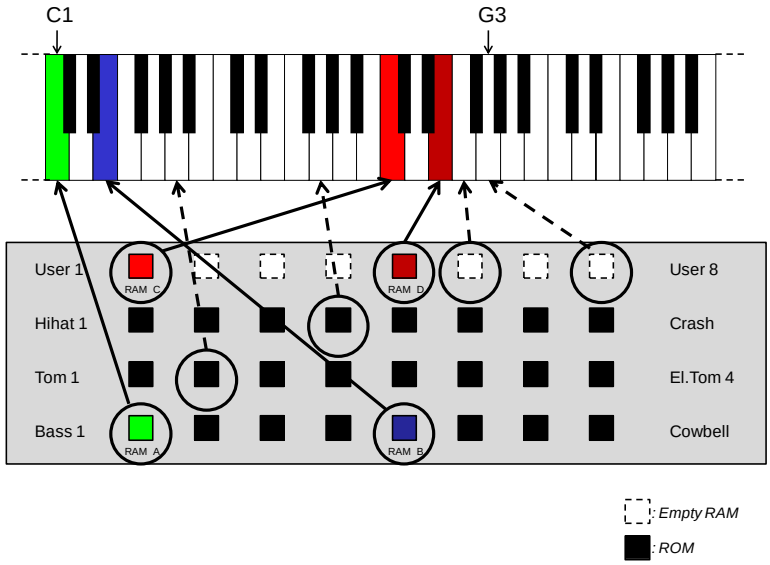
Converting sounds

When selecting option 1, each sound is mapped to a target key as defined by the SP-12 MIDI specification (but taking into account the user-definable *start key*). The sound-to-key mapping table for this option can be found in *section "10.3.6.3 Define key/sample mapping for conversions from other format to SP-12"*.

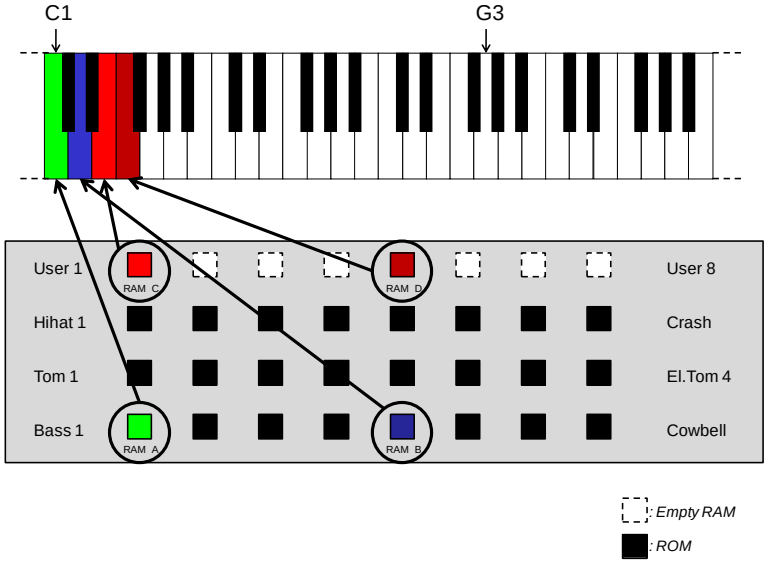
When selecting options 2 → 4, EMXP will assign the SP-12 sounds starting with sound Bass 1, followed by sound Bass 2, and so on.
When selecting options 5 → 7, EMXP will assign the SP-12 sounds starting with sound User 1, followed by sounds User 2 → sound User 8. Then EMXP will continue with assigning sounds starting with Bass 1 and ending with Crash.

No matter if the mapping starts with sound Bass 1 or with sound User 1, there are three mapping modes available:

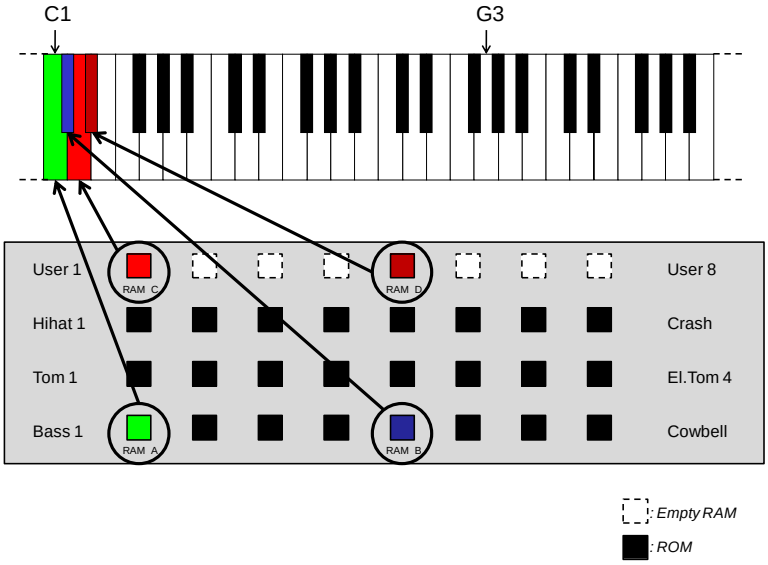
- Options 2 and 5: each of the 32 SP-12 sounds is assigned to a key. If the SP-12 sound contains a RAM sample, the sound parameters and the sample will actually be converted and assigned to that key. If the SP-12 sound is empty or contains a ROM sample, the target key will remain empty, as displayed in the picture below (in which Bass 1 is assumed to be the first sound to be mapped - option 2).



- Options 3 and 6: each successive *white* key gets a RAM sound assigned, until no more RAM sounds can be found. Black keys are not used and remain empty. Except for the white keys in front of the *start key* (here C1) and the remaining white keys at the end of the keyboard, no white keys will be empty. If all 32 SP-12 sounds are non-empty RAM sounds, 32 successive white keys will be assigned a sound. See the picture below (in which Bass 1 is assumed to be the first sound to be mapped - option 3).



- Options 4 and 7: each successive key gets a RAM sound assigned, until no more RAM sounds can be found. Both white and black keys are used. Except for the keys in front of the *start key* (here C1) and the remaining keys at the end of the keyboard, no keys will be empty. If all 32 SP-12 sounds are non-empty RAM sounds, 32 successive keys will be assigned a sound. See the picture below (in which Bass 1 is assumed to be the first sound to be mapped - option 4)



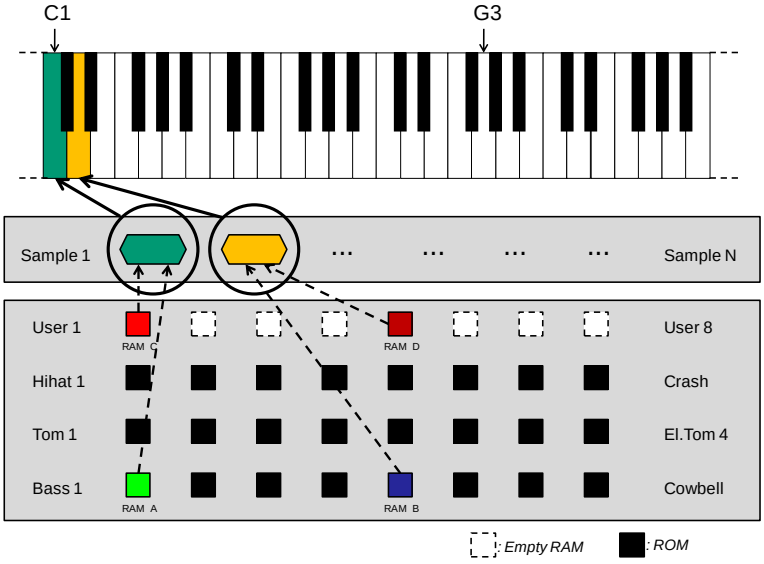
Note that if there are keys that get SP-12 sounds assigned which are out-of-range of the target sampler, the SP-12 sounds assigned to those keys will not be converted. This can typically occur if the *start key* has been set to a high value, e.g. C6.

Converting samples

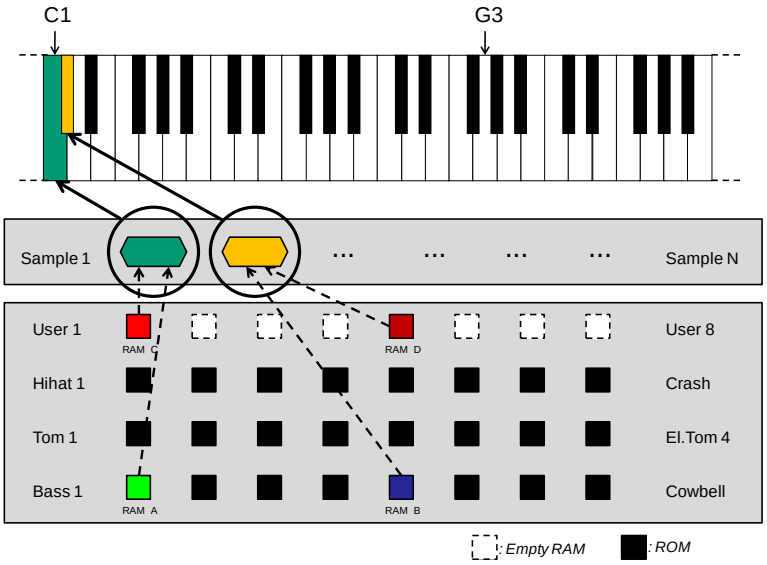
Besides mapping RAM sounds to target keys, it's also possible to map only the basic RAM samples. Multiple SP-12 sounds can share the same basic RAM sample. If that's true in the SP-12 sound bank, the sample will be

converted only once (instead of once per sound). Note however that the *sound parameters* will not be converted, not even the sample loop settings. The target keys will get default voice and sample parameters instead.

- Option 8: each successive *white* key gets a RAM sample assigned, until no more RAM samples can be found. Black keys are not used and remain empty. Except for the white keys in front of the *start key* (here C1) and the remaining white keys at the end of the keyboard, no white keys will be empty. If all 32 SP-12 sounds are non-empty RAM sounds and hold different RAM samples, 32 successive white keys will be assigned a sample. See the picture below.



- Option 9: each successive key gets a RAM sample assigned, until no more RAM samples can be found. Both white and black keys are used. Except for the keys in front of the *start key* (here C1) and the remaining keys at the end of the keyboard, no keys will be empty. If all 32 SP-12 sounds are non-empty RAM sounds and hold different RAM samples, 32 successive keys will be assigned a sample. See the picture below.



A more detailed explanation of all possibilities can be found in *section "10.3.6.12 Define sample/key mapping for conversions from SP-12 to non-Emulator-I"*.

For conversions to the **Emulator-I** sampler format, the possibilities are slightly different. This is due to the fact that the Emulator-I only supports a limited number of fixed key area sizes, resulting in a limited number of available key areas in which all keys share the same sample and the same sound parameters.
As a consequence it's not possible to convert each individual SP-12 RAM sound or RAM sample to an individual Emulator-I key. The SP-12 RAM sounds or samples will rather be assigned to a *key area* consisting of multiple keys at once.

Since the number of SP-12 sounds or samples can be higher than the number of available key areas in the Emulator-I sound bank (max. 12), EMXP is able to convert a single SP-12 sound bank into *multiple Emulator-I sound banks*, each containing a different subset of the SP-12's RAM sounds or samples.

As opposed to conversions to other sampler formats, it's not possible to specify the *start key (or start key area)* when converting to Emulator-I.
But similar to conversions to other sampler formats, it's possible to choose between assigning either *sounds* or *samples* to Emulator-I target key areas as well. Options 1 → 10 can be used for mapping sounds to key areas, while options 11 → 15 can be used for mapping samples to key areas.
Note that only RAM sounds or samples will be converted and assigned to the target key areas. ROM sounds/samples are always ignored and skipped during the conversion.

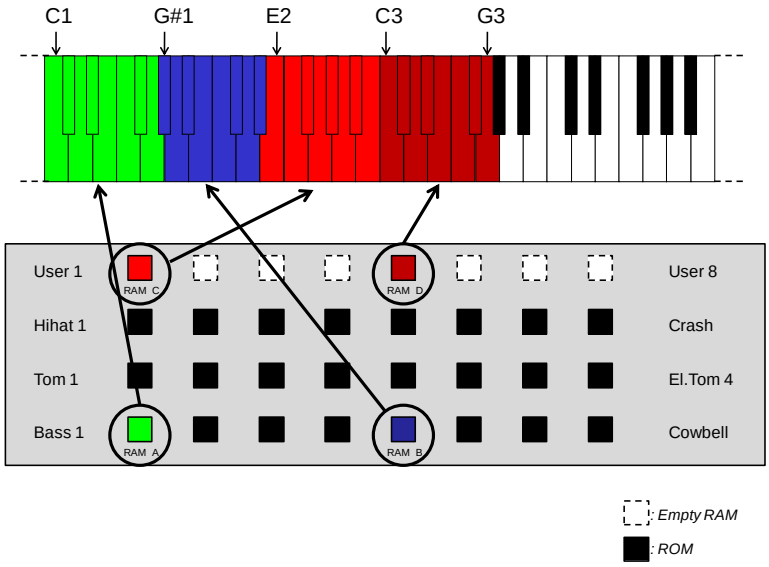
```
     DEFINE HOW SP-12 SAMPLES OR SOUNDS SHOULD BE ASSIGNED TO EMU-I KEYS
-------------------------------------------------------------------------------
          ASSIGN RAM SOUNDS, STARTING WITH SOUND BASS 1
     [ ]  01. to keys C1->C5, maximum  2 SP-12 sounds per EMU-I bank
     [ ]  02. to keys C1->C5, maximum  4 SP-12 sounds per EMU-I bank
     [ ]  03. to keys C1->C5, maximum  6 SP-12 sounds per EMU-I bank
     [ ]  04. to keys C1->C5, maximum  8 SP-12 sounds per EMU-I bank
     ]X[  05. to keys C1->C5, maximum 12 SP-12 sounds per EMU-I bank
          ASSIGN RAM SOUNDS, STARTING WITH SOUND USER 1
     [ ]  06. to keys C1->C5, maximum  2 SP-12 sounds per EMU-I bank
     [ ]  07. to keys C1->C5, maximum  4 SP-12 sounds per EMU-I bank
     [ ]  08. to keys C1->C5, maximum  6 SP-12 sounds per EMU-I bank
     [ ]  09. to keys C1->C5, maximum  8 SP-12 sounds per EMU-I bank
     [ ]  10. to keys C1->C5, maximum 12 SP-12 sounds per EMU-I bank
          ASSIGN BASIC RAM SAMPLES ONLY
     [ ]  11. to keys C1->C5, maximum  2 SP-12 samples per EMU-I bank
     [ ]  12. to keys C1->C5, maximum  4 SP-12 samples per EMU-I bank
     [ ]  13. to keys C1->C5, maximum  6 SP-12 samples per EMU-I bank
     [ ]  14. to keys C1->C5, maximum  8 SP-12 samples per EMU-I bank
     [ ]  15. to keys C1->C5, maximum 12 SP-12 samples per EMU-I bank


-------------------------------------------------------------------------------
[SPACE|01-15]Select _____ _____ [U/D]Scroll [ESC]Back__ [RET]Go____
-------------------------------------------------------------------------------
                          Please enter your choice: _
```

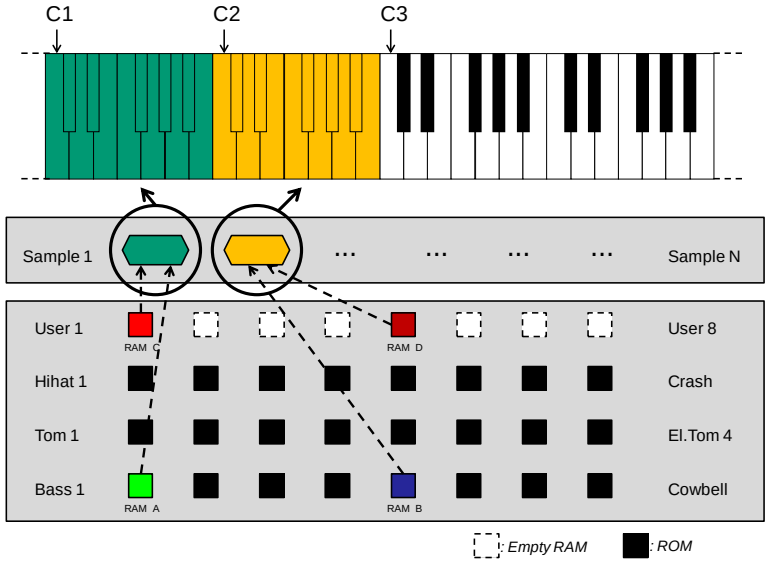
When selecting options 1 → 5, EMXP will assign the SP-12 sounds starting with sound Bass 1, followed by sound Bass 2, and so on.
When selecting options 6 → 10, EMXP will assign the SP-12 sounds starting with sound User 1, followed by sounds User 2 → sound User 8. Then EMXP will continue with assigning sounds starting with Bass 1 and ending with Crash.
When selecting options 11 → 15, EMXP will assign only the SP-12 basic RAM samples (in order of their SP-12 internal sequence number). As explained before, multiple SP-12 sounds can share the same basic RAM sample. If that's true in the SP-12 sound bank, and one of the options 11 → 15 is selected, each sample will be converted only once (instead of once per sound). Note that in this case the *sound parameters* will not be converted, not even the sample loop settings. The target key areas will get default sound and sample parameters instead

No matter if samples are being converted or sounds are being converted (either with the mapping starting with sound Bass 1 or with sound User 1), you have to specify how many key areas should be used on the Emulator-I keyboard.

The following picture illustrates the mapping of *sounds* (starting with Bass 1) to an Emulator-I bank consisting of 6 key areas (option 3).



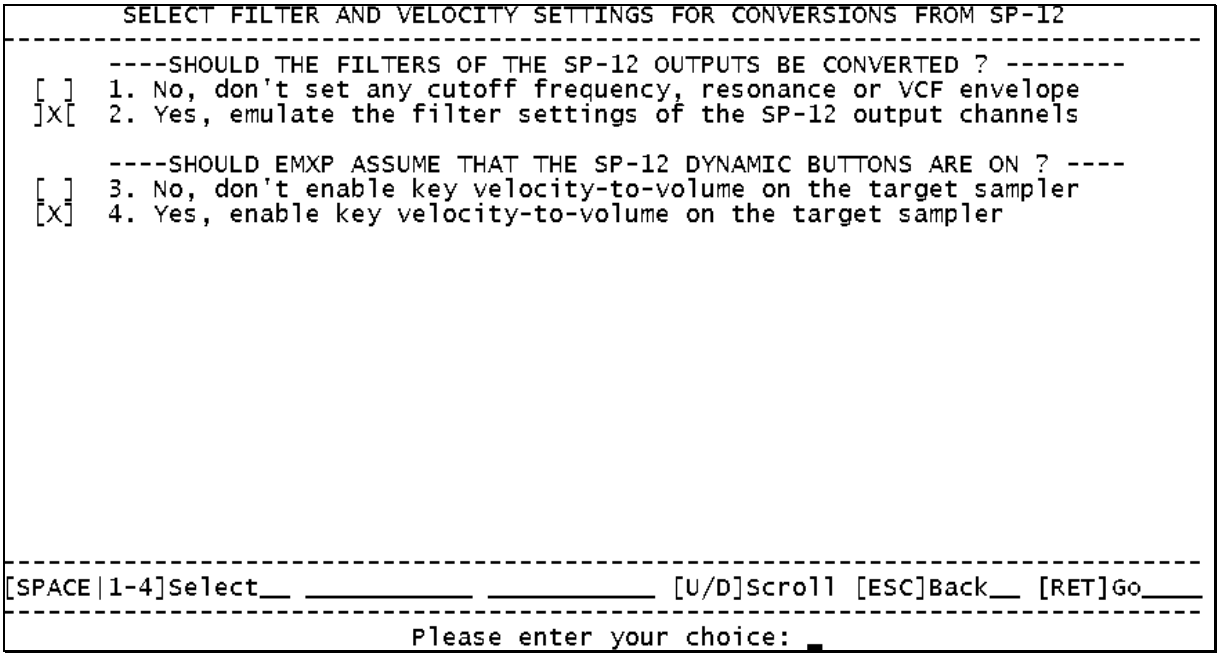
The following picture illustrates the mapping of *samples* to an Emulator-I bank consisting of 4 key areas (option 12).



Be aware that the SP-12 → Emulator-I conversion always assumes that a complete Emulator-I sound bank will be generated, consisting of both a lower and an upper sound. If you have specified to generate Emulator-I lower/upper image files, only the lower or upper part of the converted key areas will be kept in the final stage. This means that possibly not all SP-12 RAM sounds or samples will end up in the Emulator-I lower/upper images files.

A more detailed explanation of all possibilities can be found in *section "10.3.6.13 Define sample/key mapping for conversions from SP-12 to Emulator-I"*.

SP-12 Filter and Dynamics



Filter

The SP-12 has no configurable filter settings, although it contains filter ICs. The settings of these filters can not be changed. Four different filter setups have been pre-configured in the SP-12 hardware, and these are hardwired to the 8 output channels. See *section "7.7.5 SP-12"* for a detailed overview of these four filter setups. Some SP-12 units have been modified (after market) with switches which allow to enable or disable these hard wirings.
A consequence of this design decision by is that there are no filter parameters in the SP-12 sound bank memory. However EMXP can try to convert these hard wired filter settings to target sampler filter parameters by applying the settings belonging to the *output channel* to which each source SP-12 sound is routed.

When selecting option 1, EMXP will set the target voice's filter parameters to the values corresponding with the hard wired filter of the output channel of the converted SP-12 sounds. If SP-12 samples are being converted instead of SP-12 sounds, the settings corresponding to output channels 7 and 8 will always be applied.

When selecting option 2, EMXP will always set the target voice's filter parameters to the default (filter open) settings, which are the same as the settings corresponding to output channels 7 and 8.

Dynamics / Velocity

While the SP-12 has a *dynamics* function to enable or disable the volume velocity of the 8 pads, the value of this setting is not saved in the SP-12 sound bank memory.
As a consequence EMXP does not know whether the SP-12 sounds should be converted into voices with velocity (if applicable on the target sampler) or voices without velocity.

When selecting option 3, velocity will not be enabled for any of the converted sounds.
When selecting option 4, velocity will be enabled for all converted sounds, and will be set to a medium level.

7.3.12 Conversion from SoundFont2

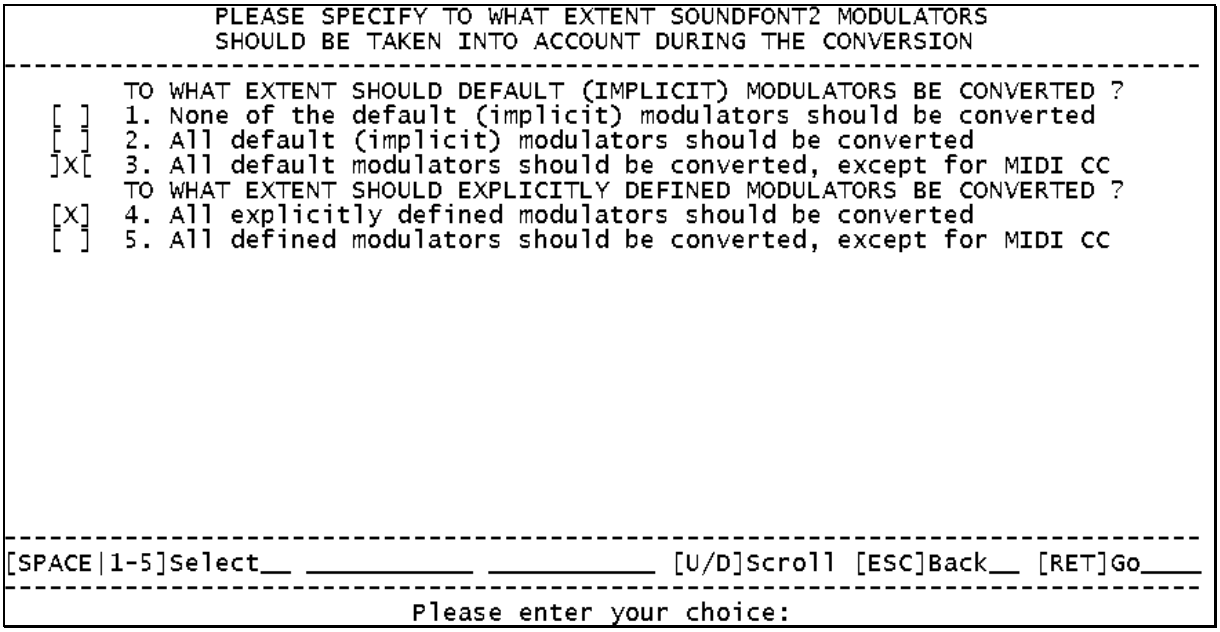
7.3.12.1 Conversion of SoundFont2 Modulators

When converting SoundFont2 sound banks, some of the modulators in the sound banks can result in unexpected target sampler settings. This is especially true for some of the MIDI CC modulators that are automatically defined for each SoundFont2 bank.

One of the most common problems in this area is that voices on the Emulator-II can have a very low volume when the Emulator-II sound bank is the result of a conversion of a SoundFont2 sound bank..

The SF2 specification states that some MIDI CC controller assignments should be considered to be implicitly *enabled*. One of these implicit assignments is that MIDI Controller Command 7 (="Main volume coarse") controls the Initial Attenuation. The same is true for MIDI CC 11.
As a consequence, when EMXP is converting SoundFont2 banks into Emu sampler formats, this results in assigning CC #07 to MIDI B and in assigning real time controller 5 (MIDI B) to destination 3 (Level) for each Emu preset.
Normally this should not cause any problem, because as long as no MIDI CC#07 commands are actually sent to the sampler, these MIDI B-to-Level settings should be ignored by the sampler.
While this statement seems to be true for the EMAX-I, EMAX-II and Emulator-III/X/ESI samplers, it seems not to be true for the Emulator-II. This is probably a bug in the Emulator-II operating system.

To avoid this kind of problems, EMXP offers the possibility to ignore MIDI CC modulators. It's even possible to simply ignore all default modulators during conversions. The following preferences are available:



The preference can be set differently for *default modulators* (the ones that are automatically generated) and for *defined modulators* (the ones that have explicitly been set by the sound designer/user in a SoundFont2 editor).

For default modulators, select

- *option 1* if all default modulators should be ignored during conversions
- *option 2* if all default modulators should be converted
- option 3 if all default modulators should be converted, except for the MIDI CC ones (the ones that typically cause problems, especially when converting to the Emulator-II format). This is the default setting.

For defined modulators, select

- *option 4* if all defined modulators should be converted. This is the default setting.
- *option 5* if all defined modulators should be converted, except for the MIDI CC ones.

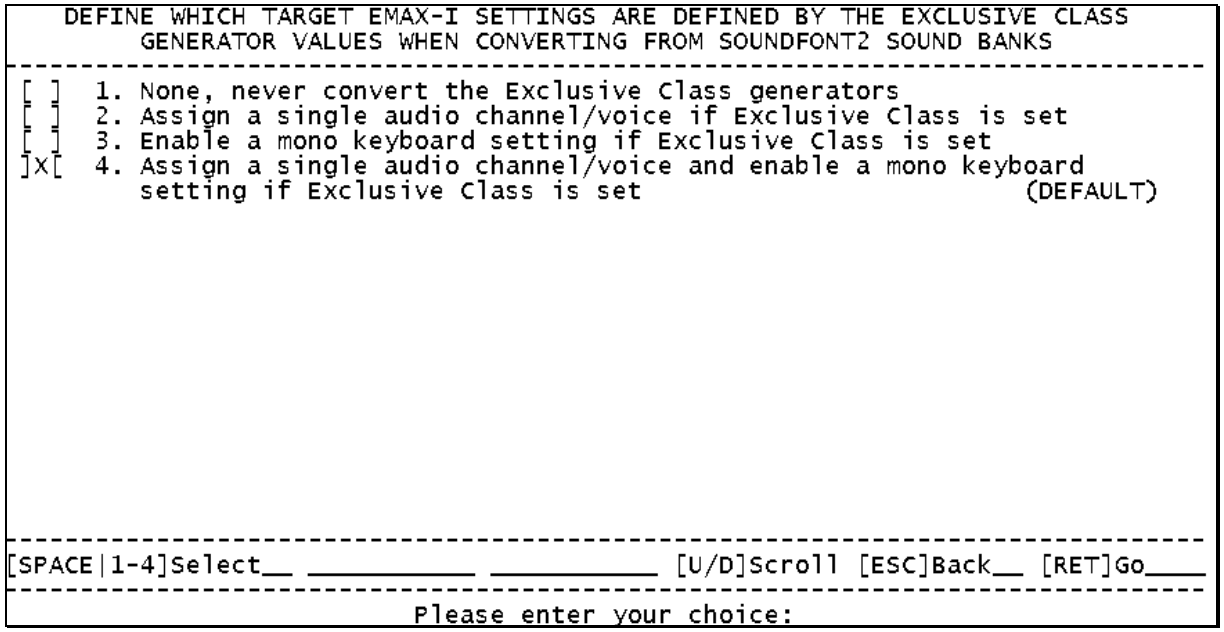
This preference can also be set in the Preferences menu. See *section "10.3.7.2 Define how SoundFont2 modulators should be converted"*.

7.3.12.2 Conversion of SoundFont2 Exclusive Class Generators

As opposed to many Emu sampler formats, the SoundFont2 sampler format does not support the concept of *assigning instrument zones to specific voice channels* within the sampler's polyphony boundaries.

The SoundFont2 sampler format however supports a specific type of generator called Exclusive Class: whenever a key is pressed in an instrument zone which shares the same exclusive class with other instrument zones, the voice channel of the previously pressed key in one of these zones is "stolen". In practice this results in a monophonic behaviour across these instrument zones.

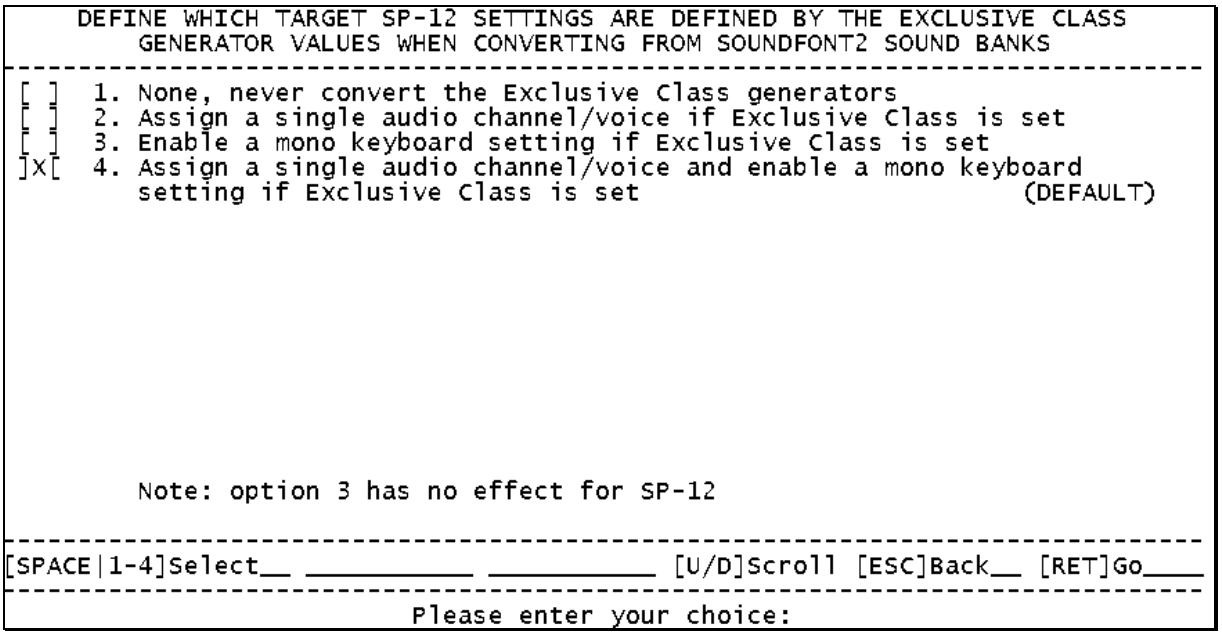
When converting from SoundFont2 sound banks, the extent to which Exclusive Class generators are converted to target sampler parameters can be defined with a conversion preference in the screen below. In this example the target sampler format is EMAX-I, but the screen looks similar for other target sampler types.



The following options are available:

- *Option 1*: exclusive class generators are never converted; the monophonic behaviour of instruments with an exclusive class is ignored, full polyphony is assumed at all times
- *Option 2*: each exclusive class in the source preset results in a single/mono voice channel assignment in the target preset (if supported by the target sampler). An attempt is made to convert different exclusive classes to different voice channels, but this is of course limited by the polyphony of the target sampler. Exclusive classes are never converted into mono (solo) voice parameter settings.
- *Option 3*: instrument zones with an exclusive class generator result in voices with the mono (solo) parameter enabled (if supported by the target sampler). Exclusive classes are never converted into single/mono voice channel assignments
- *Option 4*: this option combines the behaviour of option 2 and option 3. This is the default setting.

While some target sampler formats support both assignable output channels and mono/solo keyboard parameters, there are also sampler formats which only support assignable output channels (but no mono/solo keyboard parameters) or which only support mono/solo keyboard parameters (but no assignable output channels). In this case, the 4 options are still provided, but option 2 or 3 may not have any effect. A warning will be shown at the bottom of the screen, as illustrated for the SP-12 in the screen below.



This preference can also be set in the Preferences menu. See *section "10.3.7.5 Define how SoundFont2 exclusive class generators should be converted"*.

7.3.12.3 Conversion of SoundFont2 Effects Send Generators

By default, the conversion of SoundFont2 effects processor generators (Chorus, Reverb) is done as follows:

- *either by method 1*: if the target sampler supports effects processors as well, the SoundFont2 effects processor settings are simply converted to target sampler effects processor settings. In practice this only applies to ESI-v3 as a target sampler format.
- *or by method 2*: if the target sampler does not support effects processors, the SoundFont2 chorus effects processor settings can be converted to voice-level chorus parameters if the target sampler supports the chorus parameter on voice-level. Method 2 is not possible for SoundFont2 reverb effects, since none of the Emu samplers supported by EMXP have a voice level parameter for reverb.

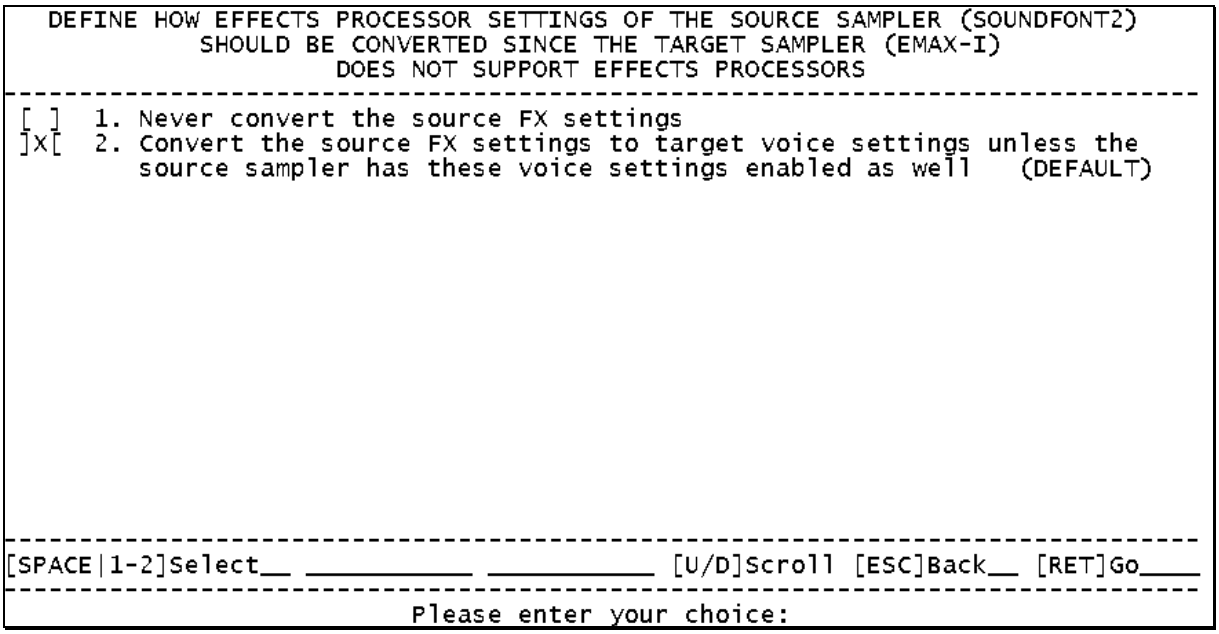
Method 1 however only applies if *the source effects settings are similar for all instruments in the same SoundFont2 preset*. If *different* Chorus effects settings have been defined in the instruments of the same SoundFont2 preset, a conversion to target effects processor settings is not possible.
EMXP considers the Chorus settings to be *different* if

- some instruments have the Chorus processor enabled while other instruments of the same preset have the Chorus processor diabled, or
- the deviation between the Chorus amounts of the different instruments within the same preset is higher than 20%

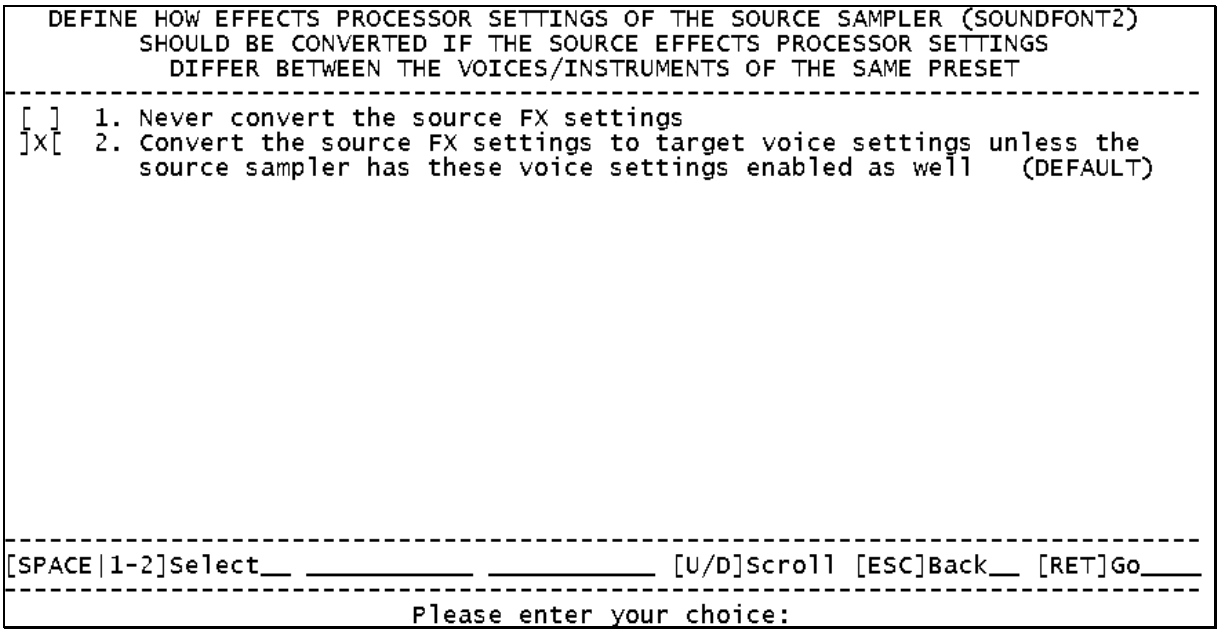
In this case it's still possible to apply **method 2** and convert the chorus effects processor settings to *voice-level chorus parameters*.

To enable or disable method 2, EMXP will show a preference screen when converting SoundFont2 sound banks to a sampler format which supports "effects emulation" by means of voice level parameters (no matter if the target sampler also supports true FX processors, like the ESI sampler range). In practice this means that this screen will appear for all target samplers except for the Emulator-I, Emulator-II and SP-12.

If the target sampler format does not support FX processors (like the EMAX-I), the screen will look like this:



If the target sampler format supports both FX processors and "effects emulation" voice level parameters (currently only ESI-v3), the screen will look like this.



In both variants, the same two options are available. These options enable or disable **method 2** which has been described at the beginning of this section.

- Choose *option 1* to disable the FX-to-voice emulation conversion mode.
- Choose *option 2* to enable the FX-to-voice emulation conversion mode. This is the default setting.

Note that this preference is shared for all sampler formats. E.g. if option 1 is selected when converting SoundFont2 sound banks, option 1 also becomes applicable when converting ESI-v3 sound banks. See also *section "10.3.8.1 Define how to convert from source sampler FX processor settings"*.

7.3.13 Conversion from ESI-v3

7.3.13.1 Source ESI sampler model type

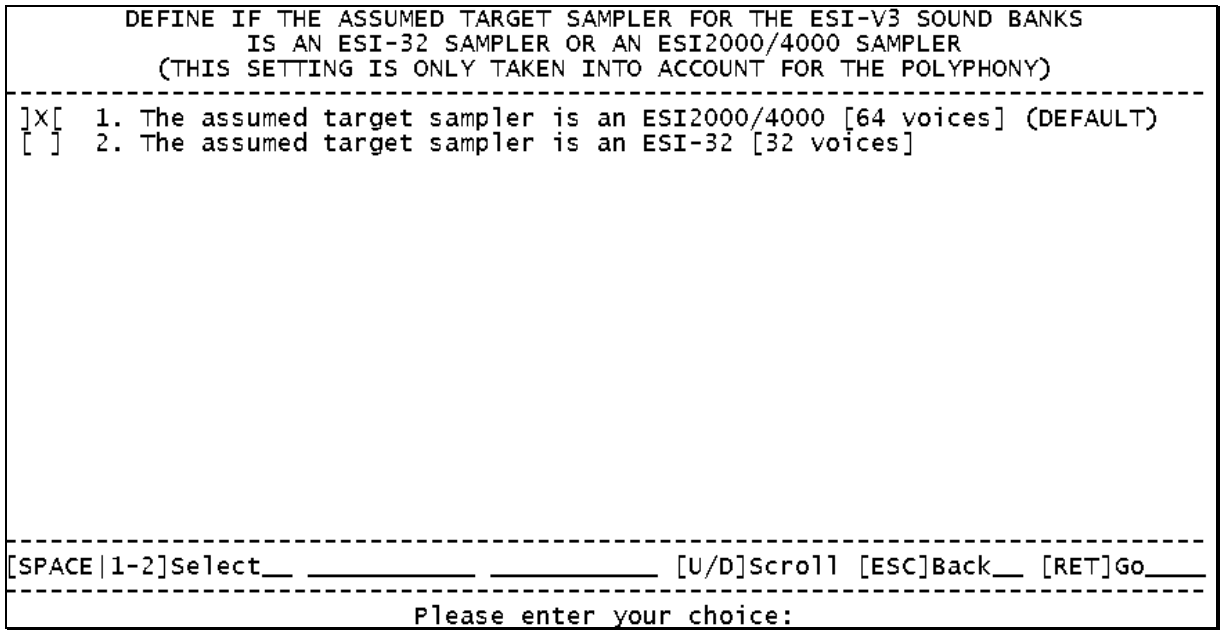
When converting from the ESI-v3 sampler format, EMXP needs to know the available polyphony of the ESI sampler if the ESI-v3 sound bank contains voices which have been assigned to specific output channel ranges. For more information about how EMXP deals with polyphony and with output channels, see *section "10.3.8.3 Define how to convert polyphony/voice channel assignments"*.

The ESI-v3 sampler format is supported by all ESI samplers running the v3.x operating system, but the polyphony of the sampler depends on the ESI model:

- ESI-32 samplers have 32 (mono) polyphonic voices available
- ESI-2000 and ESI-4000 samplers have 64 (mono) polyphonic voices available

Of course any ESI-v3 sound bank can be used on both ESI-32 samplers and ESI-2000/ESI-4000 samplers. But when converting ESI-v3 channel group assignments to target sampler channel assignments, the results can be different depending on the selected source ESI sampler model. E.g. when converting an ESI-v3 POLY8 channel group assignment to the Emulator-IIIX sampler format (with 32 voices of polyphony), the resulting Emulator-IIIX channel range can either consist of 8 output channels (if the source ESI sampler is an ESI-32 sampler) or 4 output channels (if the source ESI sampler is an ESI-2000/ESI-4000 sampler). In this example we assume that the output channel conversion preference is set option 1 "upscale/downscale" (see *section "10.3.8.3 Define how to convert polyphony/voice channel assignments").*

The default ESI model (and hence polyphony) which will be assumed by EMXP when creating ESI-v3 sound banks can be defined in the preference screen below:



Two options are provided:

- *Option 1*: the generated ESI-v3 sound banks are intended to be used on ESI-2000/ESI-4000 samplers. 64 voices of polyphony will be assumed. This is the default option.
- *Option 2*: the generated ESI-V3 sound banks are intended to be used on ESI-32 samplers. 32 voices of polyphony will be assumed.

This preference can also be set in the Preferences menu. See *section "10.3.5.7 Define conversion settings for conversions from ESI-v3"*.

7.3.13.2 Conversion of ESI-v3 effects processor settings

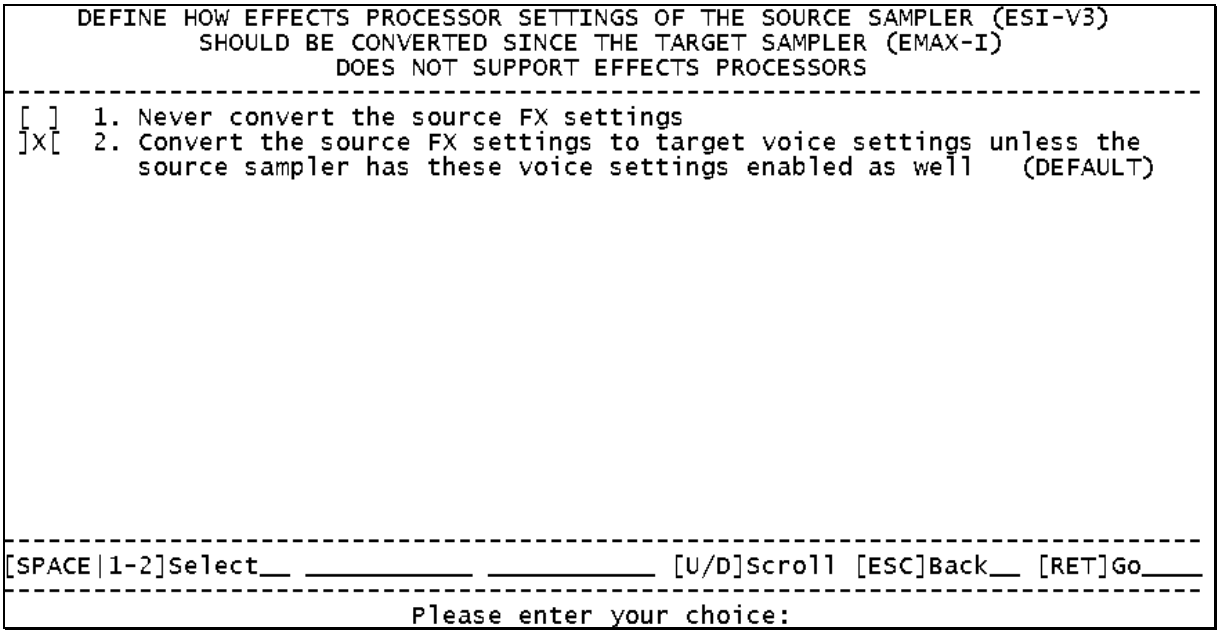
When converting ESI-v3 sound banks, EMXP needs to know how to convert ESI-v3 effects processor settings if the target sampler format does not support FX processors.

By default, the conversion of ESI-v3 effects processor generators is done as follows:

- *either by method 1*: if the target sampler supports effects processors as well, the ESI-v3 effects processor settings are simply converted to target sampler effects processor settings. In practice this only applies to ESI-v3 and SoundFont2 as target sampler formats (and for SoundFont2, it's only applicable for Chorus and Reverb effects)
- *or by method 2*: if the target sampler does not support effects processors, the ESI-v3 effects processor settings can be converted to voice-level parameters if the target sampler supports a parameter to "emulate" the effect on voice-level. In practice, the only effects for which some Emu samplers have a voice-level parameter are chorus and LFO-to-panning.

To enable or disable method 2, EMXP will show a preference screen when converting ESI-v3 sound banks to a sampler format which does not support effects processors, but which does support "effects emulation" by means of voice level parameters. In practice this means that this screen will appear for all target sampler formats except for the Emulator-I, Emulator-II, ESI-v3, SP-12 and SoundFont2.

The preference can be set in the following screen (in this example, EMAX-I is the target sampler format):



Two options are available. These options enable or disable **method 2** which has been described at the beginning of this section.

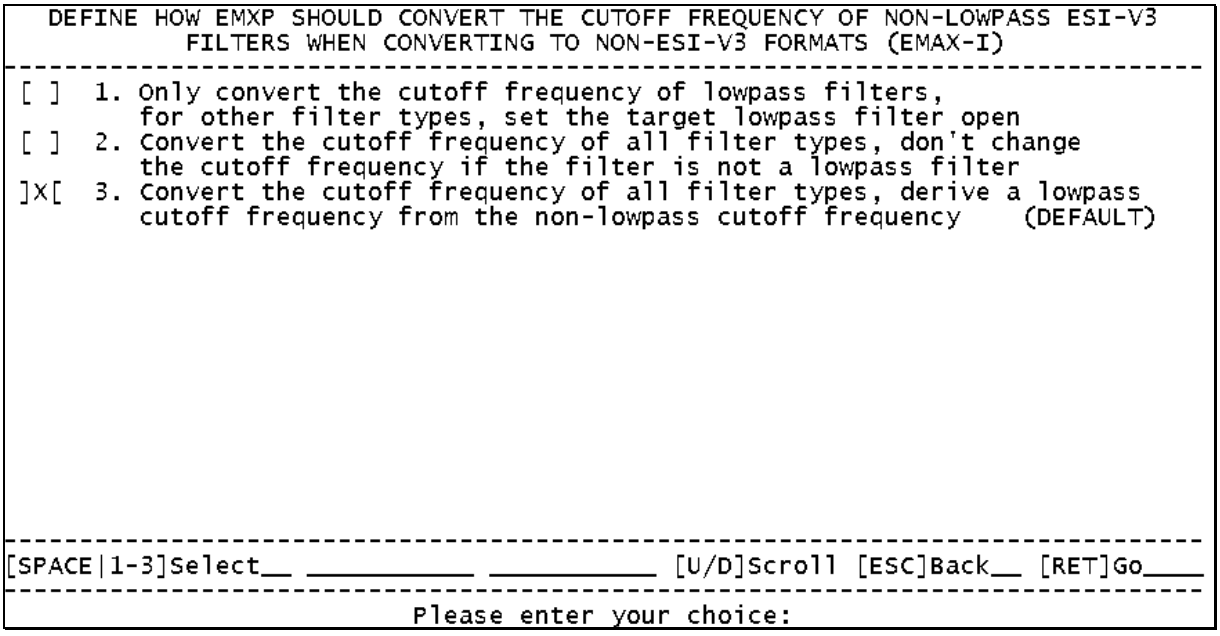
- Choose *option 1* to disable the FX-to-voice emulation conversion mode.
- Choose *option 2* to enable the FX-to-voice emulation conversion mode. This is the default setting.

Note that this preference is shared for all sampler formats. E.g. if option 1 is selected when converting ESI-v3 sound banks, option 1 also becomes applicable when converting SoundFont2 sound banks. See also *section "10.3.8.1 Define how to convert from source sampler FX processor settings"*.

7.3.13.3 Conversion of ESI-v3 non-low pass filters

The ESI-v3 sampler format supports multiple filter types for sound banks used in ESI-2000 and ESI-4000 samplers. Some of those filters are low-pass filters, but the ESI format also supports band-pass and high-pass filters, as well as some special filters. The other sampler formats supported by EMXP only support low-pass filters.

While it's not possible to convert non-low-pass filters to low-pass filters, EMXP offers a conversion preference which tries to limit the impact of this difference in filter types.
This parameter is only applicable for the *cutoff frequency* of the filter. All other filter related parameters (envelope, resonance, modulation, ...) will be converted independent of the filter type being used and independent of this preference setting.



The above example shows the preference screen when EMAX-I has been selected as target sampler format, but the screen looks similar for any other target sampler type.
Three possible options are available:

- *option 1*: if the source ESI filter is not a low-pass filter, the cutoff frequency of the target low-pass filter will be set to the maximum value ("open")
- *option 2*: EMXP ignores whether the source ESI filter is a low-pass filter or not; the cutoff frequency will be converted (retained) as if both the source filter and the target filter are low-pass filters
- *option 3*: if the source ESI filter is not a low-pass filter, EMXP will apply another conversion algorithm than in option 2. This algorithm will try to set the cut-off frequency in such way that the audible impact is smaller than in option 1 or option 2. This is the *default setting*.

This preference can also be set in the Preferences menu. See *section "10.3.5.7 Define conversion settings for conversions from ESI-v3"*.

7.3.14 Validation check when converting WAV files

If you have selected a set of WAV files for conversion to any sampler format, EMXP will check if the resulting sound bank will be compatible with the selected target sampler type and file. If not, an error will be shown and the conversion will not be done.

Here's the list of validations that EMXP will perform. Not all tests listed below are applicable for conversions from WAV files, but they are mentioned anyway because the same tests are performed when generating sound banks from EMXP CONSTRUCTION files (see chapter *"8. USING EMXP: CONSTRUCTIONS"*).

- Maximum number of presets (validation error 50000, 50007)
- Maximum number of voices (validation error 50001)
- Maximum number of samples (validation error 50002)
- Maximum number of sequences (validation error 50003 - however this test is never done in reality since no sequences can currently be generated from WAV file conversions)
- Maximum total sample size per sound bank (validation error 50004)
- Maximum total sequence size per sound bank (validation error 50005 - however this test is never done in reality since no sequences can currently be generated from WAV file conversions)
- Maximum number of key areas per preset, maximum number of samples/voices per key area, maximum range of a key area (validation error 50006)
- Maximum number of keyboard layers (validation error 50008)
- Compatibility of the original key (note/pitch) per key area (validation error 50009)
- Maximum range of tuning per voice (validation error 50010)
- Compatibility between tuning setting and original key (note/pitch) (validation error 50011)
- Maximum sample size per preset (validation error 50012)
- Maximum size of all preset/voice/sample parameters (validation error 50013)
- Compatibility between STEREO VOICE setting and sample characteristics per layer or number of layers present (validation error 50014)
- Maximum sample size per sample (validation error 50015)
- Unavailable WAV files, e.g. because they were removed in the period between selecting them and generating the sound bank (validation error 50016)
- Maximum total sample size per sound bank (validation error 50017)

7.4 EXECUTING THE CONVERSION

If you have chosen to enter the target file name or select the bank position on the target hard disk or target hard disk image file yourself in MANUAL or SEMI-MANUAL mode, EMXP will ask you to do this now before starting the conversion of the sound bank. This step has to be repeated for the conversion of each selected sound bank.

If you selected the BATCH mode or if you have chosen to let EMXP automatically select the target file/bank position, you won't have to do anything - EMXP will make sure that new target files will be created or that empty bank locations on the target hard disk or target hard disk image file will be used. All selected source sound banks will be converted now in one run. This can take a while, depending on the number of selected source sound banks.

If samples or banks are being converted from EMAX-II EMX files, EMAX-II floppy disks, EMAX-II floppy disk image files or EMAX-II HxC floppy disk image files, the samples or banks may be spread across multiple files or disks. If this is true, EMXP will ask for the other files or disks during the actual conversion execution process.

If you are converting to floppy disk(s), EMXP will ask to insert floppy disks until the conversion is completed.

7.5 AVAILABLE SPACE REQUIRED ON THE TARGET FOLDER OR DISK

It's important to note that EMXP does ***not*** calculate ***upfront*** the total available space which is required on the target folder or disk in order to convert all selected items.
EMXP will convert one item after another and it will check the available space just before converting every next item. If no sufficient available space is available, an error will be raised. Depending on the selected mode, these errors will be reported to the user after *each* failed conversion as well as in the overall report displayed after all items have been processed (when in MANUAL or SEMI-MANUAL mode), or only in the overall report displayed after all items have been processed (when in BATCH mode).

7.6 CONVERSION PROCESS EXECUTION REPORT

After EMXP has converted - or attempted to convert - all selected items, a *conversion process execution report* will be displayed. This report explains which source items have been converted to which target items, as well as any problem that may have occurred during the conversion process.

Moreover, the report contains a *conversion subreport* for each converted item, which explains in detail which presets and samples have been converted and which haven't been converted, as well as whether EMXP encountered conversion incompatibilities that may cause the resulting presets to sound different than the source presets.
These conversion subreports *are not available for:*

- conversions between EMAX-I and EMAX-II that have been done with the *"native conversion engine"*
- conversions to Akai S1000

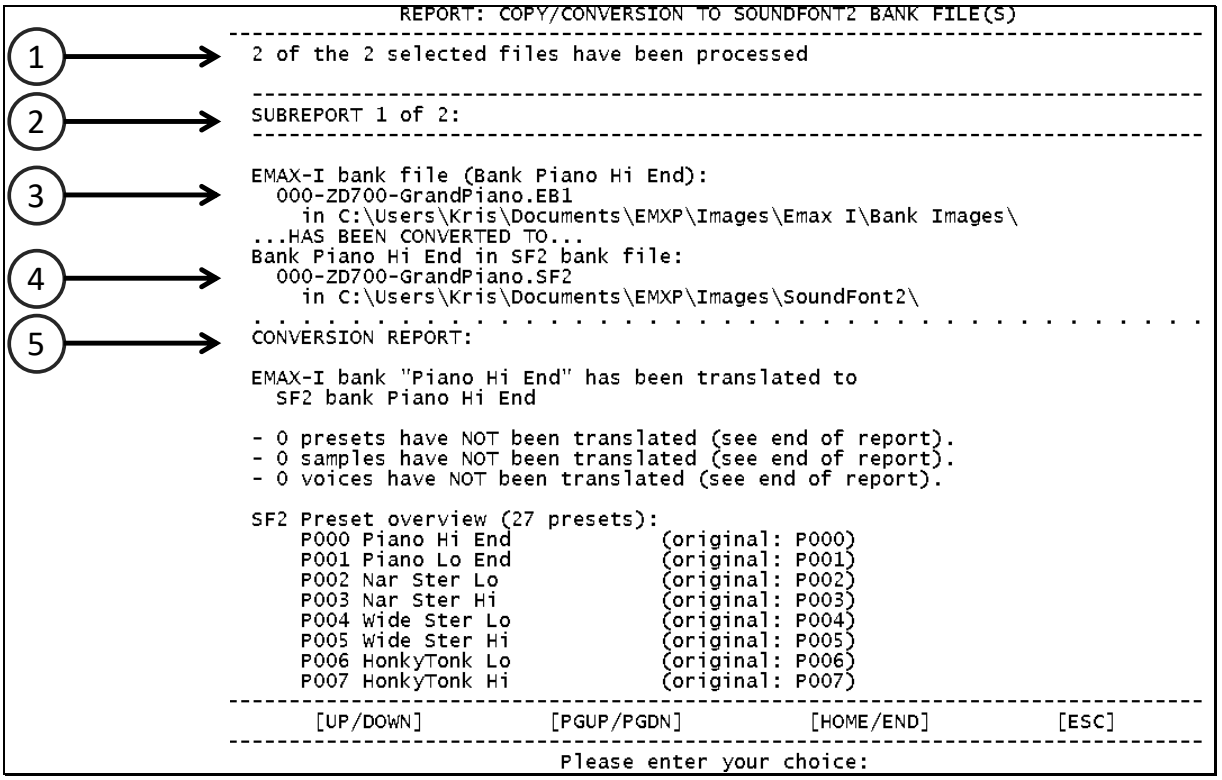
Each displayed report and subreport has also been saved to disk unless you have explicitly instructed EMXP not to do so in the Report and Log Preferences. *See section "10.8.1 Define how copy/conversion/unload results will be written to reports"*.

7.6.1 Examples

Let's have a look at some typical examples of conversion execution reports now.

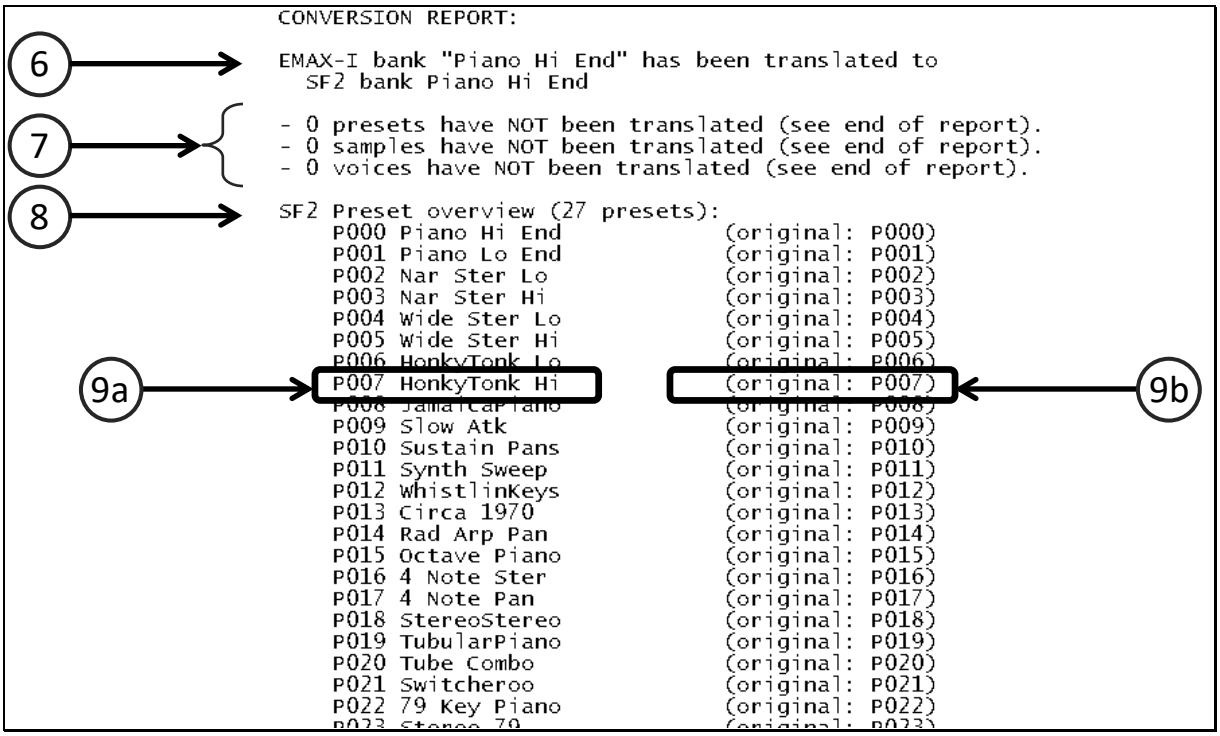
Example 1

The *first example* is a successful conversion from two EMAX-I bank files into two SoundFont2 files. When the conversion is finished, the screen looks like this:

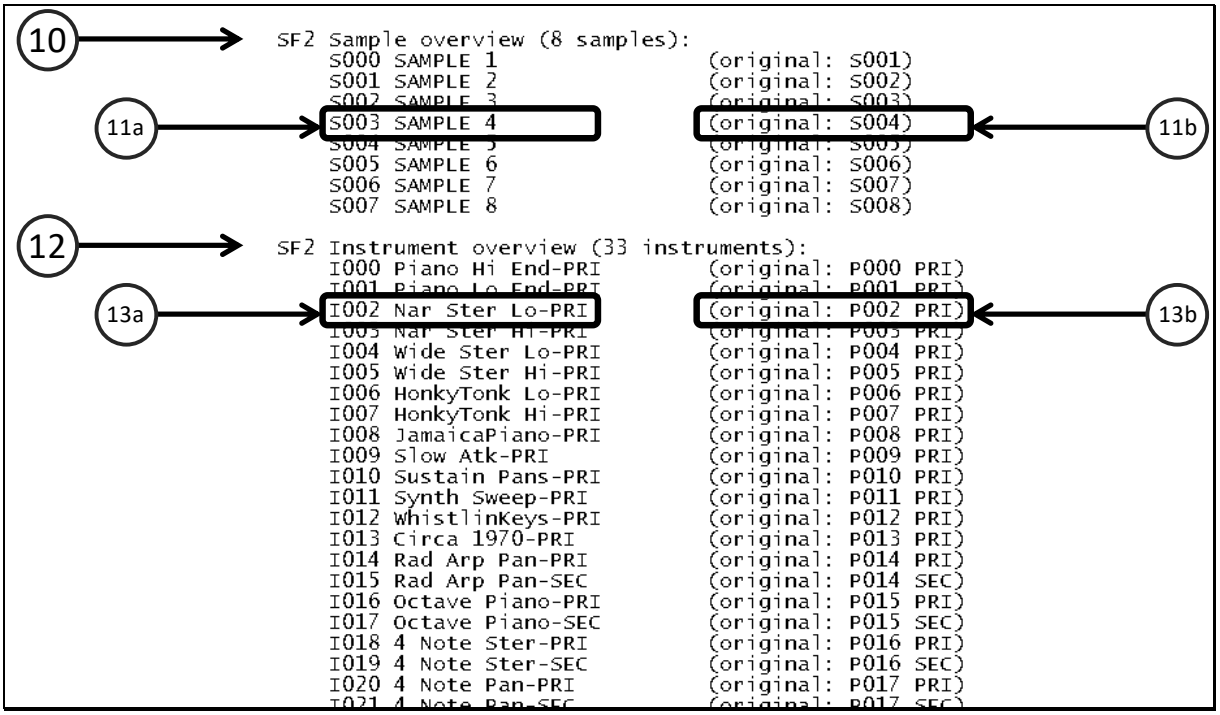


The report is much longer than the size of one screen (even if you change the EMXP screen size in the Preferences, as has been done here from the default 25 lines to a larger size of 38 lines).

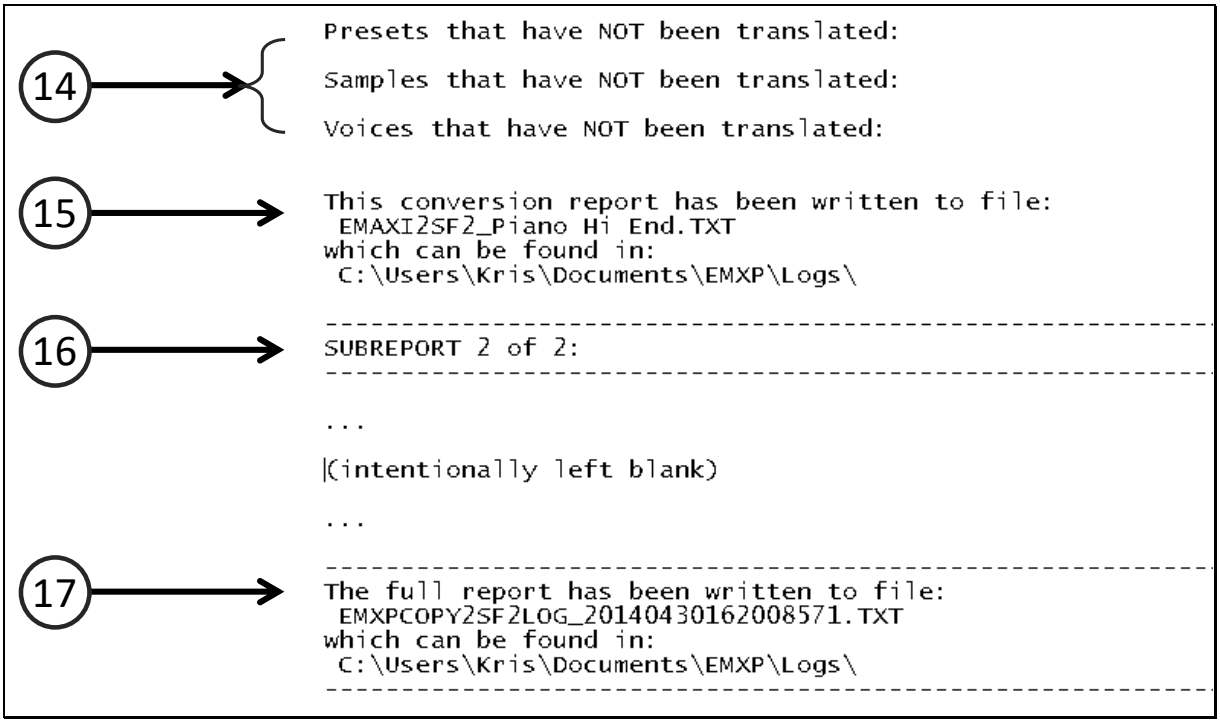
- The first line summarizes how many items have been converted. See (1).
- For each conversion, a separate *subreport* has been generated. See (2) which indicates the start of the conversion report of the first EMAX-I bank into a SoundFont2 file.
- The first part of each subreport explains which *source files or banks* have been converted in which *target files or banks*. If a sampler floppy disk or hard disk is involved, the disk drive will be mentioned (not shown here). If the source or target items are files instead of banks on a sampler hard/floppy disk, the folder in which these files can be found is shown. See (3) and (4).
- The second part of each subreport consists of conversion details. See (5). In this part, EMXP explains which presets, samples and voices *have been converted* and which ones *have not been converted.* Since the full report does not fit in one EMXP screen, we will show and explain some other fragments of the same first subreport below.



- At the beginning of the conversion details section of each subreport, you can see which source *sound bank* (as opposed to source file/disk) has been converted into which *target bank* (as opposed to target file/disk). See (6).
- The next section contains a summary of how many presets, samples and voices have *not* been converted. See (7). In this example all presets, samples and voices have been converted.
- The report shows an overview now of all presets and samples that have been converted. First the preset overview is shown. See (8). In this overview, both the original preset number (in the original source bank, see (9b)) and the target preset number and name (see (9a)) are listed. If the conversion of a preset would have resulted in any incompatibility or problem, this would be shown in this overview as well. See the next example for more information.



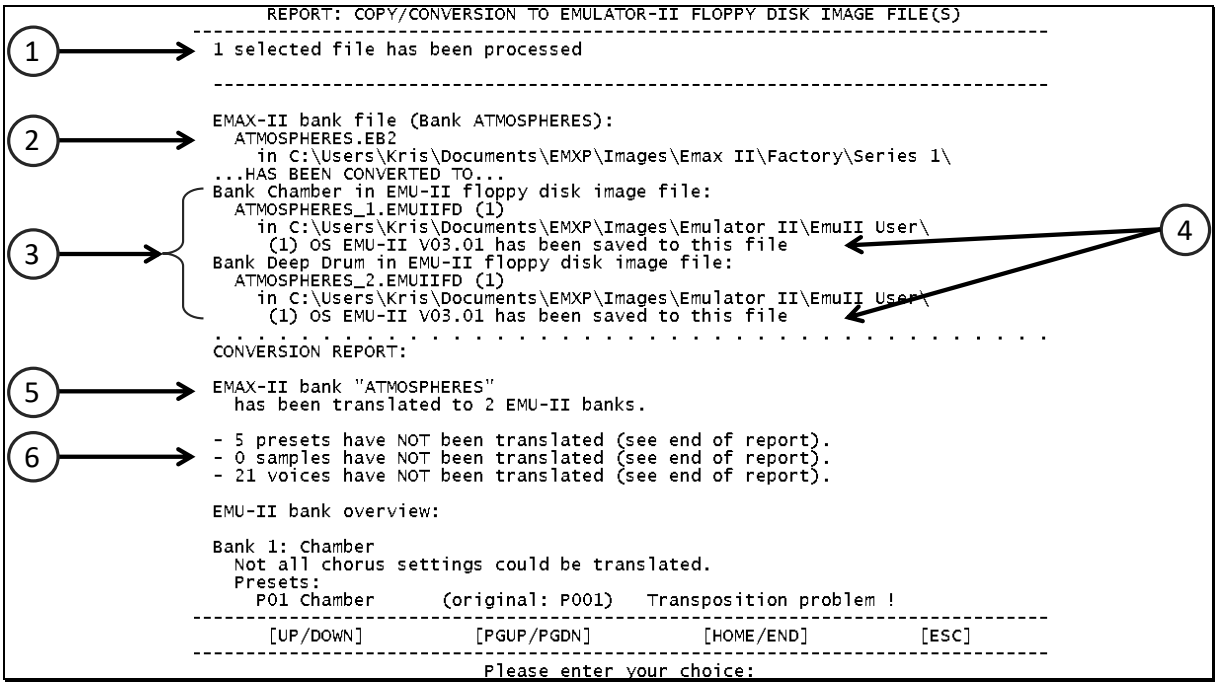
- The next overview contains the samples that have been converted. See (10). Again, both the original source sample number (see (11a)) and the target sample number and name - if applicable - (see (11b)) are shown.
- When converting to the SoundFont2 format, an additional overview of the *SF2 Instruments* that have been generated is included as well. See (12). Instruments can have been derived from the primary voices or from the secondary voices of the original source presets. The overview shows which instrument (see (13a)) has been derived from which source preset voice layer (see (13b)).



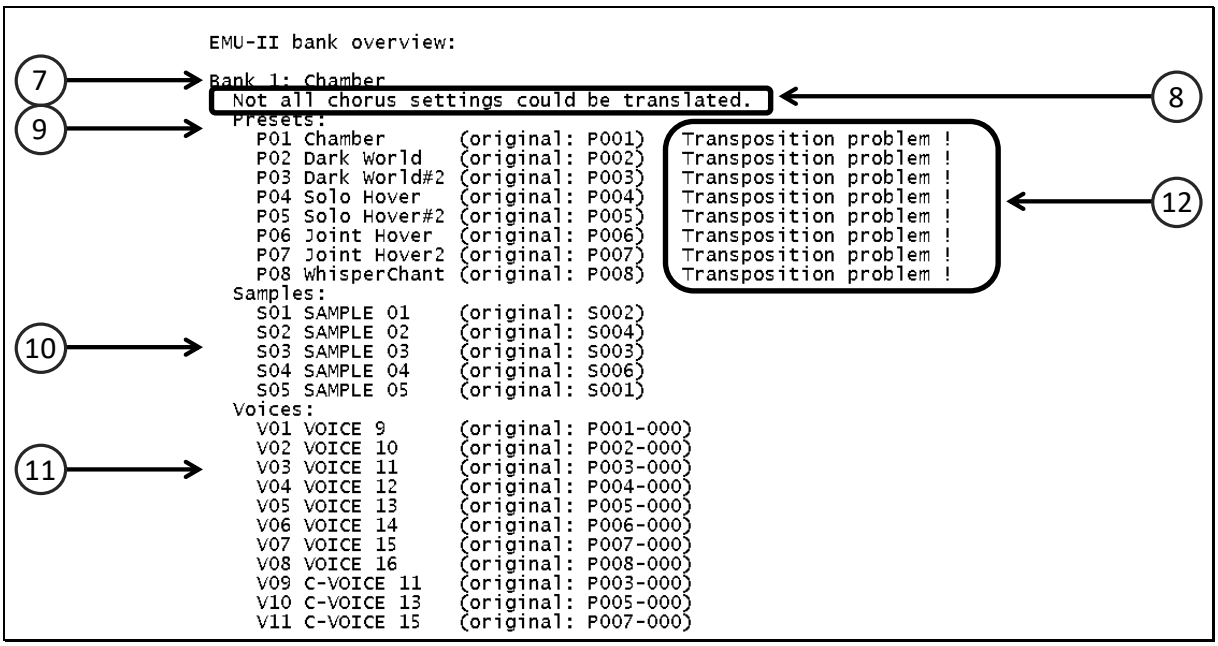
- Finally there's also an overview of all presets, samples and voices that have *not* been converted, including the reason why the conversion was not done. Since all presets, samples and voices have been converted in this example, this section of the subreport is empty. See (14).
- Each subreport has been saved to disk, unless you explicitly requested EMXP not to do so (in the Log and Reporting Preferences, see *section "10.8.1 Define how copy/conversion/unload results will be written to reports"*). The file and folder in which the subreport has been saved can be found at the end of the subreport. See (15).
- The main report now contains the remaining conversion subreports. Their structure is identical to the one we just explained. See (16). The second subreport has been removed from the picture above.
- At the end of the main report - after all subreports - you can find to which file and folder the full report has been saved (see (17)), unless you explicitly requested EMXP not to save these reports to disk. See *section "10.8.1 Define how copy/conversion/unload results will be written to reports"*.

Example 2

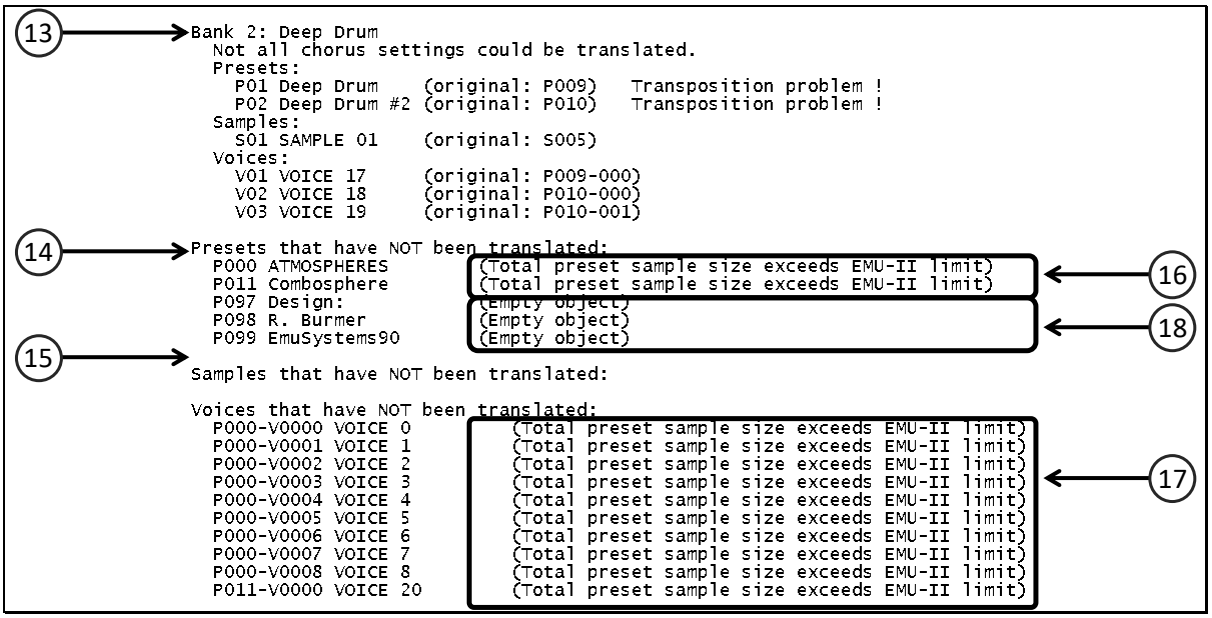
In our *second example* we show a report of a conversion of an EMAX-II bank into two Emulator-II floppy disk image files, in which we also saved an Emulator-II operating system (version 3.1). This conversion resulted in quite some issues and problems, as illustrated below.



- The first line summarizes how many source items were converted. See (1). In this example, only one EMAX-II bank file was selected for conversion. As a result, only one conversion subreport is included in the report and since there's only one subreport, the "Subreport X/Y" title has been omitted.
- The first part of the conversion subreport explains which source file or bank in which folder or on which disk (see (2)) has been converted into which target file(s) or bank(s), again including their folder or disk. See (3). The EMAX-II factory bank "Atmospheres" in bank file "Atmospheres.EB2" does not fit into one Emulator-II bank, so EMXP created two Emulator-II banks and saved these in two Emulator-II floppy disk image files. Both have a file name starting with a user provided (or automatically generated) prefix (here: ATMOSPHERES) and a numeric suffix to make them unique (here: _1, _2). Since we also selected an operating system to be saved in the generated floppy disk image files, the report is mentioning which operating system has been added. See (4).
- The second part of the conversion report contains the conversion details *per sound bank* that has been created. First a summary is shown (see (5)), stating that 2 target banks have been created from one single source bank. This section also shows how many presets, samples and voices have *not* been converted. See (6). The reason why they could not be converted is explained later in the subreport.
- Let's now have a look at the next part of the subreport:



- The first of two generated banks is now explained in detail. The first bank is called "Chamber". See (7).
- The original sound bank contained voices which had the chorus effect enabled. When starting the conversion, we have requested EMXP to try to convert this setting into detuned PRI and SEC voices in the Emulator-II presets. However EMXP didn't succeed in doing this for all chorus effect settings. See (8).
- The subreport now contains an overview of all presets, samples and voices that have been created. See (9), (10) and (11). Note that a voice overview is only shown when converting to the Emulator-II format - this overview is not generated when converting to any other sampler format.
- The EMAX-II does not have any pitch transposition limits (one single sample can be assigned to the full keyboard range without any problem). The Atmospheres sound bank contains key areas having either a size or original key settings which are beyond the capabilities of the Emulator-II sampler. See (12). As a result, when playing the "Chamber" bank on the Emulator-II, the pitch of some keys may sound wrong. EMXP can't solve this because it's a hardware problem of the Emulator-II.
- Let's have a look to the remainder of the conversion subreport now:

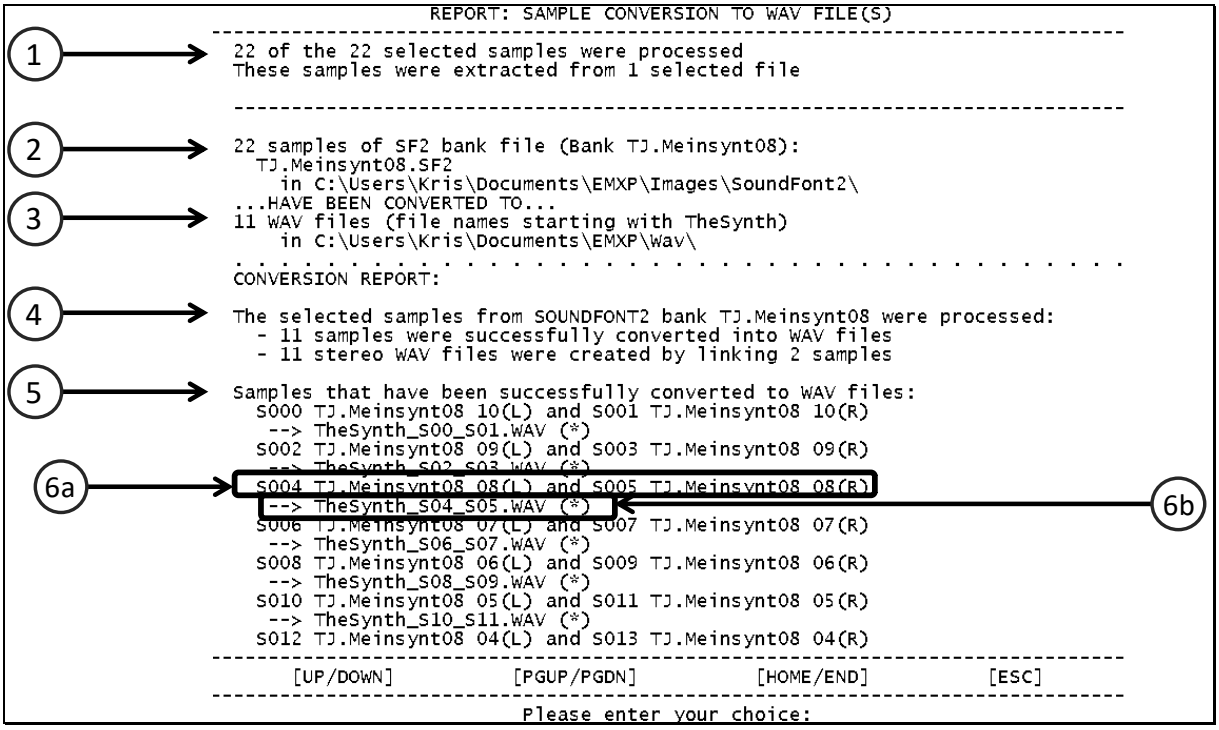


- The second Emulator-II bank that has been generated from the original EMAX-II Atmospheres bank is detailed now. The bank is called "Deep drum". Note that this is a rather small bank, containing only 2 presets and only one sample. These presets and sample just didn't fit anymore in the first bank, so EMXP had to put them in a next bank... See (13).
- At the end of the conversion subreport, EMXP gives an overview of all presets, samples and voices that were *not* converted, including the reason why the conversion did not succeed. See (14) and (15). There are two reasons why some presets could not be converted:
    - presets P000 and P011 could not be converted because the total sample size taken by these presets exceed the maximum total sample size of the Emulator-II. As a consequence, it doesn't even make sense to generate separate banks containing one of these presets each - they are simply too large in size. See (16). Of course all voices used by these two presets have not been converted neither, since they are unique to these presets. See (17).
    - presets P097, P098 and P099 have not been converted because they are empty (they don't contain any samples). See (18).

  Note that there are no samples that didn't survive the conversion. So even though some presets didn't make it till the end, the samples used by those presets did survive because they are use by other - successfully converted - presets as well.
- More information about errors and incompatibility messages that may be shown in a conversion subreport can be found in *section "7.6.2 Conversion error messages and conversion incompatibility messages"*.

Example 3

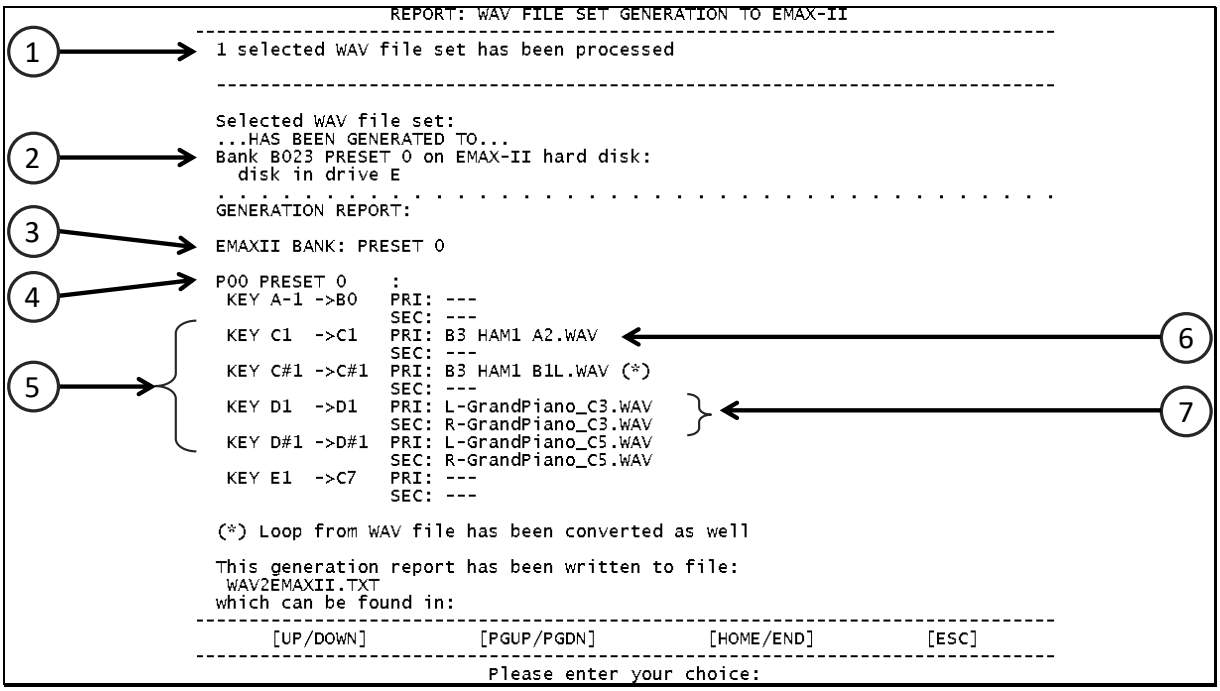
The *third example* is a report of a conversion of all samples of a SoundFont2 file into WAV files. The SoundFont2 file contains stereo linked samples, so we requested to convert these samples into stereo WAV files, which has successfully be done by EMXP. The samples in this SoundFont2 file have loops defined as well, so we requested to convert these loops to WAV loops.



- The first line summarizes how many samples have been converted into WAV files. See (1). In this example, all samples originate from the same source bank, but it's perfectly possible to select multiple sound banks and convert all samples of each of these sound banks into WAV files. In that case, EMXP would mention here how many samples from how many source files/banks have been converted, either successfully or not.
- For each selected source file or bank, a conversion *subreport* has been created. Since we only have selected *one single source SoundFont2 file*, there's only one subreport in the report. The "Subreport X/Y" title is not displayed in that case.
- Each subreport starts with a summary of how many samples from which bank on which disk, or from which file in which folder have been converted. See (2). The subreport also tells to which folder the WAV files have been saved, and what prefix has been used for the WAV file names. See (3).
- The second part of each subreport contains the conversion details. First there's an overview of how many samples were converted to WAV files and how many were not. See (4). In this example all samples were successfully converted. Since the 22 selected samples were part of 11 pairs of stereo linked samples, the report states that 11 samples were converted to WAV files, and that an additional 11 samples were required to complete these WAV files as stereo WAV files.
- Then there's an overview of all samples that were actually converted. This overview shows exactly which samples have been converted to which WAV file. See (6a) and (6b). In this example WAV file "TheSynth_S04_S05.WAV" has been created from two stereo linked SoundFont2 Samples S004 and S005.
- The (*) at the right side of each WAV file name indicates that the loop information from the original SoundFont2 sample(s) has been converted to WAV loops. EMXP only performs loop conversions to WAV files if explicitly requested by the user. At the end of the conversion execution report there's a footnote which explains the meaning of the (*) flag.
- If there are samples which have *not* been converted for one or another reason, they will be listed in the next part of the subreport, including the reason why they were not converted (see *section "7.6.2 Conversion error messages and conversion incompatibility messages"* for possible reasons). In this example however there are no samples that were not converted.

Example 4

The *fourth example* is a conversion report from WAV files to an EMAX-II bank on a hard disk. Some of the WAV files are mono, while others are stereo. One of the WAV files contains a loop, so we requested to convert this loop to an EMAX-II sample loop as well.

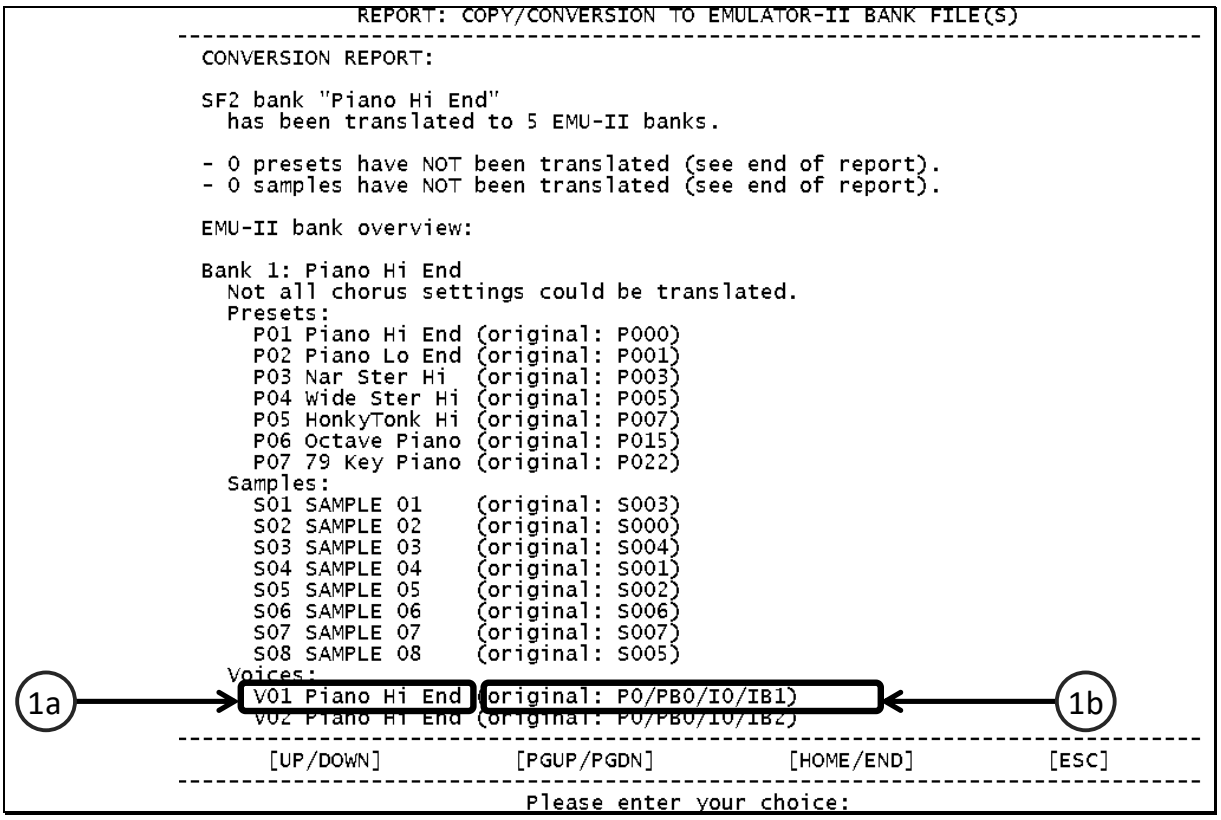


- The first line summarizes how many sets of selected WAV files have been converted. See (1). This is always 1 when a basic WAV-to-sampler generation is being done. Note: the same type of report is also created when generating EMXP Construction files to sampler banks, but the title can look different.
- The remainder of the report consists of a single "generation" subreport (again, when generating EMXP Construction files, multiple subreports may be...)
- The first part of the generation subreport summarizes to which file or bank in which folder or on which disk the target sound bank has been generated. See (2). In this example, we have converted 4 WAV files directly to a sound bank on an EMAX-II hard disk. The sound bank has been saved on bank location 23 of the hard disk in drive I.
- When converting WAV files to sampler banks, EMXP will always generate one single target bank. See (3). If the number or size of selected WAV files would exceed the target sampler's limits, an error will be given before starting the conversion. This differs from the way EMXP converts sampler sound banks to sampler sound banks: in those cases, EMXP may generate multiple target sound banks if the limits of the target sampler would be reached.
- The next part of the subreport shows the details of the conversion. One or more presets may have been created, depending on the number of WAV files that has been selected. In this example only 4 WAV files have been selected, so they fit perfectly into one preset of 61 keys. See (4). As explained, each WAV file is assigned to a single key.
- The subreport now shows an overview of the keys of the preset and which WAV file has been assigned to those keys. See (5). EMXP never assigns more than 61 keys per preset, even if the sampler is capable of using more keys (the EMAX-II can handle 88 keys...).
- We have selected 2 mono WAV files and 2 stereo WAV files. Mono WAV files are always assigned to the PRImary voice of a key, while the two channels of a stereo WAV file are assigned to the PRImary and the SECondary voice of a key. See (6) and (7). Of course if the sampler only supports one layer - as the Emulator-I does - all WAV files are assigned to the PRImary layer only and stereo WAV files will be converted to mono samples.
- The (*) at the right side of some WAV file names (here: B3 HAM1 B1L.WAV) indicates that the WAV loop has been converted to a sample loop as well. EMXP only performs a WAV loop conversion if explicitly requested by the user. When converting WAV files to SP-12 sound banks, another footnote may be generated, indicated by a (+) sign: this can occur if the WAV loop's end point does not match the WAV sample end point. In that case the loop will play wrong during the first loop cycle.

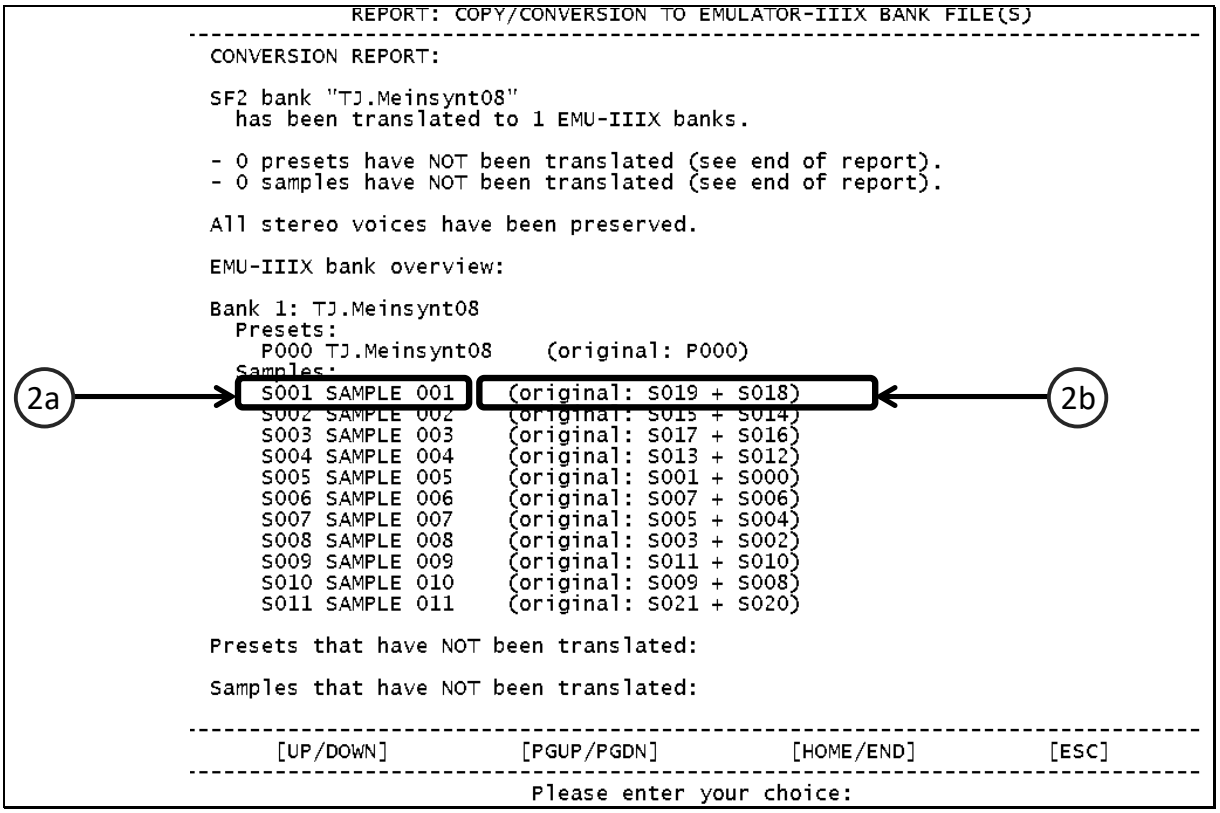
Other examples

Let's now have a look to excerpts from some other very specific conversion reports, which require some explanation as well:

- When converting SoundFont2 sound banks to Emulator-II sound banks, the overview of the converted voices contains references to the original SoundFont2 preset's instruments in quite a cryptic way. See the picture below.

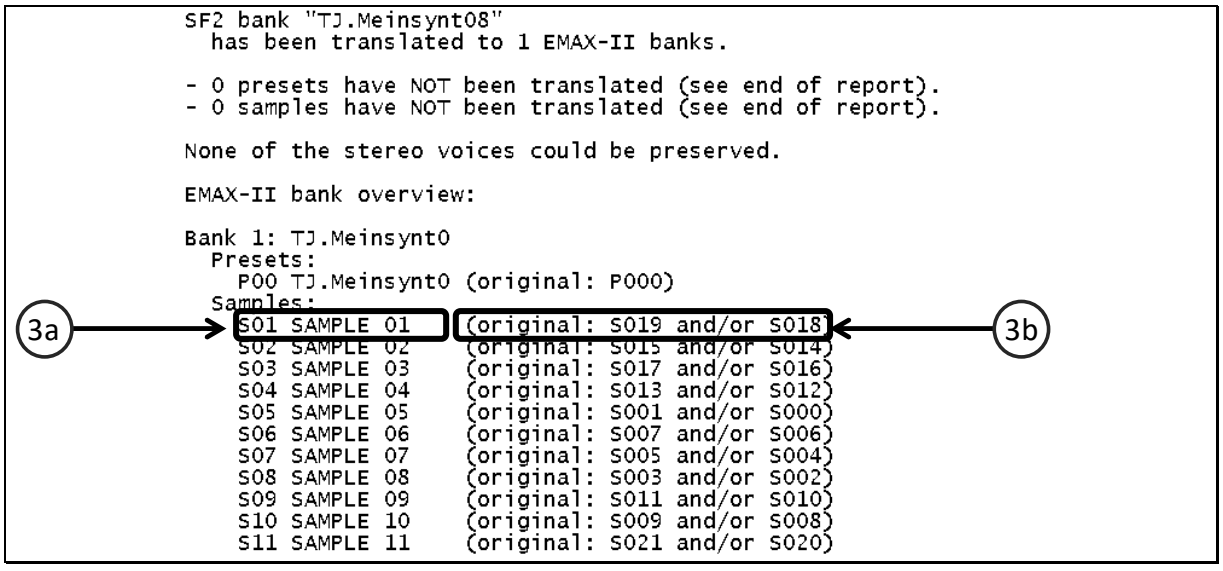


  See (1a) and (1b). The line with string P0/PB0/I0/IB1 should be read as follows: Preset 0, Preset Bag 0, Instrument 0, Instrument Bag 1 of the source SoundFont2 bank has been converted into Emulator-II voice V01.
- When one or more of the source samples in a SoundFont2 or EMAX-II bank are configured to form a Stereo sample (i.e. "stereo linked samples" in SoundFont2, "Stereo Voice" PRI and SEC voices in EMAX-II), and the target sampler supports stereo samples (e.g. Emulator-III, EMAX-II by using Stereo Voice), reference is made to the two original samples, as shown in the picture below.



See (2a) and (2b). In this example, samples 18 and 19 in the SoundFont2 file are linked as a stereo sample. They have been converted into one stereo sample S001 in the target Emulator-IIIX sound bank.

When converting stereo linked samples to EMAX-I or EMAX-II, the report will refer the original samples as follows:

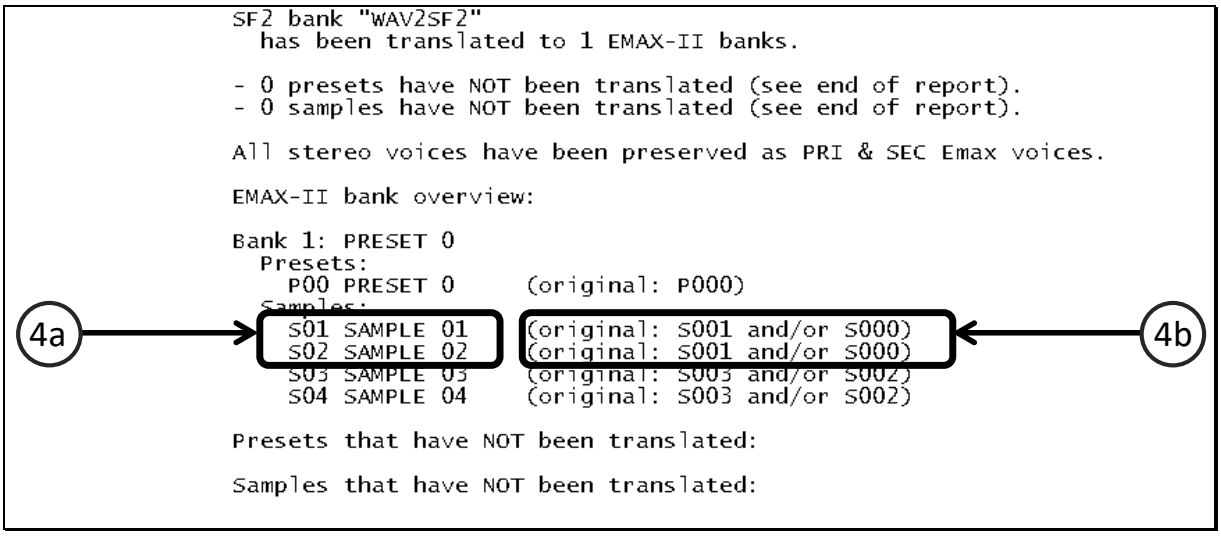


The "and/or" (see (3b)) can have two meanings:

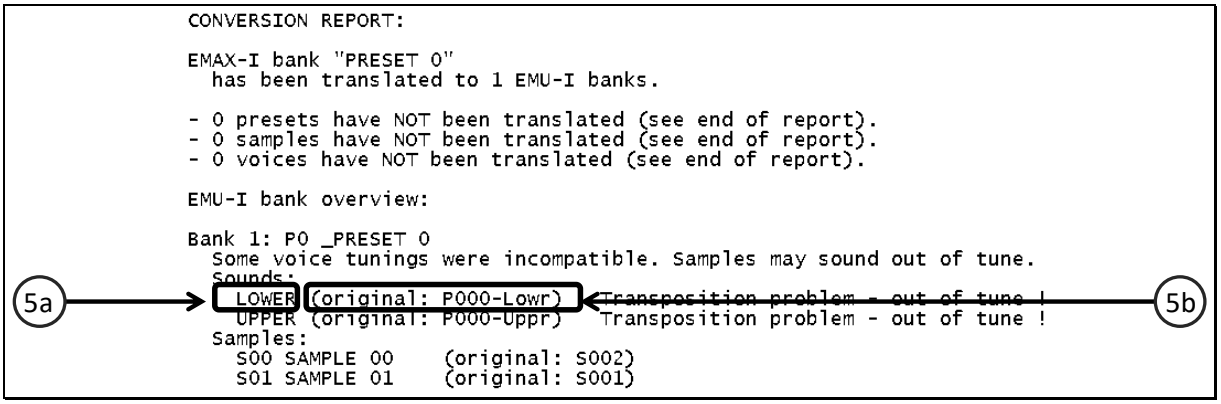
- (1) either "or": one of the samples S018 or S019 has been converted to this sample (S001) and the other one has been converted to another sample, which form together the PRI and SEC stereo pair
- (2) or "and": the two samples S018 and S019 have been converted to a single mono sample because there was not sufficient room in the target bank to create stereo PRI and SEC voices.

In the above example, meaning (2) is valid. Note that neither S018 nor S019 is being mentioned elsewhere in the report, because both of them have been converted into one single mono sample S001.

In the example below, meaning (1) is true for the original SoundFont2 samples S001 and S002 which have been converted into EMAX-II Stereo Voice PRI and SEC voices, using target EMAX-II samples S01 and S02. See (4a) and (4b).

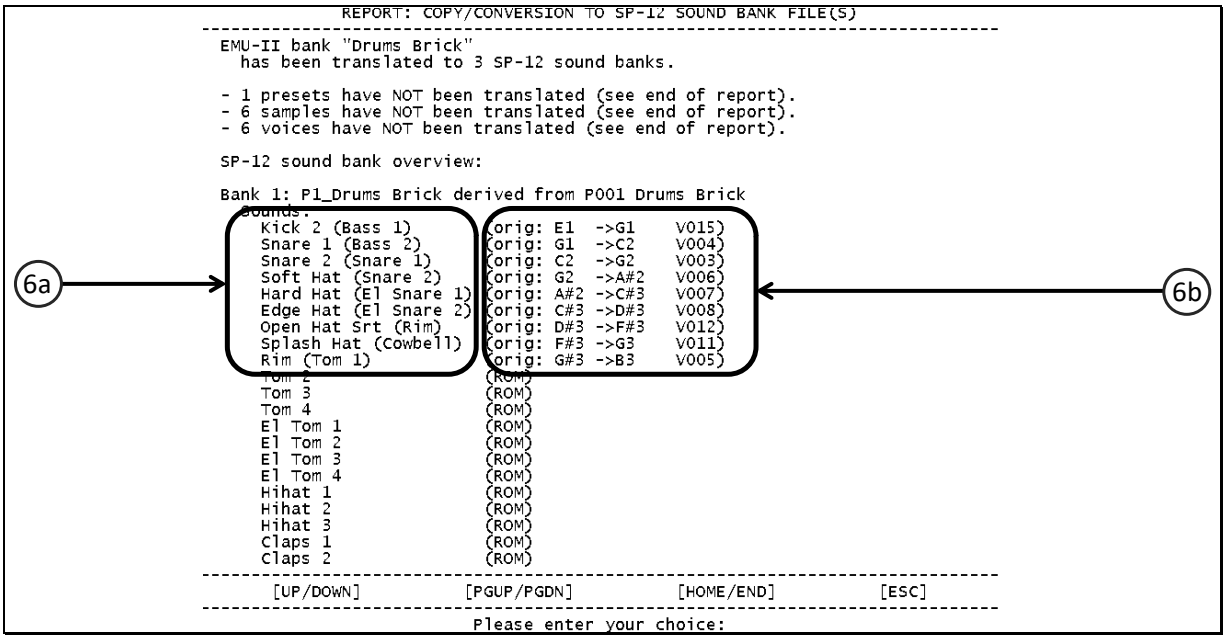


- When converting to and from Emulator-I bank files or Emulator-I floppy disk image files, reference is typically made to the Lower and Upper sounds which constitute an Emulator-I bank (preset). The following picture illustrates this with the example of an EMAX-I bank that has been converted into an Emulator-I bank file.



Instead of displaying a list of presets that have been created, the report is now showing a list of sounds that have been created: LOWER and UPPER (see 5a). Reference to the original preset is made by mentioning either the lower or the upper keyboard section of the preset, depending on which section resulted in the target sound. See (5b).

- When converting to or from SP-12 sound banks, reference is made to individual *SP-12 sounds* instead of presets. The conversion reports are similar to WAV-to-sampler or sampler-to-WAV reports: a more detailed overview is generated, explaining which source keys (or key areas) have been converted to which SP-12 sound, or the other way around. See (6b). In the example below, an Emulator-II bank has been converted into 3 SP-12 sound bank files (one per preset). The reports shows which Emulator-II key areas have been assigned to which SP-12 sound. The sound names are the *user-defined* sound names - in conversions these names are derived from the source sampler voice names. If the user defined sound names differ from the SP-12 factory sound names, the factory name is shown as well between brackets. See (6a). Note also that each generated SP-12 bank has been assigned a "virtual" name (here: P1_Drums Brick). This name is not saved to the SP-12 sound bank file, but is mentioned in the report in order to have a link between the information mentioned in the *main report* (=which banks have been generated to which files) and the information mentioned in the *subreport* (=the conversion reports per bank).



7.6.2 Conversion error messages and conversion incompatibility messages

In the second example we have already illustrated some of the possible conversion errors and incompatibility messages that can be found in a conversion report. In this section we give a full overview of all possible error and incompatibility messages.

Following messages may be reported **on bank level**:

- *Not all chorus settings could be translated:* [only applicable when converting to Emulator-II] If at least one chorus setting of a voice in a source bank preset could not be converted into detuned PRI and SEC voices while you explicitly asked EMXP to convert chorus settings, this message will be shown just before the converted preset overview. A typical reason for this problem is that both PRI and SEC voices are already in use due to the existence of both PRI and SEC voices in the source preset.
- *Some voice tunings were incompatible. Voices may sound out of tune:* The maximum range of tuning in semitones and cents differs between the various sampler types supported by EMXP. If a source voice has a tuning setting which goes beyond the supported tuning range of the target sampler, the voice's tuning will not be correct because it will have been set to the "limited" maximum or minimum tuning level supported by the target sampler.
- *Some sound tunings were incompatible. Sounds may be out of tune*: This is the same message as the previous one, but for conversions to SP-12 sound banks.
- *None of the stereo voices could be preserved, Not all stereo voices could be preserved, All stereo voices have been preserved.* [only applicable when converting SoundFont2 or Emulator-III/IIIX/ESI-v3 into Emulator-III, Emulator-IIIX or ESI-v3] If you have requested to keep stereo samples, EMXP will report whether it succeeded in doing this for all voices, for some voices or for none of the voices.
- *None of the stereo voices could be preserved, Not all stereo voices could be preserved as PRI & SEC Emax voices, All stereo voices have been preserved as PRI & SEC Emax voices.* [only applicable when converting SoundFont2 or Emulator-III/IIIX/ESI-v3 into EMAX-I or EMAX-II] If you have requested to convert convert stereo samples into PRI and SEC voices with stereo voice enabled (EMAX-II), EMXP will report whether it succeeded in doing this for all voices, for some voices or for none of the voices.

Following messages may be reported in the **overview of converted presets:** [not applicable for conversions to SP-12]

- *Transposition problem !* or *Transp. problem in [start key] → [end key]* or *Transposition problem - out of tune !* [only applicable when converting to Emulator-I, Emulator-II, EMAX-I and Emulator-III] The maximum supported pitch transposition range on the keyboard differs between the various sampler types supported by EMXP. E.g. the Emulator-II supports a maximum pitch shift range of 2 octaves, with a maximum of -12 and +12 semitones from the original key setting. If the source preset contains

key areas with larger pitch transposition ranges than supported by the target sampler, certain keys in the converted preset will not play correctly (e.g. some of them may have the same pitch).

- *Key assignment problem !* [only applicable when converting to Emulator-I] The Emulator-I uses key areas on fixed positions and with a fixed size. The chance that the original preset's key areas match exactly with these predefined fixed positions and sizes is pretty small, in those cases EMXP will adapt the key area's characteristics to Emulator-I compliant characteristics, and a warning will be given for each preset containing key areas which differ in size and location from the original one.
- *Transposition and key assignment problems !* [only applicable when converting to Emulator-I] This warning is given for each preset conversion in which both a transposition problem and a key assignment problem has occurred.

Following messages may be reported in the **overview of generated presets, samples or instruments:**

- *Loop problem !* [only applicable when converting to SoundFont2 or EMAX-II; for SP-12 see next message] The loop settings of the original samples are not compatible with the more strict loop requirements of the target sampler. Some samplers require a minimum set of sample points before, in between or after the start loop point and end loop point. If these aren't present in the original sample, the loop will sound incorrect in the target preset (clicks may be heard or pitch may sound different). See *section "7.7.9 Issues with conversions of "loop" settings"* for more details.
- *(*)* and footnote *(*) Loop problem: sample will play till the end once before loop starts !* [only applicable when converting to SP-12] The loop settings of the original samples are not compatible with the more strict loop requirements of the SP-12. If a sample is looped, the SP-12 expects the loop's end point the be exactly the same as the sample's end point, which is not true for the sounds with the (*) message. See *section "7.7.9 Issues with conversions of "loop" settings"* for more details.

Following messages may be reported in the **overview of presets, samples or voices that have *not* been converted:**

- *Unused/Invalid/Out of Keyb/Exceeds #Layers*: the preset, sample or voice has not been converted because of one or more of the following reasons
    - it was not in use in the original bank, e.g. a sample that was not referred to by any voice.
    - it was invalid: corrupt presets, samples or voices can not be converted by EMXP.
    - it was used in a keyboard section which is out of the maximum keyboard range of the target sampler. E.g. the Emulator-II only supports 5 octaves, so an 88-key SoundFont2 preset can not be fully converted into an Emulator-II preset
    - no more keyboard layers were available in the target preset. E.g. if you convert a SoundFont2 file with 4 instrument layers into an EMAX-I bank, only two layers can be converted.
- *Sample size exceeds [sampler] limit.* If the size of an individual sample exceeds the maximum sample size allowed by the target sampler, the sample (or the voice using the sample) can not be converted.
- *Total preset/sound sample size exceeds [sampler] limit*: if the total sample size of a preset (or sound in Emulator-I) exceeds the maximum sample size per preset of the target sampler, the preset will not be converted.
- *Too many voices in preset/sound*: if the number of voices in the source preset (or sound in Emulator-I) exceeds the maximum number of voices per preset of the target sampler, the preset can not be converted.
- *Parameter size exceeds [sampler] limit*. If the conversion of a preset results in a total parameter size which exceeds the maximum available space for parameter bytes in a target sampler bank, the preset can not be converted. This is typically true when converting presets containing a lot of key areas or voices (like drum sets) to rather basic target sampler formats like Emulator-II.
- *Total preset/sound/sound bank size exceeds [sampler] limit*. Some sampler formats have limited space available for the parameters of a single preset (or sound in Emulator-I). If this limit is reached, the preset can not be converted.
- *Empty object*. Empty presets, samples or voices are not converted by EMXP. E.g. NULL presets containing no voices at all.
- *One voice/sample spans more than 25 keys.* [only applicable when converting to Emulator-II]. The Emulator-II does not support voice assignments to more than two octaves of the keyboard.
- *Transpose from original note exceeds 1 oct* [only applicable when converting to Emulator-II]. The pitch transposition range of the Emulator-II is limited to +12 or -12 semitones from the original key.
- *Transpose problem or voice exceeds 25 keys* [only applicable when converting to Emulator-II]. This message is shown if both of the two previously described situations occur at the same time.

- *Too many samples in preset/sound*: if the number of samples in a preset (or sound in Emulator-I) exceeds the maximum number of samples per preset allowed by the target sampler, the preset will not be converted.
- *Not converted due to user request/filter:* [only applicable when converting to Emulator-I] When converting to Emulator-I format, you have to specify whether you would like to convert the PRI or SEC voices of the original presets (the Emulator-I can handle only one layer per preset). Voices and samples which are assigned to the "other" layer than the one specified will be ignored.
- *Preference has been given to other sample:* [only applicable when converting to Emulator-I] The Emulator-I is very limited in the number of samples it can assign to its keyboard sections. A maximum of 6 samples per sound is allowed, and the key areas to which these samples are assigned are fixed. As a consequence many samples of a source preset may not "survive" during the conversion because there are simply too many of them, or the original key areas don't match at all with the fixed target ones. In these situations EMXP has to choose which of the source samples have more priority to "survive" than other ones.
- *Subject of Stereo layers -> Mono conversion:* If the source sampler supports multiple voice layers (e.g. PRI and SEC) and these layers have been used to hold "stereo samples", the voice parameters of one of these layers will be ignored if a stereo-to-mono conversion has been requested (or when EMXP decides to perform this conversion). For voices and samples that belong to the "ignored" layer, this message is shown.
- *Not in keyrange of requested [sampler] sound:* [only applicable when converting to Emulator-I] If the conversion of only the lower or upper part of the source presets has been requested, the other part of the keyboard will not be converted. For voices/samples belonging to those parts, this message is displayed.
- *Invalid or causing too many sounds/samples:* [only applicable when converting to SP-12] The voice or sample has not been converted because priority has been given to other voices/samples. The priority mechanism is user-configurable and is applied by the EMXP clustering algorithm, which tries to fit as many samples/voices as possible in the limited memory of the SP-12.
- *Only samples have been converted:* [only applicable when converting to SP-12] The voice has not been converted because the user has requested for conversions of basic samples only. All source voices are ignored, only samples have been assigned to the SP-12 sounds.
- *Refers to an invalid object:* The preset, voice or sound has not been converted because it uses or refers to an object (voice, sound, sample, ...) which is invalid. Objects which depend on invalid objects are not converted by EMXP.

Following messages may be reported in the **overview of unconverted samples** when a conversion was done from samples to WAV files:

- *Invalid code X:* the sample could not be converted because the sample is invalid. The reason of the invalidity is mentioned in X. See *section "4.8.3 Overview of validation error codes"* for more information.
- *Linked sample missing:* the sample is part of a pair of linked stereo samples (typically for SoundFont2), but the other part of the pair could not be found.
- *Cancelled by user:* the sample was not converted because the conversion process was explicitly cancelled by the user (in MANUAL or SEMI-MANUAL mode and when user intervention is requested in case of errors or warnings)
- *Automatically cancelled:* the sample was not converted because the conversion process was cancelled automatically due to an error (in BATCH mode or in MANUAL/SEMI-MANUAL mode but no user intervention is requested in case of errors or warnings)
- *Error code X:* the sample as not converted because an error occurred. The error code is reported as X.
- *ROM sample:* [only applicable when converting from SP-12]. The sample in the source SP-12 bank is a ROM sample, it can't be converted to a WAV-file.

7.7 CONVERSION CONSTRAINTS AND CONVERSION QUALITY

This chapter describes some specific characteristics and constraints from the different sampler types supported by EMXP. The existence of these characteristics and constraints are the main reason why converted sound banks on the target sampler don't sound the same as the original banks in the source sampler.

7.7.1 EMAX-I and EMAX-II

The EMAX-I and especially the EMAX-II samplers are more sophisticated than their Emulator-II predecessor. Nevertheless they also have some important limitations… sometimes the Emulator-II is even more efficient than the EMAX-I/EMAX-II. This paragraph explains some important constraints of the EMAX-I and EMAX-II (referred to as EMAX in the remainder of this section).

- The EMAX can not use the same raw audio samples with *different sample parameters (looping…)* in different voices (*). If any source bank is doing this, the samples must be cloned X times into the EMAX memory which can result in memory size problems.
- The EMAX can not share voices across presets. If any source bank is doing this, the voices must be cloned X times into the EMAX. Fortunately a single voice only requires 32 bytes of parameter data as opposed to 256 bytes on the Emulator-II. And there's no limit on the number of voices as opposed to the Emulator-II.
- The EMAX defines some parameters on voice level (original note, transposition, output channels) while the Emulator-II defines these on key area level which is more flexible.
- The EMAX-I (*not EMAX-II !)* is limited in its pitch shifting / transposition range. Upward transposition is limited depending on the sample rate of the voice's sample. The maximum number of semitones for upward transposition is:

Samplerate (Hz)	Upward transposition (Semitones)
10000	25
15625	18
20000	13
22050	12
27778	8
31250	6
41667	1
44100	0

  EMXP will not prevent illegal transpositions; however EMXP will warn you in the conversion report when the converted bank contains illegal assignments. Selecting a lower maximum conversion sample rate can often solve the problem.
- The maximum memory size available for presets, voice and sample parameters is only 28672 bytes.
- Tuning range is limited to -48 ct → +45 ct.

(*) the truth is that in fact this *can* be accomplished – however this is not in line with EMAX specifications and not supported by the EMAX OS itself so we decided to not use this tweak. Perhaps the tweak will become an option in a future version of EMXP.

7.7.2 Emulator-I

Converting sound banks from any sampler to Emulator-I is quite a challenge. The Emulator-I has very (very) limited capabilities. As a consequence the success ratio of conversions from any other sampler sound bank to Emulator-I will be… well… *low*.

While EMXP *may* succeed in generating quite some Emulator-I banks/sounds from a source sampler bank, these banks/sounds will often not contain the presets and samples in the same way as they were defined in the original sound bank. You should expect huge differences, mainly in the area of keyboard assignments, tuning/pitch and

missing samples. In addition, the few sounds which may have survived the conversion pretty well will probably sound differently because the Emulator-I lacks envelopes, resonance, LFO routings etc.
Perhaps the most interesting conversion possibility in EMXP, is the one from SoundFont2 to Emulator-I. Thanks to this feature, you can construct a brand new sound bank in a SoundFont2 editor[10], using WAV files that you first have carefully prepared for use in the Emulator-I (small size, correct pitch, loop settings). This SoundFont2 file can then be converted to Emulator-I format with EMXP.

Here's a list of some constraints of the Emulator-I.

- The Emulator-I can hold only 114176 sample points in total. Moreover only 57088 sample points per keyboard half are allowed (i.e. 57088 in a lower sound and 57088 in an upper sound).
  (these limits apply to "multi sample" sound banks; "single sample" sound banks can hold a few hundred more sample points, but EMXP never generates single sample sound banks)
- The Emulator-I can only hold one preset
- Only one voice layer is supported
- A maximum of 12 samples is supported. Moreover a maximum of 6 samples can be assigned to each of the keyboard halves (lower, upper).
- The Emulator-I uses pre-defined configurations (assignments) of key areas per keyboard half (lower/upper sound). The configuration depends on the number of samples that is being used in the sound. Moreover the original key(pitch) setting of each of these key areas is fixed. **This is the most important limitation of the Emulator-I** when trying to convert sound banks to the Emulator-I format. The table below summarizes the supported configurations for a lower or upper sound:

No of samples	Key area	Original key
1	C – B'	C'
2	C – B C' – B'	G G'
3	C – G G# - D#' E' – B'	E C' G#'
4	C – F F# - B C' – F' F#' – B'	D# A D#' A'
6	C – D# E – G G# - B C' – D#' E' – G' G#' – B'	D F# A# D' F#' A#'

- No samples or parameters can be shared by different key areas
- Only one sample rate is supported: 27778 Hz. Because of this the number of possibilities to decrease memory size is zero.
- The filter cutoff can only be set to 8 discrete levels *(the optional JL Cooper GenMod expansion supports a more granular control but only in real time)*
- There are no configurable envelopes *(the optional JL Cooper GenMod expansion supports envelope control but only in real time).* However the Emulator-I has a parameter called "Natural Release" which will play the samples till the end even if you release the key. This parameter can be used as a kind of "look alike" of a long VCA envelope release time (see also *section "10.3.3.3 Enable/disable Emulator-I natural release mode"*)
- There are no configurable LFOs *(the Vibrato feature is a real time controller; the optional JL Cooper GenMod expansion supports LFO to filter routing but only in real time)*
- There is no configurable filter resonance *(the optional JL Cooper GenMod expansion supports resonance control but only in real time)*
- Only sustain loops are supported
- The tuning range is pretty large, but the range depends on the key area (going from about +100/-100 cents to just above +200/-200 cents). As a consequence, the tuning option can be used as a compensation for the original key (pitch) which is always fixed in an Emulator-I.
- There are no effects available, even not a chorus.

[10] Like the free Viena editor from MicroFast, http://www.synthfont.com

- There's no stereo processing on the Emulator-I. Forget any support for panning effects etc. !
- The maximum key range is C1→C5. Only 49 keys are addressable (instead of the default of 88…)
- There is no keyboard velocity.
- There is no arpeggiator and very limited MIDI support.

7.7.3 Emulator-II

Converting sound banks from any sampler to Emulator-II is also quite a challenge. While the Emulator-II is a great sounding device, its capabilities are very limited. Hence the success ratio of conversions from e.g. EMAX-I factory banks to Emulator-II will only be about 50%, and this number will be even lower (10% ?) for conversions from Emulator-III factory banks. This paragraph explains why.

- The Emulator-II can hold only 484599 sample points.
- The memory must be shared by raw samples, preset/voice parameters and sequences. The more presets and voices, the less room for samples and sequences. And vice versa.
- The maximum memory size available for presets and voice parameters is only 25856 bytes.
- The Emulator-II can hold only 99 presets and only 99 voices (the latter being a serious constraint !)
- The same raw audio sample data can be shared by multiple voices having different sample parameters. Good points for the Emulator-II !
- Only one sample rate is supported: 27778 Hz. Because of this the number of possibilities to decrease memory size per sample is zero.
- The Emulator-II has limited pitch shifting capabilities. One sample can not be transposed over a range of more than 25 keys (2 octaves). Moreover one sample can not be transposed more than one octave up or down from the original note of this sample.
- There are no Hold stages in the envelopes.
- Tuning range is limited to -50 ct → +48 ct.
- There's no chorus effects processor. Chorus must be emulated by using PRI and SEC voices which are slightly detuned from each other. This is only possible if the second voice has not been used already for some other sound. Moreover this kind of chorus decreases the polyphony of the Emulator-II.
- There's no stereo processing on the Emulator-II. Forget any support for panning effects etc. !
- The maximum key range is C1→C6. Only 61 keys are addressable (instead of the default of 88…)
- Presets can not be stacked/linked.
- There is only one keyboard velocity curve.

7.7.4 Emulator-III, Emulator-IIIX and ESI

The Emulator-III and especially the Emulator-IIIX and ESI samplers are far more sophisticated than the Emulator-II and EMAX-I and slightly more sophisticated than the EMAX-II. This paragraph explains some constraints of the Emulator-III/IIIX/ESI samplers.

- The Emulator-III/IIIX/ESI samplers can not use the same raw audio samples with *different sample parameters (looping…)* in different voices. If any source bank is doing this, the samples must be cloned X times into the Emulator-III/IIIX/ESI memory which can result in memory size problems.
- The Emulator-III/IIIX/ESI samplers can not share voices across presets. If any source bank is doing this, the voices must be cloned X times into the Emulator-III/IIIX/ESI banks. Fortunately a single voice only requires 48 bytes. There's no limit on the number of voices however.
- Like the EMAX-I/EMAX-II, the Emulator-III/IIIX/ESI samplers defines some parameters on voice level (original note, transposition, output channels) while the Emulator-II defines these on key area level which is more flexible.
- The Emulator-III (*not Emulator-IIIX or ESI samplers !)* is limited in its pitch shifting / transposition range. Both upward and downward transposition is limited depending on the sample rate of the sample. The exact limits can be found in the Emulator-III's manual.
  EMXP will not prevent illegal transpositions; however EMXP will warn you in the conversion report when the converted bank contains illegal assignments. Selecting a lower maximum conversion sample rate can often solve the problem.
- The maximum memory size available for presets and voice parameters is only 55542 bytes on the Emulator-III.

- Chorus depth can not be changed on voice level; chorus is either on or off (as on the EMAX). On ESI samplers equipped with FX processors though, chorus depth can be set if a chorus effects processor is chosen.
- The ESI samplers don't support MIDI parameters on preset level
- The ESI samplers don't have an arpegiator.

7.7.5 SP-12

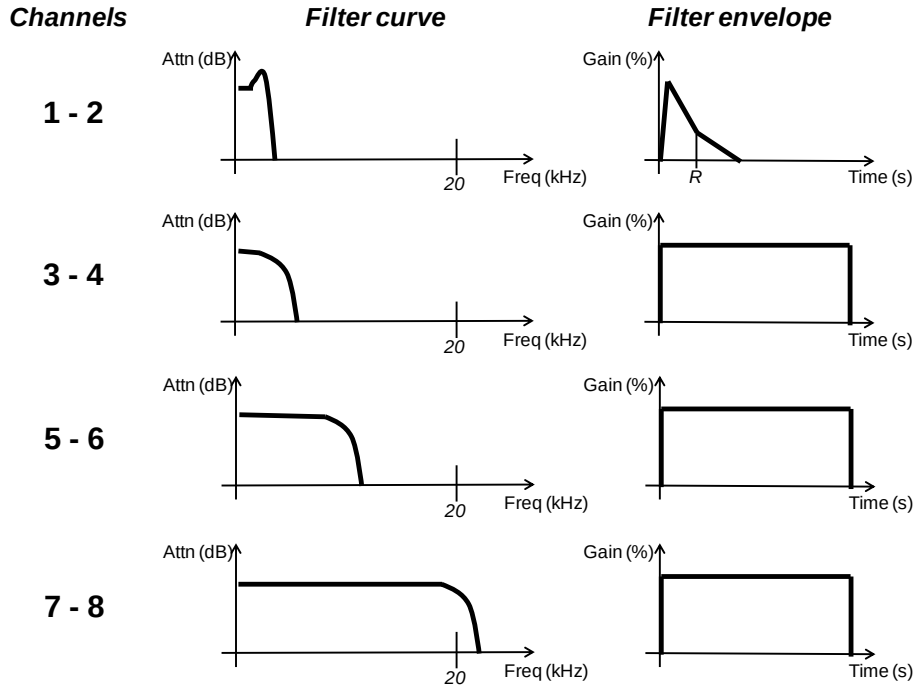
Converting sound banks from any sampler to SP-12 is a challenge as well. Besides the fact that the SP-12 has very limited capabilities, it's also a completely other type of musical instrument than the other supported samplers in EMXP. While the other samplers typically have multiple presets, containing voices and samples assigned to (transposed) keys on a keyboard, the SP-12 uses 32 sounds (typically untransposed) which can be triggered from pads.
The chance that any sampler preset would fit into 32 SP-12 sounds is very low. While EMXP typically doesn't convert presets which don't fit in a target sampler preset, the approach is different when converting to the SP-12 format. EMXP will do a more detailed analysis of each preset and will convert as many parts of the preset as possible (keys, voices, samples) until the SP-12's memory is full. You can influence the selection of the parts that should be converted. See *section "7.3.6 Conversion to SP-12"*.

But even if EMXP succeeds to convert parts of each preset, the generated SP-12 sounds will probably not sound like the original samples/voices. This is due to the limited capabilities of the SP-12 and the limited number of parameters that can be set per sound. This paragraph explains some constraints of the SP-12.

- A standard SP-12 can only hold 32768 sample points (i.e. 1,25 seconds of audio data); a Turbo SP-12 can hold 131072 sample points (i.e. 5 seconds of audio data), but this expanded memory is organized in two hardware segments, each having a capacity of 65536 sample points. A sample can not exceed one memory segment.
- An SP-12 sound bank can contain only one "preset", consisting of a maximum of 32 sounds ("voices") and a maximum of 32 samples.
- Only one sample rate is supported: 26040 Hz. **(The EMU specifications and manual state that the sample rate is approx. 27500 Hz, but based on our analysis the sample rate is only 26040 Hz, which is the same as the sample rate supported by the SP-1200)**
- The sample resolution is limited to 12 bits, but no compression is applied
- The same raw (basic) sample can be shared by multiple sounds. But the sample parameters (truncation, loop) should be identical for all sounds. While the SP-12's internal memory structure allows for different loops per sound (for the same sample), the SP-12 operating system prevents the user from defining these different loops. In order to preserve 100% compatibility EMXP will not generate different loop settings for the same sample, but rather duplicate the sample if different loops are detected during conversions.
- Only sustain loops are supported. Moreover the SP-12 expects the loop's end point to be the same as the sample's end point. While the internal memory structure allows for other loop end points, the SP-12 will always play a looped sample from the very first sample point to the very last sample point once before starting the loop cycles.
- The filter (VCF) parameters on an SP-12 can not be configured by the user. Filter settings (Cut-off frequency, Resonance, VCF envelope) are hard-wired to the output channels of the SP-12. An overview of the 4 different filter hardware configurations is illustrated in the picture at the end of this section.
- Defining VCA settings is limited to setting a sound's volume (16 Volume Mix levels are supported) and setting the VCA envelope. This shape of this envelope can be defined by means of only one parameter: the *decay* setting. The decay value not only determines the Decay stage of the envelope, but also the Release stage. In practice it even emulates a Hold stage. 32 different decay values are supported.
- If an SP-12 sound is looped and decayed, the hold/release stage can take quite a long time (after releasing the sound pad). This is especially true with high decay values.
- The SP-12 has rather limited pitch shifting capabilities. Tuning can only be applied in units of semitones (not cents), and transposition is limited to 16 semitones below original pitch and 12 semitones above original pitch.
- An SP-12 sound's tuning and decay can not be set concurrently. A sound is either tuned or decayed. If a sound is tuned, the decay is based on a general Default Decay setting which is shared by all tuned sounds. 32 default decay levels are supported.
- **While the SP-12 supports a range of 29 different semitones for tuning sounds and 32 different decay values, and while the SP-12 internal memory structure supports the storage of all 29 tuning**

and all 32 decay values, there seems to be a bug in the SP-12 operating system which causes the SP-12 not to transfer these values for RAM sounds when reading/writing sounds to disk or MIDI. Only the coarse grained LO, MID and HI value (see special function 20 on the SP-12) are supported.

- While velocity (Dynamics), multi-pitch, multi-level, and different clock and MIDI settings are supported by the SP-12, these parameters are not persisted in the sound bank memory.
- Besides the Decay setting (VCA envelope) and the Dynamics mode (which is not saved in memory), no other modulators are supported by the SP-12 (e.g. no LFO)
- There's no chorus effects processor.
- There's no stereo processing on the SP-12.



The four different filter configurations which are hard-wired to the SP-12 output channels

7.7.6 Sound differences when converting from EMAX-I/EMAX-II to Akai S1000

EMXP uses some simple, yet at some points advanced translation rules to convert EMAX-I and EMAX-II banks into Akai S1000 files. However EMAX-I/EMAX-II samplers (*referred to as EMAX in the remainder of this section)* are different from Akai S1000 samplers.
They not only sound different, they also have different capabilities and constraints concerning program and sample parameters.
Therefore, converted presets on Akai S1000 will not always sound or behave the same as the original EMAX presets.
For "plain vanilla" presets, the differences will be minimal. Complex presets however, e.g. with non-typical envelope curves or extensive use of modulators like LFOs, can sound pretty different on the Akai S1000 sampler. This is not (only) due to the simplicity of the EMXP translation rules – it is mainly the consequence of the different parameter capabilities of the two samplers.

Basically the translation rules:

- convert each EMAX preset to an individual Akai S1000 program,
- convert each voice within that EMAX preset to an individual Akai S1000 key group within the program,
- convert each EMAX sample to an individual Akai S1000 sample.

Here is a list of the major “constraints” or “differences between EMAX and Akai S1000 files”:

- Akai S1000 samplers don’t support **resonance** on their filter. Hence the resonance parameter (and sound effect) will not be translated.
- Akai S1000 samplers don’t have an **arpeggiator**. Hence all EMAX arpeggiator settings are ignored during conversion.
- An original Akai S1000 sample always has a **sample rate** of either 22050 Hz or 44100 Hz; re-sampling can be done in a range of 8000 Hz and 65540 Hz, but it affects the tuning (pitch offset) of the sample; to "restore" the original sample's pitch, a picth correction must explicitly be applied.
- EMAX voices that are defined in the **keyboard range Midinote 0 – Midinote 23** are not translated
- Since each voice is converted to a separate key group in the Akai S1000 program, **Velocity Crossfading** between primary and secondary EMAX voices is NOT translated. Akai S1000 supports Velocity Crossfading, but only between samples within the same key group. We have decided that being able to change the majority of voice parameters is more important than having velocity crossfade support, so EMXP translates each voice into a whole key group instead of into a (more restricted) sample within the same key group (*).
- EMAX allows to define **modulator and controller settings** on individual voice level. E.g. LFO settings, LFO routing, Enabling/disabling preset controller routings on voice level, … Akai S1000 requires one single definition for the entire program. EMXP had to make some compromises here. Hence you’ll definitely hear differences between EMAX presets and Akai S1000 programs using modulators. E.g. EMXP will always take the lowest LFO rate setting of all voices, even if one voice needs an LFO rate of – let’s say – 99.
- The **LFO rate and delay range** are different. This means that frequency and delay differences can occur if the original sample rate/delay is not supported by Akai S1000.
- The **controller/modulator routing matrix** and capabilities of EMAX are more advanced than the ones on Akai S1000. As a result some important audio effects will disappear after conversion. E.g. tremolo effects.
- Both EMAX and Akai S1000 samplers support **chorus** effects, but on Akai S1000 enabling chorus will decrease polyphony. In MANUAL or SEMI-MANUAL mode EMXP will ask you whether enabling chorus on Akai S1000 programs is required or not (see before), if not asked specifically by EMXP the preference setting will be used.
- The **VCA and VCF envelopes** have different characteristics. Timing parameters are different, e.g. EMAX supports longer decay times than Akai, the attack curve of Akai is not as smooth as the EMAX one, …. Moreover EMAX envelopes have 5 stages, while Akai S1000 envelopes only have 4. EMXP tries to simulate the HOLD stage of EMAX envelopes on Akai S1000 by using its DECAY stage (combined with the Attack Hold setting, but this is for VCA only). As a result, some sounds can have longer ‘real’ decay effects on Akai. If this would not be allowed, the important impact of the HOLD stage would not be present…
- **Filter tracking** on the keyboard is different between EMAX and Akai S1000. This difference is translated to Akai S1000 but it could result in small yet audible filter setting differences.
- Both samplers support **“non-transposed (fixed)” keyboard mode**, meaning that the sound has the same pitch no matter what key is pressed. The pitch chosen by Akai S1000 is the one that belongs to the C3 key, based on the original note as defined in the sample parameter area. On EMAX, the pitch is simply the one that belongs to the original sample and is even not dependent of the “original key” setting in the voice ! Unfortunately EMAX does not store this “real” original note value (which is only known at sampling time). Therefore EMXP assumes that the “real” original pitch is the one that corresponds to the most common “original key” of this sample within the preset.
- (*) Since EMXP translates each EMAX voice into a single Akai S1000 key group, each voice requires 150 parameter bytes in the memory of the Akai S1000 sampler. For most EMAX banks this does not cause any problems, but for banks containing many presets with many voices, the **Akai S1000 parameter memory** limit could be reached (64K). If this is the case, you should not try to load all programs at once…
- …

7.7.7 Sound differences when converting between EMU sampler formats

EMXP tries to translate each individual parameter of the source bank to the closest possible counter value of the target bank. This however is not an easy thing to do !
When converting *towards* Emulator-I and SP-12 it's even almost impossible.
For other conversions, about 85% of the converted presets will sound almost exactly the same, but the remaining 15% can seem to be completely different presets. The most important reasons for this are:

- Difference between the **filters.** The ESI-v3 format supports 19 different filter types, including bandpass and high pass filters on ESI-2000/4000 samplers or ESI-32 samplers with the Turbo option. The other Emu samplers supported by EMXP only support a lowpass filter. The filter dynamics of both cutoff frequency and resonance of the lowpass filters are different between EMAX-I, EMAX-II, Emulator-I, Emulator-II, SP-12, Emulator-III, Emulator-IIIX and ESI samplers. Moreover the filter cutoff frequency in the Emulator-I can only be set to 8 discrete levels. And the filter settings of the SP-12 can't be set at all, a choice must be made between 4 hard wired filter configurations. We tried to use a compromise model in between all filter types. During audition tests we found this model to be OK for 70% of the sounds. But in some cases the original sound can be brighter than the target sound, while in other cases the opposite is true. To avoid these differences in EMXP we should first have to develop "modelled" software versions of the EMAX-I, EMAX-II, Emulator-I, Emulator-II, SP-12, Emulator-III, Emulator-IIIX or ESI filters. This requires a thorough reverse engineering of these filters, and this unfortunately is currently beyond our capacity and time availability.
- Difference in dynamics curves of **filter envelope amount.** Reverse engineering showed that this curve (for lowpass filters) is more or less linear in EMAX-I, EMAX-II, Emulator-III, Emulator-IIIX and ESI samplers while it seems exponential in the Emulator-II. EMXP's translation algorithm contains both these curves but still we found some presets which translated pretty "wrong". Again you have to accept that EMXP uses a compromise model which should have a success ratio of 85%. The Emulator-I does not even have configurable envelopes, and shaping the envelopes on the SP-12 is limited to the VCA envelope which can be changed by only one Decay parameter.
- Difference in **LFO routing amounts**. This is a similar problem as the one of the filter envelope amount.
- Difference in **LFO waveform.** The Emulator-III/IIIX/ESI samplers support different LFO waveforms, while the EMAX-I/EMAX-II and Emulator-II don't. The Emulator-I and SP-12 don't have a configurable LFO at all (only a real time vibrato on the Emulator-I and no LFO at all on the SP-12)
- Difference in **velocity amounts.** The Emulator-III/IIIX/ESI samplers allow negative velocity amounts, and even the start of the sample can be controlled by velocity.
- Difference in **envelope stages and dynamics**. The EMAX-I, EMAX-II, Emulator-III, Emulator-IIIX and ESI samplers have an additional envelope stage called Hold. This stage does not exist on the Emulator-II. EMXP tries to simulate this stage by increasing the Decay stage. Also the sustain curve and time curves are different, e.g. the EMAX is capable of longer release times than the Emulator-II… And the Emulator-I doesn't have any configurable envelopes (it only has a Natural Release parameter which can simulate a longer VCA envelope release time…)
- Difference in **number of envelopes**. The Emulator-III/IIIX/ESI samplers have an auxiliary envelope on board, while the Emulator-II and EMAX-I/EMAX-II only have a VCF and VCA envelope. The Emulator-I doesn't have a configurable envelope (the optional JL Coopers GenMod can only add real time control of the VCF and VCA envelopes…), on the SP-12 only the VCA envelope can be configured in a very limited way (by means of a single Decay parameter).
- Difference in **tuning**. The tune range of the supported samplers are different.
- Difference in **arpeggiated** sounds. While the EMAX-I, EMAX-II, Emulator-III and Emulator-IIIX contain a very advanced arpeggiator, the Emulator-II's one is only basic and the Emulator-I and ESI samplers don't have one. Conversions from Emulator-II to EMAX-I/EMAX-II/Emulator-III/IIIX will be > 90 % OK, but conversions in the other way can result in completely different arpeggios.
- Difference in **sample rate.** The Emulator-I and Emulator-II only support 27778 Hz. The SP-12 only supports 26040 Hz. This means that the sound quality of 44100 Hz samples of the EMAX-II or even 50000 Hz samples of the Emulator-III will decrease on the Emulator-I, Emulator-II and SP-12.
- Difference in **sample looping paths**. The Emulator-II supports forward/backward looping. Conversion of samples looped in that way to EMAX-I, EMAX-II, Emulator-I and Emulator-III/IIIX/ESI-v3 can result in "clicks".
- Difference in **sample playback direction.** The ESI samplers don't support backwards playback of samples (unless the samples are reversed by digitally processing them, but then the original forward playback mode is lost). When converting other sampler formats to the ESI-v3 format, EMXP will not

clone and digitally process samples in order to achieve both forward playing and backward playing variants.

- Difference in **8-bit compression.** While the EMAX-II and Emulator-III/IIIX/ESI samplers use uncompressed 16 bit PCM data and the SP-12 uses uncompressed 12 bit PCM data, the EMAX-I, Emulator-I and Emulator-II compress their sound data into non-linear 8-bit data. This compression results in lower sound quality. Moreover the compression algorithms of the EMAX-I, Emulator-I and Emulator-II are different.
- Difference in **stereo processing**. The Emulator-I, Emulator-II and SP-12 don't have any stereo features. E.g. panning is not supported.
- Difference in **effects (FX) processing**. ESI samplers with a Turbo kit installed have the availability of 70 digital effects in two stereo FX processors. The other Emu samplers don't have this option. When converting between ESI-v3 and other sampler formats, EMXP can try to emulate some FX processor effects by means of voice-level parameters (only applicable for chorus and dynamic panning). When converting to the SoundFont2 format, the ESI FX processors which generate chorus and reverb effects can be converted to SoundFont2 ChorusEffectsSend and ReverbEffectsSend generators.

  Here's an overview of which ESI effects are considered as Chorus, Reverb and/or Panning effects during EMXP conversions:

FX No	FX Name	Chorus	Reverb	Panning
ESI Effects Processor A				
8	Panning Delay		Y	Y
10	Multitap Pan		Y	Y
12	3 Tap Pan		Y	Y
21	Bright Hall Pan		Y	Y
27	Concert 10 Pan		Y	Y
30	Gate Pan		Y	Y
34	Large Concert Pan		Y	Y
39	DelayVerb 4 Pan		Y	Y
40	DelayVerb 5 Pan		Y	Y
all other	*all other effects*		Y	
ESI Effects Processor B				
1	Chorus 1	Y		
2	Chorus 2	Y		
3	Chorus 3	Y		
4	Chorus 4	Y		
5	Chorus 5	Y		
15	Big Chorus	Y		
18	Delay		Y	
19	Delay Stereo		Y	
20	Delay Stereo 2		Y	
21	Panning Delay		Y	Y
22	Delay Chorus	Y	Y	
23	Pan Delay Chorus 1	Y	Y	Y
24	Pan Delay Chorus 2	Y	Y	Y
25	Delay Tap 1/3		Y	
26	Delay Tap 1/4		Y	
31	Distorted Chorus	Y		

- Difference in **real time routing possibilities**. ESI-v3 sound banks in ESI samplers support an additional routing real time routing destination: VCF Resonance Note On.
- Difference in **number of layers and crossfade possibilities**. The Emulator-I and SP-12 only support a single voice layer, while the other Emu samplers support two voice layers (PRI and SEC). Moreover ESI-v3 sound banks on ESI samplers have more crossfade possibilities between these two layers than the other samplers.
- Difference in **preset stacking**. The Emulator-I, Emulator-II and SP-12 do not support stacks of presets.
- Difference in **velocity curves.** The Emulator-II supports only one velocity curve, while the Emulator-I doesn't even support velocity and the SP-12's velocity setting can only be changed on the SP-12 unit itself (it's not saved as a parameter). Note also that the keyboard of the EMAX-I and EMAX-II is not very velocity-friendly, it's too light.
- Difference in **pitch bend range**. The pitch bend range is configurable on EMAX-I, EMAX-II and Emulator-III/IIIX/ESI. In ESI-v3 banks, the maximum possible range is higher than in the other sampler formats.
- Difference in **polyphony and output channel assignment possibilities**. The polyphony and voice allocation/stealing is different between the different Emu samplers. Moreover the Emulator-I and EMAX-II don't have assignable output channels, and in ESI-v3 banks the output channel assignment is accomplished with polyphony groups instead of start and end channel numbers.

- Difference in **MIDI capabilities**. The capabiltities with respect to MIDI differ a lot between the different Emu samplers. The EMAX-I, EMAX-II, Emulator-III and Emulator-IIIX are the most advanced samplers in this area. The Emulator-I does not support MIDI (out of the box), the ESI samplers only support global MIDI settings (not MIDI settings per preset)
- Difference in **transposition (pitch shift) ranges.** While the EMAX-II and Emulator-IIIX/ESI samplers can transpose any sample over the whole keyboard range, the EMAX-I, EMAX-II, SP-12, Emulator-II and Emulator-III have some constraints and the Emulator-I has *dramatic* constraints.
  In case of EMAX-I and Emulator-III these constraints depend on the sample rate. More details can be found in the sampler's manuals. Currently EMXP does not automatically resolve transposition problems. Hence the resulting presets can have some non-transposed keyboard areas. You can try to remove them by (a) requesting lower allowed target sample rates in the EMXP conversion screens, or (even better) (b) apply sample rate conversions on the target sampler afterwards. The conversion reports of EMXP will indicate which presets suffer from transposition problems.
  In case of the Emulator-I, transposition is fully supported *within the fixed key areas* offered by the Emulator-I. The problem is that when converting to the Emulator-I format, the chance is very small that the source preset's key areas exactly match the Emulator-I's fixed key areas. Moreover, the original key of the samples assigned to these fixed key areas is also fixed and can not be changed. As a result, it's almost 100 pct guaranteed that the converted presets will sound out of tune in many areas of the Emulator-I's keyboard.

7.7.8 Issues when converting between EMU sampler formats and the SoundFont2 format

SoundFont2 as an interchange format

The main reason why EMXP supports SoundFont2 is because it is a widely accepted sound standard, which makes it suitable as an "interchange" format between two different samplers.

There are however also some native SoundFont2 samplers out there. Most (all) of them are based on a combination of computer hardware with sound cards, and some piece of software.

- Some of the available SoundFont2 software packages use the computer's soundcard only for audio in/out. Example: the free Viena SoundFont editor[11].
- Other SoundFont2 software packages actually rely on soundcards which natively support the SoundFont2 specification within their hardware synth engine. This is true for most Creative Lab's hardware products (SoundBlaster Live!, Audigy, …) which can be combined with their proprietary Vienna SoundFont studio software.

Since so many different SoundFont compliant solutions are available, it's not possible to apply some "corrective models" to make a SoundFont2 bank generated by EMXP sound as close as possible to – let's say – an original Emulator-III bank.
E.g. some SoundFont2 engines may apply non-linear envelopes for their VCA (just like the Emulator does), while others may apply linear envelopes (like the Audigy 2 ZS does with Vienna).
For this reason, corrective modelling has not been applied in EMXP's conversion engines to and from SoundFont2.

Lack of support for some SoundFont2 parameters in other software

Note also that some SoundFont2 "compliant" software and commercial sample translator software don't necessarily support *all* parameters defined in the SoundFont2 specification. This is especially true in the area of SoundFont2 *modulator* support. Some of the more basic software/VSTs even only support the basic sample assignment to a keyboard !

The lack of modulator support in most software solutions is an important disadvantage which should be taken into account when using EMXP for conversion of E-Mu sound banks to SoundFont2. To illustrate the impact of this disadvantage, let's illustrate this with a few examples:

- the Velocity-to-<destination> settings of E-Mu samplers can only be translated to modulators in SoundFont2.
- the same is true for most real time routing definitions and for Velocity/Real time Crossfades.

If the SoundFont2 (translation) software ignores these modulators which have been generated by EMXP, the result can sound dramatically different from the original one !

Another possible cause of problems are the so-called "default generators and modulators" in SoundFont2. For each sound parameter, SoundFont2 defines a default setting, which means that if it has not been explicitly set in a SoundFont2 file, the SoundFont2 engine should apply this default instead. EMXP relies heavily on these defaults:

- EMXP will not generate a parameter (generator or modulator) explicitly if it corresponds to the default of SoundFont2. The main reason of this approach is to keep the amount of generators and modulators in the SoundFont2 file limited, because SoundFont2 supports only 65536 explicitly defined generators and modulators.
- EMXP will assume SoundFont2 defaults for any parameter which has not been defined explicitly in a source SoundFont2 file. These defaults will then be converted to E-Mu hardware sampler parameters.
- Some default MIDI CC modulators may result in unexpected voice or preset parameters when converting SoundFont2 banks to Emu sampler formats (especially to the Emulator-II format). A conversion preference is available in EMXP which can be used to avoid such unexpected behaviour. See *section "10.3.7.2 Define how SoundFont2 modulators should be converted"*.

[11] Viena editor from MicroFast, http://www.synthfont.com

EMXP supports (and uses !) almost all possible parameters of the SoundFont2 standard

EMXP tries to translate as much parameters as possible between SoundFont2 and the other sampler formats. As always though, there are some "incompatibilities by definition" between SoundFont2 and E-Mu hardware samplers.
This chapter explains some of the most important incompatibilities, which may cause a bank to sound (completely) different between the source sampler and target sampler.

Incompatibilities and constraints when converting TO SoundFont2

- **Positional Crossfades** are not converted to SoundFont2. Velocity and Controller (Real time) Crossfades and Cross switches however are converted by EMXP.
- **Envelope stages** taking longer than 100 seconds are limited to 100 seconds in SoundFont2.
- **Auxiliary envelope** usage is only converted if not more than two envelopes are actually in use in the source (E-Mu) voice. If the source voice uses all three envelopes (VCA, VCF and AUX) then priority is given to VCA and VCF. If the VCF envelope is not used, then the Aux envelope may be converted but only if it drives pitch. Note that SoundFont2 only supports two envelopes, of which one is fixed to VCA.
- **LFO variation** settings are not converted; **LFO to Panning** is not converted.
- **Gate settings** of the E-Mu keyboard are not translated
- Most **MIDI settings** are not translated because SoundFont2 is "almost" MIDI unaware on itself: its "host" should tackle these settings…
- **Arpeggiator** settings are not converted.
- **Output channel** settings are not converted, unless they are mono channel assignments and a preference is enabled to convert mono channel assignments to SoundFont2 exclusive class generators.
- **Stacking of presets** is not converted.
- **Portamento and Attack curves** are not converted
- **Velocity curves** are converted to only a limited number of types: linear, convex, concave or switch.
- If **loops** could cause distortion because their start or end points are too close to the sample's start or end point (less then 8 points), EMXP will add blank sample points to the start or end if the loop is enabled on at least one voice.
- **Separate loop points for "In release" loops** as opposed to "In sustain" loops are not converted. SoundFont2 only allows one set of loop start/end sample points.
- **Forward/Backward** loop cycles and **Reversed** loop cycles are not converted.
- Some parameters, like LFO-to-<destination> settings may not be translated if this parameter is also controlled by an enabled real time controller routing. E.g. if LFO-to-VCA is set to 60% in a voice on the Emulator-III, but the Mod Wheel is routed to LFO-to-VCA and this routing is enabled in that Emulator-III voice, then the Emulator-III ignores the fixed 60% setting until the routing control of the Mod Wheel is switched off. SoundFont2 has no such "priority" mechanism in its specification and hence would cause both LFO settings to be enabled and heard concurrently. To avoid this, the fixed parameter settings are not converted.
- Although one single SoundFont2 file can hold a lot of sound data and parameters, the total number of presets, instruments, zones, generators, modulators and samples is limited to 65536 each. Especially for the generators this limit could sometimes be reached during a conversion process. If that's the case, the conversion process will fail; EMXP does not support (yet) the generation of multiple target SoundFont2 files from a single source bank.

Incompatibilities and limitations when converting FROM SoundFont2

- SoundFont2 supports **multiple layers of samples (multi samples)** on one key, while E-Mu samplers are limited to two voices per key called primary and secondary; the Emulator-I and SP-12 even support only one layer. EMXP will decide which SoundFont2 samples will "survive" and which ones will be "ignored/thrown away". EMXP will always try to preserve the unit of an "instrument", i.e. EMXP will try to keep all zones and samples belonging to an instrument in the translated bank. Which instruments get priority is based on the key-span of the instrument: the more keys are covered by one instrument, the more chance the instrument will be preserved. If all instruments stacked on the same keyboard area have the exact same key coverage, EMXP will take the first instrument it encounters in the SoundFont2 file.

→ *WARNING: This selection algorithm, combined with the flexible data structure layout of SoundFont2, can cause EMXP's conversion processes from SoundFont2 to E-Mu formats to take quite a long time and quite a lot of CPU power. The more instruments and zones that are defined in the SoundFont2 file, the longer it will take to convert the file. Conversion of SoundFont2 files with 40 presets, 200 instruments and hundreds of zones can take 0.5 to 1 minute on modern computers.*

- SoundFont2 allows the same **controller** (like pedal, mod wheel, …) to control multiple destinations (like VCA level, Pitch, …) at the same time; and it also allows the same destination to be concurrently controlled by many controllers. E-Mu samplers however restrict both directions to one. EMXP will decide which controller/destination combination will "survive" and which ones will be "ignored/thrown away". The most common combinations get priority, e.g. Pitch controlled by Pitch Wheel and Vibrato by Mod Wheel. If no common combinations are found, the controller with the lower controller type number will "win" (this numbering is defined in the SoundFont2 specification and mainly relies on the MIDI controller numbers).
- The **sample rate** is adapted to the nearest supported sample rate of the E-Mu sampler. Lower sample rates may be chosen if specified by the user on the sample rate screen (only if the samples would otherwise not fit in the target bank file).
- **Linked samples** – except for left/right links in stereo samples – are not converted.
- **Crossfades and Cross switches** – although not natively supported by SoundFont2 parameters – are detected by EMXP and can be enabled in the target E-Mu sound banks.
- **Reverb Effects** are not converted, except if the target sampler format is ESI-v3.
- **Delay settings of the Modulation Envelope** are not converted.
- The **Key number-to-Envelope Hold and Decay stages** are not converted.
- The **forced MIDI key number and velocity interpretation** parameters are not converted.
- Any modulator which contains a **controller/destination routing** which is not supported by E-Mu samplers are not translated. If the routing IS supported, some modulator parameters may still be ignored, e.g. bipolar settings while E-Mu only supports unipolar settings for that routing combination. Also cascades of modulators and usage of amount submodulators and transformer submodulators are rarely converted.
- Any parameter value which is **out of range by SoundFont2** standards will be corrected to the nearest allowed value.
- Any parameter value which is **out of range by E-Mu sampler standards** will be adapted to the nearest supported E-Mu value.

7.7.9 Issues with conversions of "loop" settings

Constraints related to loop start points, loop end points and loop lengths

Maybe you already noticed that some samplers don't allow a loop start and loop length which completely span the sample, and that loops should have a minimum length:

- *EMAX-I* does not allow loops starting on the first 2 sample points, and the loop must end at least 4 sample points before the actual sample end. The minimum loop length is 6 sample points.
- *EMAX-II* does not allow loops starting on the first 3 sample points, and the loop must end at least 44 sample points before the actual sample end. The minimum loop length is 32 sample points although 6 sample points are accepted to preserve compatibility with the EMAX-I.
- *Emulator-II* does not allow loops starting on the first 4 sample points, and the loop must end at least 4 sample points before the actual sample end. The minimum loop length is 1 sample point.
- *SP-12* does not allow loops starting on the first 5 sample points and the loop must always and on the last sample point. The minimum loop length is 3 sample points.
- *Emulator-I, Emulator-III/IIIX/ESI* and *Akai S1000* allow loops which span the complete sample length; the minimum loop length is 1 sample point.

Moreover also some *SoundFont2* software or hardware engines may have problems with some loop settings. E.g. start or end loop points which are closer than 8 sample points to the sample's start or end points can cause problems, as well as loop lengths smaller than 32 sample points.

This is an annoying characteristic of these samplers and EMXP cannot overcome all of these problems.

Corrective actions applied by EMXP

Some people carefully design sample files on their computer using their favourite audio editing software. Sometimes they create their samples in such way that they can be looped **over their full length** in a smooth way, or they define loops in these samples which cover (almost) the full length of the sample.
These samples are then saved as WAV files (perhaps even including loop definitions) and transferred to or converted to an Emu, Akai S10000 or SoundFont2 sampler format using EMXP.

Also, when converting from one sampler format to another, similar incompatibilities with loop addresses and lengths may be encountered. E.g. if Emulator-III samples are being converted to EMAX-II samples, the Emulator-III sample's loop settings may be beyond the EMAX-II loop limits.

As a consequence the conversion of some looped samples would result in audible "glitches" if no correction would be applied by EMXP during sample conversion.

Fortunately EMXP overcomes this problem by adding a number of blank bytes at the beginning and at the end of each sample if it detects that the loop's start address and/or loop's end address are too close to the sample's start address and/or sample's end address. By adding these corrective *offset* sample points, the loops will still play correctly after having been converted to the target sampler format.
Since the number of blank sample points that may be added by EMXP is very small, you shouldn't notice any additional audible silence at the beginning or at the end of the sample.

However EMXP can not resolve problems related to the minimum loop length and the constraint of the SP-12 that the loop's end point should be identical to the sample's end point. If the source sample's loop length is smaller than the minimum loop length required by the target sampler, the target loop will sound wrong. If the SP-12 loop's end point does not match the sample's end point, the sample will play from the very first sample point to the very last sample point once before the actual loop starts. This can result in a single audible click.

Also note that any offset sample points that may have been added by EMXP wil not be "subtracted" again when converting the target samples back to the source format (or to WAV files). The reason for this is obvious: EMXP can not know if these offset sample points are intentionally part of the sample or not.

8. USING EMXP: CONSTRUCTIONS

Besides the *automatic* WAV-to-sound bank conversion - as explained in *chapter "7. USING EMXP: CONVERSIONS"* – EMXP also offers a basic *construction* editor.

The WAV-to-sampler **construction mode** allows you to:

- decide yourself to which key(s) (or SP-12 sounds) WAV files should be assigned,
- assign WAV files to key *areas* instead of individual keys,
- change the original pitch (note/key) of assigned WAV files,
- select the layer (PRI or SEC) to which the WAV files should be assigned,

Constructions can be made for all sampler types supported by EMXP, except the Akai S1000.

Hint:
Using the EMXP construction tool may not be the most user-friendly way of constructing and designing sound banks for E-Mu samplers.
A **better option** may be to use one of the free SoundFont editors available on the internet, like Polyphone[12] or MicorFast's Viena[13] (not to be confused with the commercially available Creative Vienna SoundFont editor which requires a Creative sound card/synth engine).
The only disadvantage of using another editor, is that it will not validate whether the constructed presets are compatible with the destination sampler; EMXP's construction editor does offer a real time validation of every step the user takes during a bank contruction.

8.1 CONSTRUCTION WORKFLOW

The construction mode of EMXP can be started in two ways:

To create a new construction:
either:
"5. Manage EMXP CONSTRUCTION Files" → "1 → 7. Construct [target sampler] Bank from WAV files"
(1 → 7 depending on the target sampler type you would like to make a construction for)
or:
"3. Manage WAV Files" → "3. Advanced WAV-to-Sampler Conversion (EMXP CONSTRUCTION)" → "1 → 7. Construct [target sampler] Bank from WAV files"
(1 → 7 depending on the target sampler type you would like to make a construction for)

To edit an existing construction file:
either:
"5. Manage EMXP CONSTRUCTION Files" → "8. Manage existing EMXP Construction Files" → [select a construction file]
or:
"3. Manage WAV Files" → "3. Advanced WAV-to-Sampler Conversion (EMXP CONSTRUCTION)" → "8. Manage existing EMXP Construction Files" → [select a construction file]

[12] Polyphone from Davy Triponney, http://polyphone-soundfonts.com
[13] Viena from MicroFast, http://www.synthfont.com

```
                        EMXP CONSTRUCTION MAIN MENU
------------------------------------------------------------------------------

            1.  Construct EMAX-I Bank from WAV Files

            2.  Construct EMAX-II Bank from WAV Files

            3.  Construct EMULATOR-I Bank from WAV Files

            4.  Construct EMULATOR-II Bank from WAV Files

            5.  Construct EMULATOR-III/X/ESI Bank from WAV Files

            6.  Construct SOUNDFONT2 Bank from WAV Files

            7.  Construct SP-12 Bank from WAV Files

            8.  Manage existing EMXP CONSTRUCTION Files


------------------------------------------------------------------------------
            [1]...[8]: menu option                  ESC: Go back
------------------------------------------------------------------------------
                        Please enter a menu option:
```

For constructing Emulator-III, Emulator-IIIX or ESI sound banks, a submenu screen will appear after selecting option 5.

```
                  EMXP CONSTRUCTION EMULATOR-III/X/ESI MENU
------------------------------------------------------------------------------

               1.  Construct EMULATOR-III Bank from WAV Files

               2.  Construct EMULATOR-IIIX Bank from WAV Files

               3.  Construct ESI-V3 Bank from WAV Files



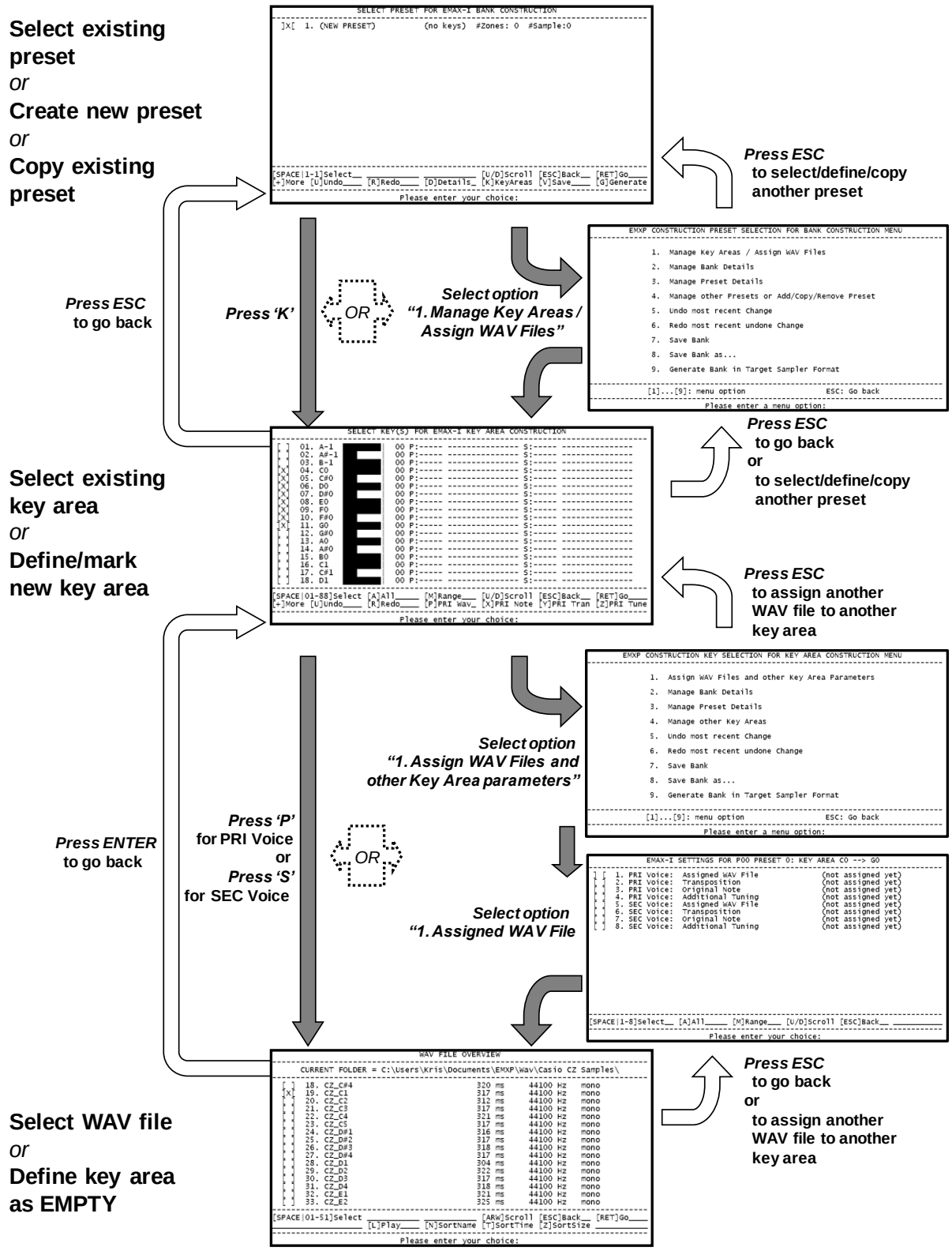






------------------------------------------------------------------------------
            [1]...[3]: menu option                  ESC: Go back
------------------------------------------------------------------------------
                        Please enter a menu option:
```

The diagram below summarizes the basic *workflow* how to construct a sound bank in EMXP.



The screen layouts in the diagram can vary depending on the target sampler; the diagram illustrates the workflow for constructing an EMAX-I sound bank.

A typical workflow for constructing a sound bank and generating it into the target sampler format consists of following steps:

1. Add a preset to the sound bank by selecting *"New Preset"* in the *"Select Preset For [sampler] Bank Construction"* window, or *select an existing preset* in that same window if one or more presets are already available. It's also possible to *copy an existing preset* by selecting the existing preset and pressing 'C'. A preset is a set of samples assigned to different parts of the keyboard.
2. *Define a key area* to which you want to assign a WAV file (sample), or *select an existing key area*. This can be done
    - either by pressing 'K' in the *"Select Preset For [sampler] Bank Construction"* overview window
    - or by pressing 'Enter' in the *"Select Preset For [sampler] Bank Construction"* overview window, then selecting option *"1. Manage Key Areas / Assign WAV Files"* from the *"Preset Construction Menu"*

    Note: if the Emulator-I has been selected as target sampler format, after selecting the preset EMXP will ask how many key areas you want to use and will generate these (empty) key areas, before showing the key overview or the *"Preset Construction Menu"*. The reason is that the Emulator-I only supports a fixed number of key areas with a pre-defined size.
3. Decide whether you want to assign (or de-assign) a WAV file to either the Primary voice layer or to the Secondary voice layer of the selected key area. The choice can be made
    - either by pressing 'P' or 'S' in the *"Select Key(s) For [sampler] Key Area Construction"* overview window
    - or by pressing 'Enter' in the "*Select Key(s) For [sampler] Key Area Construction"* overview window, then selecting *"1. Assign WAV files and other Key Area parameters"* in the *"Key Area Construction Menu"* window, and finally select *"Assigned WAV file"* in either the PRI or SEC part of the *"[sampler] Settings for [preset] Key Area [key area"* window.

    Note: if the Emulator-I or SP-12 has been selected as target sampler format, it's only possible to assign a WAV file to the PRI voice layer. The option to assign a WAV file to the SEC layer will not be visible.
4. *Select a WAV file* in the *"Select WAV file for Key Area [key area]"* window or *select "Make Voice Empty"* in that same window if you explicitly want to have an empty key area (e.g. if a WAV file was assigned before but you want to de-assign it now). You can listen to the WAV file first by pressing 'L' in the *"Select WAV file for Key Area [key area]"* window.
5. *Assign WAV files to additional key areas* by repeating steps 2 → 4. After step 4, you may have to press the 'ESC' button a few times to go back to the *"Select Key(s) For [sampler] Key Area Construction"* overview window.
6. *Add additional presets and assign WAV files to these presets* by repeating steps 1 → 5. Again, you may have to press 'ESC' a few times to go back to the *"Select Preset For [sampler] Bank Construction"* window

    Note: adding additional presets is not possible on the Emulator-I and SP-12, since only one preset is supported by these samplers.
7. *Generate the constructed sound bank to the target sampler format*
    - either by pressing 'G' in the "*Select Key(s) For [sampler] Key Area Construction"* overview window or in the *"Select Preset For [sampler] Bank Construction"* overview window
    - or by pressing 'Enter', then selecting *"9.Generate Bank in Target Sampler Format"* in any of the EMXP construction menus. EMXP will ask for some additional generation parameters (depending on the target sampler), for the loop conversion parameters (if applicable) and for a file name and a folder for the generated file.
8. For each assigned WAV file / key area, some additional parameters can be specified: the note (pitch) of the WAV file, whether the sample should be subject of transposition, and the fine grained tuning of the pitch. E.g. changing the original note (pitch) of the WAV file can be done in the *"[sampler] Settings for [preset] Key Area [key area"* window of step 3, or directly from the "*Select Key(s) For [sampler] Key Area Construction"* overview window by pressing 'X' or 'I'. Note: the loop conversion parameters can *not* be defined in this step for each WAV file individually. They have to be defined for all WAV files at once as part of the generation process. See *section "8.2.5 Other options"* for more details.
9. For each preset, some additional parameters can be specified. E.g. the preset name or order (numbering) of presets. This can be done
    - either by pressing 'D' in the *"Select Preset For [sampler] Bank Construction"* or "*Select Key(s) For [sampler] Key Area Construction"* overview windows
    - or by selecting *"3. Manage Preset Details"* in any of the EMXP construction menus.

    Note: none of these preset parameters will actually be translated to Emulator-I or SP-12 sound banks, since these parameters are not supported by that sampler.
10. Some parameters on bank level and construction file level can be specified. E.g. the file name and bank name, but also the target sampler's minimum and maximum sample rate and total memory size (if

applicable). Another interesting option that can be enabled is to preserve stereo WAV files. You can even change the target sampler type itself, e.g. from EMAX-I to Emulator-II. All these parameters can be set

- either by pressing 'B' in the *"Select Preset For [sampler] Bank Construction"* or "*Select Key(s) For [sampler] Key Area Construction"* overview windows
- or by selecting *"2. Manage Bank Details"* in any of the EMXP construction menus

11. Any activity that affects the structure of the sound bank (i.e. presets, key areas, WAV files and their parameters) can be *undone*. Undoing activities can be done by selecting *"5. Undo most recent change"* in any of the EMXP construction menus, or by using the *"U"* shortcut key in either the *"Select Preset For [sampler] Bank Construction"* window or the "*Select Key(s) For [sampler] Key Area Construction"* window.
    Once undone, an activity can be redone again as long as no new activity has taken place. Redoing activities can be done by selecting *"6. Redo most recent undone change"* in any of the EMXP construction menus, and by using the *"R"* shortcut key in the *"Select Preset For [sampler] Bank Construction"* window.
    The number of activities which can be queued in the undo/redo buffer can be specified in the EMXP preferences. See chapter *"6.7 Preferences".*
12. At any time the EMXP construction file can be saved. This can be done
    - either by pressing 'V' or 'W' in the *"Select Preset For [sampler] Bank Construction"* overvuew window or in the "*Select Key(s) For [sampler] Key Area Construction"* overview window
    - or by selecting *"7. Save Bank"* or *"8. Save Bank As"* in any of the EMXP construction menus.

During sound bank construction, any activity which affects the structure of the sound bank will be immediately validated by EMXP against the target sampler's limits. E.g. if a WAV file is too big for the sampler's memory, the user will receive an error message and the activity will be rolled back.

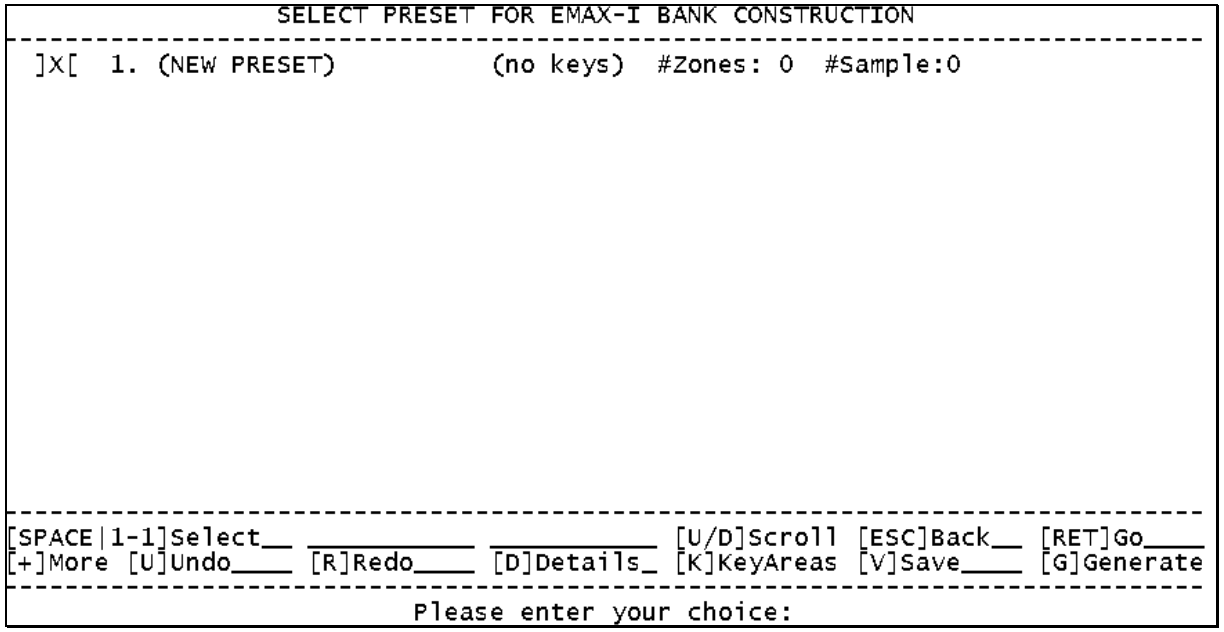
When you change the target sampler type during any construction, e.g. from EMAX-I to Emulator-II, the whole sound bank will be validated by EMXP against the new chosen target sampler's limits as well. If the newly chosen target sampler is more limited than the previous one, e.g. regarding the available keyboard range (61 keys instead of 88), the validation may fail and the selection of the new target sampler may be undone by EMXP. You will first have to adapt the construction in order to make it compatible with the new target sampler type, e.g. by removing some key areas or by changing the original keys.

8.2 SELECTING, CREATING, COPYING AND REMOVING A PRESET

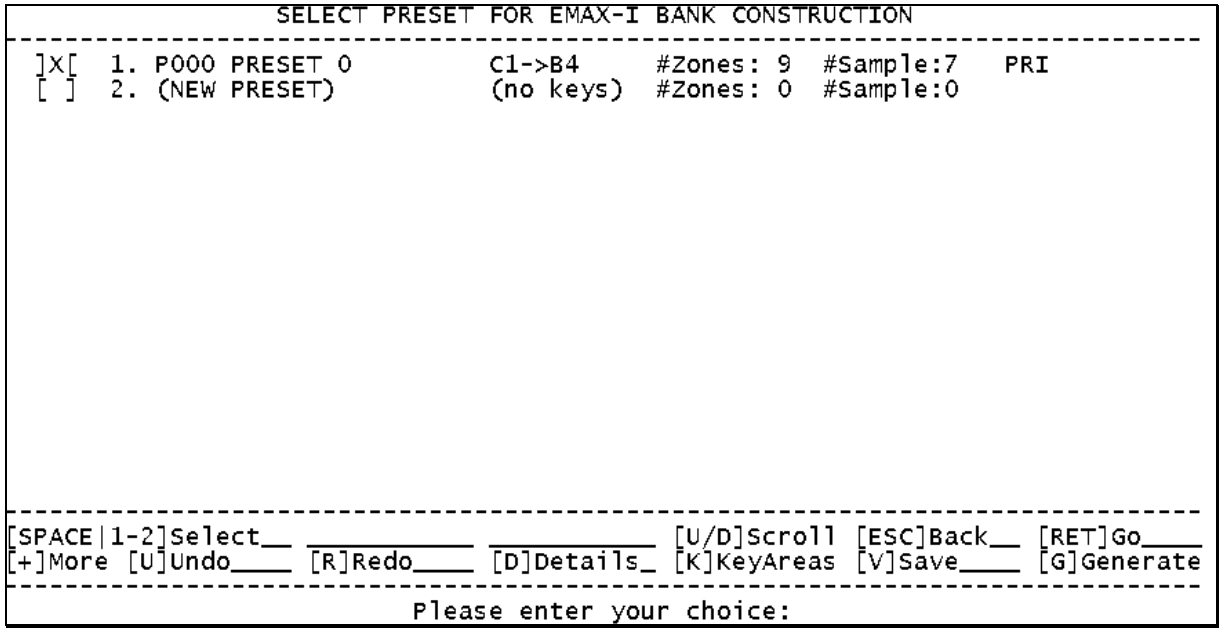
A construction file can contain one or more presets, depending on the destination sampler format you have selected.
Note: for the Emulator-I and SP-12, the number of presets is limited to exactly 1.

8.2.1 Creating or selecting a preset

If a new sound bank is being constructed, the *"Select Preset for [sampler] Bank Construction"* window looks like this:



If an existing construction file is being edited, or if you have returned to this window after having defined some key areas already, the *"Select Preset for [sampler] Bank Construction"* window may look like this:



Note: the above screens look slightly different when constructing SP-12 sound banks. Instead of mentioning keys or key ranges, the SP-12 screens mention sounds or sound ranges.

To **add a preset** to the sound bank, select the '*(New Preset)'* record and press 'Enter'.
To **select an existing preset**, position the cursor on the existing preset (or enter its number), and

- press 'Enter' to get an overview of all available actions
- press one of the shortcut keys: 'K' for defining key areas, 'D' for changing the preset details like the preset name, 'B' for changing the bank details, 'V' or 'W' to save the construction file and 'G' to generate to the target sampler format.

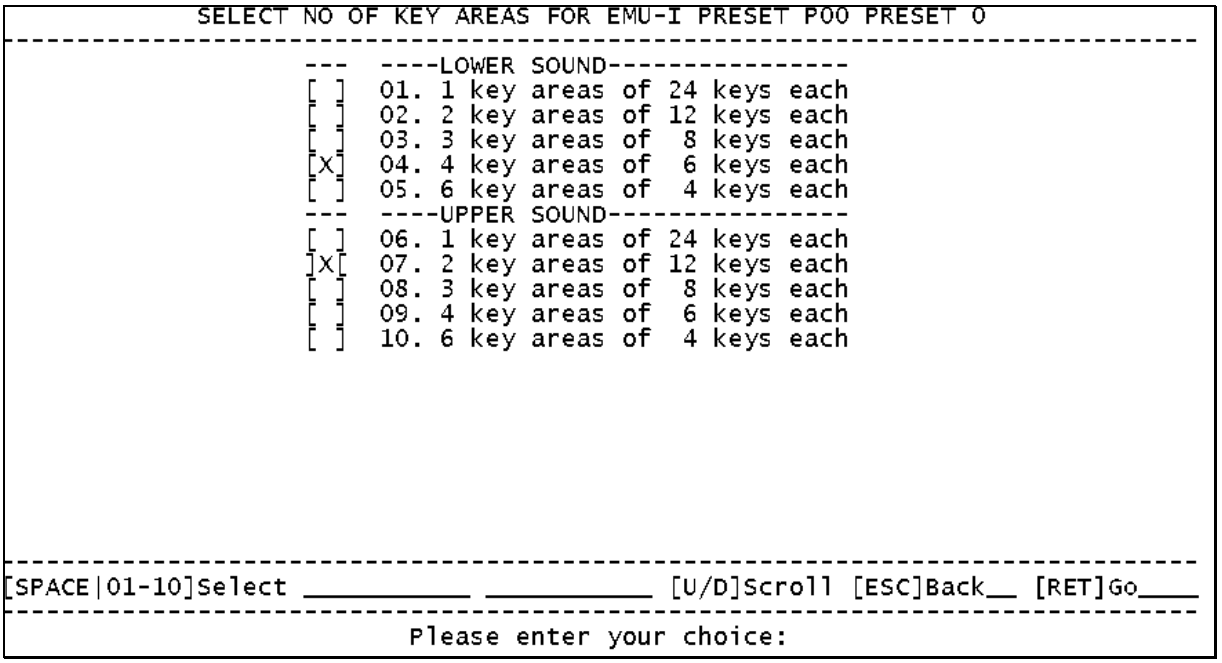
On this window you can also undo/redo recent activities by pressing the *'U'* (undo) and *'R'* (redo) keys.

Emulator-I only:

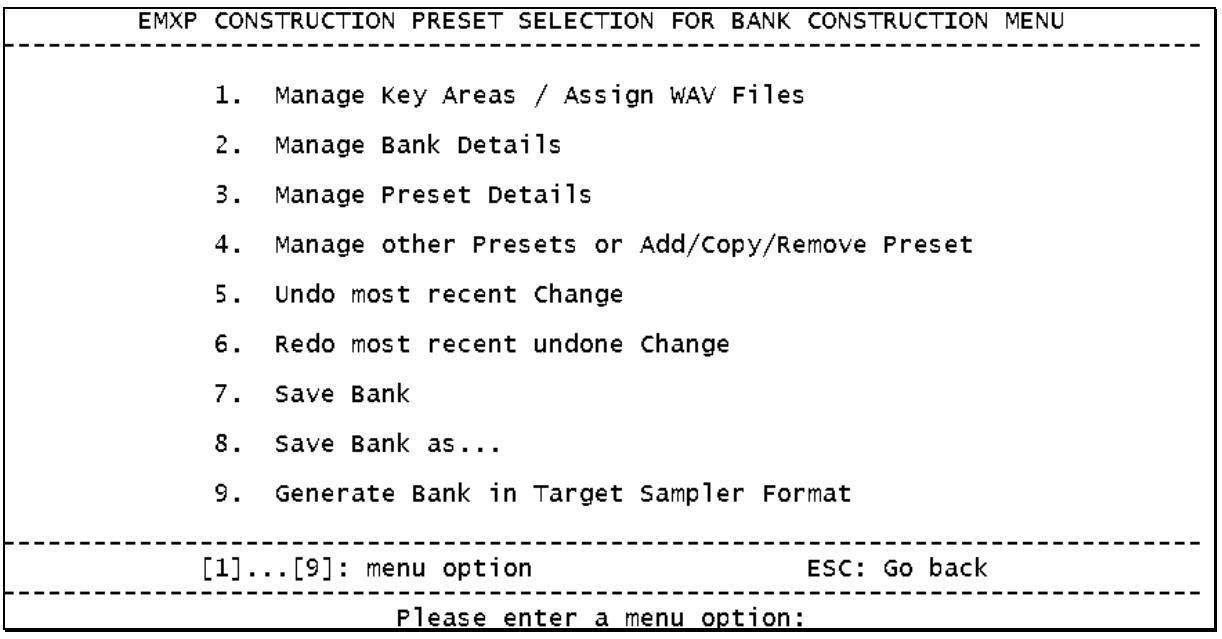
If a new preset has been selected, EMXP will ask how many key areas should be present in both the lower and the upper sound of the preset. While with other samplers the user will have the possibility to dynamically define start and end points of any key area in the preset, the Emulator-I can only deal with a pre-defined, fixed number of key areas having a fixed size (= number of keys in them).

You *must* specify the number of key areas in both the lower and upper sound. The default is 6 key areas for both sounds, which is the maximum.

You can change this number of key areas later in the *"Manage Preset Details"* window.



After a preset has been selected, the *"Preset Construction Menu"* appears:



8.2.2 Copying a preset

To **copy an existing preset** and add it as a new preset to the sound bank, you can select the existing preset and

- press 'C' in the *"Select Preset for [sampler] Bank Construction"* window
- or select option *"4. Manage other Presets or Add/Copy/Remove Preset"*in the *Preset Construction Menu.* A submenu will appear, in which you can select option 2 *"Copy current Preset"* to create a new preset based on the content of the selected preset. In this submenu you can also
  - select option 1 *"Manage other Presets or add new Preset"* to go back to the *"Select Preset for [sampler] Bank Construction"* window in order to select or create another preset (which is the same as if you would have pressed 'ESC')
  - select option 3 *"Remove current Preset"* to remove the selected preset from the construction file.

When copying an existing preset to a new preset, the samples derived from the WAV-files will by default be shared between the two presets in order to save memory space. If the samples should be copied as well, this can be achieved by changing a bank parameter. See *section "8.4 CHANGING BANK AND CONSTRUCTION FILE PARAMETERS"*.

> Note: copying presets is not possible for the Emulator-I and the SP-12, since these samplers only support one preset per bank.

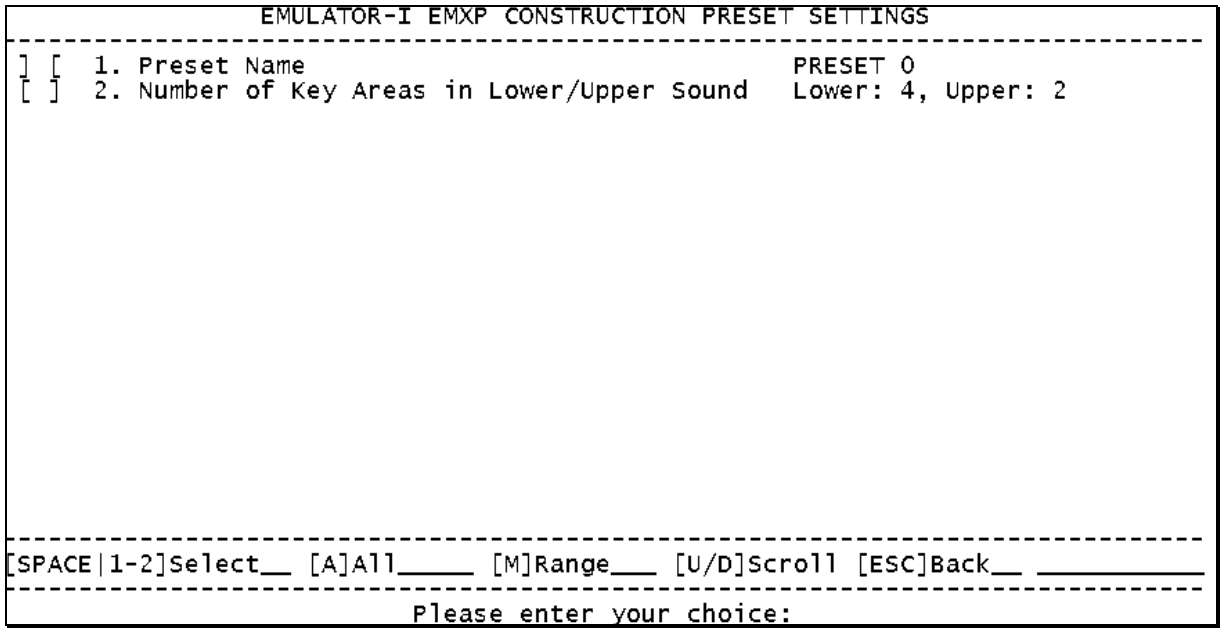
8.2.3 Removing a preset

To **remove the selected preset** from the sound bank, you can select the preset and

- press 'E' in the *"Select Preset for [sampler] Bank Construction"* window
- or select option *"4. Manage other Presets or Add/Copy/Remove Preset"*in the *Preset Construction Menu.* A submenu will appear, in which you can select option 3 *"Remove current Preset"* to remove the selected preset. In this submenu you can also
  - select option 1 *"Manage other Presets or add new Preset"* to go back to the *"Select Preset for [sampler] Bank Construction"* window in order to select or create another preset (which is the same as if you would have pressed 'ESC')
  - select option 2 *"Copy current Preset"* to copy the current preset to a new preset.

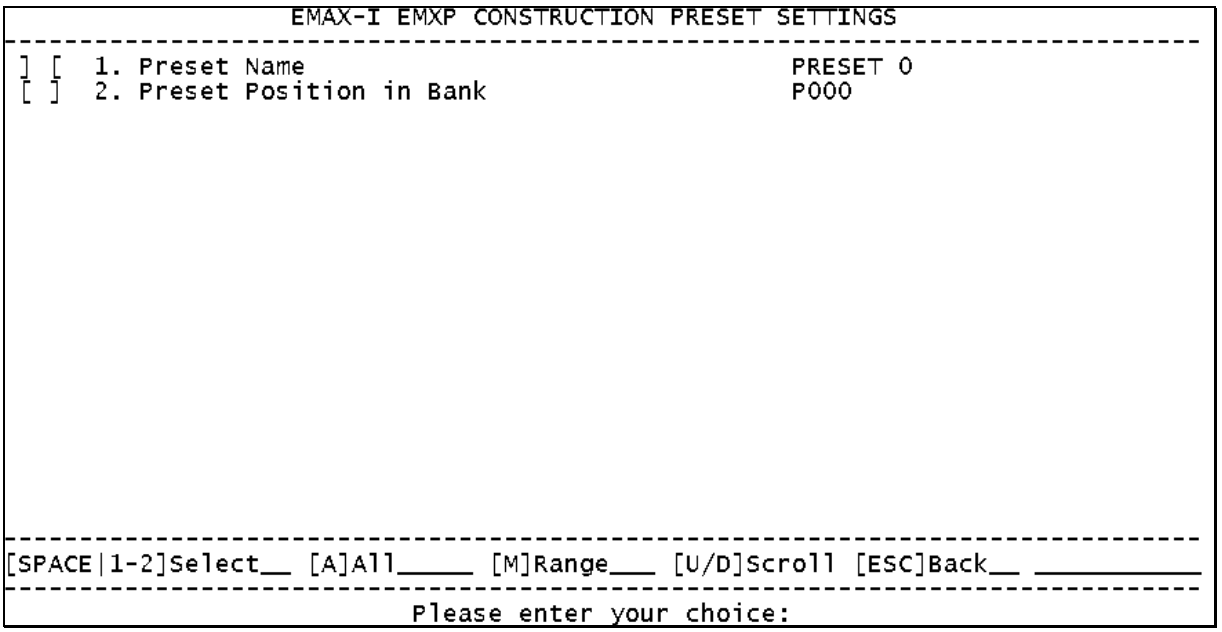
8.2.4 Specifying preset parameters

To **specify some parameters on preset level**, press 'D' in the *"Select Preset for [sampler] Bank Construction"* or "*Select Key(s) For [sampler] Key Area Construction"* overview window or select option *"3. Manage Preset Details"* in the *"Construction Preset Selection for Bank Construction"* menu window.
The preset parameters that can be defined here are sampler specific.



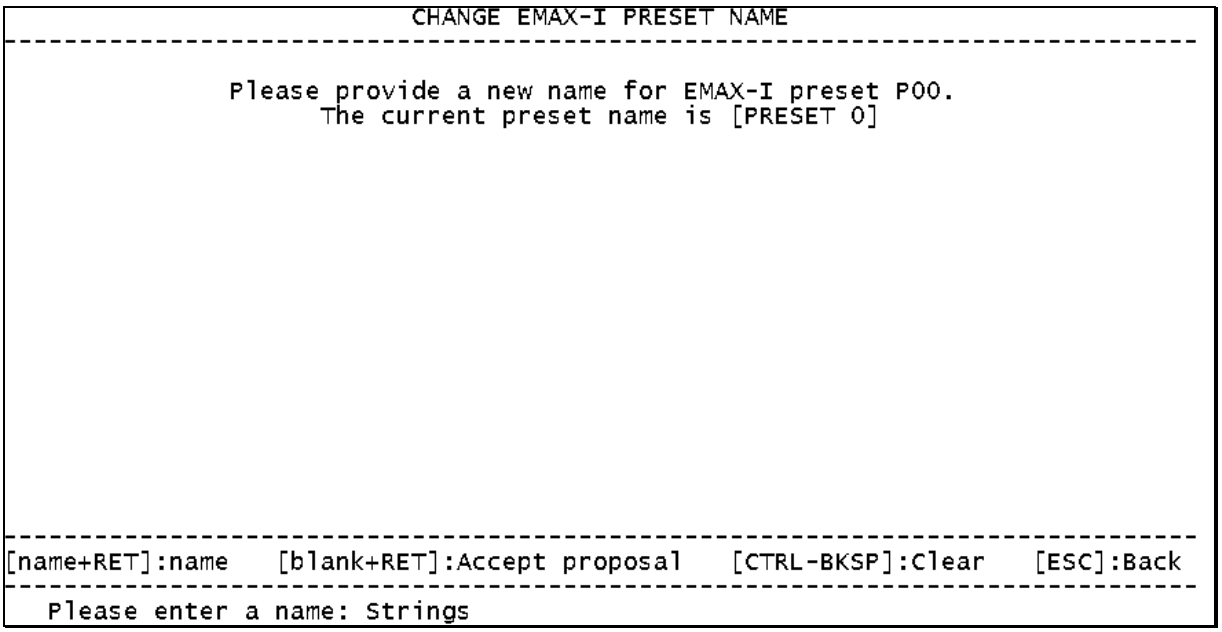
With the **Emulator-I** as target sampler format, you can only change the preset name and the number of key areas in the preset:

- The preset name will not be translated into the Emulator-I bank, because the Emulator-I does not support preset names. The preset name is only used within the construction file.
- When changing the number of key areas, EMXP will have to re-shuffle the key assignments that you may already have defined. It will try to preserve as much of these assignments as possible, but please be aware that changing the number of key areas of an existing preset is a *destructive* activity and should be avoided.

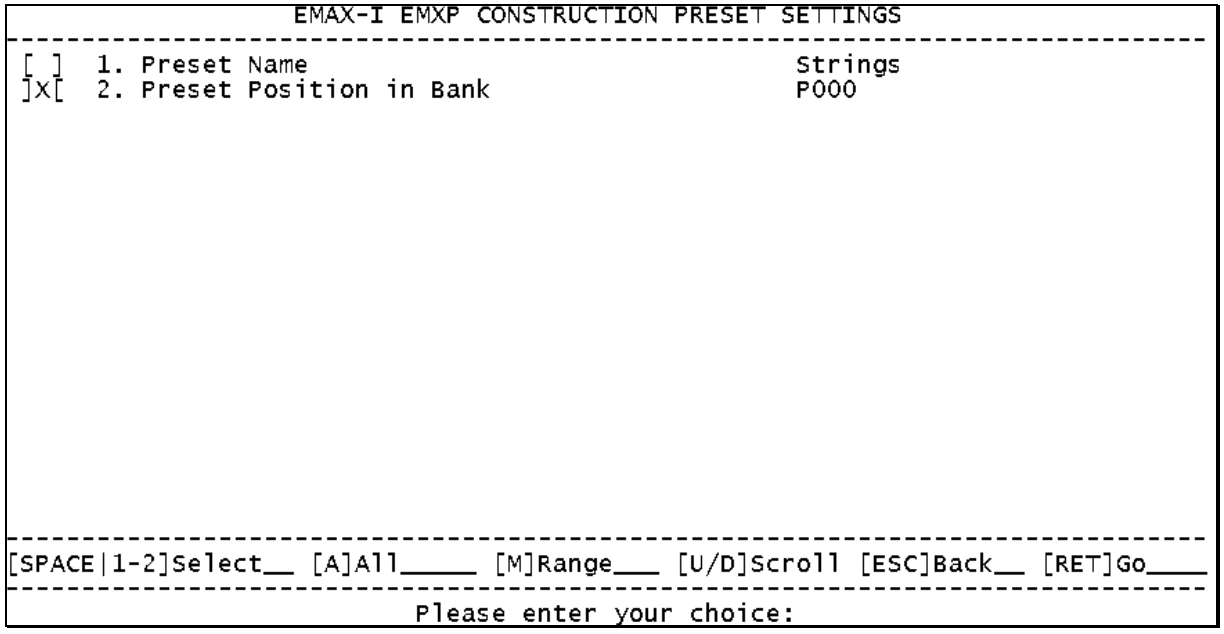


With **other samplers** as target sampler format (like EMAX-I), you can change the preset name and the order of the presets in the bank.

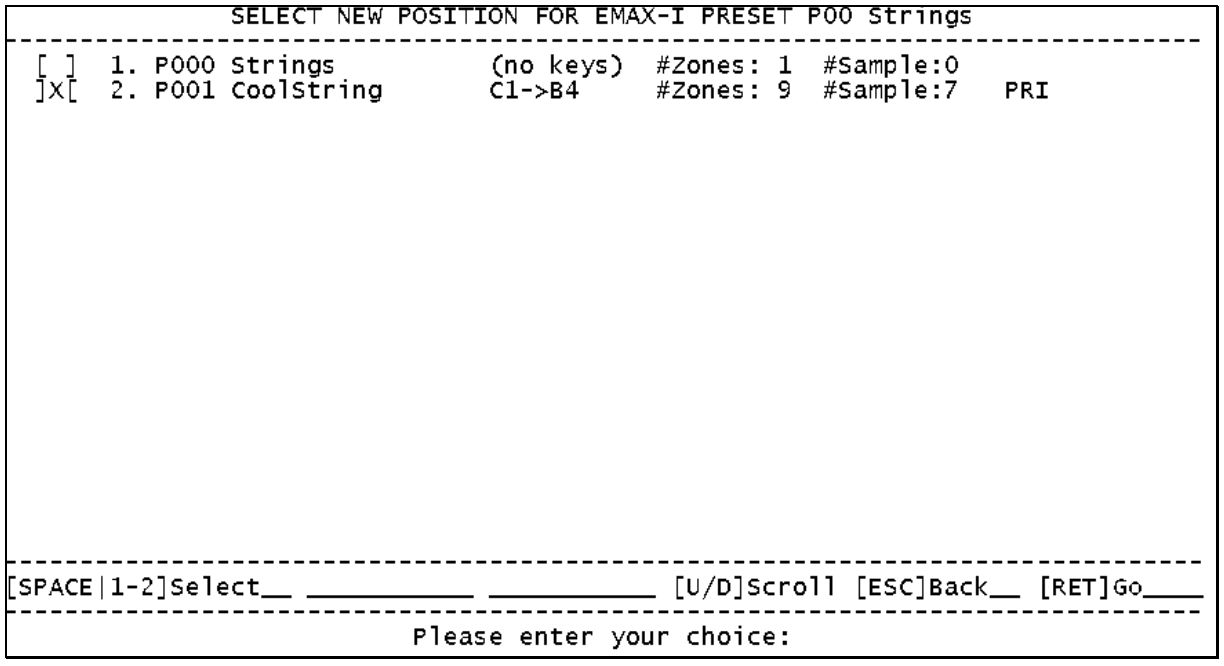
- The preset name will be translated to the actual preset name in the target sampler bank when generating the bank, except for SP-12 constructions where the preset name will simply be ignored. The next picture shows how to change the preset name of the currently selected preset:



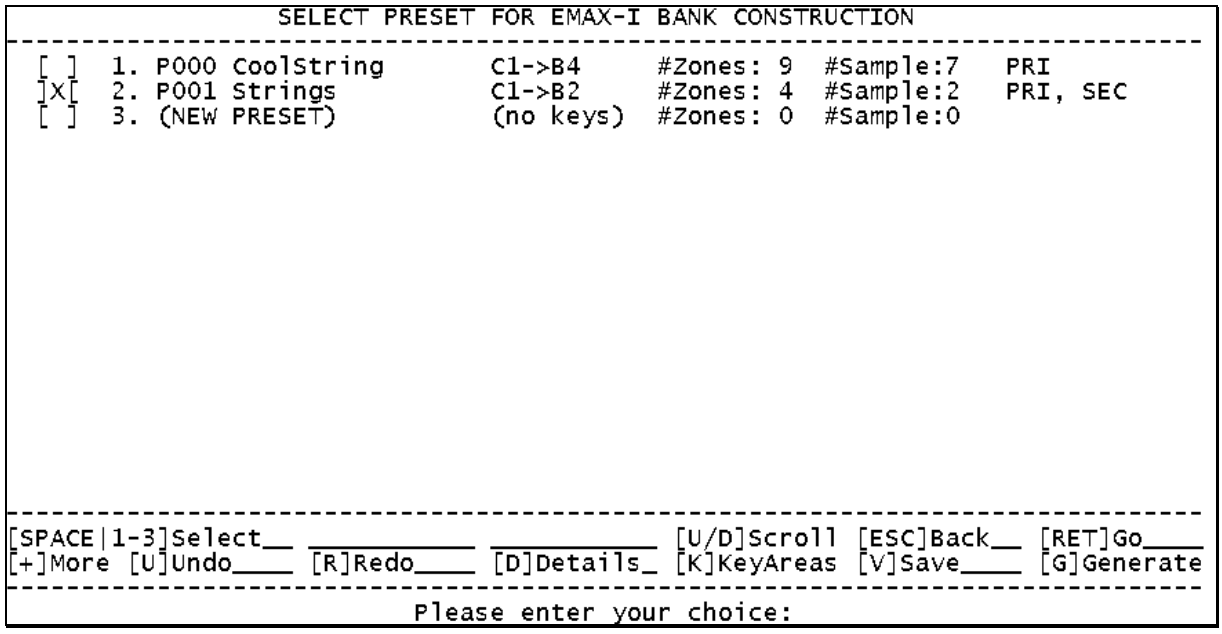
- You can move presets in the bank, e.g. swap the first and second preset. This option is also available for SP-12 constructions but in that case it's useless. In the example below, we can move the first preset (now called "Strings") from the first (P000) position to the second (P001) position.



Since the second position was taken by another preset already (here "CoolString"), this preset is now becoming the first preset P000.



If you would press ESC a few times, to return to the *"Select Preset for [sampler] Bank Construction"* window, you would now observe that the two presets are swapped in position:



8.2.5 Other options

To **undo and redo** the most recent activities, you can use shortcut keys 'U' and 'R' in the *"Select Preset for [sampler] Bank Construction"* overview window or use options 5 and 6 in the *"Construction Preset Selection for Bank Construction"* menu window.

To **save the construction file**, you can use shortcut key 'V' or 'W' in the *"Select Preset for [sampler] Bank Construction"* overview window or use options 7 and 8 in the *"Construction Preset Selection for Bank Construction"* menu window. When using option 8 or the shortcut key 'W', EMXP will always prompt for a file name. When using option 7 or the shortcut key 'V', EMXP will only prompt for a file name if none has been entered before yet.
A file extension ".EMXP" will be added to the file name. The WAV files are *not* included when saving the construction file. So if you want to edit a construction file in the future, make sure to keep the WAV files also.

To **generate the sound bank in target sampler format**, you can use shortcut key 'G' in the *"Select Preset for [sampler] Bank Construction"* overview window or use option 9 in the *"Construction Preset Selection for Bank Construction"* menu window. From here on the process is similar (but not identical) to the process of converting sound banks and WAV files as explained in *chapter "7. USING EMXP: CONVERSIONS"*.

- You will first have to choose between a fully automated BATCH mode or the MANUAL or SEMI MANUAL mode. For more details see *section "7.2.3 Batch or manual conversion process"*.
- Then you will have to select a target file or disk type, e.g. whether you would like to generate an EMAX-I *bank* file or rather an EMAX-I *EMX* file. The available options have been explained in *section "7.2.2.2 Selecting the target file/disk type"*.
- Finally you will have to go through some of the same steps as the ones explained in *section "6.2.2 Batch or manual copy process (not for AKAI S1000)"* and *section "7.3 NEXT STEPS PER TARGET SAMPLER TYPE"*. Just like with copying or converting items, the number of parameters that should be defined depends on the mode you have chosen (BATCH, MANUAL, SEMI-MANUAL). But even in MANUAL mode, you won't have to provide some conversion parameters anymore, like sample rate and memory size. These parameters have already been set in the *"Construction File Settings"*. More details can be found in *section "8.4 CHANGING BANK AND CONSTRUCTION FILE PARAMETERS"*. If any of the WAV files in the construction file contains at least one loop, you will be requested to define the WAV loop conversion parameters as well (in MANUAL or SEMI-MANUAL mode). These are the same as the ones explained in *section"7.3.9 Conversion from WAV"*.

- The remainder of the process is identical to the one described in *section "7.4 EXECUTING THE CONVERSION", section "7.5 AVAILABLE SPACE REQUIRED ON THE TARGET FOLDER OR DISK"* and *section "7.6 CONVERSION PROCESS EXECUTION REPORT"*. The generation execution report which will be shown when the bank generation has finished is similar to the one explained for automatic WAV-to-Sampler conversions. See example 4 in *section "7.6.1 Examples"*.

To **change some parameters on bank / construction file level**, press 'B' in the *"Select Preset for [sampler] Bank Construction"* overview window or select option 2 in the *"Construction Preset Selection for Bank Construction"* menu window. More details can be found in *section "8.4 CHANGING BANK AND CONSTRUCTION FILE PARAMETERS"*.1

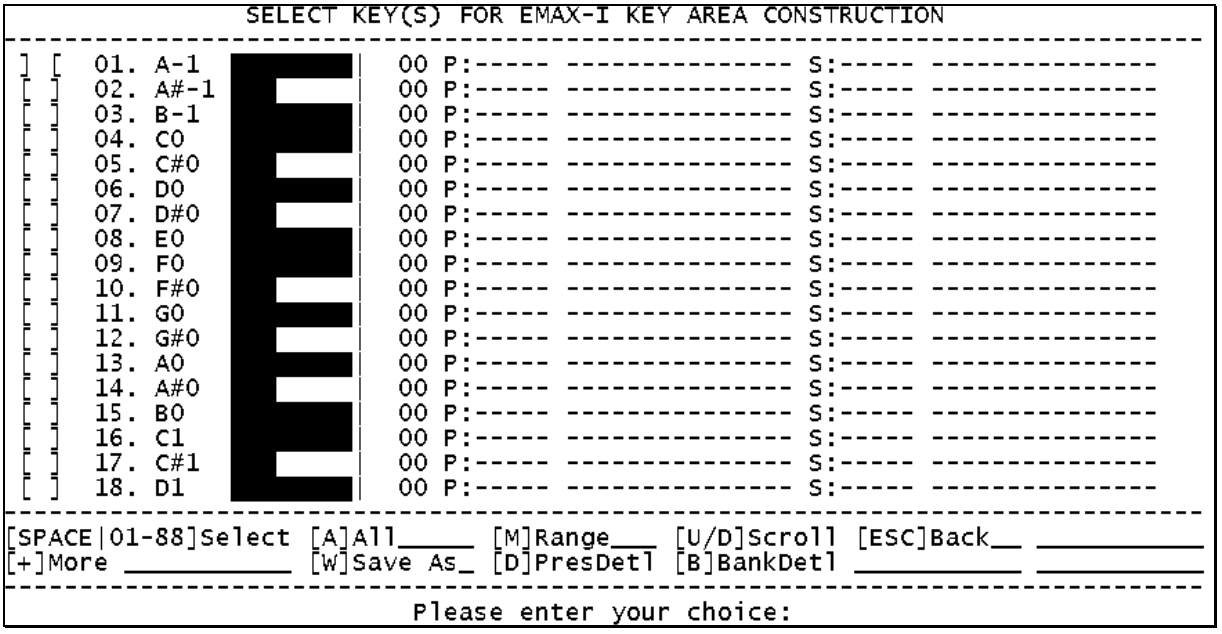
To **define or change the WAV-to-key assignments,** , you can use shortcut key 'K' in the *"Select Preset for [sampler] Bank Construction"* overview window or use option 1 in the *"Construction Preset Selection for Bank Construction"* menu window. More details can be found in the next section.

8.3 DEFINING WAV-TO-KEY ASSIGNMENTS

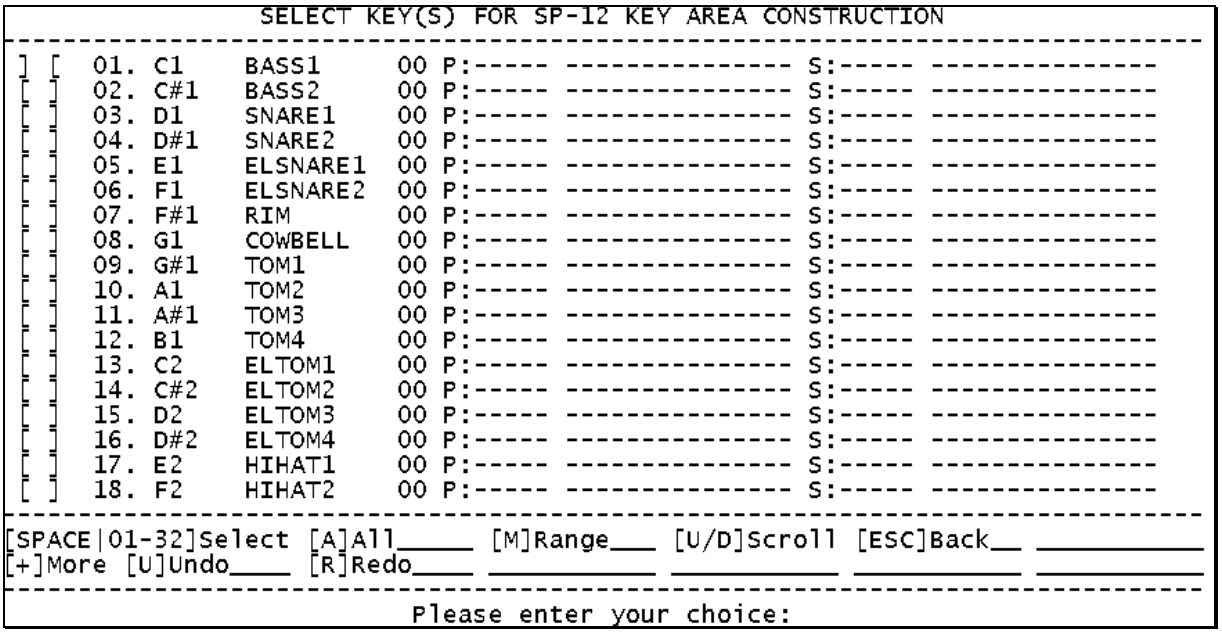
The way WAV files are assigned to either the PRI or SEC voice of the preset's keyboard (or to the SP-12 sounds) by

- either pressing 'K' in the *"Select Preset for [sampler] Bank Construction"* overview window
- or by selecting option *"1. Manage Key Areas / Assign WAV Files"* in the *"Construction Preset Selection for Bank Construction"* menu window (see previous section).

If you are defining a new preset, the key assignment overview window looks like this:

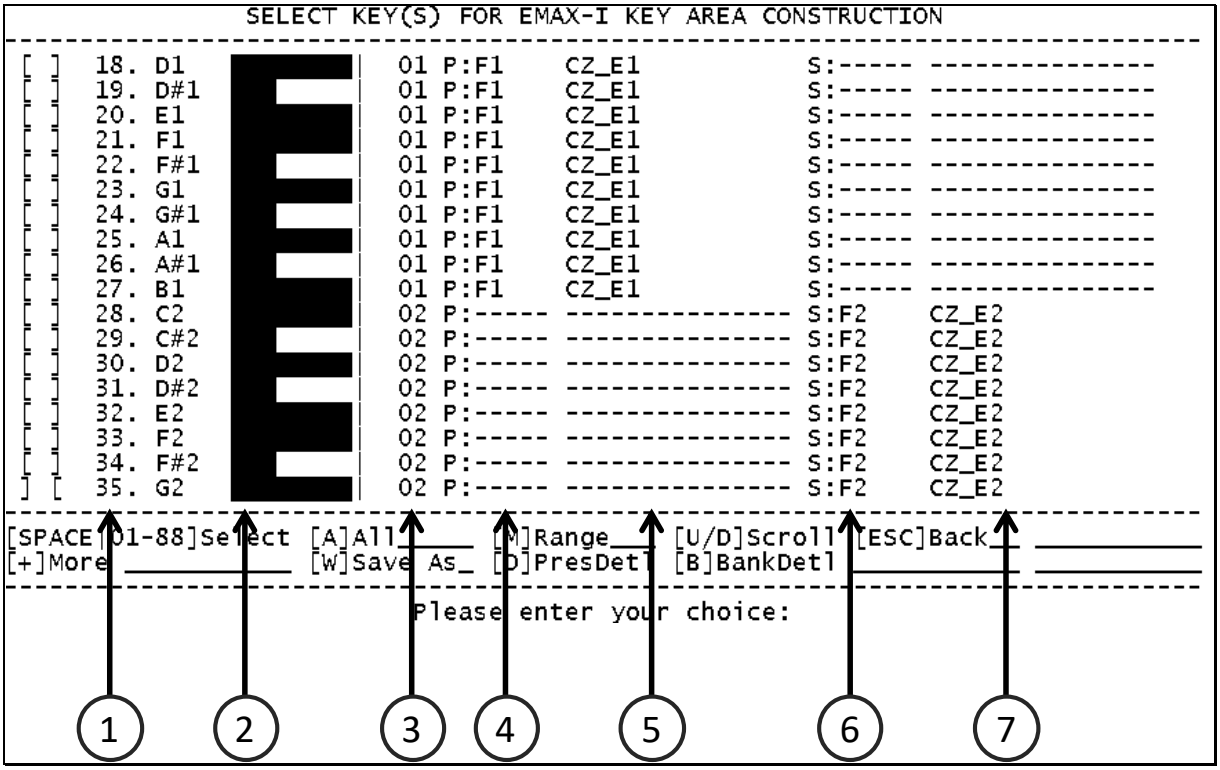


If you are creating a construction file for SP-12, the screen will look differently, but the behaviour is exactly the same. The differences are only "cosmetically", as shown in the picture below. The keyboard graphics are replaced by SP-12 sound names. The sound names are preceded by a key name corresponding to the "key/sound" mapping defined by the chosen keyboard layout (see section "" later in this manual).



The remainder of this chapter assumes the construction for a keyboard sampler, not for the SP-12. The procedure for constructing an SP-12 sound bank is identical however.

If you are editing an existing preset, or have returned to this window after having assigned already some WAV files key areas, the key assignment overview window may look like this:



Following information is displayed *per key*:

1. The reference number of the key, to be used in EMXP to select that key
2. The key name and visual representation on a (vertical) keyboard, or the key name and sound name if you are constructing an SP-12 sound bank
3. The key area number to which the key belongs
4. PRIMARY VOICE: The note (key) on which the WAV file will be played back with its original pitch
5. PRIMARY VOICE: The WAV file holding the sample that is assigned to the primary layer of this key area
6. SECONDARY VOICE: The note (key) on which the WAV file will be played back with its original pitch (Note: always empty for Emulator-I and SP-12)
7. SECONDARY VOICE: The WAV file holding the sample that is assigned to the secondary layer of this key area (Note: always empty for Emulator-I and SP-12)

Note: if stereo WAV-files have been assigned to a sampler format which doesn't support stereo samples but which supports "emulated stereo" via PRI and SEC voices, the WAV-file will by default be assigned to both the PRI voice and the SEC voice. This is true for the EMAX-I and EMAX-II. This behaviour can be changed by means of a bank parameter, see *section "8.4 CHANGING BANK AND CONSTRUCTION FILE PARAMETERS"*. Note that this "PRI & SEC stereo emulation" mode is only possible if no other WAV-file has been assigned yet to the "opposite" layer. Moreover if the shared sample mode is enabled, this condition must also be true for any other key area to which the same WAV-file has been assigned.

8.3.1 Assigning WAV files to key areas

If you want to assign or de-assign a WAV file from one or more keys, you have to select the key area first. This can be done in the traditional EMXP way by entering numbers, using the 'M' markers, using the cursor and space bar, etc… **except for the Emulator-I.**

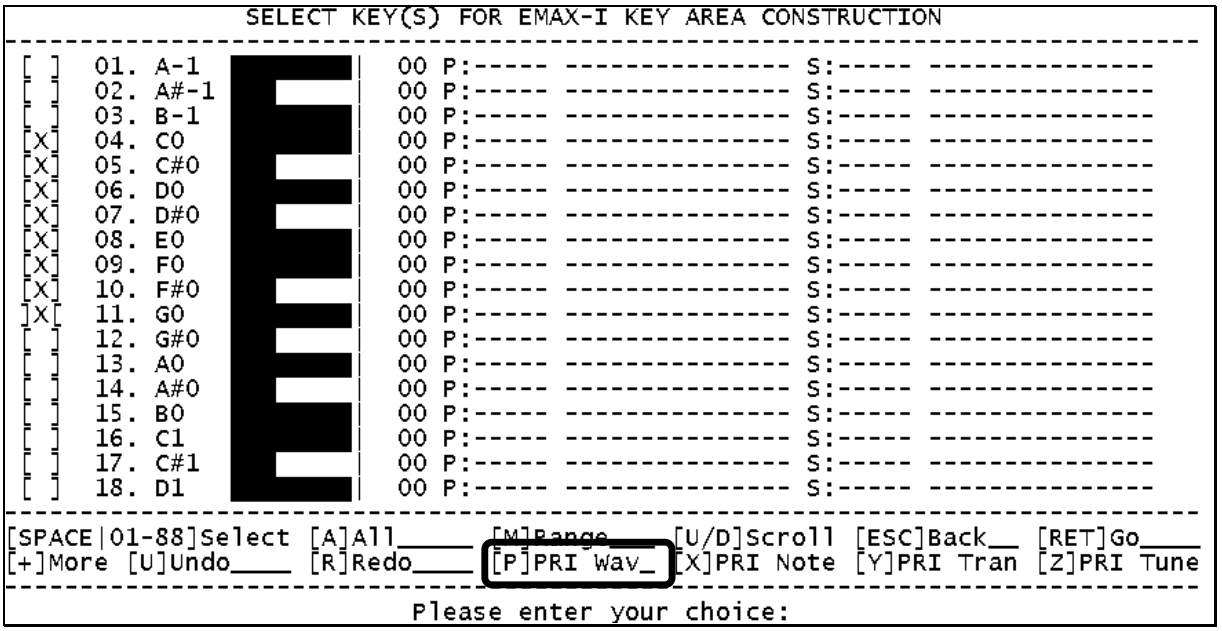
> If the Emulator-I is being used as the target sampler format, you have to select *just one key* belonging to the key area that you want to define. EMXP will automatically select all other keys belonging to that same key area.

Important: if you select a key area which partially overlaps with an existing key area, the existing key area will be reduced in size and the overlapping keys become part of a new key area. If you want to change the WAV-

assignment (or any other characteristic) of an existing key area, make sure to select *exactly the same key area (with the same start and end key) as the original one.*
Once a key area has been selected, there are two ways to assign or de-assign WAV files:

- (Quick way:) You can simply hit the 'P' key or 'S' key to directly define the WAV file that must be assigned to either the Primary or Secondary voice layer of that key area *(press the '+' More key to see the 'S' shortcut key on the bottom line of the screen)*

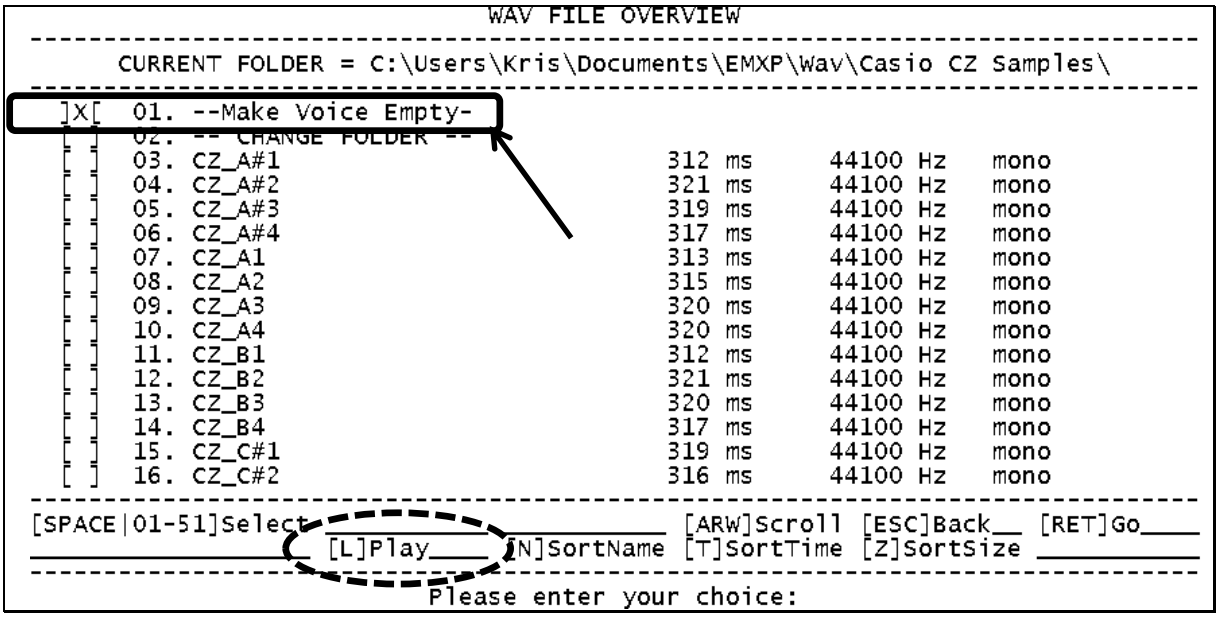
  Note: for Emulator-I and SP-12, only the 'P' key is available



- (Slower way:) You can press 'Enter', select the *"1. Assign WAV files and other key area parameters"* option in the *"Key Area Construction Menu"* and then select the *"Assigned WAV File"* option in either the Primary Voice or Secondary Voice section of the window.

  Note: for Emulator-I and SP-12, these PRI/SEC sections are not explicitly shown since only one voice layer is supported

You can **assign now a WAV file to the chosen voice layer of the chosen key area**, by selecting a WAV file in the File Manager. Before doing the actual selection (by pressing Enter) you can always listen to each of the available WAV files first by pressing 'L' (Play).
You can also **de-assign a WAV file from a key area** by selecting the *"--Make Voice Empty--"* item instead of a WAV file.

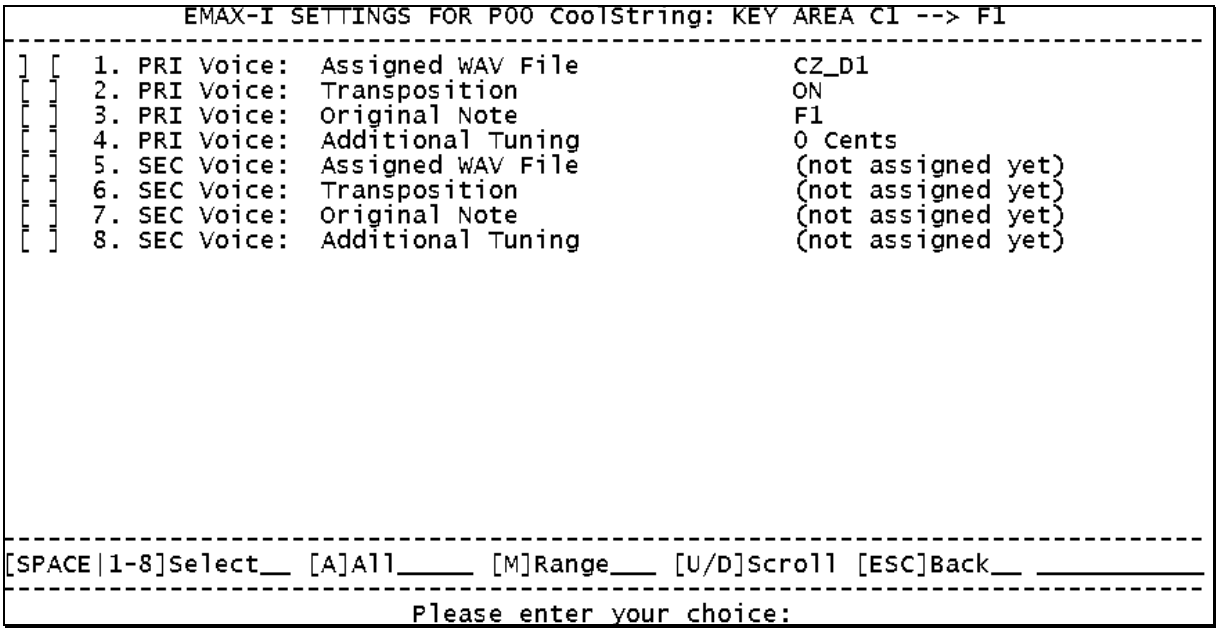


8.3.2 Specifying key area / sample parameters

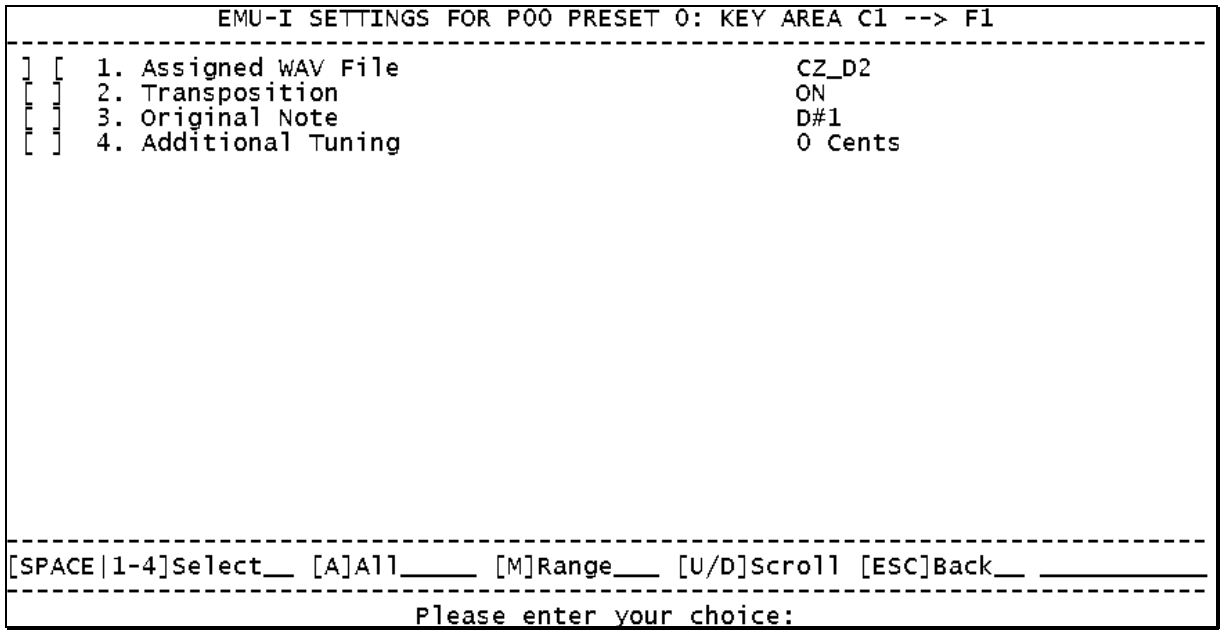
Once you have finished the basic assignment of WAV files to different key area, you can **specify some additional parameters for each assignment**, like the original note, tuning and transposition on/off parameters.

This can be done by selecting a key area (see before), pressing 'Enter' and selecting the select the *"1. Assign WAV files and other key area parameters"* option in the *"Key Area Construction Menu"*.
As a faster alternative you can also use the following shortcut keys in the "*Select Key(s) For [sampler] Key Area Construction"* overview window:

- shortcut keys 'X' and 'I' for changing the original note (pitch) of the PRI and SEC voice
- shortcut keys 'Y' and 'J' for enabling or disabling the transposition of the PRI and SEC voice
- shortcut keys 'Z' and 'K' for changing the detailed tuning of the PRI and SEC voice



You can change the assigned WAV file, the original note of the WAV file, the additional tuning for the selected key area and whether the key area should be transposed or not (if not, the original note will be ignored). Except for the Emulator-I and SP-12, these parameters can be set for both the PRI layer and the SEC layer of the key area. The above picture shows the screen for an EMAX-I construction file, which supports both PRI and SEC layers. The picture below shows the screen for an Emulator-I construction file, which only supports a PRI layer.

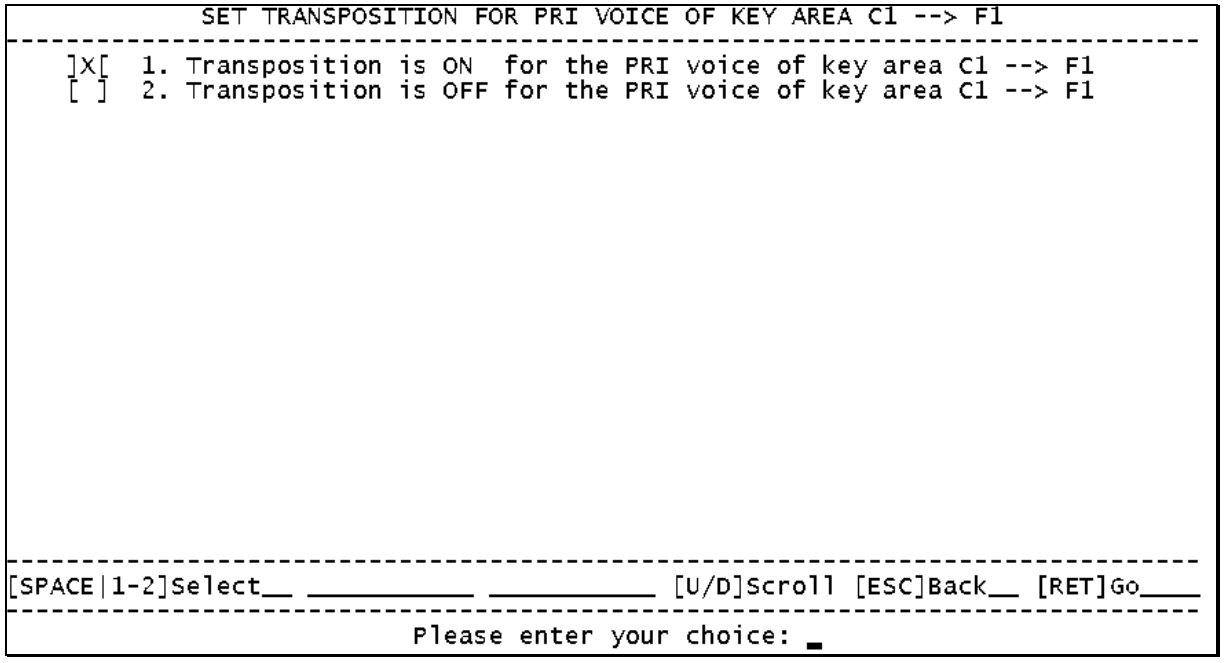


The **Assigned WAV File** option has been explained already in the previous section.

The key area to which the WAV file has been assigned can either be transposed (=default) or not transposed.

- If the key area is transposed, lower keys will play at lower pitches and higher keys will play at higher pitches. In that mode, both the *original note setting* and the *additional tuning* setting are applicable.
- If the key area is not transposed, each key plays at the same pitch, being the pitch at which the sample (WAV-file) was recorded which may be corrected with a fixed tuning value (see paragraph *additional tuning* below). In that mode only the *additional tuning* setting is applicable; the *original note* setting is ignored.

To change the **transposition** setting, the screen below will be displayed. There are only two options: transposition ON and transposition OFF.

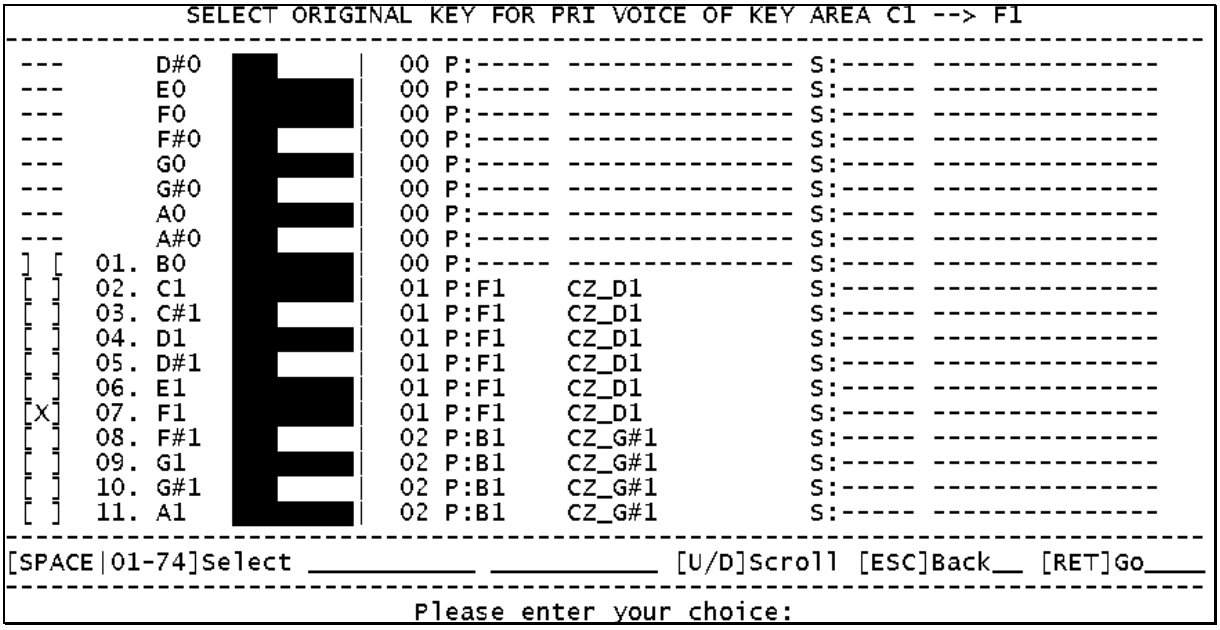


If the number of keys of the key area is too large to be transposed, or if the original note and additional tuning settings would be incompatible with the transposition on the key area, EMXP will automatically turn transposition OFF. You will have to change the WAV file assignment or the other pitch/tuning settings before trying to turn transposition ON again. E.g. if you would have assigned a single WAV-file to *all keys* of an

EMAX-I keyboard (A-1 → C7), transposition will be turned OFF because the EMAX-I does not support transposition for such a large key area.

To change the **original note**, EMXP will present a window in which all available original notes for the selected key area are shown, taking into account the transposition limits of the target sampler. If these transposition limits are depending on the sample rate of the sample, EMXP will take into account the minimum and maximum sample rate that you may have set in the *Construction File Details* window. See *section "8.4 CHANGING BANK AND CONSTRUCTION FILE PARAMETERS"*. Select the appropriate key for the original note and press 'Enter'.

Note that the available transposition range for the original note does not take into account the *additional tuning* that may have been set already (see next paragraph). If the combination of the selected original note and the selected additional tuning exceeds the transposition limits of the sampler, *the additional tuning value will automatically be re-set to zero* by EMXP.



In our example, the WAV file was recorded with original note D1. We assigned this WAV file to the key area C1 → F1. Currently EMXP assumes F1 as being the original note for this key area. We should replace it by D1. Note that original keys lower than B0 are not possible. This is due to the fact that in our example we have set the bank's minimum and maximum sample rate to 31250 Hz, which reduces the transposition range for the EMAX-I. If the target sampler type would be the Emulator-I or the SP-12, EMXP will apply *tuning* to the sample in order to achieve this adapted original note.

To **change the tuning** you will have to provide the tuning amount in cents, either positive or negative. The allowed range of values is dynamically determined by EMXP taking into account the target sampler's tuning and transposition limits, and the original note that has been set.

```
        SELECT FINE TUNING FOR PRI VOICE OF KEY AREA C1 --> F1
------------------------------------------------------------------------------

                    Please provide a new tuning value
                 for the PRI voice of key area C1 --> F1
              Value should be in the range -48 --> +45 cents.
            Current tuning value is +0 cents (default: +0 cents)









------------------------------------------------------------------------------
[value+RET]:Value   [blank+RET]:Accept proposal   [CTRL-BKSP]:Clear  [ESC]:Back
------------------------------------------------------------------------------
       Please enter a value: 25_
```

The **loop conversion** parameters can *not* be defined here for each WAV file individually. They have to be defined for all WAV files at once as part of the generation process. See *section "8.2.5 Other options"* for more details.

8.3.3 Other options

The other options available in the *"Key Area Construction Menu"* are the same as the ones in the *"Preset Construction Menu"* explained in *section "8.2 SELECTING, CREATING, COPYING AND REMOVING* A PRESET*"*.

```
       EMXP CONSTRUCTION KEY SELECTION FOR KEY AREA CONSTRUCTION MENU
------------------------------------------------------------------------------

             1.  Assign WAV Files and other Key Area Parameters

             2.  Manage Bank Details

             3.  Manage Preset Details

             4.  Manage other Key Areas

             5.  Undo most recent Change

             6.  Redo most recent undone Change

             7.  Save Bank

             8.  Save Bank as...

             9.  Generate Bank in Target Sampler Format

------------------------------------------------------------------------------
            [1]...[9]: menu option                 ESC: Go back
------------------------------------------------------------------------------
                         Please enter a menu option:
```

To **undo and redo** the most recent activities, you can use shortcut keys 'U' and 'R' in the "*Select Key(s) For [sampler] Key Area Construction"* overview window or you can use options 5 and 6 in *the "Key Area Construction Menu"*

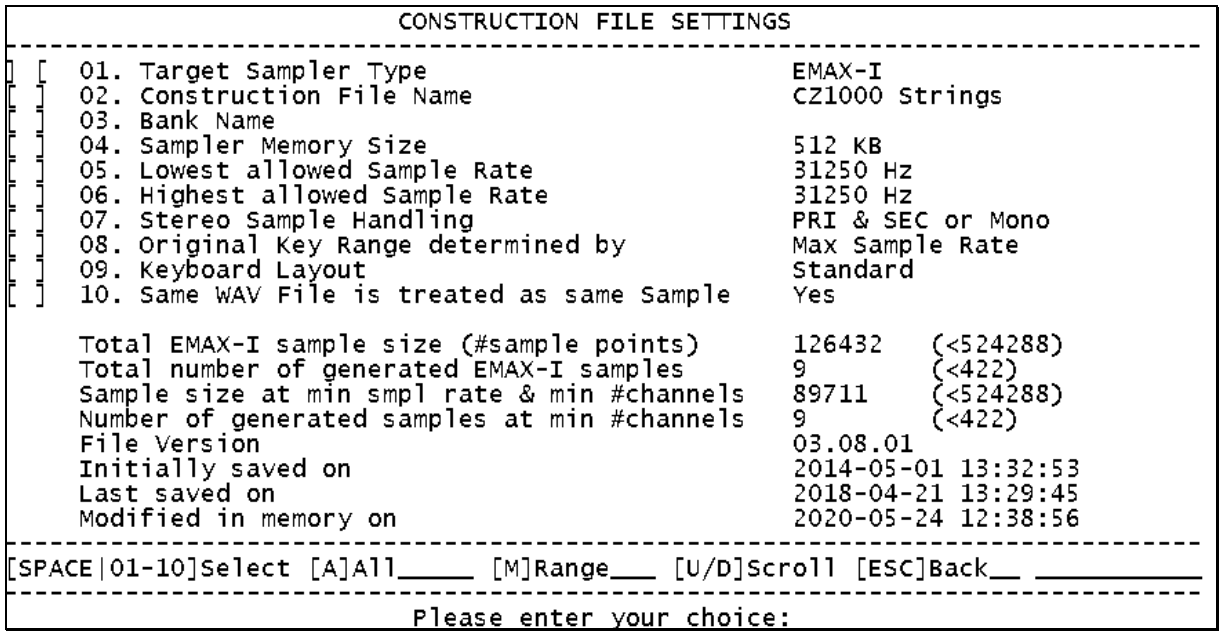
To **save the construction file**, you can use shortcut key 'V' or 'W' in the "*Select Key(s) For [sampler] Key Area Construction"* overview window or use options 7 and 8 in the *"Construction Key Selection for Key Area Construction"* menu window. When using option 8 or shortuct key 'W', EMXP will always prompt for a file name. When using option 7 or shortcut key 'V', EMXP will only prompt for a file name if none has been entered before yet.
A file extension ".EMXP" will be added to the file name. The WAV files are *not* included when saving the construction file. So if you want to edit a construction file in the future, make sure to keep the WAV files also.

To **generate the sound bank in target sampler format**, you can use shortcut key 'G' in the "*Select Key(s) For [sampler] Key Area Construction"* overview window or select option 9 in the *"Key Area Construction Menu"*. See *section "8.2.5 Other options"* for more details.

To **change some parameters on bank / construction file level**, you can use shortcut key 'B' in the "*Select Key(s) For [sampler] Key Area Construction"* overview window or select option 2 in the *"Key Area Construction Menu"*. More details can be found in *section "8.4 CHANGING BANK AND CONSTRUCTION FILE PARAMETERS"*.

8.4 CHANGING BANK AND CONSTRUCTION FILE PARAMETERS

Some bank and construction file parameters can be set or changed by selecting *"2. Manage Bank Details"* in either the *"Preset Construction Menu"* or the *"Key Area Construction Menu"*.



The following parameters can be defined:

- The **Target Sampler Type.** This is the sampler format to which the construction bank will be generated. EMXP also uses this setting to validate every construction activity against this sampler's constraints. If the currently constructed sound bank is not compatible with the target sampler that you select here, EMXP will give an error and the change of the target sampler can not be done.

- The **Construction File Name.** This is the name that will be used when you save the file with shortcut key 'V' in the preset or key overview window, or with option 7 *"7. Save Bank"* in either the *"Preset Construction Menu"* or "*Key Area Construction Menu"*. If you don't provide a name here, EMXP will prompt for this name the first time you save the bank.

- The **Bank Name**. This is the name that will be given to the bank when it is generated to the target sampler format. It's not the same as the file name of the generated file, nor is it the same as the file name of the construction file. The Bank Name is the name of the bank *within* the file. Some – but not all – samplers support a bank name.

  Note: the Emulator-I and SP-12 do'nt support bank names. As a consequence, the bank name defined here is only used within the EMXP construction tool.
  The Emulator-II, EMAX-I and EMAX-II derive the bank name from the "current" preset so they can't cope with any explicitly defined bank names neither.

- The **Sampler Memory Size.** Some samplers are available with different sizes of (sample) memory, e.g. the EMAX-II, the SP-12, the Emulator-III, Emulator-IIIX and the ESI samplers. EMXP uses the memory size to validate if WAV files will fit in the target sampler sound bank.

- The **Highest Allowed Sample Rate.** If the target sampler supports multiple sample rates, EMXP can downgrade the WAV file's sample rate in order to offer a broader pitch transposition range, e.g. for having more possibilities to select an appropriate original note (see *section "8.3.2 Specifying key area / sample parameters"*). This advantage is only applicable for some samplers (EMAX-I, Emulator-III).

  All samples converted from the WAV files used in the construction bank will have a sample rate equal to or lower than the ***highest allowed sample rate***. You should only lower this value after you have tried higher values first. The reason for this is that the highest allowed sample rate will be applicable *to all*

samples in the sound bank, not only to the samples that really *need* it. By first using a higher maximum sample rate and allowing EMXP to downgrade sample rates to the value defined as the *lowest allowed sample rate*, there's a chance that the WAV file you really want to have downgraded will actually be downgraded, while not impacting the quality of other WAV files/samples at higher sample rates…

The *highest allowed sample rate* can also be used to decrease the target bank size. If the maximum sample rate is set to a lower value than the highest sample rate found in the WAV files, the converted samples will decrease in size.
Note however that EMXP will always try to fit the target bank in the memory size of the target sampler by down-sampling the samples, *no matter what value you have specified for the highest allowed sample rate.* EMXP will never use sample rates lower than the value set as *lowest allowed sample rate* though (see next paragraph).
So why would you then lower the *highest allowed sample rate* as well ?
The only reason why you would decrease the *highest allowed sample rate* (besides increasing transposition ranges) is to *further decrease* the target bank's size, even if it would already fit in the target sampler's memory. The reason for this may be that you may want to have more free memory available in the bank for adding presets and samples.

> Note: the Emulator-I and Emulator-II only support a sample rate of 27778 Hz, and the SP-12 only supports a sample rate of 26040 Hz. so EMXP will always adapt the WAV files sample rate to these frequencies.

To make sure the *highest allowed sample rate* is being taken into account for determining the available pitch transposition range when defining the original note, you will have to set the *Original Key Range Determined by* parameter appropriately as well. See later in this section.

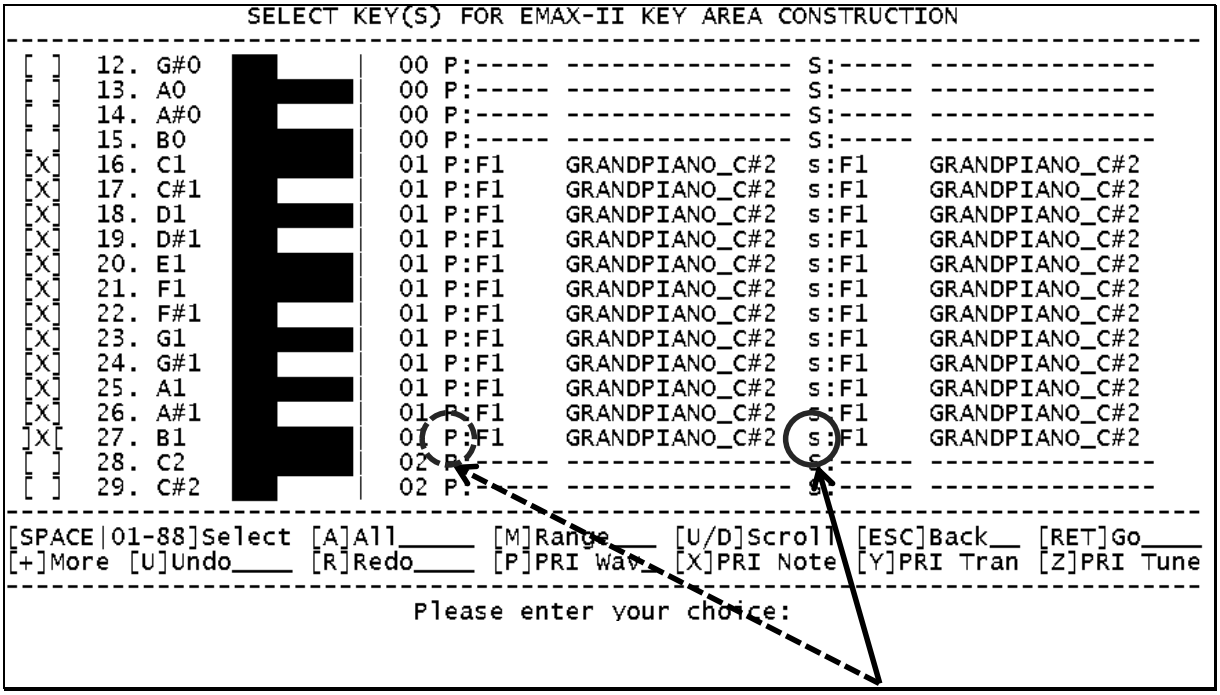
- The **Lowest Allowed Sample Rate.** If the target sampler supports multiple sample rates, EMXP can downgrade the WAV file's sample rate in order to make room available for additional WAV files. This can be done by selecting a lower value for the Lowest Allowed Sample Rate.
  EMXP will never decrease the sample rate below this setting, *unless* the original WAV sample rate is even lower. In that case, the original (even lower) sample rate will be used. If the original WAV sample rate is higher than this parameter, EMXP will first try to keep this higher sample rate. It will only decrease the sample rate (step by step) if the original bank does not fit in one target bank.
  Note: the number of available sample rate values can vary depending on the *highest allowed sample rate*.

  > Note: the Emulator-I and Emulator-II only support a sample rate of 27778 Hz, and the SP-12 only supports a sample rate of 26040 Hz. so EMXP will always adapt the WAV files sample rate to these frequencies.

- **Stereo Sample Handling.** If the target sampler does not support stereo samples (neither natively, nor by using PRI and SEC layers), EMXP will always convert stereo WAV files to mono samples.
  If the target sampler supports stereo samples, you can define whether EMXP should preserve stereo WAV files or not. A good reason for not preserving the stereo effect could be that you would like to have more memory available for other samples (stereo samples take twice the space of mono samples).
  The following options are available, depending on the target sampler (see table)
  - Always Mono: always convert stereo to mono to save
  - PRI & SEC Voice: always use PRI and SEC voices as stereo channels
  - PRI & SEC or Mono: try to use PRI and SEC voices as stereo channels, but conversion to mono is allowed if the bank would not fit in the available sampler memory
  - Keep Stereo: always keep stereo samples
  - Stereo or Mono= try to keep stereo samples, but conversion to mono is allowed if the bank would not fit in the available sampler memory

Sampler	Always Mono	PRI & SEC Voice	PRI & SEC or Mono	Keep Stereo	Stereo or Mono
Emulator-I	Y, default	N	N	N	N
Emulator-II	Y, default	N	N	N	N
EMAX-I	Y	Y	Y, default	N	N
EMAX-II	Y	Y	Y, default	N	N
Emulator-III	Y	N	N	Y	Y, default
Emulator-IIIX	Y	N	N	Y	Y, default
ESI-v3	Y	N	N	Y	Y, default
SP-12	Y, default	N	N	N	N
SoundFont2	N	N	N	Y, default	N

If you select the "PRI & SEC Voice" or "PRI & SEC or Mono" options for EMAX-I or EMAX-II, stereo WAV files will automatically be assigned to both the PRI and SEC layer in the construction bank if the "other" layer is still available (unassigned). This is indicated by a lower case 's' or 'p' as opposed to an upper case 'S' or 'P' in the key area overview. See the example in the picture below: if a stereo WAV file is assigned to the PRI layer of a key area and the "Use PRI and SEC Voices as Stereo Channels" option is enabled, the WAV file name will be preceded by an upper case 'P' in the PRI layer section of the window (meaning: Primary is the main layer) and it will be preceded by a lower case 's' in the SEC layer section of the window (meaning: Secondary contains the other side of the primary's stereo sample).
If you would have assigned the stereo sample to the SEC layer, the indicators would be reversed (lower case 'p' and upper case 'S').

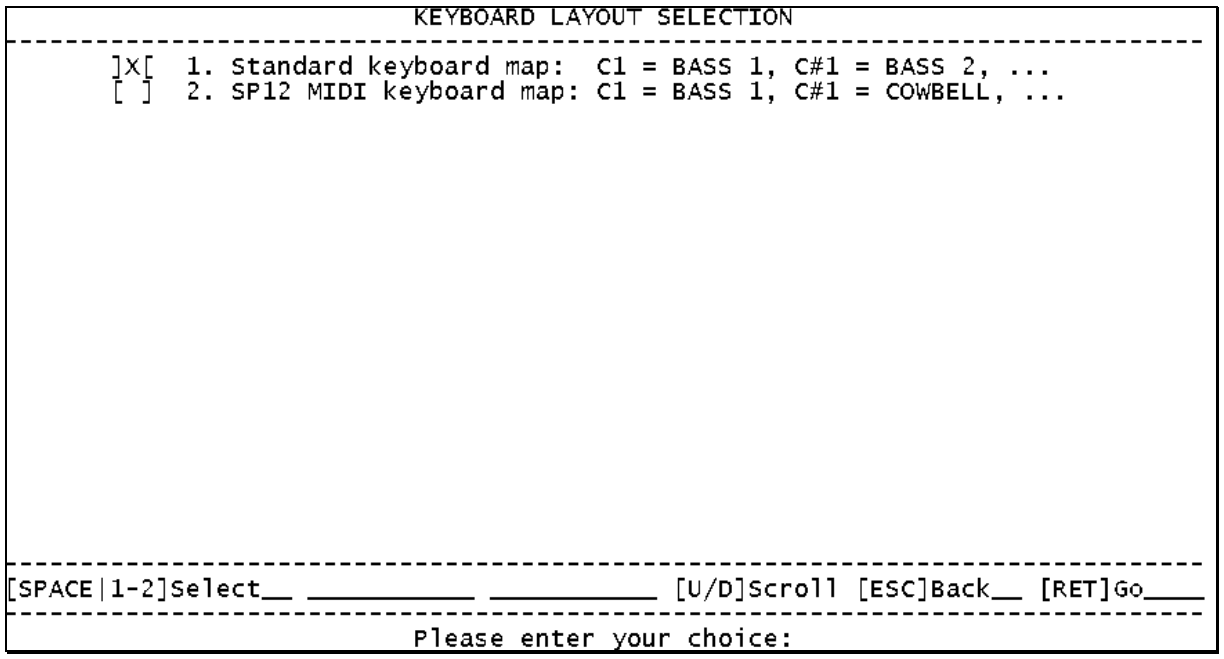


Note: if the shared sample mode is enabled (see parameter *"Same WAV file is treated as same Sample")*, a stereo WAV-file can only be assigned to the PRI and SEC voice of the selected key area voice if this is also possible in all other key areas (of any preset) which use the same WAV-file.

- **Original Key Range Determined by.** As already explained, the available range of keys from which the original note can be selected for a certain key area depends on the target sampler's transposition capabilities, which in turn can depend on the sample rate of the sample.
  If you have defined a *lowest* and *highest allowed sample rate* EMXP only knows which sample rate will actually be used when it is generating the construction bank to the target sampler format. This is true because the actual sample rate is dynamically determined only during sound bank generation. This means that EMXP must take some assumptions regarding these sample rates when you are defining the original note (see *section "8.3.2 Specifying key area / sample parameters"*). To help EMXP in taking the right decision, you can specify whether EMXP should assume that rather the *highest allowed sample rate* wil "survive" as the actual sample rate being used in the generated sound bank, or rather the *lowest allowed sample rate*. Depending on whether you made a good or bad choice here, you may or may not end up with "Transposition problems" in the generated sound bank.

- **Keyboard Layout.** With this parameter it is possible to define how each key (from C-1 to C7) maps to a voice or sound in the target sampler. This setting is only relevant for SP-12; for all other samplers the only available option is *"Standard"*. When construction SP-12 files, you can define whether the keys C1 → G3 should map to the 32 SP-12 sounds as defined by the SP-12 MIDI specification (C1 = Bass 1, C#1 = Cowbell, …, G3 = User 8; see *section "10.3.6.3 Define key/sample mapping for conversions from other format to SP-12")*, or whether they should map in the order of appearing of the sounds on the SP-12 sampler itself (C1 = Bass 1, C#1 = Bass 2, … , G3 = User 8).

The main purpose of this parameter is to allow the assignment of a single WAV-file to multiple keys in different ways (= influencing which SP-12 sounds can share the same sample).
E.g. suppose you assign a WAV file to keys C1 → C#1, i.e. these two keys share the same WAV file. In standard keyboard mode, the WAV-file will be assigned to sounds Bass 1 and Bass 2. In SP-12 MIDI keyboard mode, the WAV-file will be assigned to sounds Bass 1 and Cowbell.



- **Same WAV-File is treated as same Sample.** In most samplers, the same sample data can be re-used (shared) across multiple key areas, voices and presets. This is very useful in order to preserve memory space. But if different sample parameters or different digital sample processing is required, it can be required to clone the sample data for different key areas, voices and presets.
  With this parameter, you can define whether references to the same WAV-file should result in shared samples (default setting) or in different samples.

  Note: the Emulator-I does not support shared samples

The second section of the window contains some information that can not be changed – it's there for information purposes only:

- **Total [sampler] sample size (#sample points)**: the total sample size of the sound bank taking into account the value of the bank parameters explained above but assuming that no measures are taken to reduce the memory space within the boundaries of those bank parameters (i.e. the highest allowed sample rate and number of audio channels are assumed).
  The size includes any leading and trailing offset data which may be required by the sampler, and is expressed in *number of sample points*, not in bytes (e.g. for EMAX-II, one sample point results in two bytes). The maximum possible sample memory size is shown between brackets as well, and depends on the "Target Sampler Type" and selected "Sampler Memory Size".

- **Total number of generated [sampler] samples**: the total number of samples in the sound bank taking into account the value of the bank parameters (regarding stereo handling and sample sharing) but assuming that no measures are taken to reduce the number of samples within the boundaries of those bank parameters (i.e. the highest allowed number of audio channels is assumed in case of stereo WAV-files)
  The maximum possible number of samples is shown between brackets, and depends on the "Target Sampler Type".

- **Sample size at minimum sample rate and minimum number of channels**: the total sample size of the sound bank if all possible measures would be taken to reduce the memory space within the within

the boundaries of the bank parameters (i.e. the lowest allowed sample rate and lowest number of audio channels are assumed).
The size includes any leading and trailing offset data which may be required by the sampler, and is expressed in *number of sample points*, not in bytes (e.g. for EMAX-II, one sample point results in two bytes). The maximum possible sample memory size is shown between brackets as well, and depends on the "Target Sampler Type" and selected "Sampler Memory Size".

- **Number of generated samples at minimum number of channels**: the total number of samples in the sound bank if all possible measures would be taken to reduce the number of samples within the boundaries of the "Stereo Sample Handling" bank parameter (i.e. the lowest allowed number of audio channels is assumed in case of stereo WAV-files)
  The maximum possible number of samples is shown between brackets, and depends on the "Target Sampler Type".

- **File version**: the internal layout of a construction file may evolve in future versions of EMXP. This field indicates in what version the EMXP construction file has been defined.

- **Initially saved on**: the date and time when the EMXP construction file was originally created / saved to disk. If the file has not been saved yet, a *'(not saved yet)'* message is displayed

- **Last saved on:** the date and time when the EMXP construction file was most recently saved. the file has not been saved yet, a *'(not saved yet)'* message is displayed

- **Modified in memory on:** the date and time when the EMXP construction was last modified in memory (but maybe not saved to disk yet).

9. USING EMXP: OTHER FEATURES

9.1 FORMATTING DISKS

Formatting a sampler disk typically includes following steps:

1. Physically formatting the disk:
    a. Full format: creating all tracks and all sectors with the correct size
    b. Quick format (hard disks only): initializing the first tracks and sectors only to assure any reserved area of master boot record is removed
2. Logically formatting the disk: putting a valid file system on the disk
3. Saving an empty sound file to the disk
4. Saving an operating system to the disk
5. Verifying the disk

Depending on the type of sampler disk, EMXP supports one or more of these steps when formatting disks:

- EMAX-I, EMAX-II:
    - Physically formatting (full)
    - Saving an empty sound bank. By default an empty EMAX-I bank will be saved. An EMAX-II bank will only be saved if you request to add an EMAX-II operating system to the disk.
    - Saving an operating system

  There's no specific file system required for these floppy disks, nor is verification required.
- Emulator-III/IIIX floppy disks:
    - Physically formatting (full)
    - Saving an operating system

  There's no specific file system required for these floppy disks, nor is verification required.
- AKAI S1000 floppy disks:
    - Physically formatting (full) - only DSHD disks are currently formatted correctly
    - Logically formatting
    - Saving an operating system

  Verification is not required.
- EMAX-I, EMAX-II, Emulator-III/IIIX/ESI hard disks and EMAX-I, EMAX-II, Emulator-III/IIIX/ESI partitions on SCSI2SD hard disks:
    - Physically formatting (quick) - but not when formatting an *individually selected* SCSI2SD partition
    - Logically formatting
    - Saving an operating system (not applicable for ESI hard disks)
- Emulator-II hard disks:
    - Physically formatting (quick)
    - Logically formatting, taking into account bad sectors (defects/error log)
    - Saving an operating system

  Although EMXP supports the formatting of Emulator-II hard disks, at the time of writing this manual
    - no method is known yet to connect an original Emulator-II MFM hard disk to a computer
    - no hard disk emulator exists which uses removable storage disks (memory cards) that act as a hard disk replacement themselves. The SCSI2SD emulator is not supported by the Emulator-II+HD.

The DREM hard disk emulator, which can be used with the Emulator-II+HD, is supported by EMXP, but its SD cards are not true hard disk replacements themselves, so they definitely should not be formatted as Emulator-II hard disks.
DREM cards contain one or more hard disk image files (.DSK files).
To generate new DREM hard disk images for the Emulator-II, see *section "9.2 GENERATING EMPTY HARD DISK IMAGES"*.

9.1.1 Formatting EMAX and Emulator-III/X floppy disks

Warning !
The OmniFlop floppy disk driver must be installed on your computer before you can format, read or write EMAX floppy disks. See *chapter "1. INSTALLATION"* for more information.

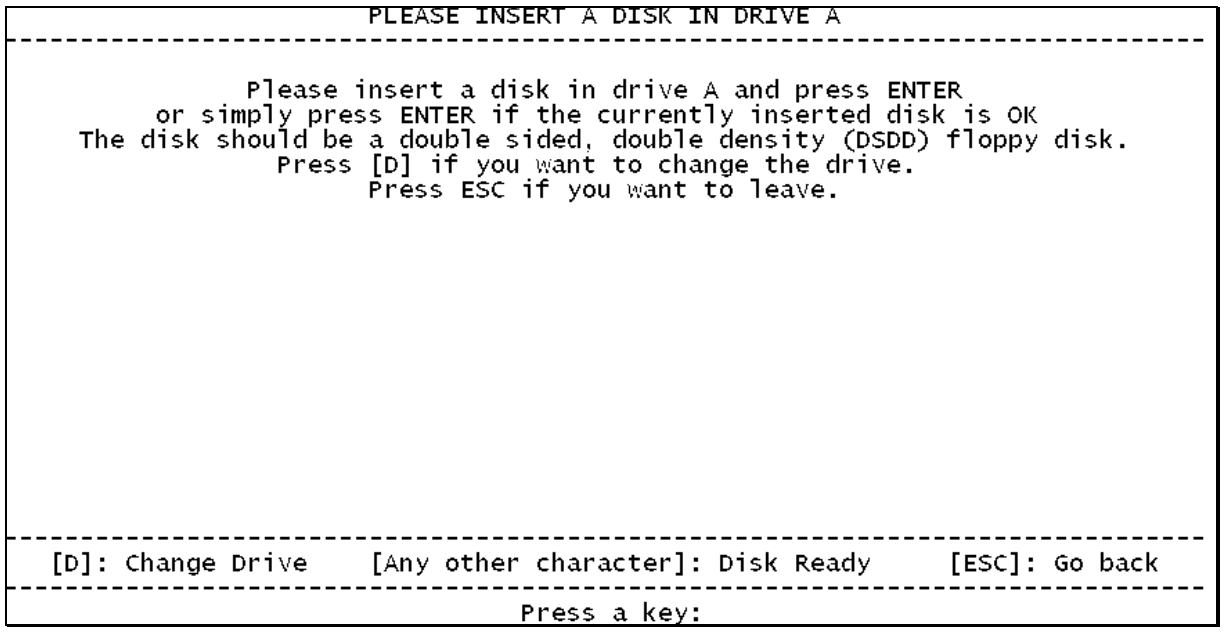
Starting the format process

To format an EMAX-I or EMAX-II floppy disk
either:
"1. Manage EMU Files and Disks" → "1. Manage EMU EMAX-I Files and Disks" → "8. Manage other EMAX-I Files and Disks" → "2. Manage EMAX-I/EMAX-II Floppy Disks" → [select a floppy drive] → [press 'F'] or [select "2. Format EMAX Floppy Disk"]
or:
"1. Manage EMU Files and Disks" → "2. Manage EMU EMAX-II Files and Disks" → "8. Manage EMAX-I/EMAX-II Floppy Disks" → [select a floppy drive] → [press 'F'] or [select "2. Format EMAX Floppy Disk"]

To format an Emulator-III or Emulator-IIIX OS floppy disk
either:
"1. Manage EMU Files and Disks" → "5. Manage EMU EMULATOR-III/X/ESI Files and Disks" → "6. Manage EMULATOR-III Operating System Files and Disks" → "4. Manage EMULATOR-III/X Operating System Floppy Disks" → [select a floppy drive] → [press 'F'] or [select "2. Format EMULATOR-III/X OS Floppy Disk"]
or:
"1. Manage EMU Files and Disks" → "5. Manage EMU EMULATOR-III/X/ESI Files and Disks" → "7. Manage EMULATOR-IIIX Operating System Files and Disks" → "4. Manage EMULATOR-III/X Operating System Floppy Disks" → [select a floppy drive] → [press 'F'] or [select "2. Format EMULATOR-III/X OS Floppy Disk"]

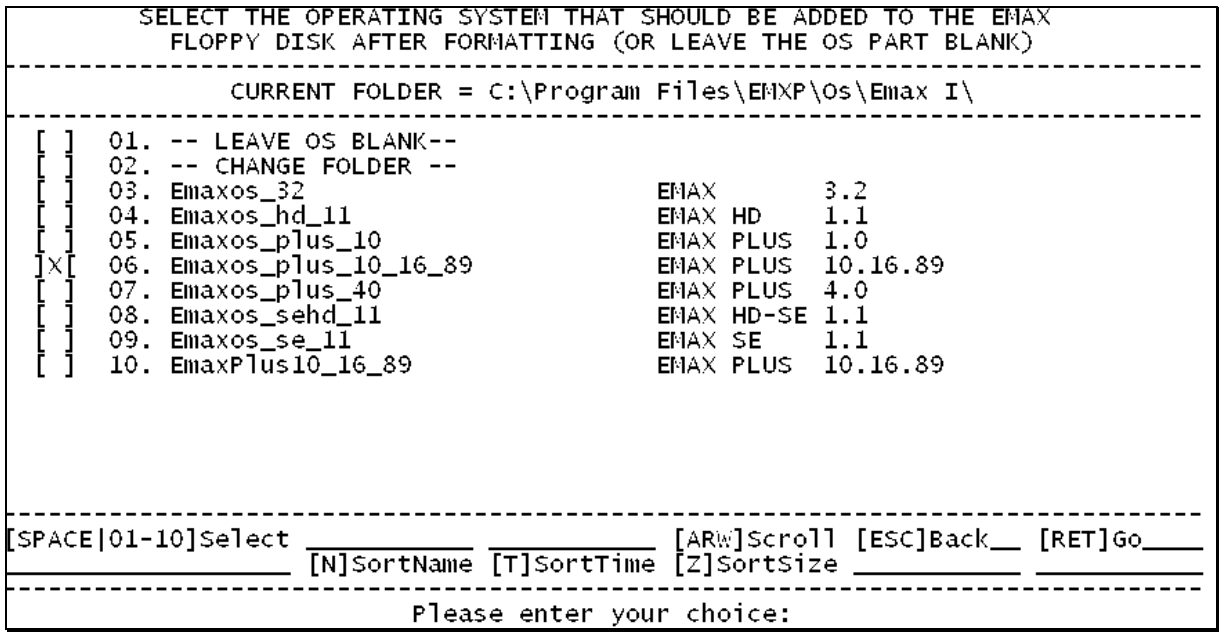
Insert a disk

EMXP will now check the floppy drive and ask to insert a double sided double density floppy disk.



Selecting an operating system

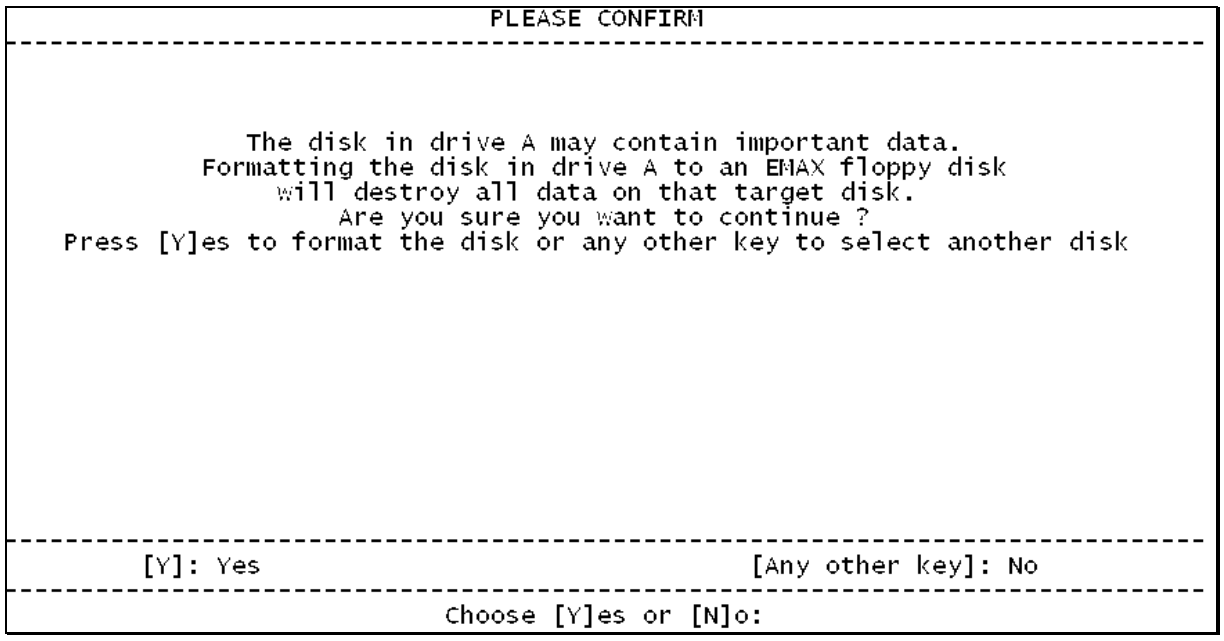
You have now the possibility to select an operating system which should be saved to the disk immediately after the physical format has finished. If you are formatting multiple disks, the request for selecting an operating system will only appear when formatting the first disk. The selected operating system will be used for all floppy disks that will be formatted.
Saving an operating system when formatting a floppy disk is *not required.* You can always save an operating system to the floppy disk afterwards, see *section "6.4 COPYING OPERATING SYSTEMS"*.



In the File Manager you can select the operating system that you want to save to the floppy disk; alternatively you can select"`-- LEAVE OS BLANK --`" if you don't want to save an operating system now.

Confirm

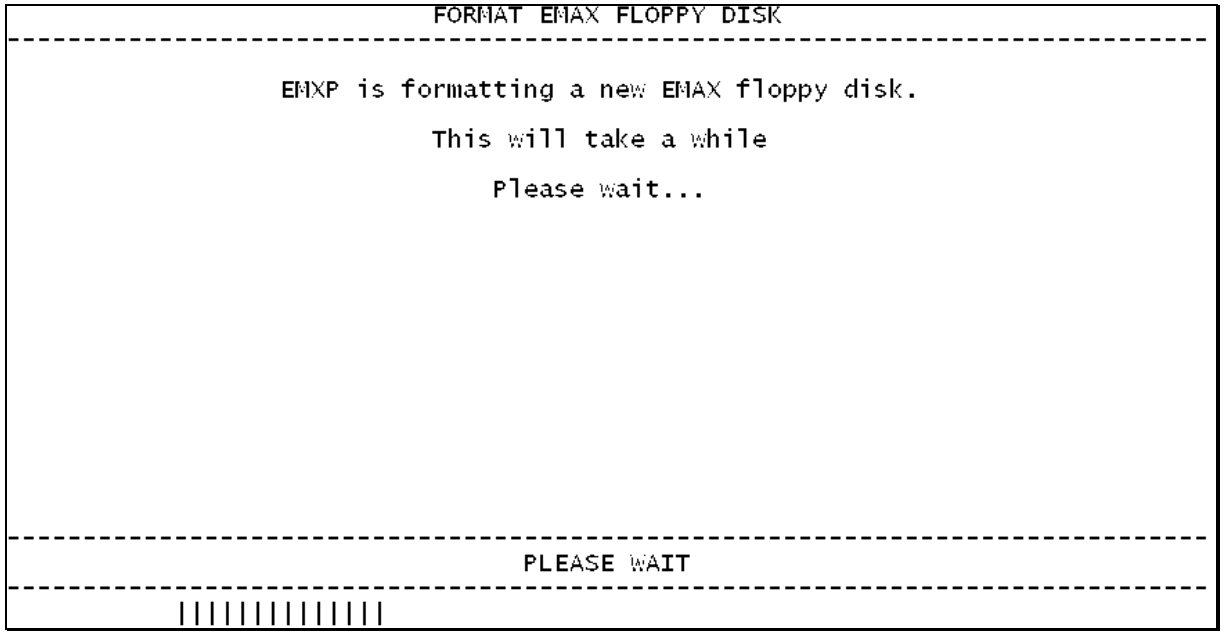
Finally EMXP will check the current contents of the disk and will ask to confirm that the disk can be overwritten. All data currently saved on the disk will be lost !



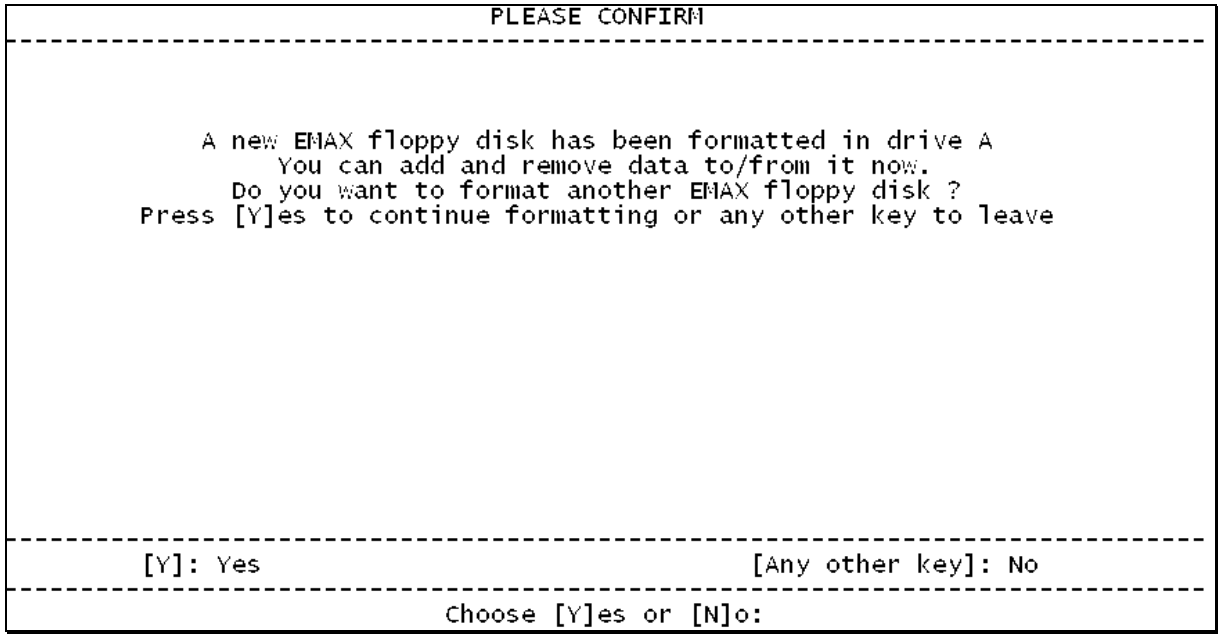
Press [Y]es to confirm that the disk can be formatted.

Wait while EMXP formats the disk and saves the operating system to the disk

EMXP will now format the floppy disk, save an empty bank to the disk (if EMAX-I/EMAX-II) and save an operating system to the disk (if requested). This process can take a while... please be patient.



When the format process is finished, you'll get following message:



You can format another disk now (by pressing [Y]es) or leave the format function by pressing ESC or any other key.

9.1.2 Formatting Akai S1000 floppy disks

Warning !
The OmniFlop floppy disk driver must be installed on your computer before you can format, read or write Akai S1000 floppy disks. See *chapter "1. INSTALLATION"* for more information.

Starting the format process

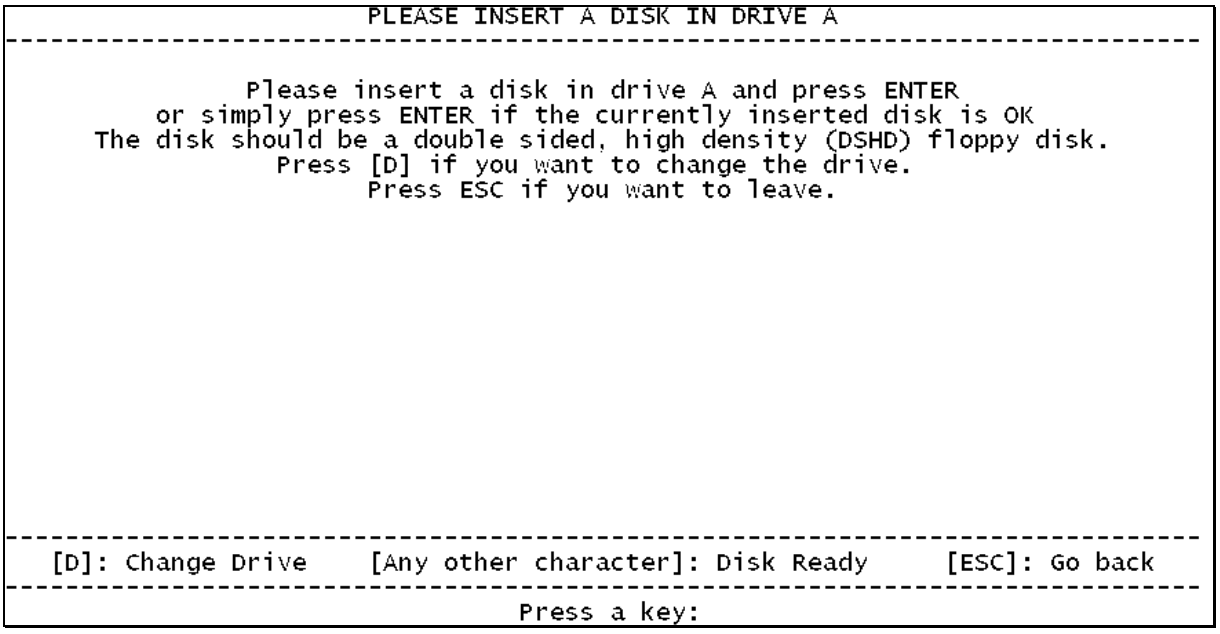
To format an Akai S1000 floppy disk
"2. Manage AKAI S1000 Files and Disks" → "8. Manage AKAI S1000 Floppy Disks" → [select a floppy drive] → *to format a DD disk:* [press 'T'] or [select "2. Format AKAI S1000 Low Density Floppy Disk (unverified)"] *OR to format a HD disk:* [press 'F'] or [select "3. Format AKAI S1000 High Density Floppy Disk"]

While EMXP offers the possibility to format both *low density* and *high density* Akai S1000 floppy disks, it is not recommended to format *low density* floppy disks with EMXP.
Experience shows that these floppy disks are often not recognized, neither by EMXP (afterwards) nor by the Akai S1000 sampler.

High density floppy disks formatted by EMXP should work fine however.

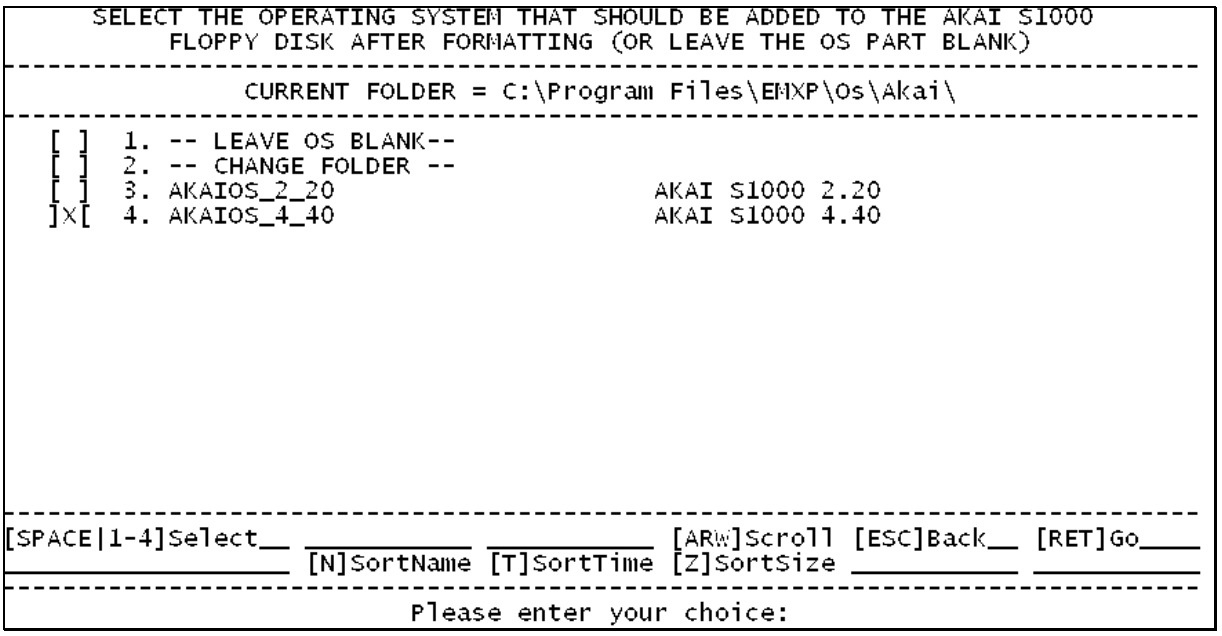
Insert a disk

EMXP will check the floppy drive and ask to insert a double sided double density or high density floppy disk, depending on the type of floppy disk you are formatting. The picture below illustrates the request for a *high density* floppy disk.



Selecting an operating system

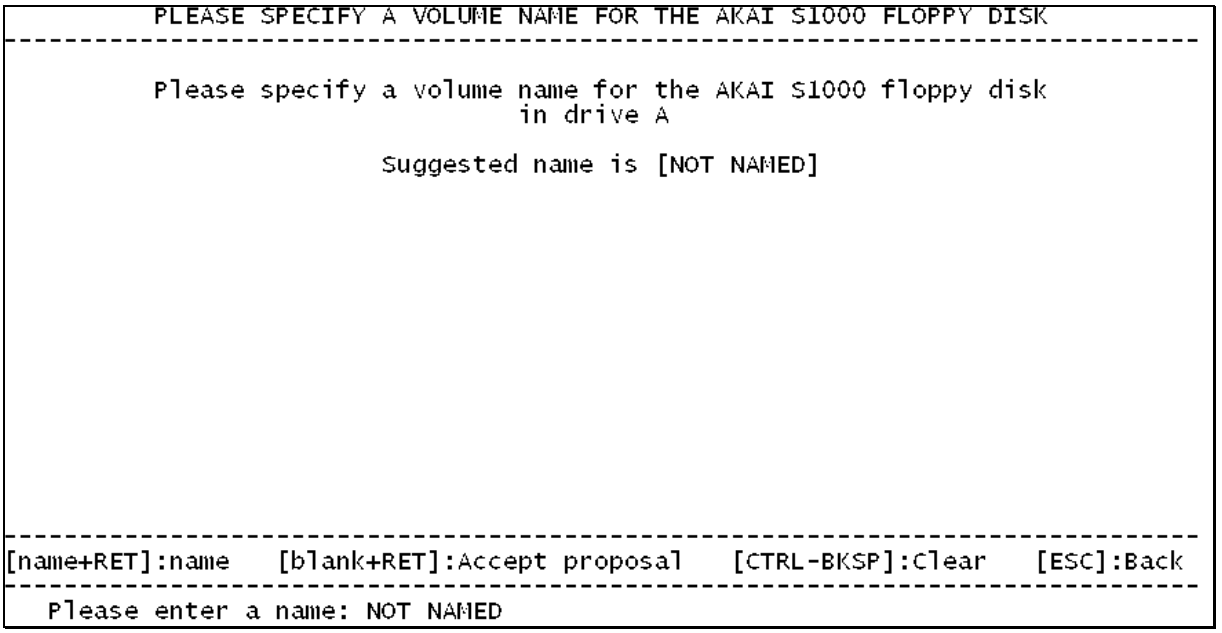
You have now the possibility to select an operating system which should be saved to the disk immediately after the physical and logical format has finished. If you are formatting multiple disks, the request for selecting an operating system will only appear when formatting the first disk. The selected operating system will be used for all floppy disks that will be formatted.
Saving an operating system when formatting a floppy disk is *not required.* You can always save an operating system to the floppy disk afterwards, see *section "6.4 COPYING OPERATING SYSTEMS"*.



In the File Manager you can select the operating system that you want to save to the floppy disk; alternatively you can select "`-- LEAVE OS BLANK --`" if you don't want to save an operating system now.

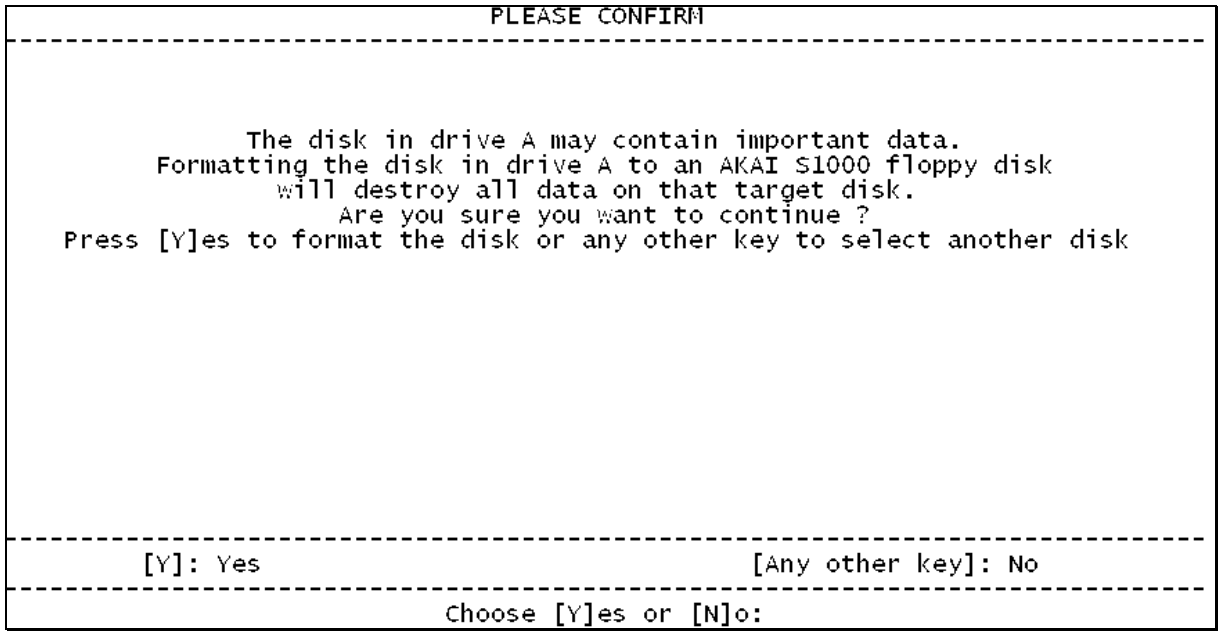
Specify the disk volume name

In the next screen, a disk volume name can be specified. Entering a meaningful volume name (instead of NOT NAMED) can be useful to quickly find out what type of samples and programs reside in the floppy disk (and on its floppy disk image after a backup of the disk has been created). Moreover, some of the automatic target file name derivation algorithms in EMXP use the volume name as a basis.



Confirm

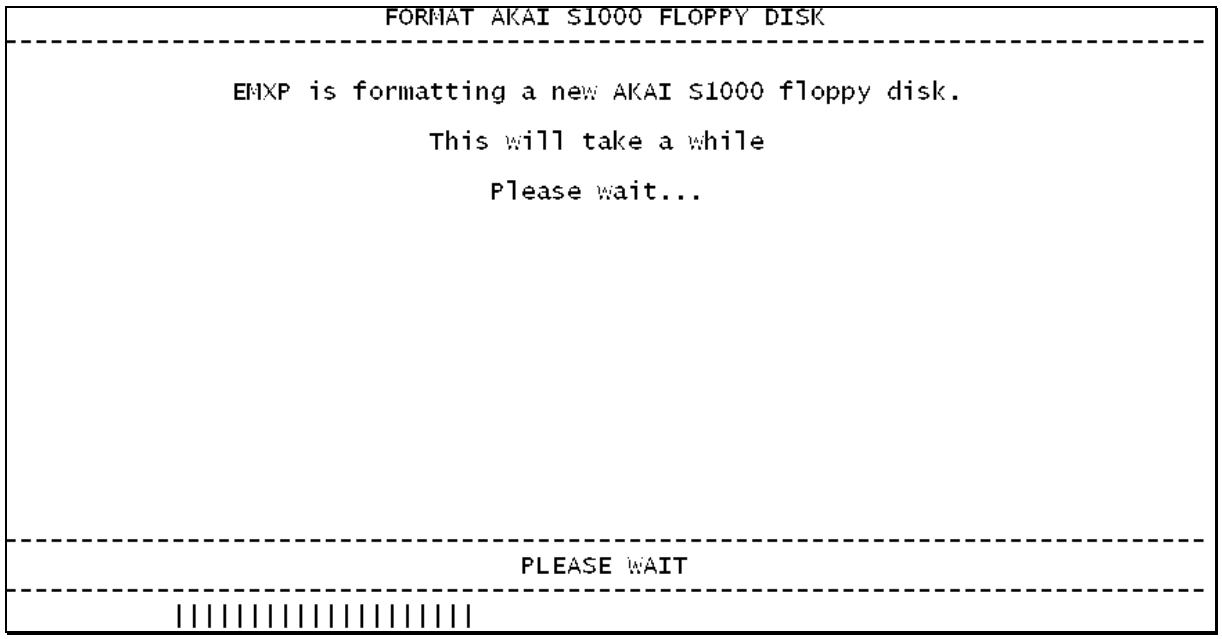
As a final step, EMXP will check the current contents of the disk and will ask to confirm that the disk can be overwritten. All data currently saved on the disk will be lost !



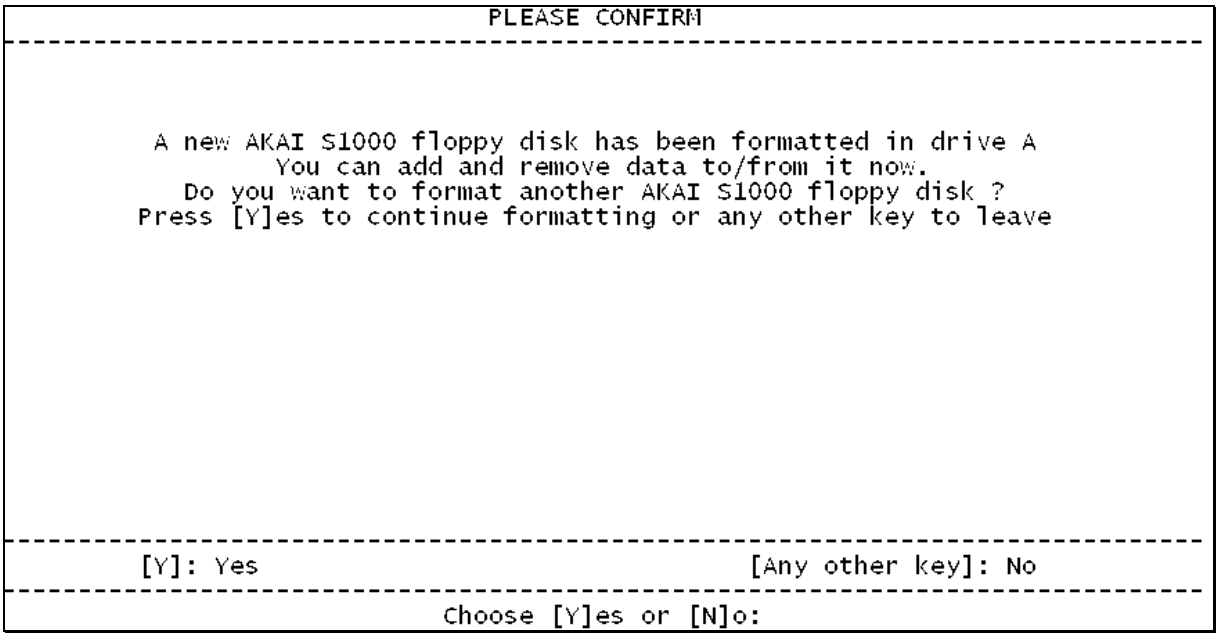
Press [Y]es to confirm that the disk can be formatted.

Wait while EMXP formats the disk and saves the operating system to the disk

EMXP will now format the floppy disk and save the operating system to the disk (if requested). This process can take a while... please be patient.



When the format process is finished, you'll get following message:



You can format another disk now (by pressing [Y]es) or leave the format function by pressing ESC or any other key.

9.1.3 Formatting EMAX-I, EMAX-II, Emulator-II, Emulator-III/IIIX/ESI hard disks

9.1.3.1 About physically formatting hard disks

Physically formatting in EMXP

When using EMXP to format hard disks (or memory cards) for use in an EMAX-I, EMAX-II, Emulator-II, Emulator-III/IIIX or ESI sampler, EMXP will perform both a *physical format* and a *logical format:*

- The *physical* formatting is limited to a *quick format* which only makes sure the initial sectors and master boot records are initialized for use on an EMU sampler. EMXP will not format *each indvidual sector* on the disk because that would take too much time.
  Moreover a physical format is only performed by EMXP
  - when formatting a disk as a *normal, un-partitioned hard disk*
  - or when formatting a disk as a SCSI2SD partitioned hard disk which formats all *enabled SCSI2SD devices* at once on the disk

  A physical format is *not* performed when formatting *a single device/partition* on a partitioned SCSI2SD disk; in that case only a *logical format* will be performed.

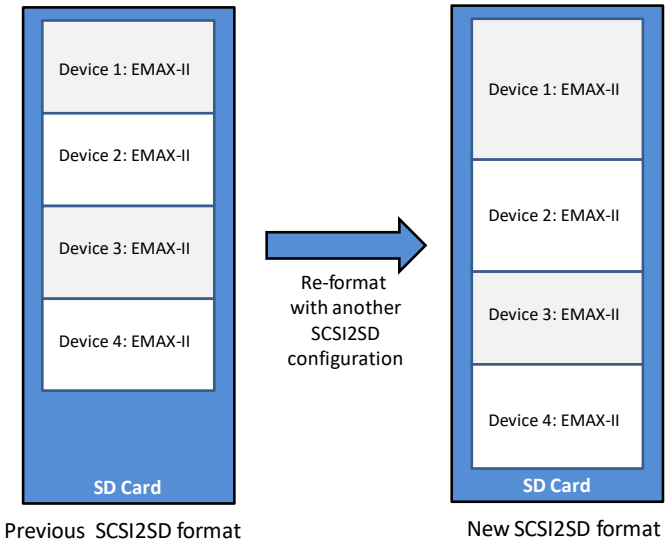
- The *logical* formatting stores an EMU file system on the disk, and optionally it can also save an EMU operating system to the disk.

Note that SCSI2SD is supported for EMAX-I, EMAX-II and Emulator-III/IIIX/ESI, but *not* for Emulator-II. Also note that at the time of writing this manual, no method is known yet to connect an Emulator-II hard disk to a computer. The SD card used in DREM hard disk emulator which is compatible with Emulator-II+HD samplers, is not a sampler hard disk. It's rather the "hard disk" of the "DREM computer" which contains one or more *sampler hard disk images* (DSK files). For generating (formatting) hard disk images in EMXP, see *chapter "9.2 GENERATING EMPTY HARD DISK IMAGES"*.

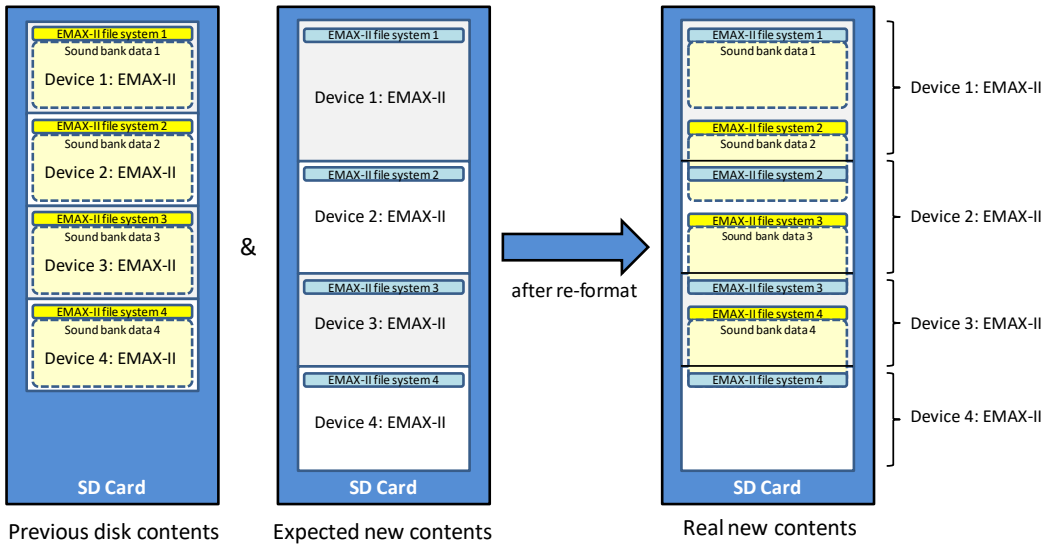
As mentioned EMXP is only doing a *quick physical format*.
Except for the initial sectors, the master boot record and the space required to store the EMU file system and operating system, no other sectors on the disk will be overwritten or initialized during the formatting process. This is perfectly OK and will not cause any problem when reading or writing the formatted disk in the sampler or in EMXP.

In some particular cases however it could cause some confusion.
This is especially true after having re-formatted a SCSI2SD partitioned disk with another SCSI2SD configuration. Let's illustrate this with an example.

Suppose an SD card was previously formatted for use with a SCSI2SD board as shown at the left in the picture below. This SD card will now be re-formatted for SCSI2SD based on another SCSI2SD configuration, which should will result in the *devices* shown at the right in the picture below.



Since the format process in EMXP does not delete all data, but only saves file systems and operating systems to the new device locations, the disk still contains some data belonging to the old file systems, old operating systems and old sound banks.



When using the disk in the sampler or in EMXP with the new SCSI2SD configuration instead of the old SCSI2SD configuration, **everything will work just fine**. The old file system data and sound bank data will

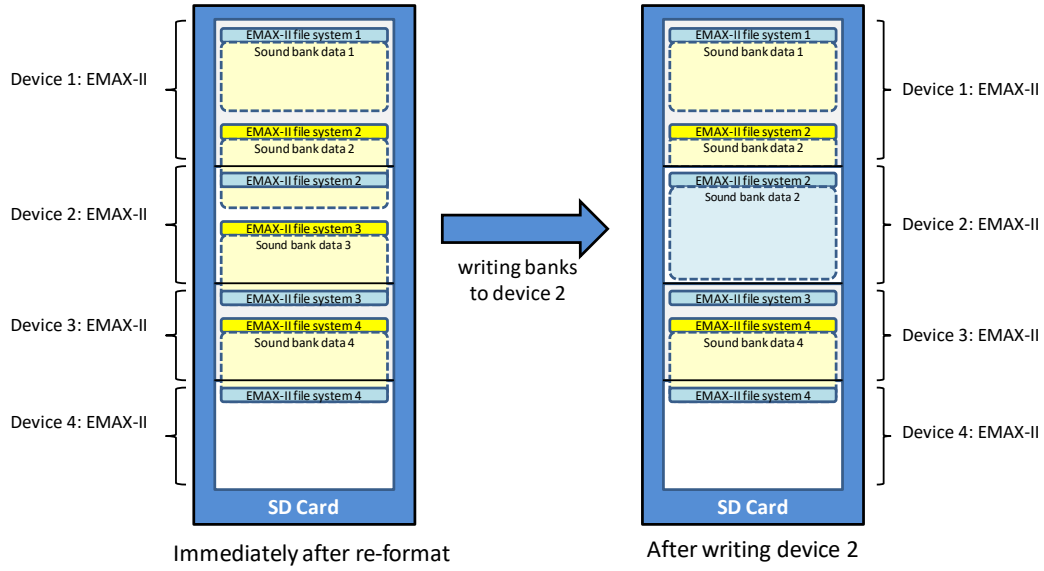
simply be ignored and they will ultimately be overwritten once you start saving sound banks to the re-formatted disk.

But if you would immediately after the re-format process

- do a SCSI2SD scan in the Disk Manager based on the *old configuration*
- use the disk in a sampler with a SCSI2SD board that has not been updated (flashed) yet with the new SCSI2SD configuration

the old SCSI2SD sampler devices will still be detected and accepted !
This is tricky because some of their sound banks have been overwritten by new file system data and operating systems, as a consequence these old SCSI2SD devices are not reliable anymore and will cause read/write errors.

Only after having saving sound banks to the new formatted SCSI2SD *devices*, the old file system data will be overwritten and EMXP nor the sampler will find and accept the old SCSI2SD device configuration anymore. This is illustrated in the picture below: after saving sound banks to the new device 2, the file system and sound banks belonging to the old device 2 will be removed, so the old device 2 can not be detected anymore.



Immediately after re-format

After writing device 2

If you want to make sure all old data is actually destroyed and re-initialized, you should

- **first do a full format of the disk in Windows to whatever file system (e.g. FAT, NTFS, ...) and make sure the "quick format" flag is not set**
- **then do a format of the disk in either EMXP or on the sampler itself.**

Physically formatting on the sampler itself

On the Emulator-II formatting a hard disk or DREM file process takes only a few minutes, and formatting a hard disk on an ESI sampler even takes only a few seconds.

On the EMAX-II and Emulator-III/IIIX however, the formatting process normally takes a *very long time*. This is caused by the time-consuming *verification* step which is automatically started by the sampler immediately after the actual *formatting* process has completed. The actual formatting process - including writing the file system and operating system to the disk but excluding the verification process - takes only about one minute.

In most circumstances you can perfectly cancel (=skip) the time consuming verification step on the EMAX-II / Emulator-III/IIX simply by powering off the machine once the "Verifying…" message appears on the sampler's display.
(thanks to Peter "Twosocks" on www.eiiiforum.com for the hint)

The disk is ready for use now and already contains a file system and the operating system.

However if you are planning

- either to re-format the disk with EMXP anyway
- or to copy a hard disk image or another hard disk to the disk with EMXP, e.g. an image containing banks and/or containing another operating system,

you can remove the disk from the sampler and connect it to your computer running EMXP.

Simply use EMXP to format it (see next section) or to copy a hard disk or hard disk image to it (see *section "6.5 COPYING ENTIRE FLOPPY DISK (IMAGE)S AND HARD DISK (IMAGE)S"*) and… the disk is ready again for use on your Emax-I, Emax-II, Emulator-III or Emulator-IIIX.

Maximum supported disk size

EMXP supports any physical disk size and any SCSI2SD *device* size, even if it's larger than 4GB.

EMXP also supports any logically formatted Emax-I, Emax-II, Emulator-II and Emulator-III/IIIX/ESI size for *reading and writing* sound banks and operating systems, even if the logically formatted size is larger than 4GB. In practice however, these sizes are typically lower than 4GB, except perhaps for the Emulator-IIIX and ESI samplers which can format disks larger than 4GB.

When EMXP is *formatting*

- Emax-I hard disks, the only supported logical format size is 19MB because it's the only size supported by Emax-I samplers
- Emax-II hard disks, the maximum supported logical format size is 1GB because the Emax-II can never address more than 803MB of sound bank data
- Emulator-II hard disks, the maximum supported logical format size is 22MB because it's the maximum supported hard disk size by Emulator-II+HD samplers.
- Emulator-III hard disks, the maximum supported logical format size is 1GB because the Emulator-III can never address more than 806MB of sound bank data
- Emulator-IIIX hard disks, the maximum supported logical format size is 4GB because the Emulator-IIIX can never address more than 3.3 GB of sound bank data
- ESI hard disks, the maximum supported logical format size is 14GB because the ESI sampler range can never address more than 12.9 GB of sound bank data, and the ESI samplers fail to format hard disks larger than 14GB anyway.

9.1.3.2 Logically formatting hard disks with EMXP

Starting the format process

To physically and logically format a disk as a normal un-partitioned disk or as a SCSI2SD partitioned disk including formatting all of its partitions

To format an EMAX-I hard disk
"1. Manage EMU Files and Disks" → "1. Manage EMU EMAX-I Files and Disks" → "5. Manage EMAX-I Hard Disks" → [select a drive] → [press 'F'] or [select "2. Format EMAX-I Hard Disk"]

To format an EMAX-II hard disk
"1. Manage EMU Files and Disks" → "2. Manage EMU EMAX-I Files and Disks" → "5. Manage EMAX-II Hard Disks" → [select a drive] → [press 'F'] or [select "2. Format EMAX-II Hard Disk"]

To format an Emulator-II hard disk (note: SCSI2SD is not supported by the Emulator-II)
"1. Manage EMU Files and Disks" → "4. Manage EMU EMULATOR-II Files and Disks" → "5. Manage EMULATOR-II Hard Disks" → [select a drive] → [press 'F'] or [select "2. Format EMULATOR-II Hard Disk"]

To format an Emulator-III, Emulator-IIIX or ESI hard disk
"1. Manage EMU Files and Disks" → "5. Manage EMU EMULATOR-III/X/ESI Files and Disks" → "5. Manage EMULATOR-III/X/ESI Hard Disks" → [select a drive] → [press 'F'] or [select "6. Format EMULATOR-III/X/ESI Hard Disk"]

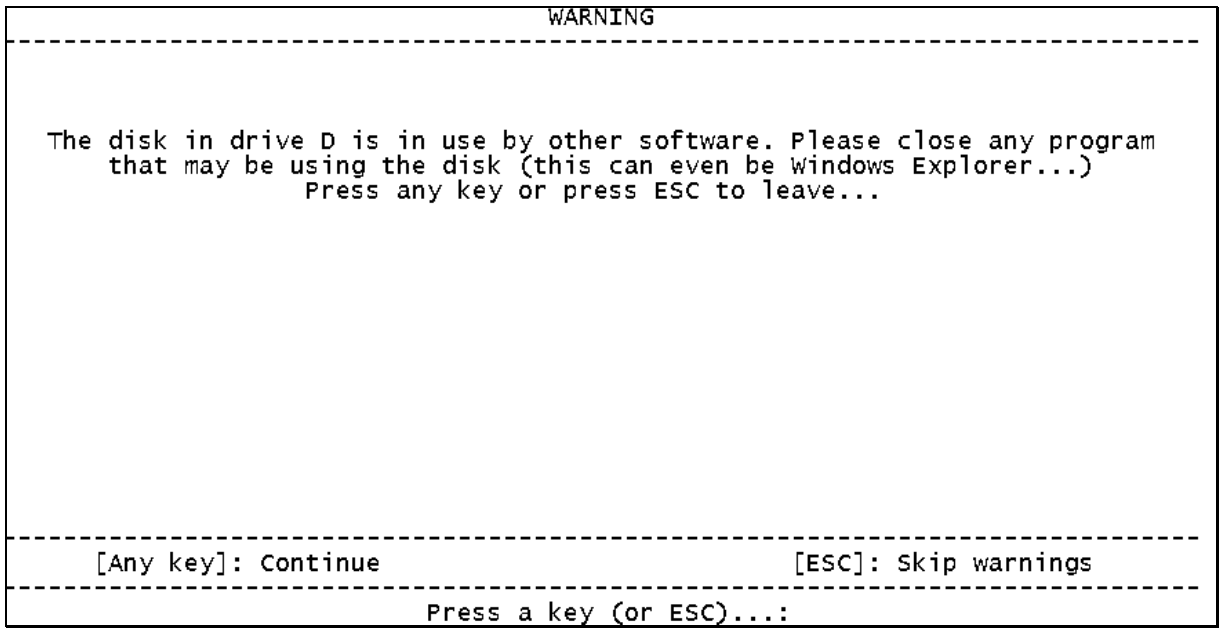
To logically format a single device (partition) of a SCSI2SD partitioned disk

To format a single SCSI2SD EMAX-I hard disk device/partition
"1. Manage EMU Files and Disks" → "1. Manage EMU EMAX-I Files and Disks" → "5. Manage EMAX-I Hard Disks" → [select a SCSI2SD device/partition on a drive] → [press 'F'] or [select "2. Format EMAX-I Hard Disk"]

To format a single SCSI2SD EMAX-II hard disk device/partition
"1. Manage EMU Files and Disks" → "2. Manage EMU EMAX-I Files and Disks" → "5. Manage EMAX-II Hard Disks" → [select a SCSI2SD device/partition on a drive] → [press 'F'] or [select "2. Format EMAX-II Hard Disk"]

To format a single SCSI2SD Emulator-III, Emulator-IIIX or ESI hard disk device/partition
"1. Manage EMU Files and Disks" → "5. Manage EMU EMULATOR-III/X/ESI Files and Disks" → "5. Manage EMULATOR-III/X/ESI Hard Disks" → [select a SCSI2SD device/partition on a drive] → [press 'F'] or [select "6. Format EMULATOR-III/X/ESI Hard Disk"]

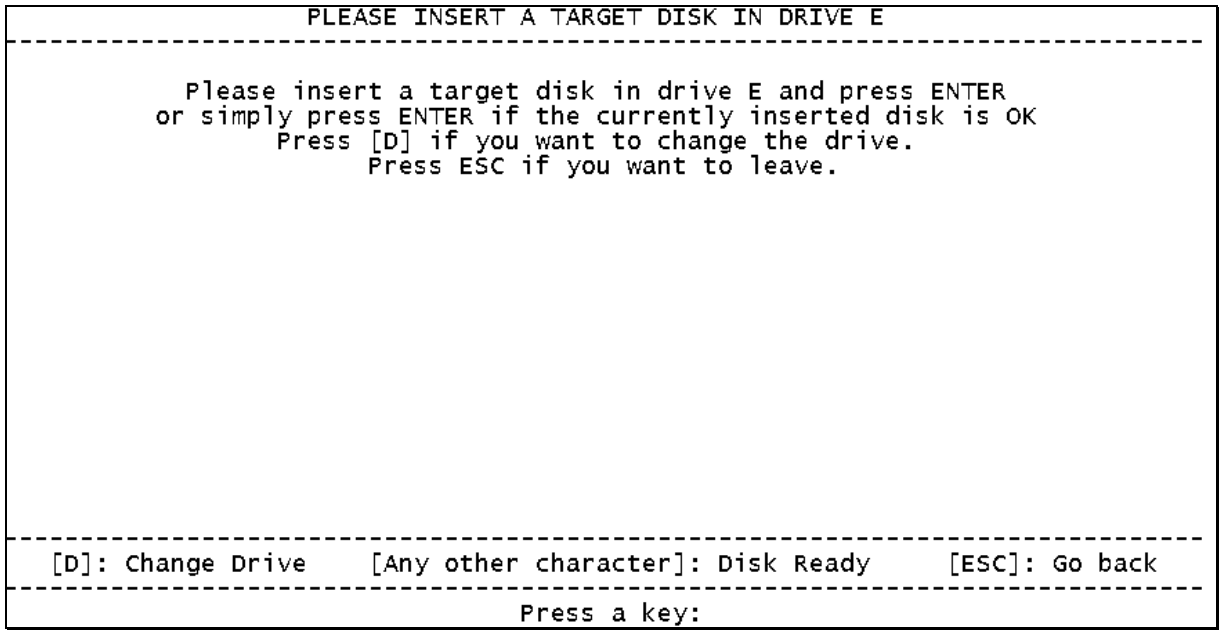
When selecting a hard drive, EMXP will check if the drive is not in use by other software. This is done as a first step to protect you from destroying an important Windows hard disk by accident.... If you select a drive which is in use by e.g. Windows, following warning will be shown:



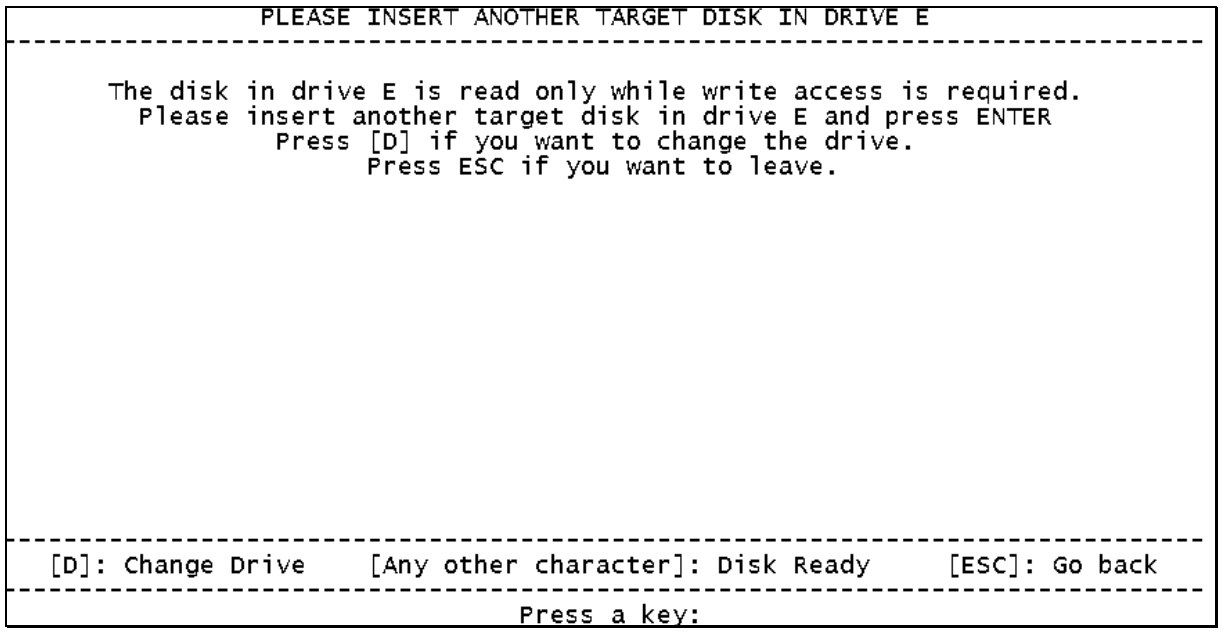
Note:
In the remainder of this section we will mainly use illustrations belonging to the format process of an EMAX-II hard disk. The process for formatting EMAX-I and Emulator-III/IIIX/ESI hard disks is similar.
The process for formatting Emulator-II hard disks is slightly different, because some additional choices must be made. These will be explained in the remainder of this section as well.

Insert a disk

EMXP will now check the drive and ask to insert the hard disk (even if it's not a removable disk but rather a fixed hard disk).



Make sure the disk is write-enabled, if it's not you will get following error message:

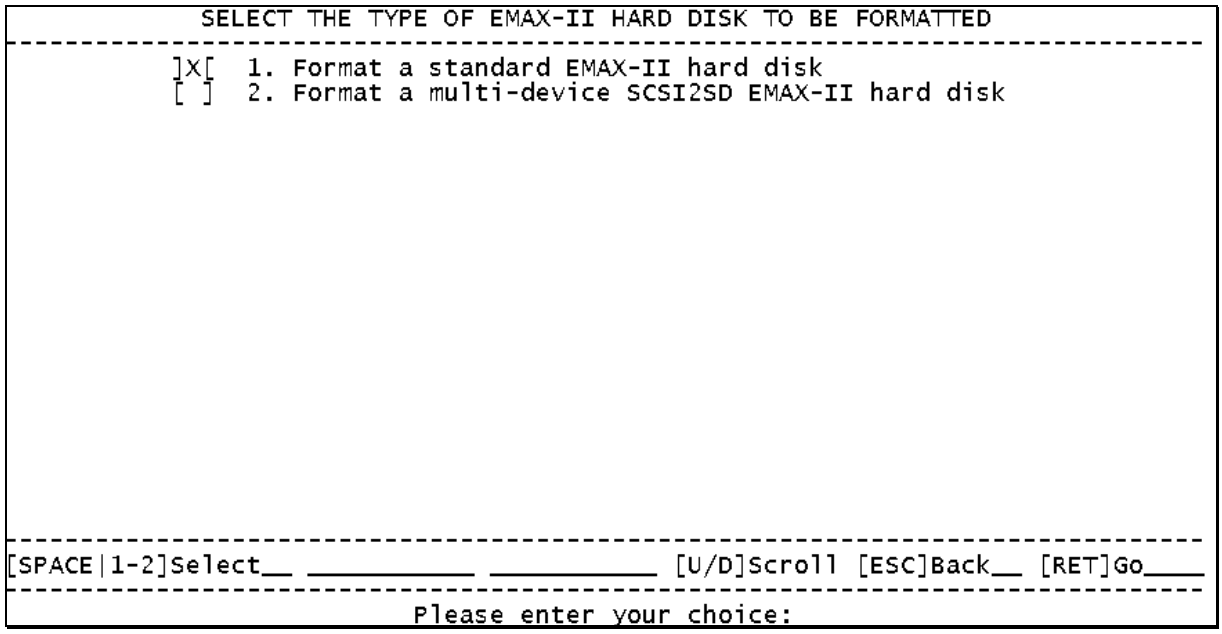


Selecting the type of disk to be formatted

*The screen below only appears if you **didn't** select a single device (partition) on a SCSI2SD partitioned disk, and only if you are formatting an EMAX-I, EMAX-II or Emulator-III/IIIX/ESI hard disk (so not an Emulator-II hard disk).*

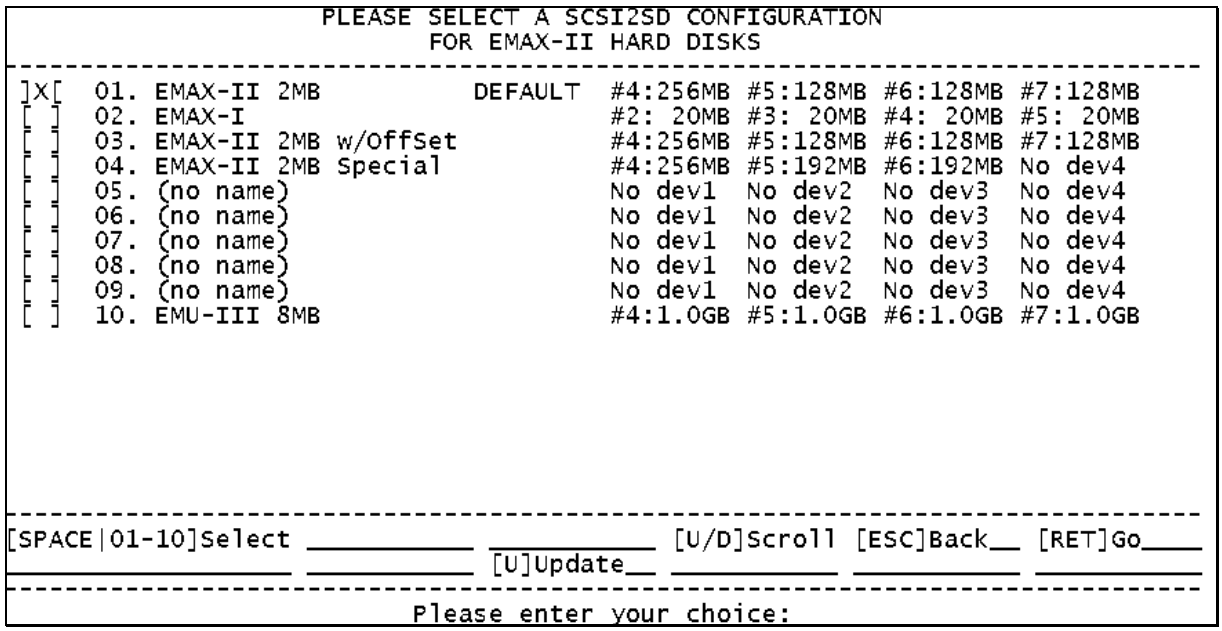
If you selected a *complete* disk (either a normal disk or a SCSI2SD partitioned disk) instead of a single device (partition) on a SCSI2SD partitioned disk, EMXP should know whether you would like to format the disk

- as a normal, un-partitioned sampler hard disk
- or as a SCSI2SD partitioned hard disk consisting of multiple sampler hard disk devices at once



If you selected *option 2* you will also have to tell EMXP according to which SCSI2SD configuration (device schema) the disk should be formatted and partitioned.

This can be done in the next screen.



If no SCSI2SD configurations have been defined yet in EMXP, you can do so now by selecting one of the empty configuration slots and by pressing the [U]pdate shortcut key. This key can also be used to change (or review) one of the already defined SCSI2SD configurations.

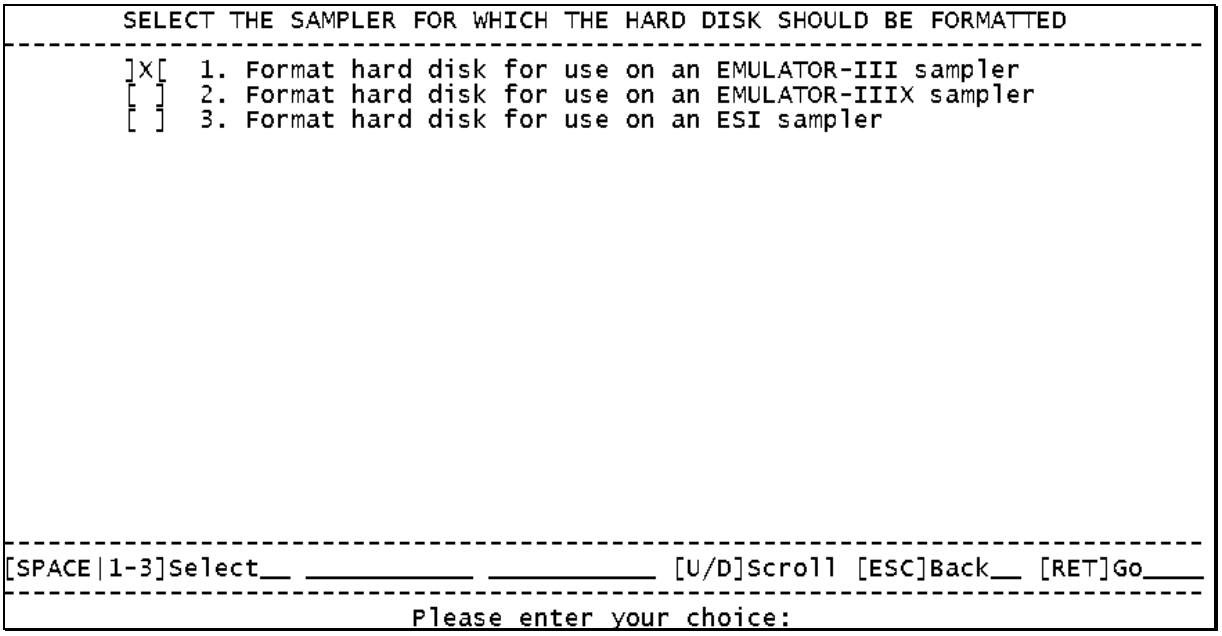
More details about how to define a SCSI2SD configuration can be found in:

- *section "4.5.3.2 Using Disk Manager with SCSI2SD hard disks (SD cards)"*
- *section "10.5.4.2 Define SCSI2SD device configurations"*

Selecting sampler type

This step is only required for Emulator-III, Emulator-IIIX and ESI samplers.

Although the hard disk structure and file system for these three samplers is very similar, there are some small differences in the way they are formatted. And the maximum size to which the hard disk can be formatted differs between these samplers as well.
As a general rule, hard disks of an older sampler type (e.g. Emulator-III) can be used without any problem in a newer sampler type (e.g. ESI), while the opposite is not guaranteed.



Physical disk size check

This paragraph is only applicable if you have chosen to format all devics (partitions) at once on a SCSI2SD partitioned disk (see paragraph "Selecting the type of disk to be formatted", option 2)

If you are formatting a disk as a SCSI2SD partitioned disk including formatting all of its *devices*, EMXP will check if the physical size of the disk is sufficient to hold the devices that have been defined in the selected SCSI2SD configuration.

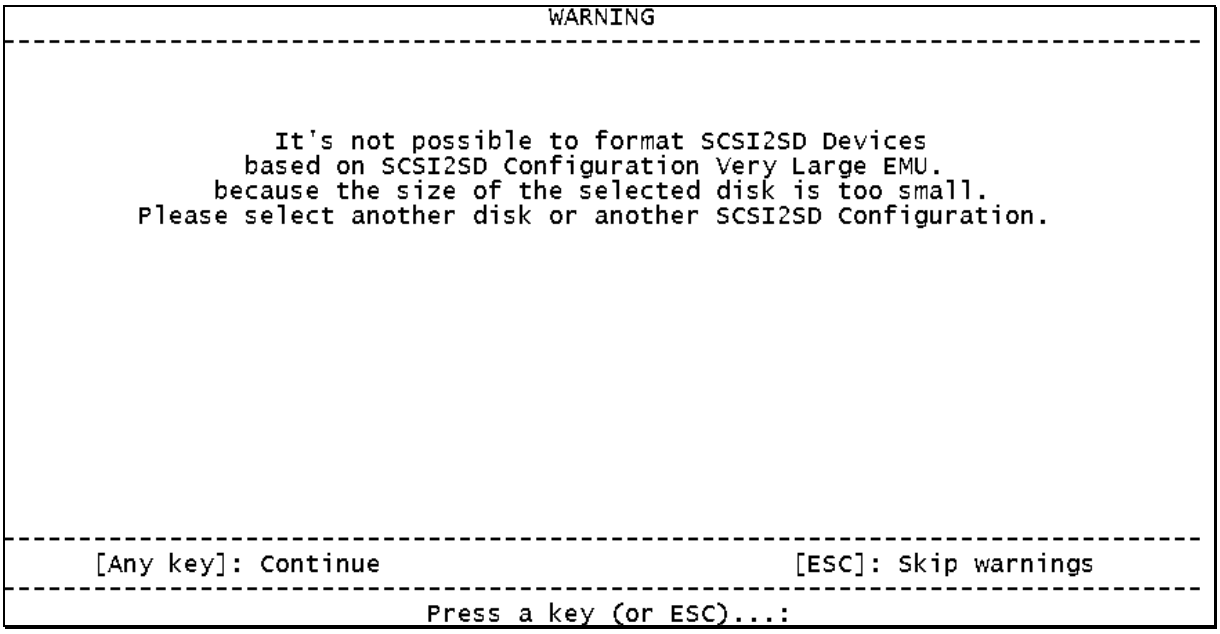
During this validation, the configuration's setting regarding the "minimum number of required enabled devices" (see *section "10.5.4.2.6 Change #required enabled devices"*) and the overruling preference (if enabled) regarding the "minimum number of required enabled devices" (see *section "10.5.4.4 Overrule the configured rules for minimum number of detected devices"*) are taken into account.

E.g. suppose the physical disk size is 512MB, and the SCSI2SD configuration defines 4 *enabled devices* each having a size of 256MB.

- if the "minimum number of required enabled devices" is set to ALL, the required space is 1GB (4 times 256MB) while the disk size is only 512MB. As a consequence, the disk can not be formatted.
- if the "minimum number of required enabled devices" is set to AT LEAST ONE, the disk can be formatted but only 2 *devices* will be formatted instead of 4.

The configuration's setting and the overruling preference (if enabled) regarding the "minimum required physical device size" are not taken into account. During a format process. EMXP always requires that the disk has sufficient room to hold the *full physical size of each device which is being formatted.*

If the physical disk size is too small according to the above rules, a warning will be displayed and the format process can't continue. You will have to select another disk or another SCSI2SD configuration.



Select the logical disk size

The screen below only appears if you have chosen to format:

- *a normal, un-partitioned Emax-II, Emulator-II or Emulator-III/IIIX/ESI hard disk*
- *a single Emax-II or Emulator-III/IIIX/ESI device (partition) on a SCSI2SD partitioned hard disk*

If you are formatting for an Emax-I sampler, EMXP will always use a logical size of 19MB.

If you are formatting a disk as a SCSI2SD partitioned hard disk including formatting all of its devices (partitions) for Emax-II or Emulator-III/IIIX/ESI at once, EMXP will automatically determine the logical size for each of the devices (partitions) based on their physical size. If you want to change that size later, you can still select an individual device (partition) on the SCSI2SD partitioned disk and re-format that single device (partition) later.

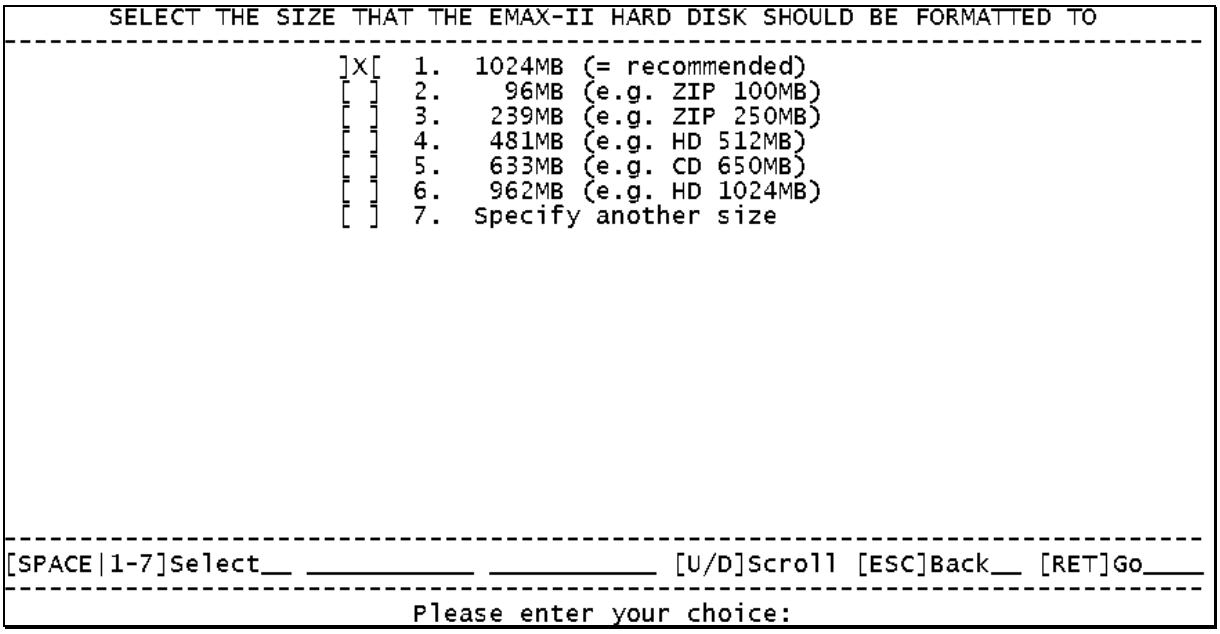
The logical disk size is the size that the Emax-I, Emax-II, Emulator-II or Emulator-III/IIIX/ESI sampler will "see" when accessing the hard disk or SCSI2SD device (partition).

E.g. if you format an disk having a physical capacity of 32GB to an Emax-II disk with a logical disk capacity (size) of 512MB, only 512MB of space will be available for the Emax-II to hold its file system, operating system and sound banks. The remaining 31.5 GB will not be available (but can be used for other Emax-II partitions if you are using a SCSI2SD in your sampler).

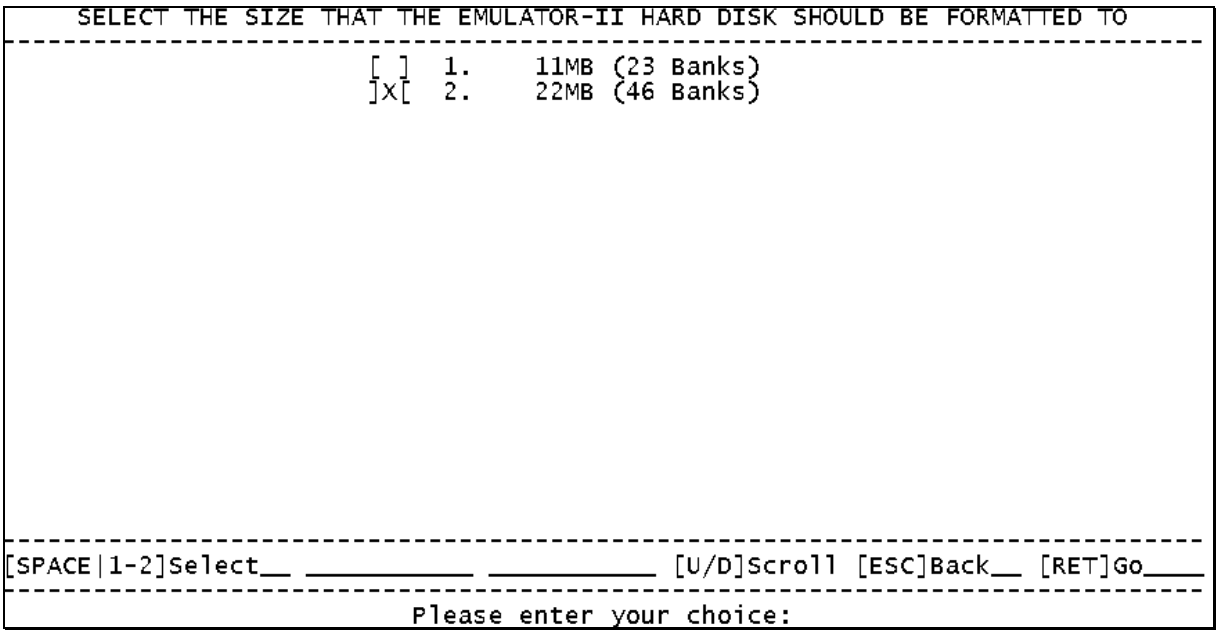
Here's an overview of the minimum and maximum logical disk sizes supported by the EMXP format process:

Sampler	Minimum logical size (1)	Maximum logical size (2)
Emax-I	19 MB	19 MB
Emax-II	256.5 KB (262656 bytes)	1GB (1073741824 bytes)
Emulator-II	11 MB (11250680 bytes)	22 MB (22426104 bytes)
Emulator-III	256.5 KB (262656 bytes)	1GB (1073741824 bytes)
Emulator-IIIX	256.5 KB (262656 bytes)	4GB (4294967296 bytes)
ESI-32, ESI-2000, ESI-4000	256.5 KB (262656 bytes)	14GB (15032386048 bytes)

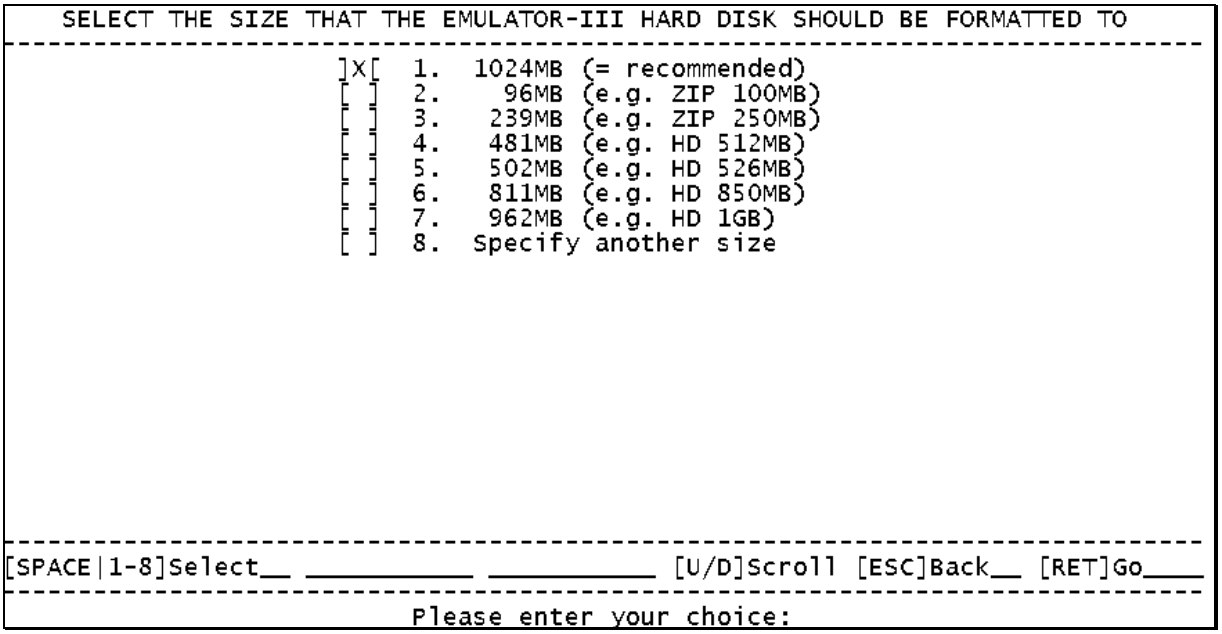
When formatting an Emax-II, Emulator-II or Emulator-III/IIIX/ESI hard disk or when formatting an Emax-II or Emulator-III/IIIX/ESI SCSI2SD hard disk *device* (partition), you have several options to define the logical size of the disk or SCSI2SD device, as shown in the screens below:



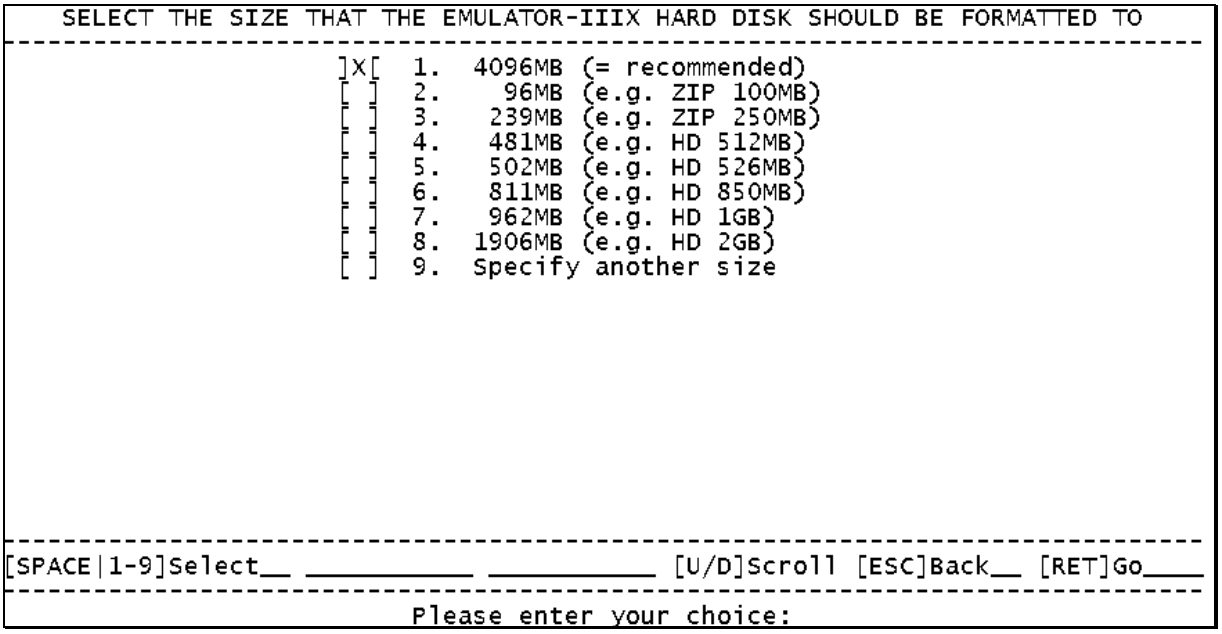
Size selection screen for Emax-II



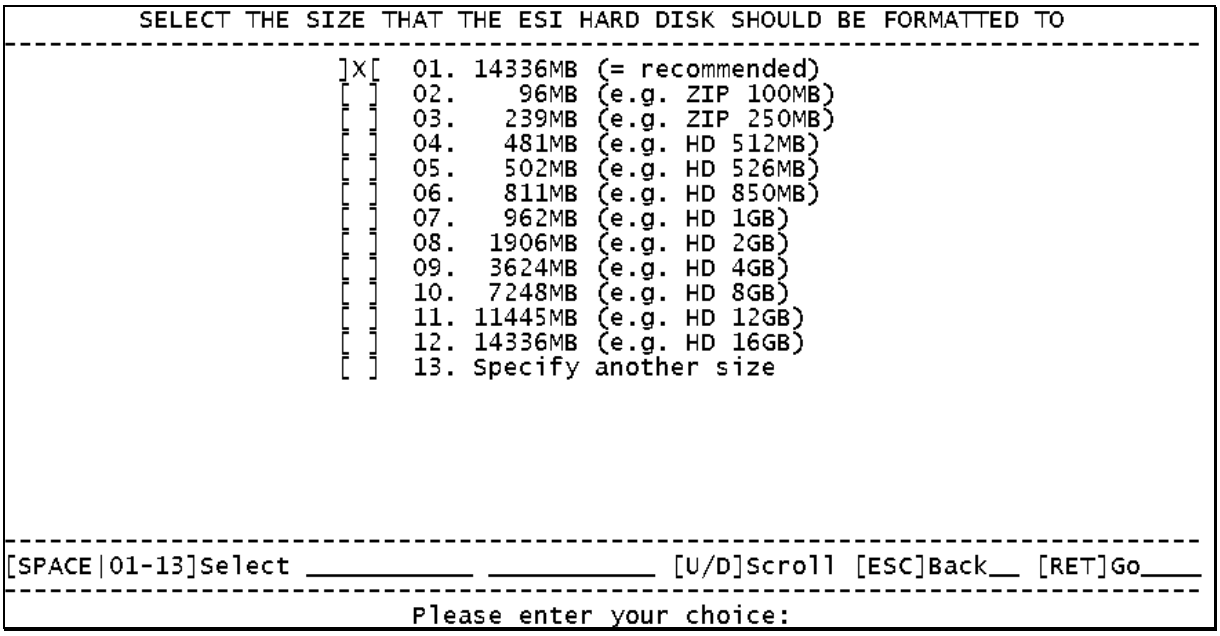
Size selection screen for Emulator-II



Size selection screen for Emulator-III



Size selection screen for Emulator-IIIX



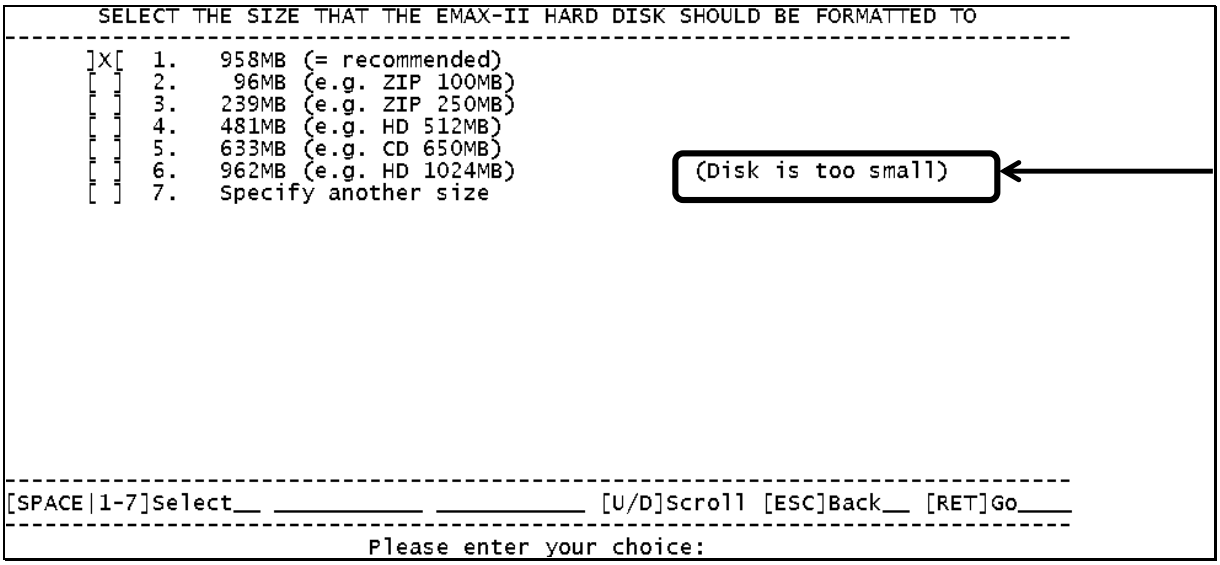
Size selection screen for ESI

For the Emulator-II, you can choose between a maximum of two sizes. The number of available sizes depends on the physical size of the disk.

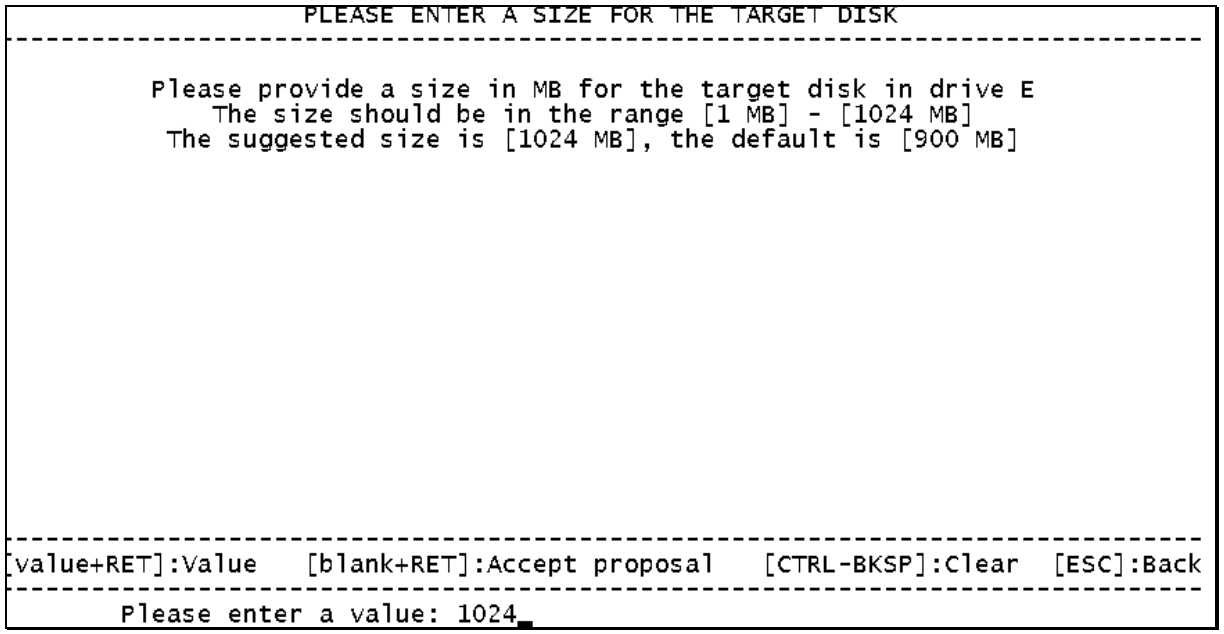
- 11 MB, which formats an Emulator-II hard disk which can hold 23 sound banks. This is the capacity of the hard disks used in the early Emulator-II+HD samplers
- 22 MB, which formats an Emulator-II hard disk which can hold 46 sound banks. This is the default Emulator-II+HD hard disk size.

For the EMAX-II and Emulator-III/IIIX/ESI, the following options are available:

- *use the size recommended by EMXP:* this is the maximum possible logical size which fits in the available physical size without exceeding the upper limit mentioned under (2) in the previous table
- *use one of the fixed defined sizes in EMXP*: if they exceed the physical size of the disk, a warning "(disk is too small)" will appear at the right of the size (see example below). While you can still select this size, EMXP will give a warning before you will be able to continue. Formatting a disk to a logical size larger than the physical size can result in write errors later when trying to save sound banks to the disk.



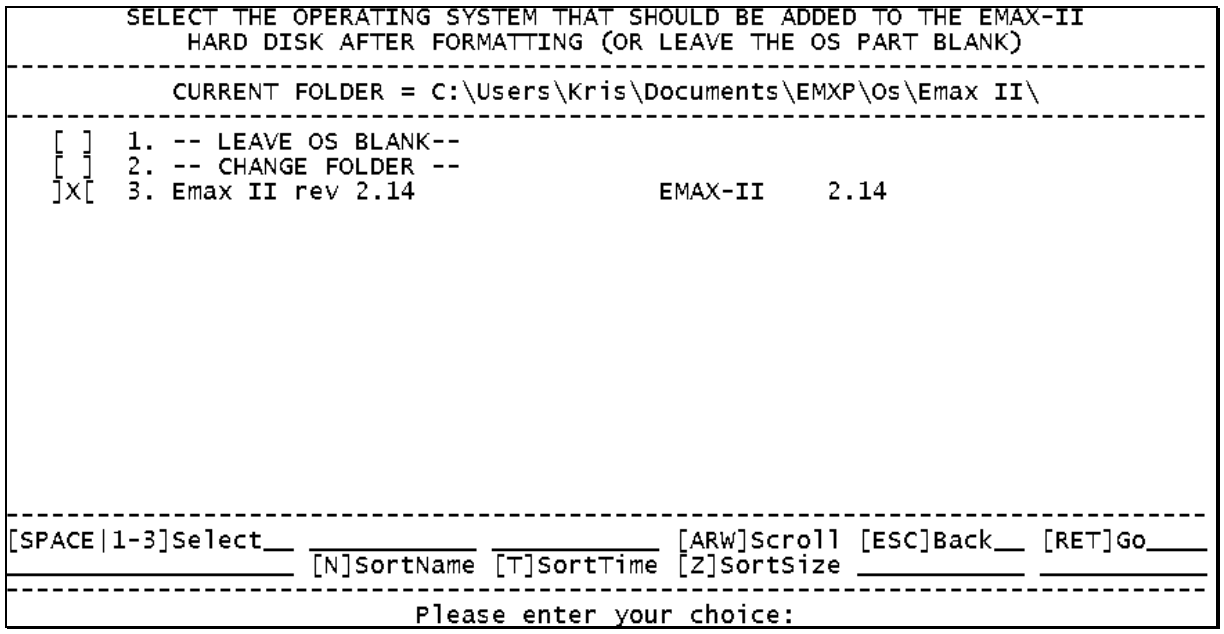
- *enter a size yourself*: if you select this method, you can ask EMXP to format the disk with any logical size (in megabytes) between the minimum and maximum size as mentioned under (1) and (2) in the table. Note however that you can't enter a size which exceeds the physical size of the disk.



As mentioned before there are some slight differences between the file system specification and the supported logical size for Emulator-III, Emulator-IIIX and ESI samplers. But even though there are some slight differences, hard disks formatted for the Emulator-III are perfectly usable on an Emulator-IIIX or ESI sampler, and hard disks formatted for the Emulator-IIIX are perfectly usable on an ESI sampler. The opposite is true as well, but in that case you should avoid logically formatted sizes larger than the maximum supported hard disk size of the "older" sampler (1GB for Emulator-III, 4GB for Emulator-IIIX) to avoid unexpected behaviour on the Emulator-III or Emulator-IIIX sampler.

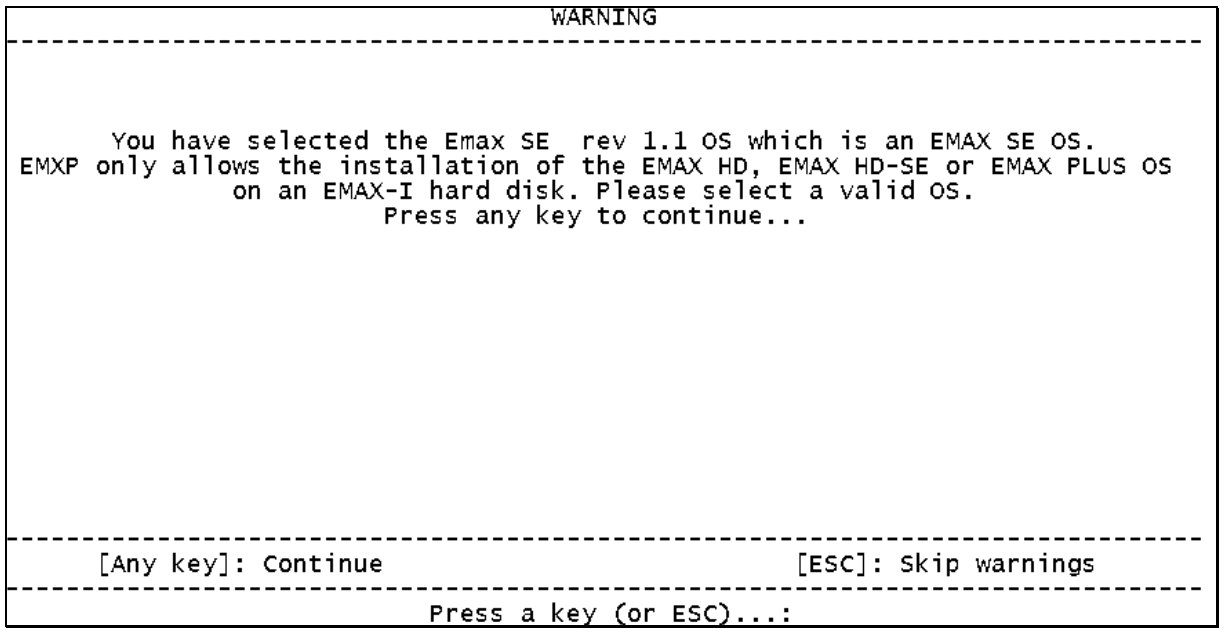
Selecting an operating system (not for ESI hard disks)

You have now the possibility to select an operating system which should be saved to the disk or SCSI2SD disk device(s) (partition(s)) immediately after the logical format has finished.
Saving an operating system when formatting a hard disk is *not required.* You can always save an operating system to the hard disk or SCSI2SD hard disk device(s) (partition(s)) afterwards, see *section "6.4 COPYING OPERATING SYSTEMS"*.



In the File Manager you can select the operating system that you want to save to the hard disk; alternatively you can select "`-- LEAVE OS BLANK --`" if you don't want to save an operating system now.

For some samplers, like the EMAX-I and Emulator-II, not all operating system versions support hard disks. If you select an operating system for being saved to the formatted hard disk, EMXP will check if the operating system supports hard disks. If it doesn't, a warning will be displayed and you will have to select another operating system.



As explained in *section "6.4.1.2 About combining Emulator-III/IIIX operating systems"*, a hard disk for the Emulator-III/IIIX (and even ESI) samplers can contain two operating systems at once: one for the Emulator-III and one for the Emulator-IIIX. When formatting a hard disk in EMXP, you will only be able to select an operating system corresponding to the sampler type that has been selected as the target sampler type (see *paragraph "Selecting sampler type" or paragraph "Select the logical disk size"* before).
Adding an additional operating system can be done afterwards by means of the normal copy function for operating systems in EMXP (see *section "6.4.1 Copying EMU operating systems").*

Selecting an Emulator-II hard disk configuration

The screens below only appear if you have chosen to format an Emulator-II hard disk.

When formatting an Emulator-II hard disk, EMXP needs to know

- the physical format parameters which should be used for formatting the disk
- the error log information belonging to the specific hard disk that you want to format. This log contains information about the bad sectors on the hard disk

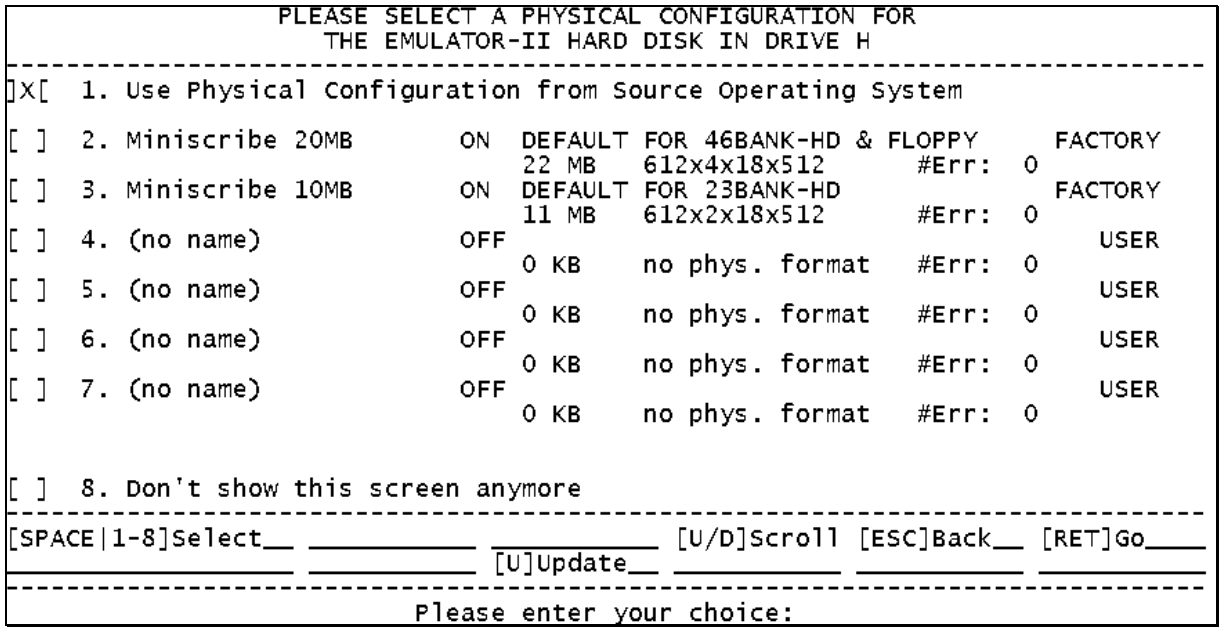
This information should be defined in *a physical configuration* within EMXP. This can be done upfront (before formatting the disk) in the preferences menu of EMXP.
More details can be found in s*ection "10.5.8.1 Emulator-II support for hard disks: introduction"* and *section "10.5.8.3 Define Emulator-II hard disk/hard disk image configurations"*.

Selecting the configuration

The screen for selecting the appropriate physical configuration looks differently depending on whether you have selected an operating system or not in the previous step.

If you have selected an operating system *and if it contains a valid file system and error log*, you can instruct EMXP to format the disk with the error log stored in the operating system file and with the physical parameters derived from that operating system file. See *option 1*.

But you can also instruct EMXP to use one of the 2 factory physical configurations (e.g. Miniscribe 20MB) or one of the 4 user defined physical configurations (if any have been defined). You can use *options 2→7* for this.

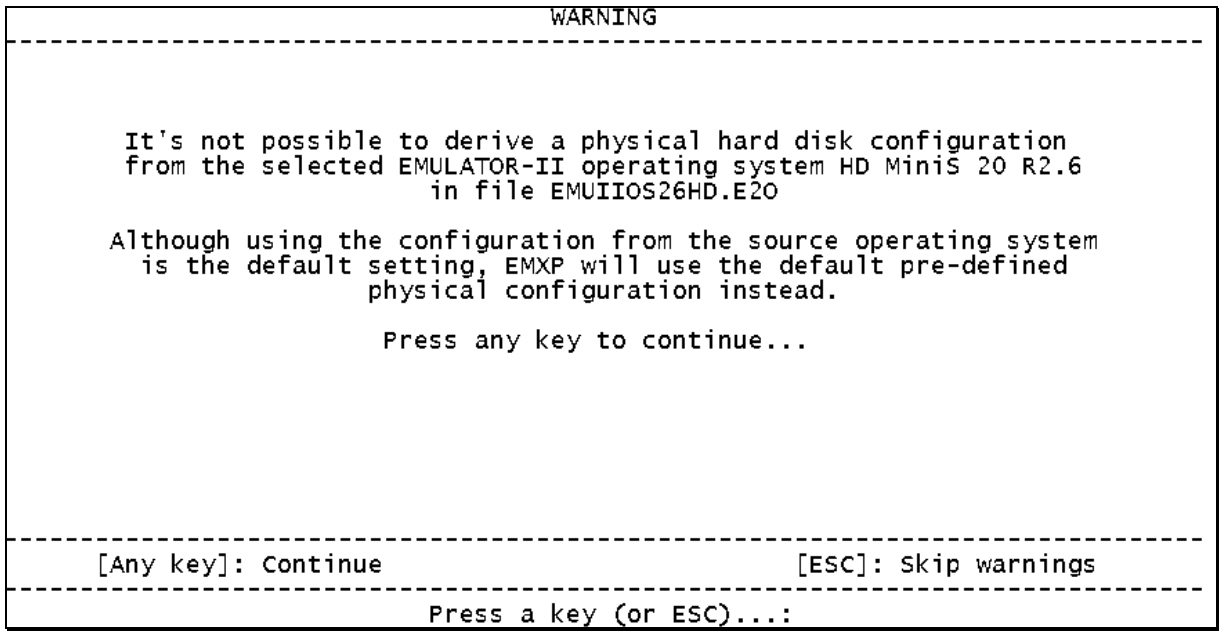


Selecting a physical configuration if you have selected an operating system in the previous step

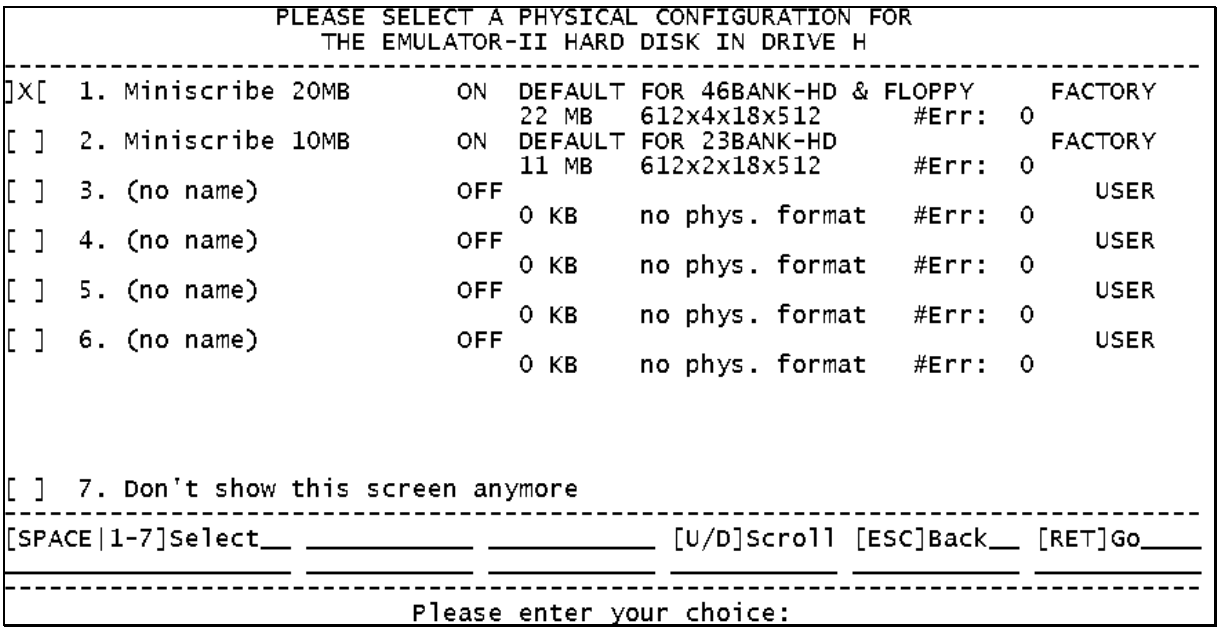
If you select *option 1* (use the configuration of the selected operating system), EMXP will set this choice as the default for future format/generation processes. Of course this default setting will only be applicable if you select an operating system.
If you don't select an operating system, while the default setting is to use the configuration of the operating system, EMXP will automatically use the default pre-defined configuration.
The default pre-defined configurations are marked in the overview screen as follows:

- DEFAULT FOR 46BANK-HD: the default configuration if you are formatting a 22MB hard disk
- DEFAULT FOR 23BANK-HD: the default configuration if you are formatting a 11MB hard disk

If you selected an operating system which does not have a valid filesystem and/or not a valid error log, but the default setting is to use the configuration of the selected operating system, EMXP will raise a warning as shown in the screen below.



In this case, the default setting to use the configuration of the selected operating system will be ignored, and you'll have to use a pre-defined configuration instead, just like you would have done if no operating system would have been selected.



Selecting a physical configuration if you decided to keep the operating system blank in the previous step

If you didn't select an operating system or if the selected operating system does not contain a valid filesystem or error log, you can only select one of the pre-defined physical configurations (either a factory one or a user-defined one). You can use *options 1→6* to do this.

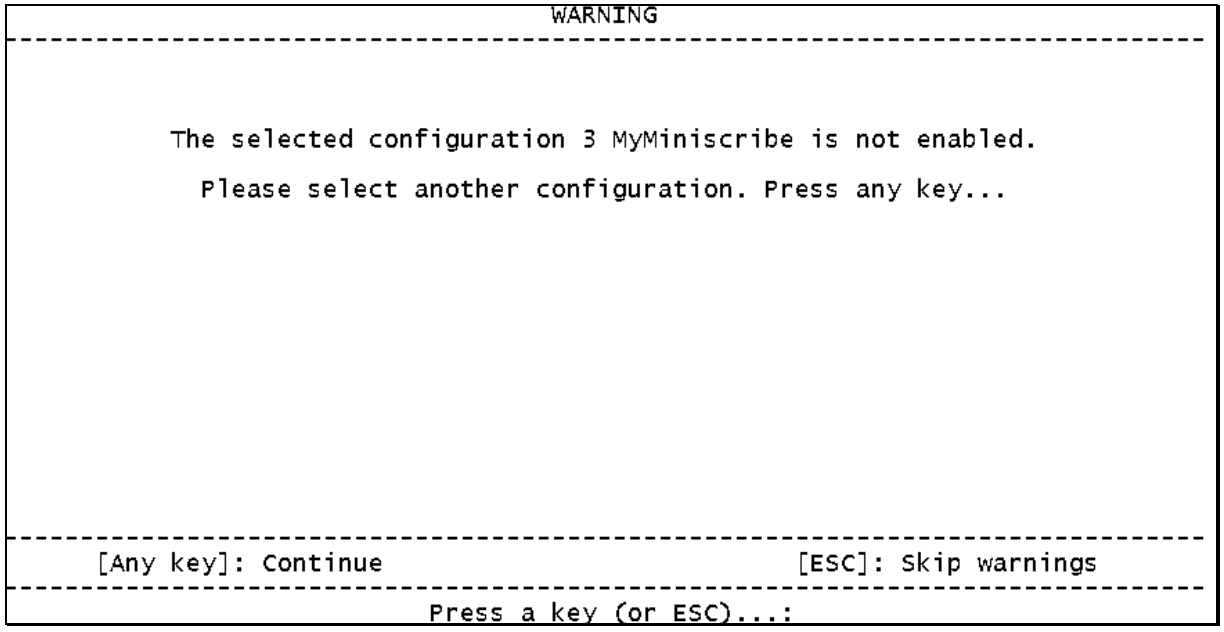
When explicitly selecting one of the 6 physical configurations, you have the possibility to update (or even define) the selected configuration. This can be done by pressing the [U]pdate shortcut key. See *section "10.5.8.3 Define Emulator-II hard disk/hard disk image configurations"* for a descriprion how to define/change a physical configuration.

Enable *option "Don't show this screen anymore"* if you don't want to see the above screen anymore in future format/generation processes, and always want to apply the default setting (either using the configuration of the selected operating system or using the pre-defined configuration which has been set as a default for the hard disk size).
You can always change this setting afterwards in the preferences menu, see *section "10.5.8.3 Define Emulator-II hard disk/hard disk image configurations"*.

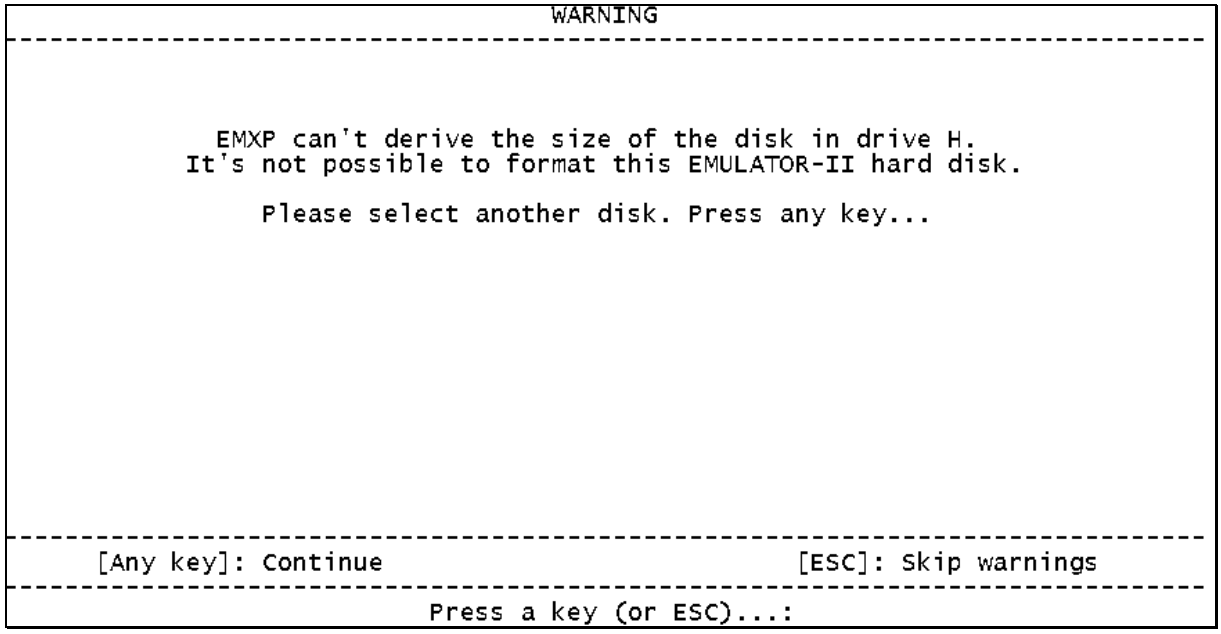
Validation of the selected configuration

EMXP will perform a number of validations to make sure the selected physical configuration is compatible with the hard disk and with the selected size to which the hard disk must be formatted.

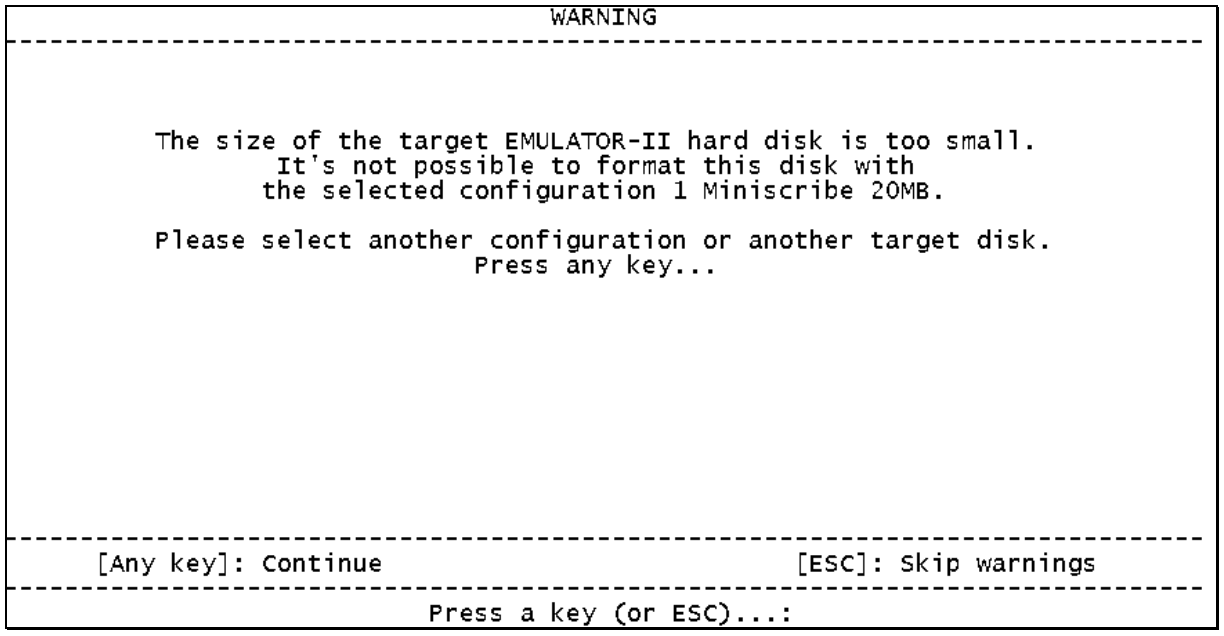
If the selected configuration is not enabled, it can not be used by EMXP.
You should select another configuration before continuing the format process.



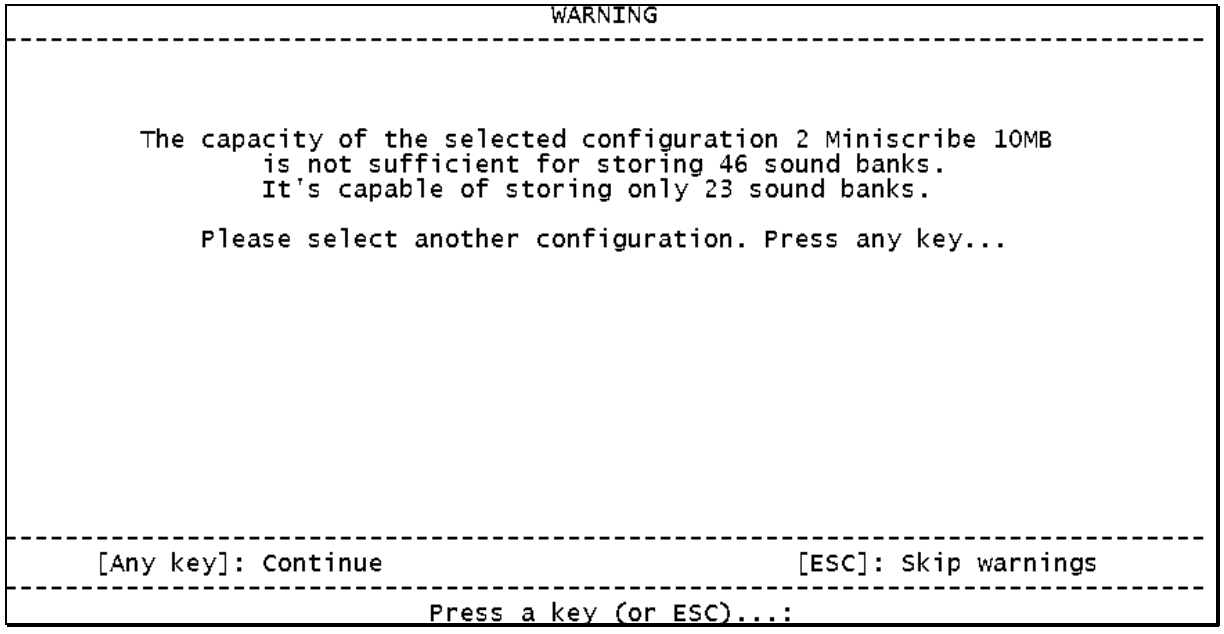
If the physical size or the physical format (geometry) of the connected hard disk can't be determined by EMXP, the format process can't continue. The screen below shows the warning if the size can't be determined. The message looks slightly different if the geometry can't be determined (not shown here).



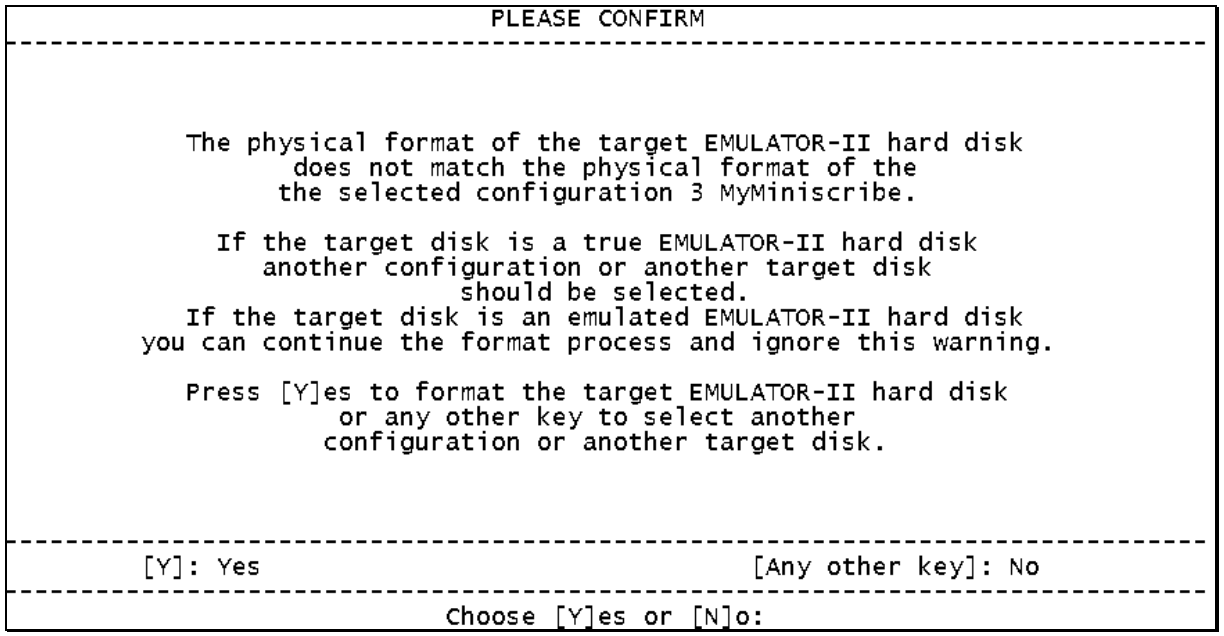
If the selected configuration's physical format size is larger than the total physical size of the connected hard disk, the configuration can't be used. Either another configuration or another disk should be selected.



If the selected configuration's physical format is too small for the selected hard disk size (e.g. a Miniscribe 10MB configuration while you're formatting a 22MB hard disk), EMXP will raise a warning and you will have to select another configuration.

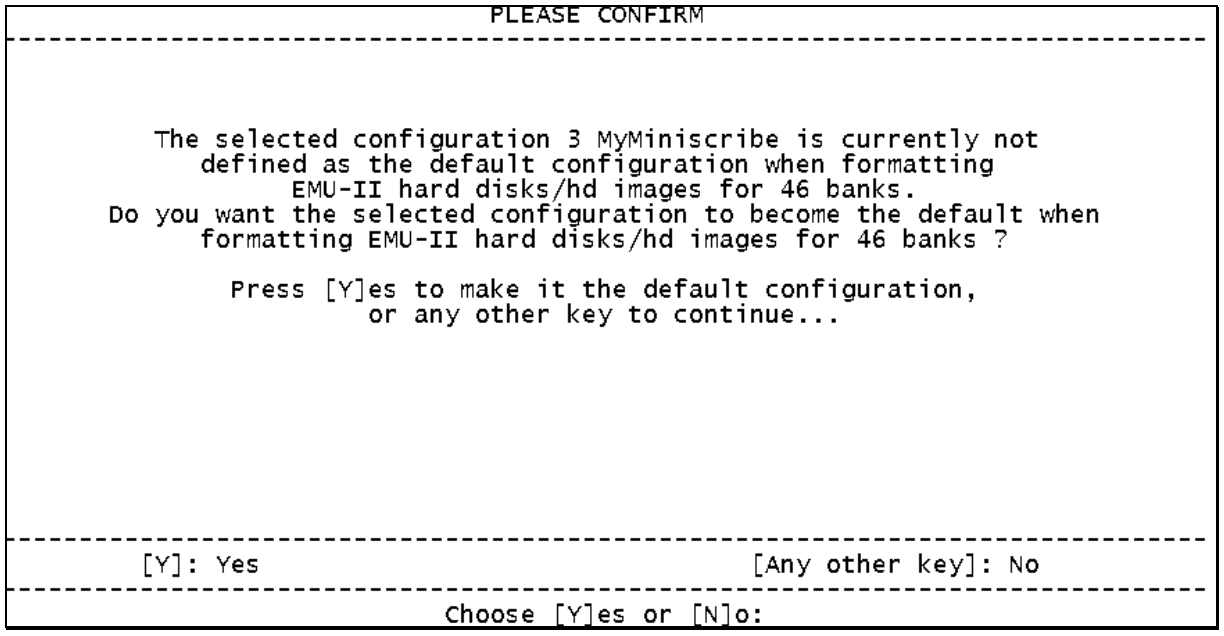


If the configuration contains an error log or a DREM bad sector index consisting of at least one bad sector (defect), and the physical format (geometry) of the hard disk does not match the physical format defined in the configuration, EMXP will raise a warning.



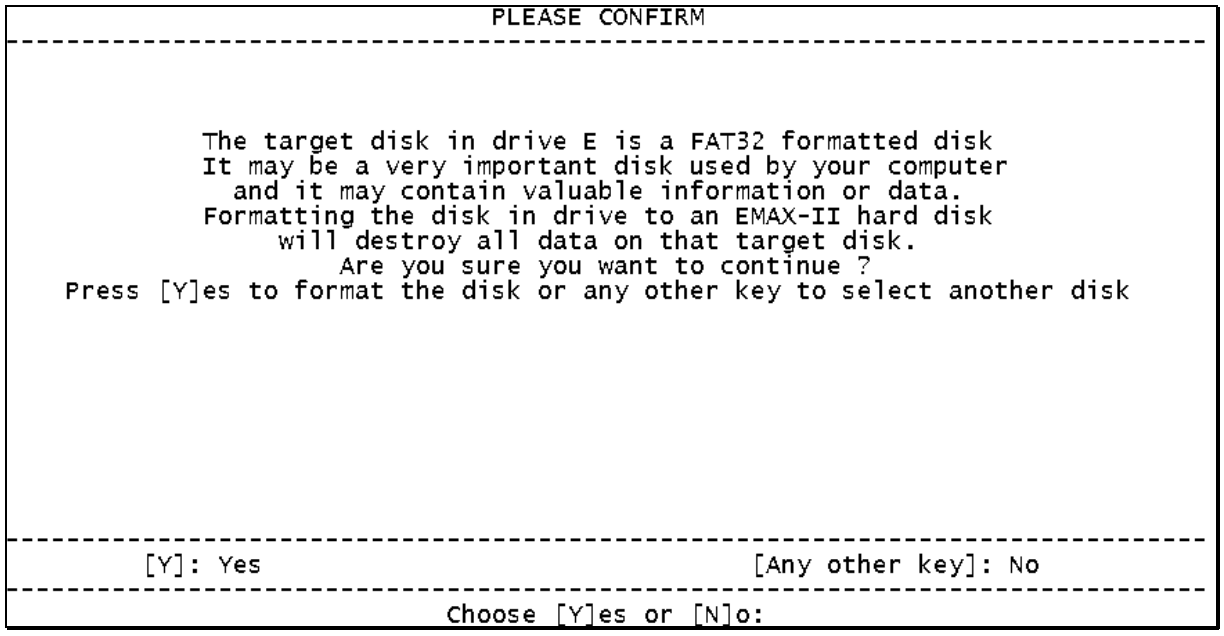
You should *not continue with formatting the hard disk* if the connected hard disk is a true, original Emulator-II hard disk. If the connected hard disk is a hard disk emulator however, you can continue with formatting the hard disk.

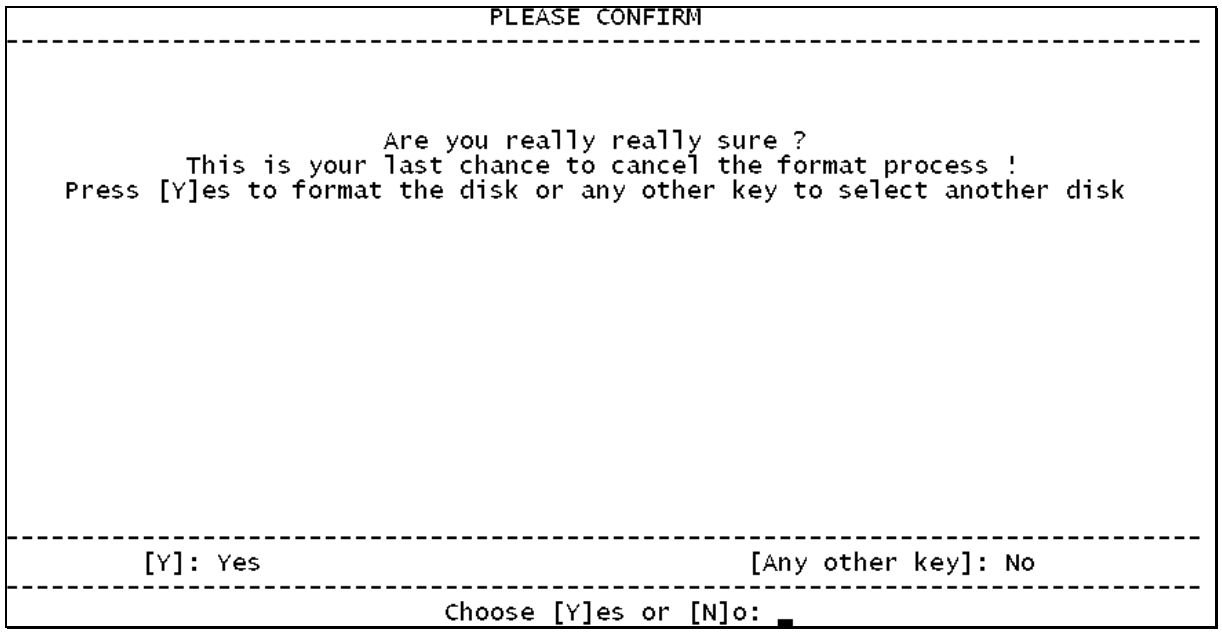
If you have selected a configuration which is currently not the default configuration for the selected hard disk size, EMXP will ask if you want to make the selected configuration the default one.



Confirm the format process

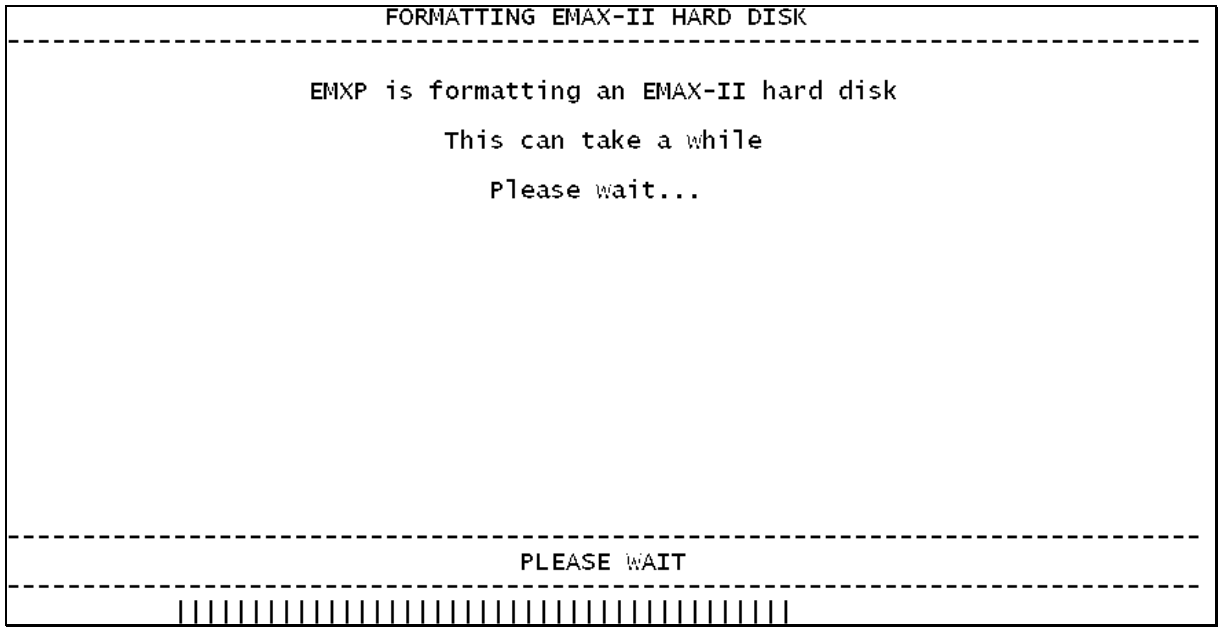
Since we are formatting a *hard disk*, there's quite some risk that you will overwrite (destroy) an existing sampler hard disk or computer hard disk which contains valuable information.
In order to prevent you from making a mistake, EMXP will ask for conformation *twice* ! See pictures below.



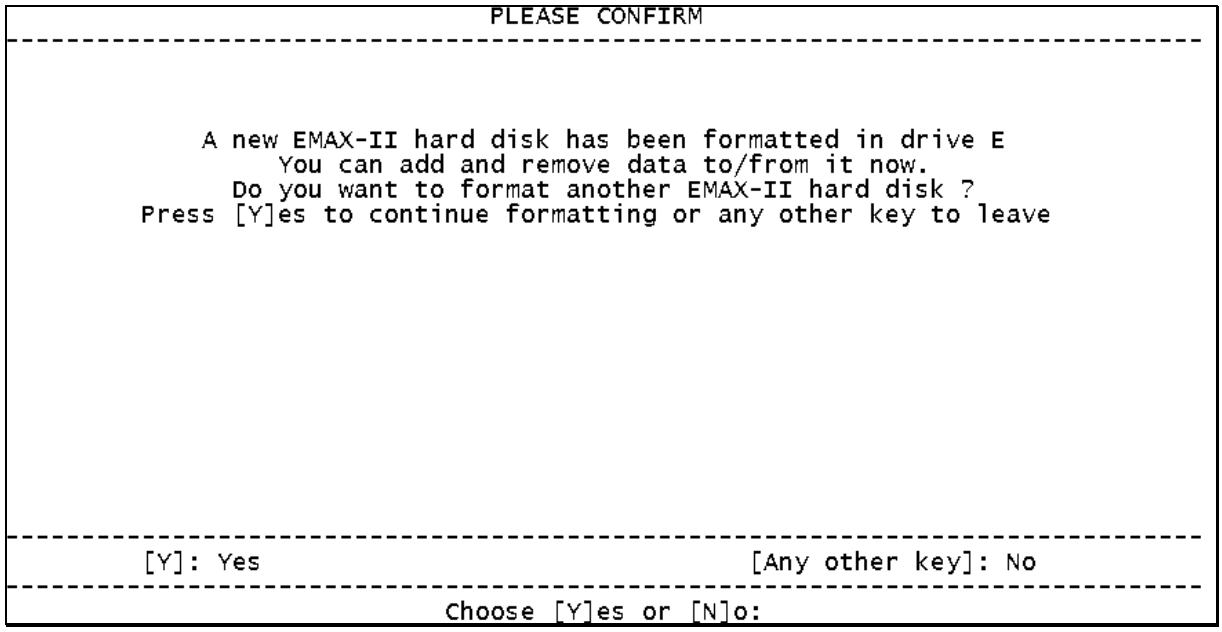


Wait while EMXP formats the disk and saves the operating system to the disk

EMXP will now format the hard disk or SCSI2SD *device* (partition) and save the operating system to the disk or SCSI2SD *device*(s) (if requested). This process can take a while... please be patient.



When the format process is finished, you'll get following message:



You can format another sampler hard disk now by pressing 'Y' or leave the format process by pressing any other key.

9.2 GENERATING EMPTY HARD DISK IMAGES

EMXP is capable of generating “empty” file systems for EMAX-I, EMAX-II, Emulator-II, Emulator-III, Emulator-IIIX and ESI hard disks.
These file systems are nothing else than (big) hard disk image files - optionally including an operating system - on which no sound banks (or Null Preset banks for Emulator-II) have been written yet.

EMXP can also generate

- hard disk image files which comply with a SCSI2SD partitioning configuration; EMXP will generated a sampler file system for each of the enabled *devices* in that SCSI2SD configuration.
- a sampler file system for a single *device* which has been selected from an existing SCSI2SD partitioned hard disk image file.

SCSI2SD hard disk image files are not supported for the Emulator-II, because the SCSI2SD hard disk emulator can't be used in the Emulator-II.
But the DREM hard disk emulator is supported by the Emulator-II. To use the DREM with the Emulator-II, you need Emulator-II hard disk images (which can be generated and are supported by EMXP).

Similar to the disk format process, an operating system can optionally be written to the file system as well during the file system generation process.
Moreover, specifically for the Emulator-II it's also possible to emulate "bad sectors" (defects in error logs) and to generated DREM compatible hard disk images.

Once generated, banks and operating systems can be saved to the hard disk image file or to the SCSI2SD hard disk image *device(s)* (partition(s)).

These hard disk image files or SCSI2SD hard disk device(s) (partition(s)) can be copied to real hard disks or memory cards later. See *section "6.5 COPYING ENTIRE FLOPPY DISK (IMAGE)S AND HARD DISK (IMAGE)S"*. From that perspective generating hard disk image files and copying them to a hard disk is an alternative for *formatting* a hard disk (see *section "9.1.3 Formatting EMAX-I, EMAX-II, Emulator-II, Emulator-III/IIIX/ESI* hard disks*"*).

Note:
In the remainder of this section we will use illustrations belonging to the hard disk image generation process of an EMAX-II hard disk image. The process for generating EMAX-I, Emulator-II and Emulator-III/IIIX/ESI hard disk images is similar. If certain features are only applicable for one of these sampler types, they will of course be explained as well.

Starting the generation process

To generate an EMAX-I hard disk image
“1. Manage EMU Files and Disks” → “1. Manage EMU EMAX-I Files and Disks” → “4. Manage EMAX-I Hard Disk Images” → “2. Create new (blank) EMAX-I Hard Disk Image”

To generate an EMAX-II hard disk image
“1. Manage EMU Files and Disks” → “2. Manage EMU EMAX-II Files and Disks” → “4. Manage EMAX-II Hard Disk Images” → “2. Create new (blank) EMAX-II Hard Disk Image”

To generate an Emulator-II hard disk image, e.g. for using them in DREM:
“1. Manage EMU Files and Disks” → “4. Manage EMU EULATOR-II Files and Disks” → “4. Manage EMULATOR-II Hard Disk Images (e.g. DREM)” → “2. Create new (blank) EMULATOR-II Hard Disk Image”

To generate an Emulator-III, Emulator-IIIX or ESI hard disk image
“1. Manage EMU Files and Disks” → “5. Manage EMU EMULATOR-III/X/ESI Files and Disks” → “4. Manage EMULATOR-III/X/ESI Hard Disk Images” → “2. Create new (blank) EMULATOR-III/X/ESI Hard Disk Image”

Selecting the type of disk image to be formatted

This screen does not appear if you are generating an Emulator-II hard disk image.

EMXP should know whether you would like to generate

- a normal, un-partitioned sampler hard disk image
- a SCSI2SD partitioned hard disk image consisting of multiple sampler *devices* (partitions) at once
- a single SCSI2SD *device* (partition) of an existing SCSI2SD partitioned hard disk image

```
          SELECT THE TYPE OF EMAX-II HARD DISK IMAGE TO BE GENERATED
--------------------------------------------------------------------------------
    ]X[  1. Generate a standard EMAX-II hard disk image (*)
    [ ]  2. Generate a multi-device SCSI2SD EMAX-II hard disk image









           (*) this includes generating a single device on an existing
               multi-device SCSI2SD hard disk image

--------------------------------------------------------------------------------
[SPACE|1-2]Select__ ___________ ___________ [U/D]Scroll [ESC]Back__ [RET]Go____
--------------------------------------------------------------------------------
                            Please enter your choice:
```

Select *option 1* if you want to generate

- a normal, un-partitioned sampler hard disk image
- a single SCSI2SD *device* (partition) of an existing SCSI2SD partitioned hard disk image

If you selected *option 2* you will also have to tell EMXP according to which SCSI2SD configuration (device schema) the hard disk image should be generated and partitioned.

This can be done in the next screen.

```
                     PLEASE SELECT A SCSI2SD CONFIGURATION
                       FOR EMAX-II HARD DISK IMAGE FILES
--------------------------------------------------------------------------------
]X[  01. EMAX-II 2MB           DEFAULT  #4:256MB #5:128MB #6:128MB #7:128MB
[ ]  02. EMAX-I                         #2: 20MB #3: 20MB #4: 20MB #5: 20MB
[ ]  03. EMAX-II 2MB w/OffSet           #4:256MB #5:128MB #6:128MB #7:128MB
[ ]  04. EMAX-II 2MB Special            #4:256MB #5:192MB #6:192MB No dev4
[ ]  05. (no name)                      No dev1  No dev2  No dev3  No dev4
[ ]  06. (no name)                      No dev1  No dev2  No dev3  No dev4
[ ]  07. (no name)                      No dev1  No dev2  No dev3  No dev4
[ ]  08. (no name)                      No dev1  No dev2  No dev3  No dev4
[ ]  09. (no name)                      No dev1  No dev2  No dev3  No dev4
[ ]  10. EMU-III 8MB                    #4:1.0GB #5:1.0GB #6:1.0GB #7:1.0GB









--------------------------------------------------------------------------------
[SPACE|01-10]Select ___________ ___________ [U/D]Scroll [ESC]Back__ [RET]Go____
___________________ ___________ [U]Update__ ___________ ___________ ___________
--------------------------------------------------------------------------------
                            Please enter your choice:
```

If no SCSI2SD configurations have been defined yet in EMXP, you can do so now by selecting one of the empty configuration slots and by pressing the [U]pdate shortcut key. This key can also be used to change (or review) one of the already defined SCSI2SD configurations.

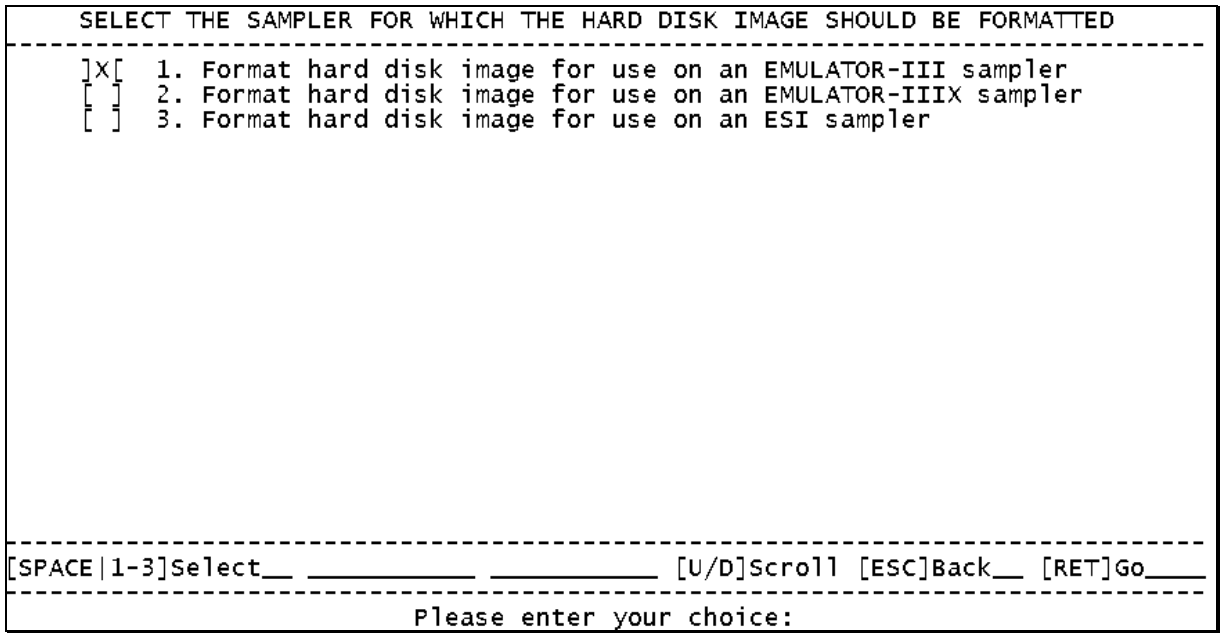
More details about how to define a SCSI2SD configuration can be found in:

- *section "4.5.2.4 Using the File Manager with SCSI2SD hard disk image files"*
- *section "10.5.4.2 Define SCSI2SD device configurations"*

Select target sampler type

This step is only required for the Emulator-III, Emulator-IIIX and ESI samplers.

Although the hard disk structure and file system for these three samplers is very similar, there are some small differences in the way they are formatted. And the maximum size to which the hard disk can be formatted differs between these samplers as well.
As a general rule, hard disks of an older sampler type (e.g. Emulator-III) can be used without any problem in a newer sampler type (e.g. ESI), while the opposite is not guaranteed.



Select target hard disk image file or target SCSI2SD device (partition)

You now have to specify the target file and - optionally - the SCSI2SD device (partition) on the target file in which you want EMXP to save the generated file system and selected operating system.

```
        PLEASE SPECIFY A NAME FOR THE NEW EMAX-II HARD DISK IMAGE FILE
--------------------------------------------------------------------------------
CURRENT FOLDER = C:\Users\Kris\Documents\EMXP\Images\Emax II\Other\HD Images\
--------------------------------------------------------------------------------
   ]X[  1. -- NEW FILE -------
   [ ]  2. -- CHANGE FOLDER --
   [ ]  3. Emax-II Backup #1.ISO          #Bank: 5   %Used:   3      256MB
   [ ]  4. Emax-II Backup #2.ISO          #Bank: 5   %Used:   3      256MB
   [ ]  5. Emax-II Gig Amsterdam.EZ2      #Bank: 12  %Used:  33      239MB
   [ ]  6. Emax-II Gig Budapest.EZ2       #Bank: 15  %Used:  42      225MB
--------------------------------------------------------------------------------
[SPACE|1-6]Select__ ___________ ___________ [ARW]Scroll [ESC]Back__ [RET]Go____
[D]Details_________ [C]SCSI2SD_ [G]SDConfig [N]SortName [T]SortTime [Z]SortSize
--------------------------------------------------------------------------------
                           Please enter your choice:
```

If you are generating

- a normal, un-partitioned sampler hard disk image
- or a SCSI2SD partitioned hard disk image consisting of multiple sampler *devices* (partitions) at once

you can either specify a new file name or select an existing hard disk image file which will be replaced by the newly generated one

If you want to generate a file system to just a single SCSI2SD *device* in an existing SCSI2SD hard disk image file, you'll have to perform a SCIS2SD scan in the File Manager and select the specific SCSI2SD *device* you'd like to replace with the newly generated one. This is illustrated below.

Please note that the SCSI2SD options are not available when generating an Emulator-II hard disk image.

```
        PLEASE SPECIFY A NAME FOR THE NEW EMAX-II HARD DISK IMAGE FILE
--------------------------------------------------------------------------------
CURRENT FOLDER = C:\Users\Kris\Documents\EMXP\Images\Emax II\Other\HD Images\
--------------------------------------------------------------------------------
   [ ]  1. -- NEW FILE -------
   [ ]  2. -- CHANGE FOLDER --
   [ ]  3. Emax-II Backup #1.ISO          SCSIID#4   #Bank: 5   256MB,  3%
   ]X[  4. Emax-II Backup #1.ISO          SCSIID#5   #Bank: 3   128MB,  3%
   [ ]  5. Emax-II Backup #1.ISO          SCSIID#6   #Bank: 5   128MB,  5%
   [ ]  6. Emax-II Backup #1.ISO          SCSIID#7   #Bank: 9   128MB,  8%
   [ ]  7. Emax-II Backup #2.ISO                     #Bank: 5   256MB,  3%
   [ ]  8. Emax-II Gig Amsterdam.EZ2                 #Bank: 12  239MB, 33%
   [ ]  9. Emax-II Gig Budapest.EZ2                  #Bank: 15  225MB, 42%
--------------------------------[SCSI2SD #1-EMAX-II 2MB SCAN ON SINGLE FILE]---
[SPACE|1-9]Select__ ___________ ___________ [ARW]Scroll [ESC]Back__ [RET]Go____
[D]Details_________ [C]SCSI2SD_ [G]SDConfig [N]SortName [T]SortTime [Z]SortSize
--------------------------------------------------------------------------------
                           Please enter your choice:
```

Select the logical disk size

The screen below only appears if you have chosen to generate:

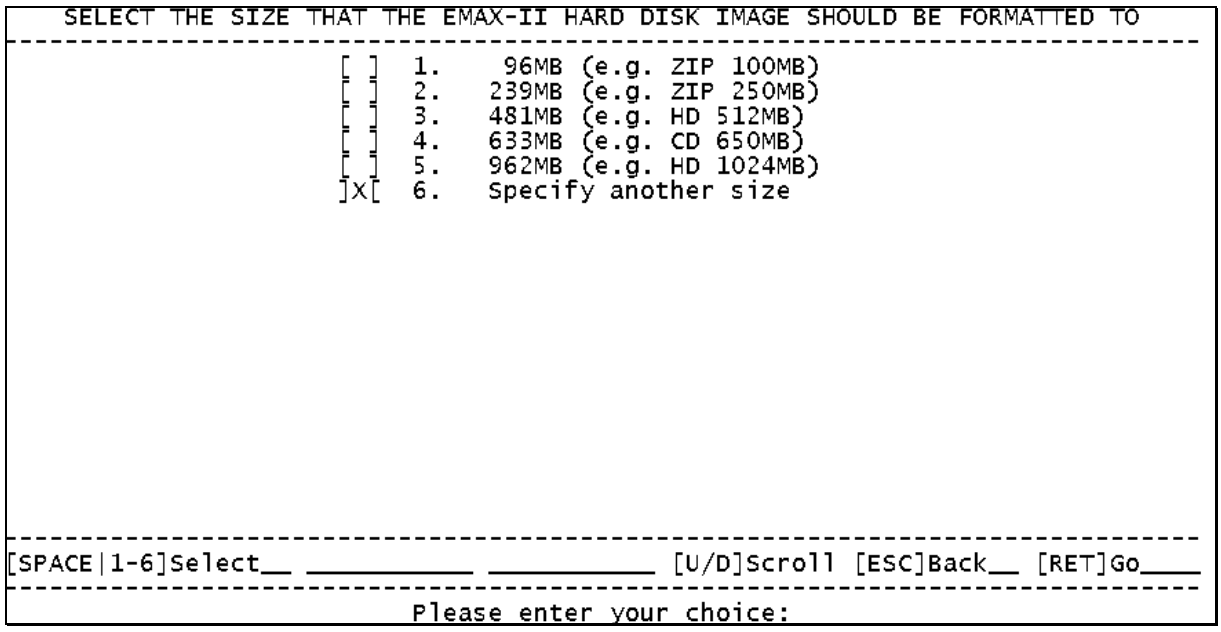
- a normal, un-partitioned Emax-II, Emulator-II or Emulator-III/IIIX/ESI hard disk image
- a single Emax-II or Emulator-III/IIIX/ESI device (partition) in an existing SCSI2SD partitioned hard disk image

If you are generating for an Emax-I sampler, EMXP will always use a logical size of 19MB.

If you are generating a SCSI2SD partitioned hard disk image including "formatting" all of its devices (partitions) for Emax-II or Emulator-III/IIIX/ESI at once, EMXP will automatically determine the logical size for each of the devices (partitions) based on their size defined in the SCSI2SD configuration parameters. If you want to change that size later, you can still select an individual device (partition) on the SCSI2SD partitioned hard disk image and generate a new file system for that single device (partition later.

The logical disk size is the size that the Emax-I, Emax-II, Emulator-II, Emulator-III/IIIX or ESI sampler will "see" when accessing a hard disk or SCSI2SD device (partition). For more details and an overview of the minimum and maximum supported logical sizes by EMXP, see *section "Select the logical disk size"* in the chapter about formatting hard disks.

When generating a **normal, un-partitioned** Emax-II, Emulator-II or Emulator-III/IIIX/ESI hard disk image you have several options to define the logical size of the hard disk image, as shown in the screens below:



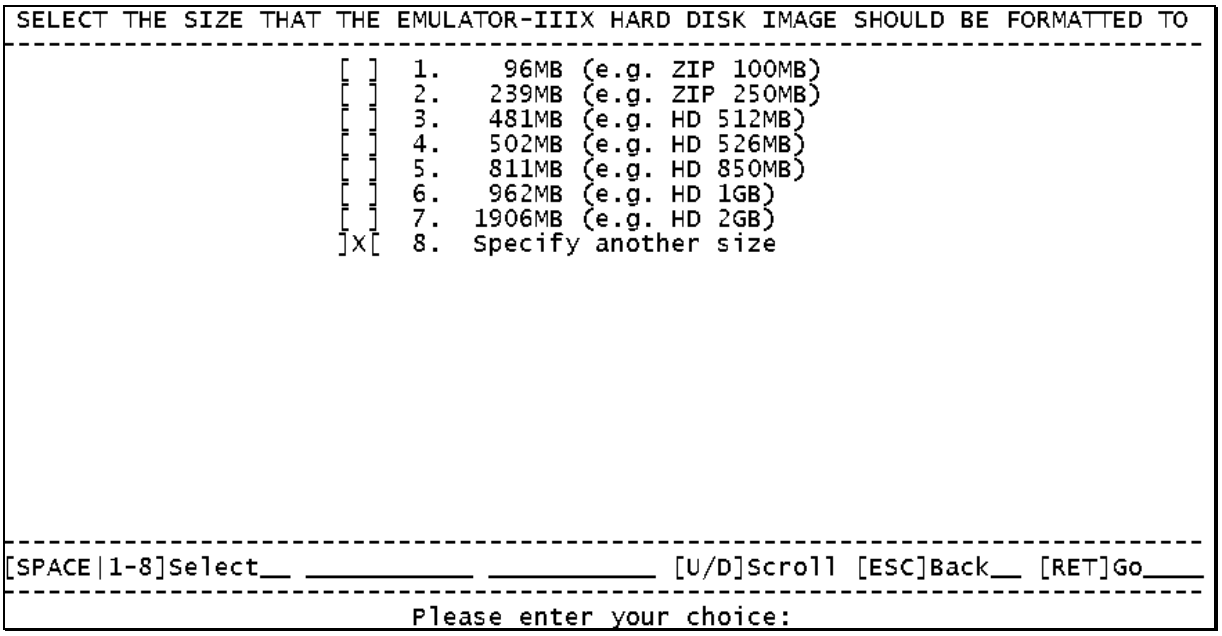
Size selection screen for Emax-II

```
 SELECT THE SIZE THAT THE EMULATOR-II HARD DISK IMAGE SHOULD BE FORMATTED TO
--------------------------------------------------------------------------------
                    [ ]  1.    11MB (23 Banks)
                    ]X[  2.    22MB (46 Banks, e.g. DREM)
                    
                    
                    
                    
                    
                    
                    
                    
                    
                    
                    
                    
                    
                    
                    
--------------------------------------------------------------------------------
[SPACE|1-2]Select__ _____________ _____________ [U/D]Scroll [ESC]Back__ [RET]Go____
--------------------------------------------------------------------------------
                           Please enter your choice:
```

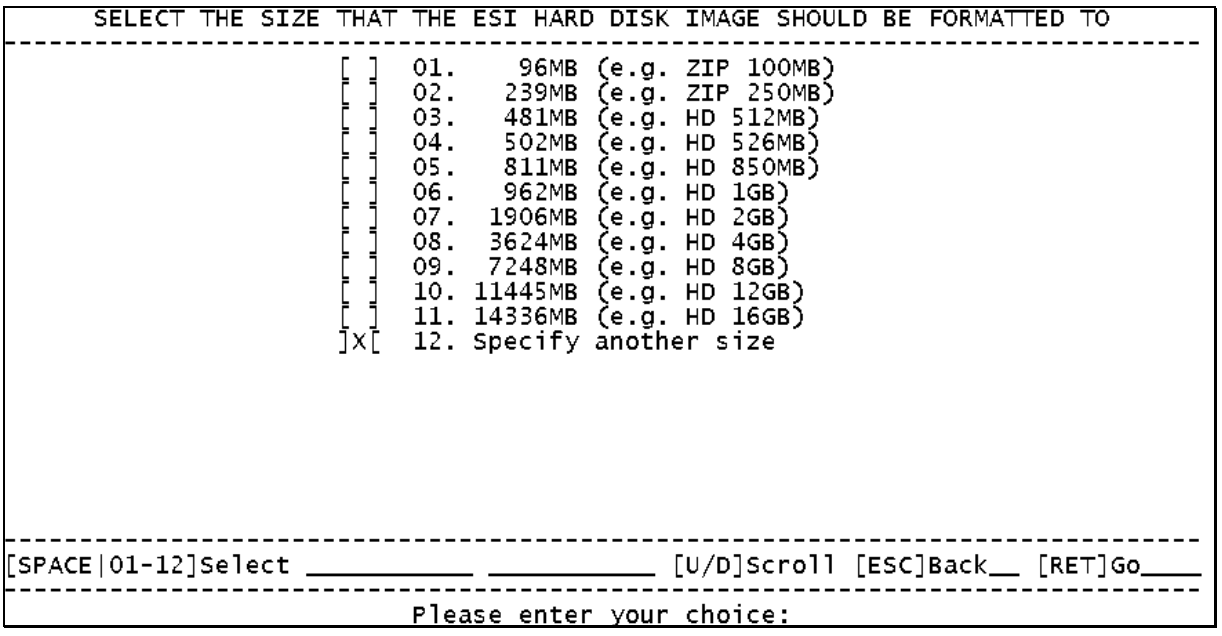
Size selection screen for Emulator-II

```
SELECT THE SIZE THAT THE EMULATOR-III HARD DISK IMAGE SHOULD BE FORMATTED TO
--------------------------------------------------------------------------------
                      [ ]  1.    96MB (e.g. ZIP 100MB)
                      [ ]  2.   239MB (e.g. ZIP 250MB)
                      [ ]  3.   481MB (e.g. HD 512MB)
                      [ ]  4.   502MB (e.g. HD 526MB)
                      [ ]  5.   811MB (e.g. HD 850MB)
                      [ ]  6.   962MB (e.g. HD 1GB)
                      ]X[  7.   Specify another size
                      
                      
                      
                      
                      
                      
                      
                      
                      
                      
                      
                      
                      
                      
                      
--------------------------------------------------------------------------------
[SPACE|1-7]Select__ _____________ _____________ [U/D]Scroll [ESC]Back__ [RET]Go____
--------------------------------------------------------------------------------
                           Please enter your choice:
```

Size selection screen for Emulator-III



Size selection screen for Emulator-III



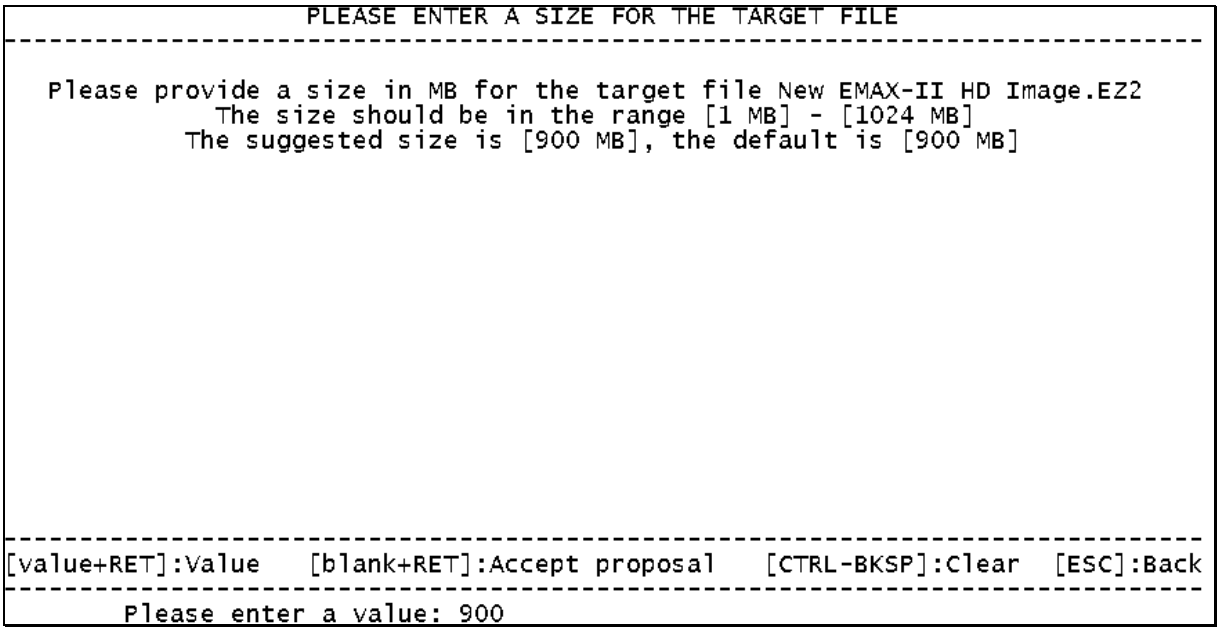
Size selection screen for ESI

For the Emulator-II, you can choose between a maximum of two sizes. The number of available sizes depends on the physical size of the Emulator-II hard disk to which the hard disk image belongs.

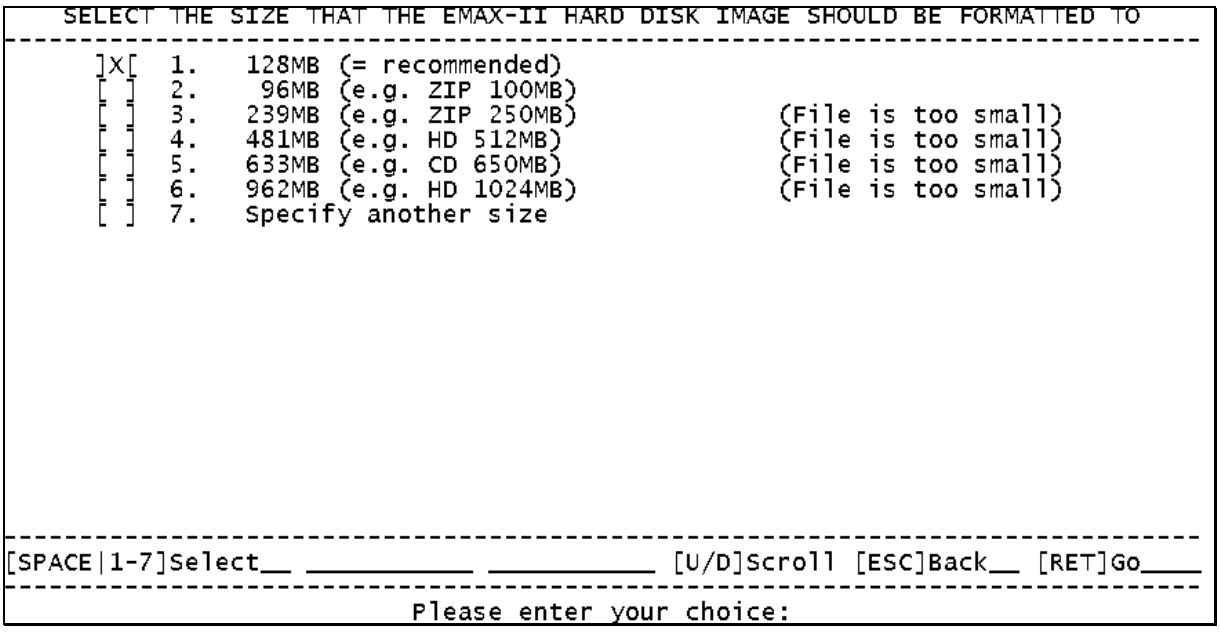
- 11 MB, which corresponds to an Emulator-II hard disk which can hold 23 sound banks. This is the capacity of the hard disks used in the early Emulator-II+HD samplers
- 22 MB, which corresponds to an Emulator-II hard disk which can hold 46 sound banks. This is the default Emulator-II+HD hard disk size. **This is also the size you should select when generating DREM files.**

For the EMAX-II and Emulator-III/IIIX/ESI samplers, the following options are available:

- *use one of the fixed defined sizes in EMXP*
- *enter a size yourself*: if you select this method, you can ask EMXP to generate a hard disk image with any logical size (in megabytes) between the minimum and maximum supported sizes by EMXP

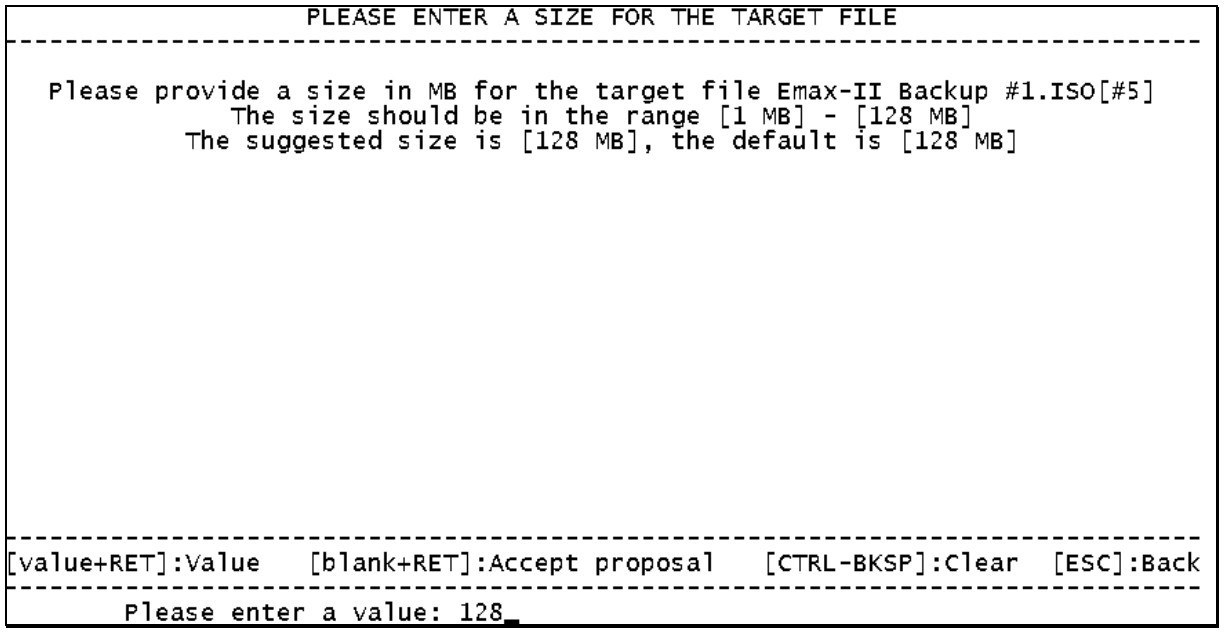


When generating an Emax-II or Emulator-III/IIIX/ESI file system to a specific SCSI2SD device (partition) in an existing SCSI2SD partitioned hard disk image, an additional option is available on top of the two options we just explained. This is illustrated in the screen below (for Emax-II):



You can choose to *use the size recommended by EMXP* (see *option 1* in the picture): this is the maximum possible logical size which fits in the available physical size without exceeding the upper limit supported by EMXP.

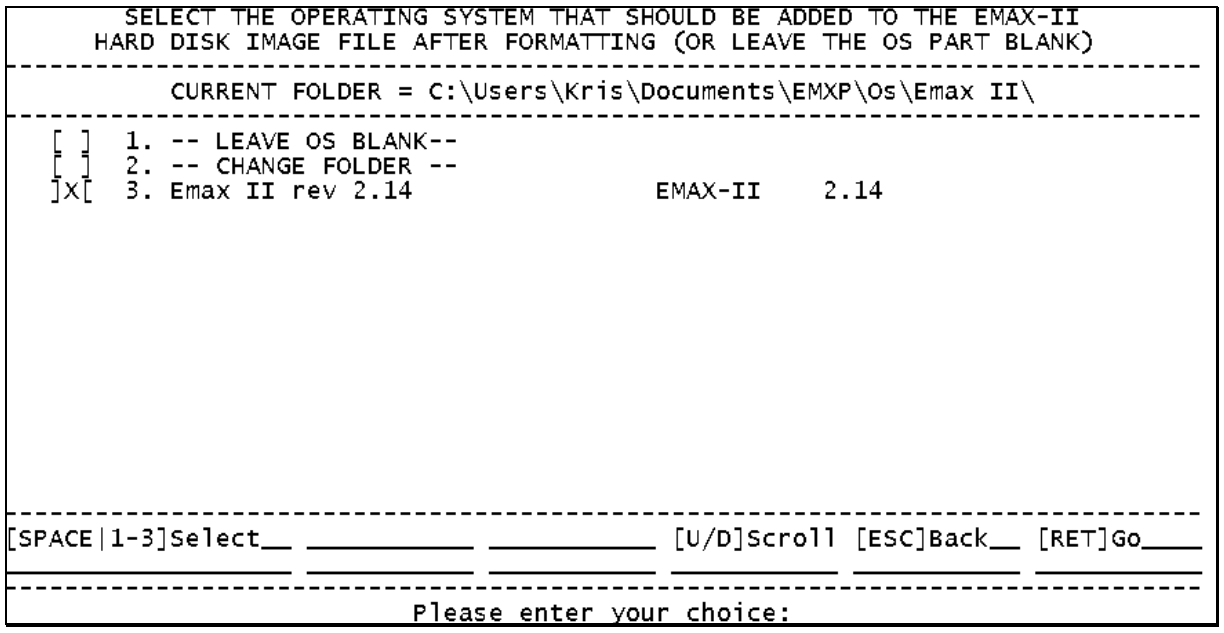
The options to use one of fixed defined sizes or to enter a size yourself are available as well, but they will take into account the available physical size of the SCSI2SD device (partition).
In the example shown in the picture, the SCSI2SD device size is 128MB. As a result a warning is displayed for each of the fixed defined sizes which exceed 128MB. And if you would specify a size yourself, the maximum size you will be allowed to enter will also be limited to 128MB (instead of 1024MB). See picture below.



As mentioned before there are some slight differences between the file system specification and the supported logical size for Emulator-III, Emulator-IIIX and ESI samplers. But even though there are some slight differences, hard disks formatted for the Emulator-III are perfectly usable on an Emulator-IIIX or ESI sampler, and hard disks formatted for the Emulator-IIIX are perfectly usable on an ESI sampler. The opposite is true as well, but in that case you should avoid logically formatted sizes larger than the maximum supported hard disk size of the "older" sampler (1GB for Emulator-III, 4GB for Emulator-IIIX) to avoid unexpected behaviour on the Emulator-III or Emulator-IIIX sampler.

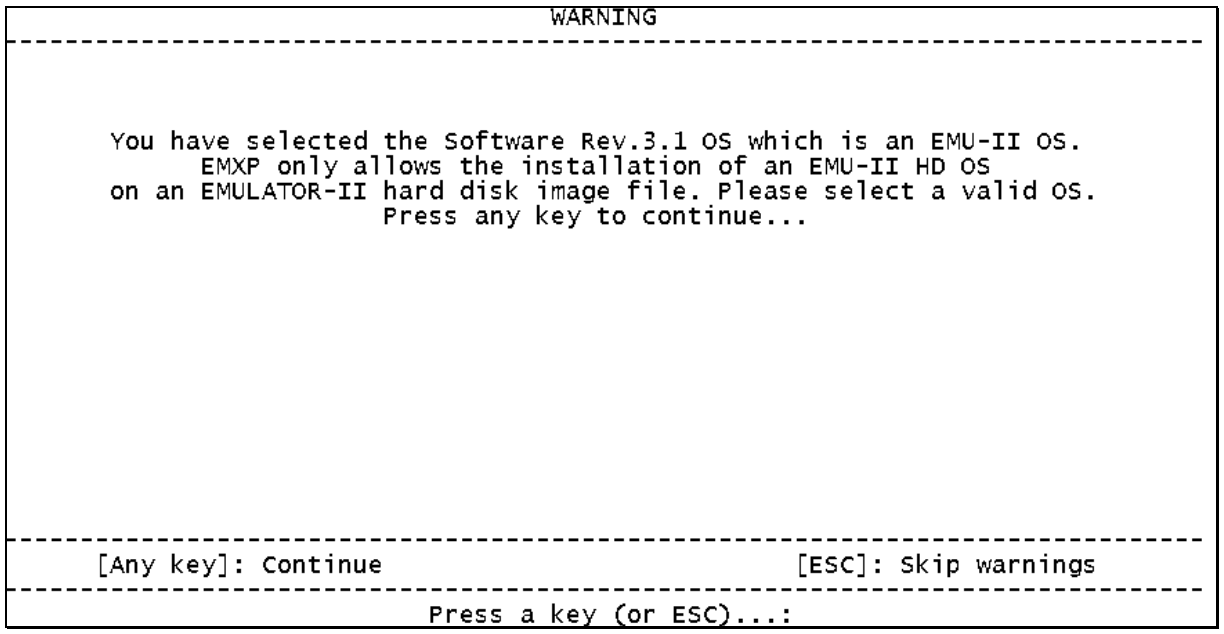
Selecting an operating system (not for ESI hard disk images)

You have now the possibility to select an operating system which should be saved to the hard disk image or to the SCSI2SD hard disk image device(s) (partition(s)) immediately after the file system generation has finished. Saving an operating system when generating a hard disk image is *not required.* You can always save an operating system to the hard disk image or to the SCSI2SD hard disk image device(s) (partition(s)) afterwards, see *section "6.4 COPYING OPERATING SYSTEMS"*.



In the File Manager you can select the operating system that you want to save to the hard disk; alternatively you can select "`-- LEAVE OS BLANK --`" if you don't want to save an operating system now.

For some samplers, like the EMAX-I and Emulator-II, not all operating system versions support hard disks. If you select an operating system for being saved to the generated hard disk image, EMXP will check if the operating system supports hard disks. If it doesn't, a warning will be displayed and you will have to select another operating system.



As explained in *section "6.4.1.2 About combining Emulator-III/IIIX operating systems"*, a hard disk for the Emulator-III/IIIX/ESI samplers can contain two operating systems at once: one for the Emulator-III and one for the Emulator-IIIX. When generating a hard disk image in EMXP, you will only be able to select an operating system corresponding to the sampler type that has been selected as the target sampler type (see *paragraph "Select target sampler type" and paragraph "Select the logical disk size")*

Adding an additional operating system can be done afterwards by means of the normal copy function for operating systems in EMXP (see *section "6.4.1 Copying EMU operating systems").*

Selecting an Emulator-II hard disk configuration

The screens below only appear if you have chosen to generate an Emulator-II hard disk image, e.g. for DREM.

When generating an Emulator-II hard disk image, EMXP needs to know

- the physical format parameters which should be used for "formatting" the disk image
- the error log information belonging to the specific hard disk to which the hard disk image corresponds. This log contains information about the bad sectors on the hard disk (which may also be present in the hard disk image, see *section "10.5.8.5 Define Emulator-II hard disk/hard disk image bad sector handling"*)

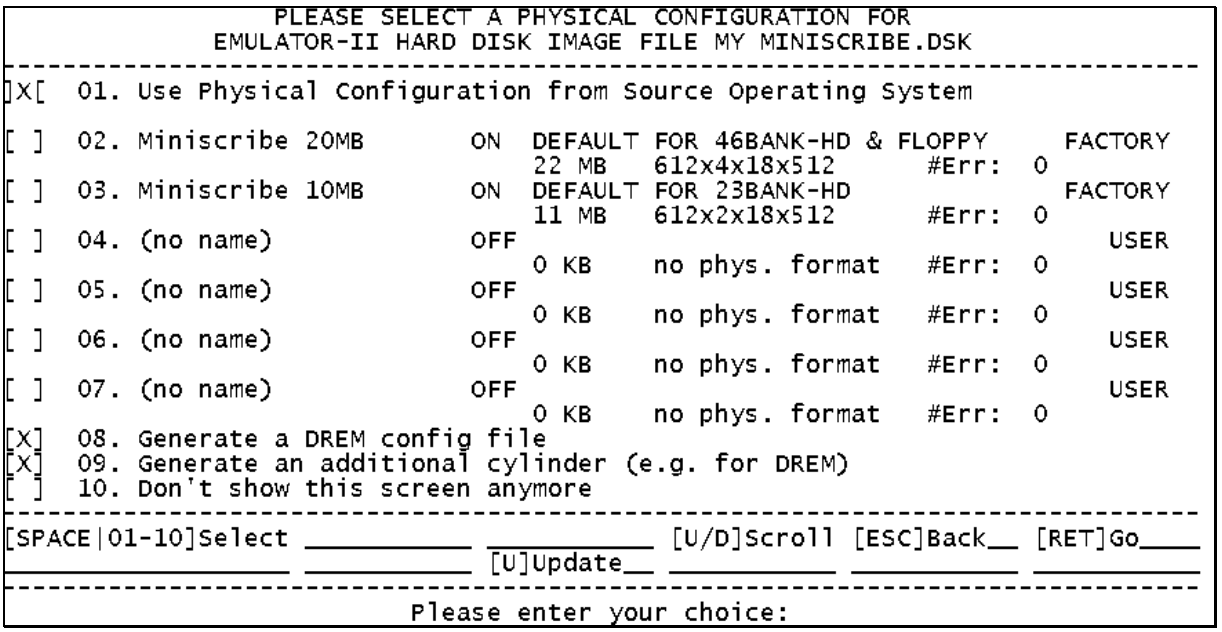
This information should be defined in *a physical configuration* within EMXP. This can be done upfront (before generating the disk image) in the preferences menu of EMXP.
More details can be found in s*ection "10.5.8.1 Emulator-II support for hard disks: introduction"* and *section "10.5.8.3 Define Emulator-II hard disk/hard disk image configurations"*.

In most cases, e.g. when using the hard disk images in a DREM emulator, the factory default physical configuration (called Miniscribe 20MB) can be used.
If the images are *always* intended for being used in the DREM, you can also enable the setting to never show this screen anymore.

Selecting the configuration

The screen for selecting the appropriate physical configuration looks differently depending on whether you have selected an operating system or not in the previous step.

If you have selected an operating system *and if it contains a valid file system and error log*, you can instruct EMXP to generate the hard disk image with the error log stored in the operating system file and with the physical parameters derived from that operating system file. See *option 1*.
But you can also instruct EMXP to use one of the 2 factory physical configurations (e.g. Miniscribe 20MB) or one of the 4 user defined physical configurations (if any have been defined). You can use *options 2→7* for this.



Selecting a physical configuration if you have selected an operating system in the previous step

If you select *option 1* (use the configuration of the selected operating system), EMXP will set this choice as the default for future format/generation processes. Of course this default setting will only be applicable if you select an operating system.
If you don't select an operating system, while the default setting is to use the configuration of the operating system, EMXP will automatically use the default pre-defined configuration.
The default pre-defined configurations are marked in the overview screen as follows:

- DEFAULT FOR 46BANK-HD: the default configuration if you are generating a 22MB hard disk image file, e.g. for DREM
- DEFAULT FOR 23BANK-HD: the default configuration if you are generating a 11MB hard disk

For use in the DREM emulator, the factory default configuration called Miniscribe 20MB should be OK.

If you selected an operating system which does not have a valid filesystem and/or not a valid error log, but the default setting is to use the configuration of the selected operating system, EMXP will raise a warning as shown in the screen below.

```
                                  WARNING
------------------------------------------------------------------------------


       It's not possible to derive a physical hard disk configuration
       from the selected EMULATOR-II operating system HD MiniS 20 R2.6
                          in file EMUIIOS26HD.E2O

      Although using the configuration from the source operating system
        is the default setting, EMXP will use the default pre-defined
                        physical configuration instead.

                        Press any key to continue...









------------------------------------------------------------------------------
     [Any key]: Continue                              [ESC]: Skip warnings
------------------------------------------------------------------------------
                              Press a key (or ESC)...:
```

In this case, the default setting to use the configuration of the selected operating system will be ignored, and you'll have to use a pre-defined configuration instead, just like you would have done if no operating system would have been selected.

```
                  PLEASE SELECT A PHYSICAL CONFIGURATION FOR
              EMULATOR-II HARD DISK IMAGE FILE MY MINISCRIBE.DSK
------------------------------------------------------------------------------
]X[  1. Miniscribe 20MB        ON  DEFAULT FOR 46BANK-HD & FLOPPY     FACTORY
                                   22 MB   612x4x18x512      #Err:  0
[ ]  2. Miniscribe 10MB        ON  DEFAULT FOR 23BANK-HD              FACTORY
                                   11 MB   612x2x18x512      #Err:  0
[ ]  3. (no name)              OFF                                       USER
                                   0 KB    no phys. format   #Err:  0
[ ]  4. (no name)              OFF                                       USER
                                   0 KB    no phys. format   #Err:  0
[ ]  5. (no name)              OFF                                       USER
                                   0 KB    no phys. format   #Err:  0
[ ]  6. (no name)              OFF                                       USER
                                   0 KB    no phys. format   #Err:  0


[X]  7. Generate a DREM config file
[X]  8. Generate an additional cylinder (e.g. for DREM)
[ ]  9. Don't show this screen anymore
------------------------------------------------------------------------------
[SPACE|1-9]Select__ ___________ ___________ [U/D]Scroll [ESC]Back__ [RET]Go____
___________________ ___________ [U]Update__ ___________ ___________ ___________
------------------------------------------------------------------------------
                              Please enter your choice:
```

Selecting a physical configuration if you decided to keep the operating system blank in the previous step

If you didn't select an operating system or if the selected operating system does not contain a valid filesystem or error log, you can only select one of the pre-defined physical configurations (either a factory one or a user-defined one). You can use *options 1→6* to do this.

When explicitly selecting one of the 6 physical configurations, you have the possibility to update (or even define) the selected configuration. This can be done by pressing the [U]pdate shortcut key. See *section "10.5.8.3 Define Emulator-II hard disk/hard disk image configurations"* for a descriprion how to define/change a physical configuration.

If you are generating an Emulator-II hard disk image which will be used in the DREM emulator, the following options are relevant:

- *option "Generate a DREM config file"*. Next to a hard disk image file (a DREM .DSK file), the DREM also needs a configution file (a DREM .CFG file) for each hard disk image file. This configuration file should have the same name as the hard disk image file. EMXP can generate this CFG file. It will be saved in the same folder as the hard disk image file. Enable this option if you want EMXP to generate a CFG file.
- *option "Generate an additional cylinder (e.g. for DREM)"*. EMXP can extend the hard disk image file with an area having the size of a single hard disk cylinder. This is **required** when generating hard disk images for the DREM emulator, because the DREM stores some meta data in that area.

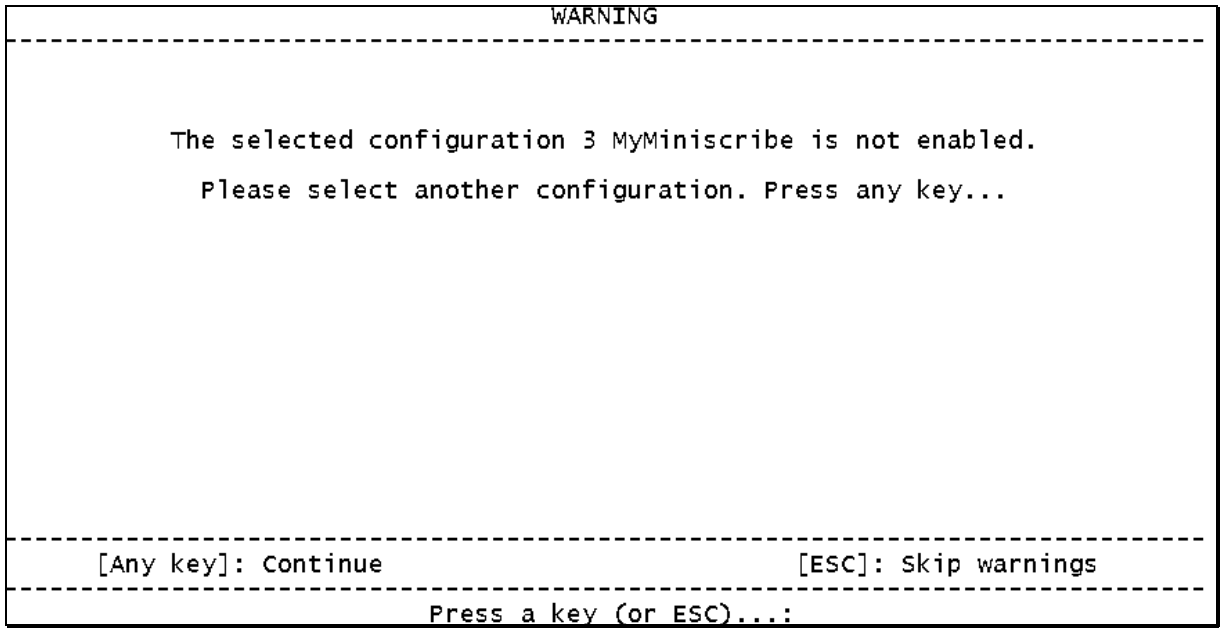
See also *section "10.5.8.4 Define Emulator-II hard disk image DREM specific handling"* for more details about these two DREM-related options.

Enable *option "Don't show this screen anymore"* if you don't want to see the above screen anymore in future format/generation processes, and always want to apply the default setting (either using the configuration of the selected operating system or using the pre-defined configuration which has been set as a default for the hard disk size).
You can always change this setting afterwards in the preferences menu, see *section "10.5.8.3 Define Emulator-II hard disk/hard disk image configurations"*.

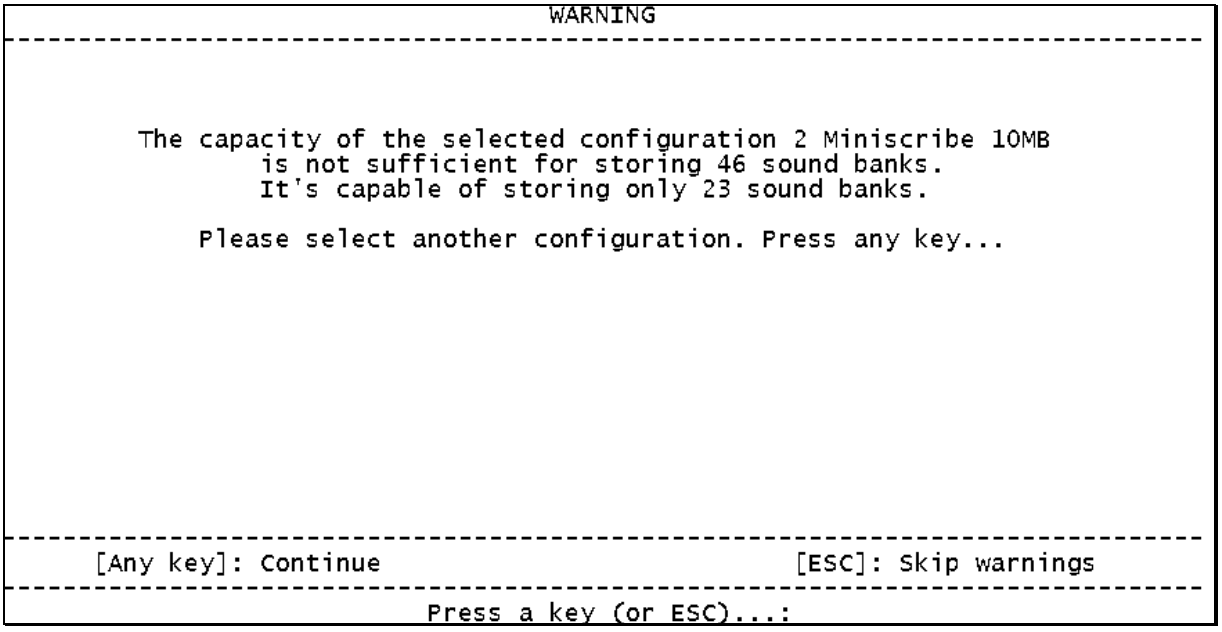
Validation of the selected configuration

EMXP will perform a number of validations to make sure the selected physical configuration is compatible with the selected size of the hard disk image.

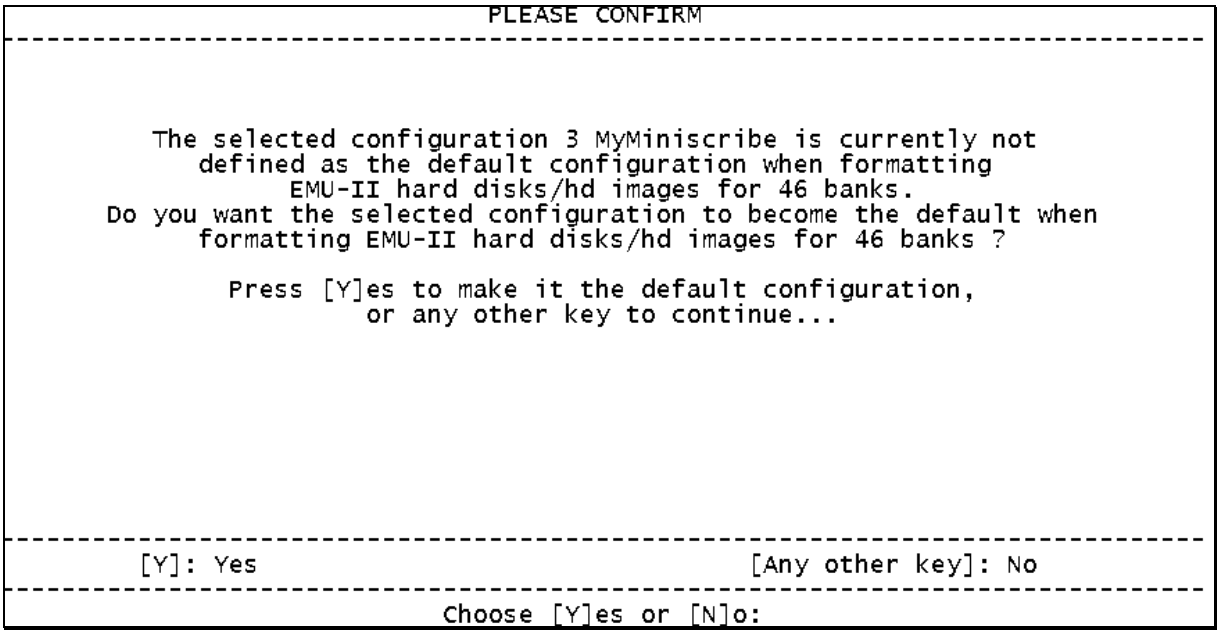
If the selected configuration is not enabled, it can not be used by EMXP.
You should select another configuration before continuing the format process.



If the selected configuration's physical format is too small for the selected hard disk image size (e.g. a Miniscribe 10MB configuration while you're generating a 22MB hard disk image), EMXP will raise a warning and you will have to select another configuration.

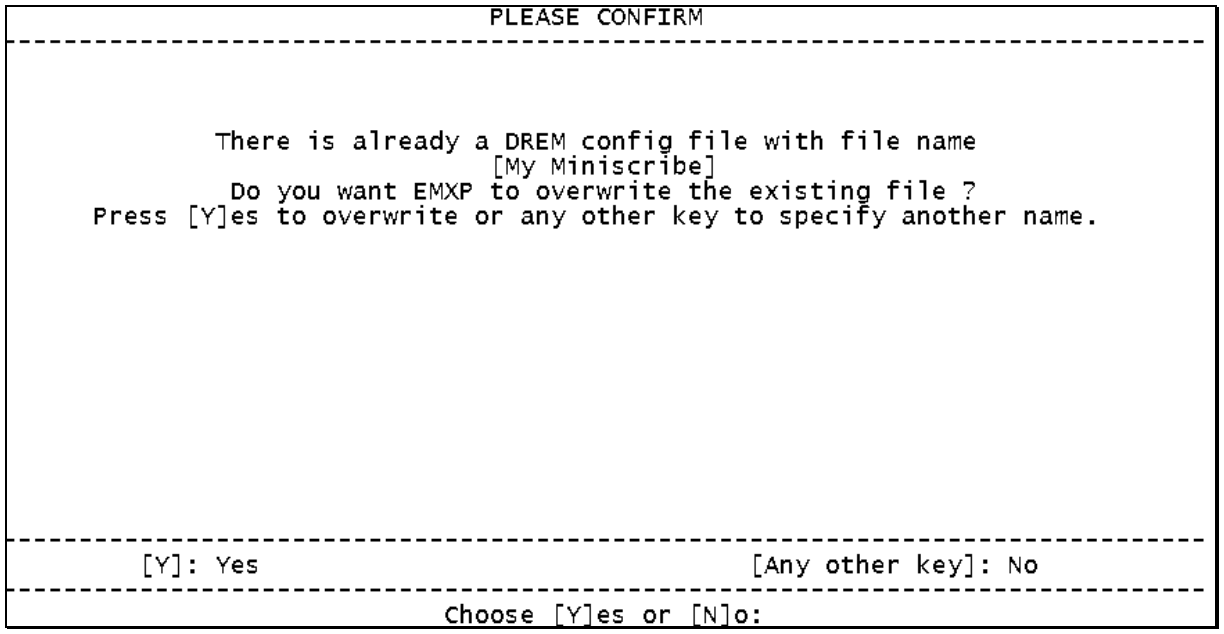


If you have selected a configuration which is currently not the default configuration for the selected hard disk size, EMXP will ask if you want to make the selected configuration the default one.



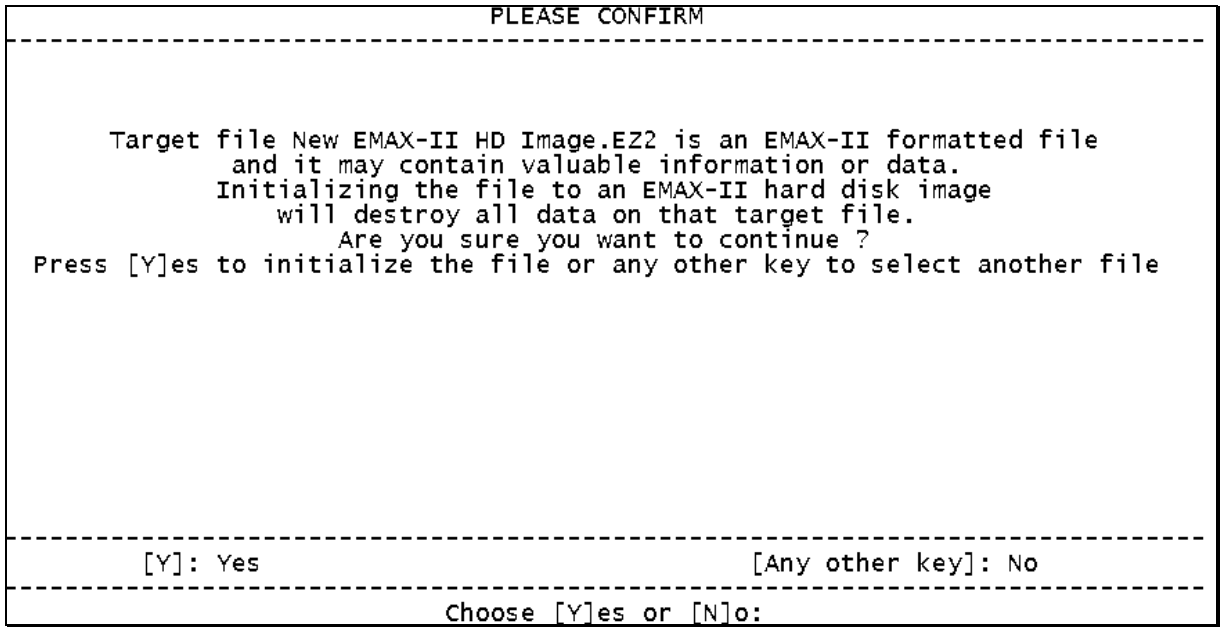
Checking for existing DREM configuration files

If you have enabled the option to generate a DREM CFG file, but a DREM CFG file with the name of the hard disk image file (DSK file) already exists, EMXP will raise a warning.
You can either confirm that the existing CFG file can be overwritte, or enter another file name.
Note however that you will have to make the name identical again to the DREM DSK file name when copying the DSK and CFG files to the SD card of the DREM emulator.



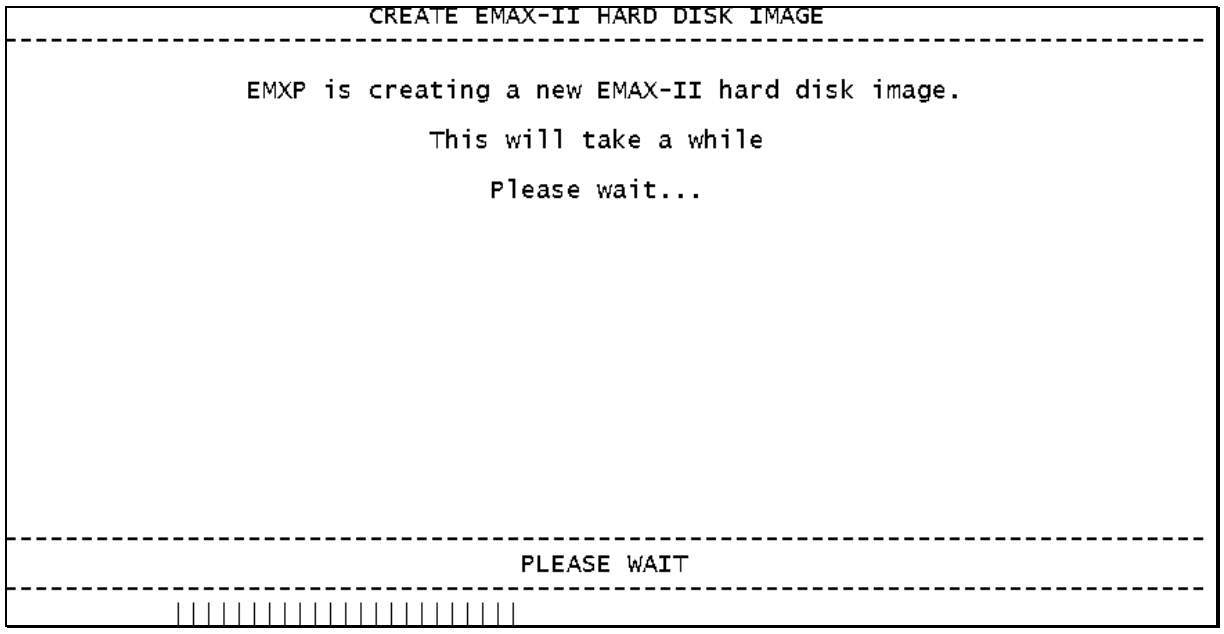
Confirm the format process

If you have selected an existing hard disk image file or SCSI2SD hard disk *device* (partition) as a target for the new generated file system, you first have to confirm that the existing file or *device* partition) can be overwritten.

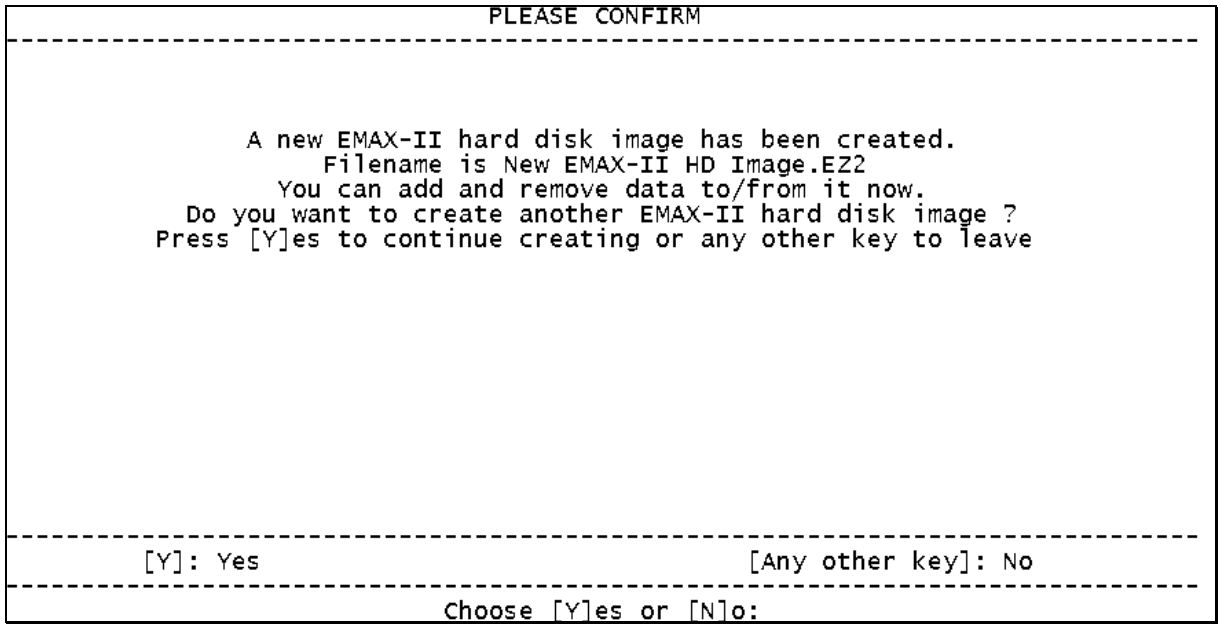


Wait while EMXP generates the hard disk image file or SCSI2SD device and saves the operating system to the disk

EMXP will now generate the hard disk image or SCSI2SD *device* (partition) and save the operating system to the file or SCSI2SD *device*(s) (if requested). This process can take a while... please be patient.

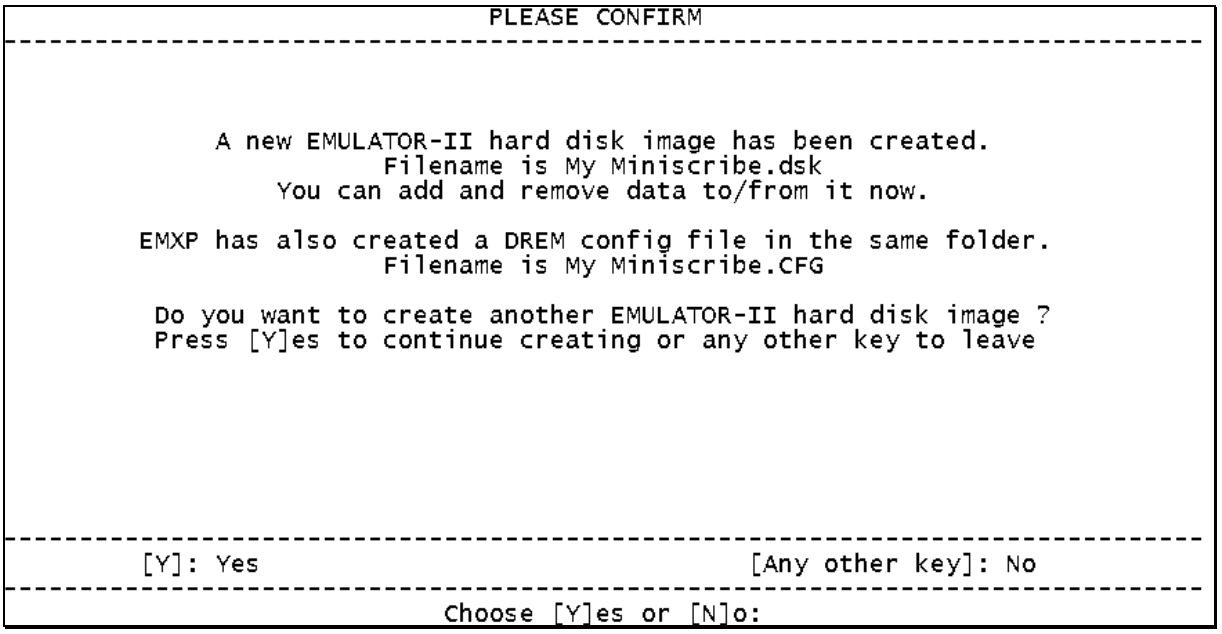


When the generation is finished, you'll get following message:



You can generate another sampler hard disk image now by pressing 'Y' or leave the generation process by pressing any other key.

If you generated an Emulator-II DREM hard disk image file and asked for creating a DREM CFG file as well, the successful (or failed) generation of this CFG file will be confirmed as well, as illustrated in the screen below.


PLEASE CONFIRM
A new EMULATOR-II hard disk image has been created.
Filename is My Miniscribe.dsk
You can add and remove data to/from it now.
EMXP has also created a DREM config file in the same folder.
Filename is My Miniscribe.CFG
Do you want to create another EMULATOR-II hard disk image ?
Press [Y]es to continue creating or any other key to leave
[Y]: Yes
[Any other key]: No
Choose [Y]es or [N]o:

9.3 GENERATING EMPTY AKAI S1000 FLOPPY DISK IMAGES

EMXP is capable of generating "empty" floppy disk images and HxC floppy disk images for Akai S1000.

Once generated, a floppy disk image or HxC floppy disk image will contain the Akai S1000 file system and optionally an operating system. Programs, samples, drum files and an(other) operating system can be added to that floppy disk image file or HxC floppy disk image file *before* writing the image to a real floppy disk (=restoring the image to disk).

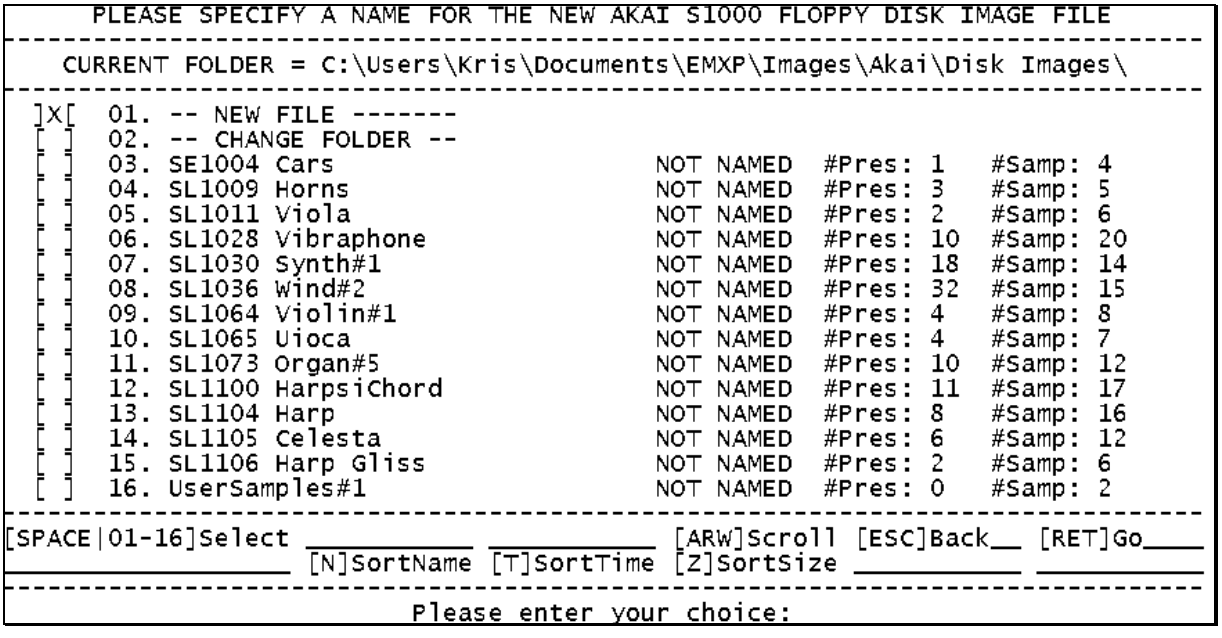
To generate an Akai S1000 floppy disk image or Akai S1000 HxC floppy disk image from scratch, following procedure should be followed:

To generate an Akai S1000 floppy disk image:
"2. Manage AKAI S1000 Files and Disks" → "6. Manage AKAI S1000 Floppy Disk Images" → "2. Create new (blank) AKAI S1000 Floppy Disk Image"

To generate an Akai S1000 HxC floppy disk image:
"2. Manage AKAI S1000 Files and Disks" → "7. Manage AKAI S1000 HxC Floppy Disk Images" → "2. Create new (blank) AKAI S1000 HxC Floppy Disk Image"

Select target file

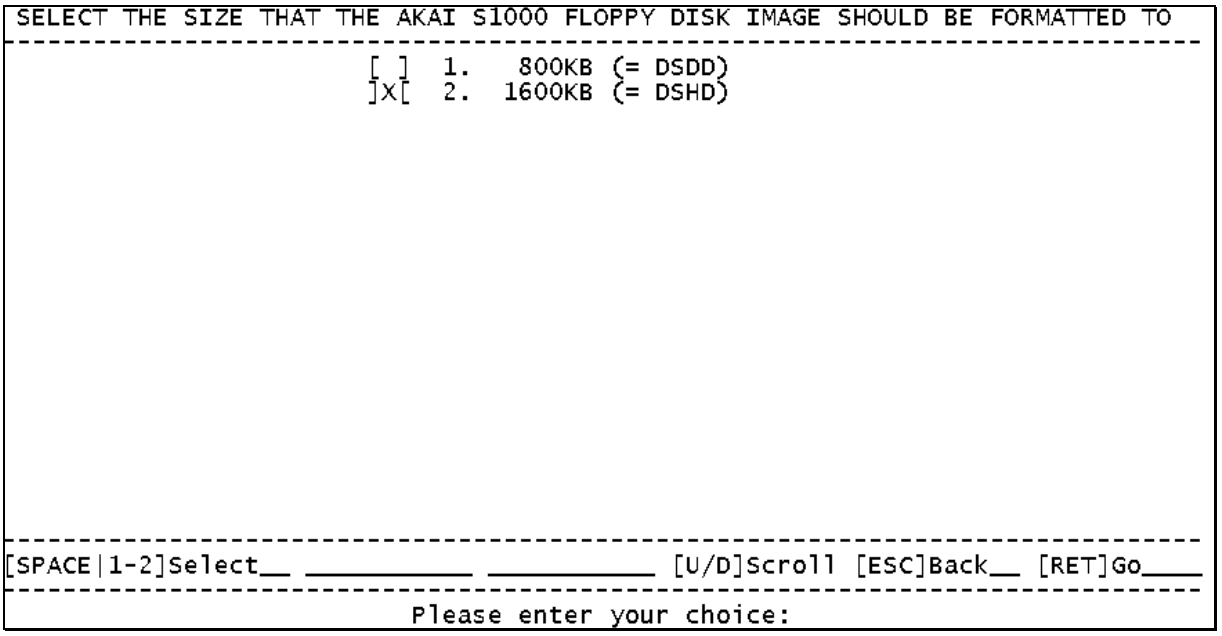
You have to select the target folder and target file name now.



Select -- NEW FILE -- if you want to generate a new file. EMXP will ask for a file name.
It's also possible to select an existing file, but be aware that the file will be replaced and that it will contain an empty file system only. All files in the existing floppy disk image file will have been deleted.

Select size

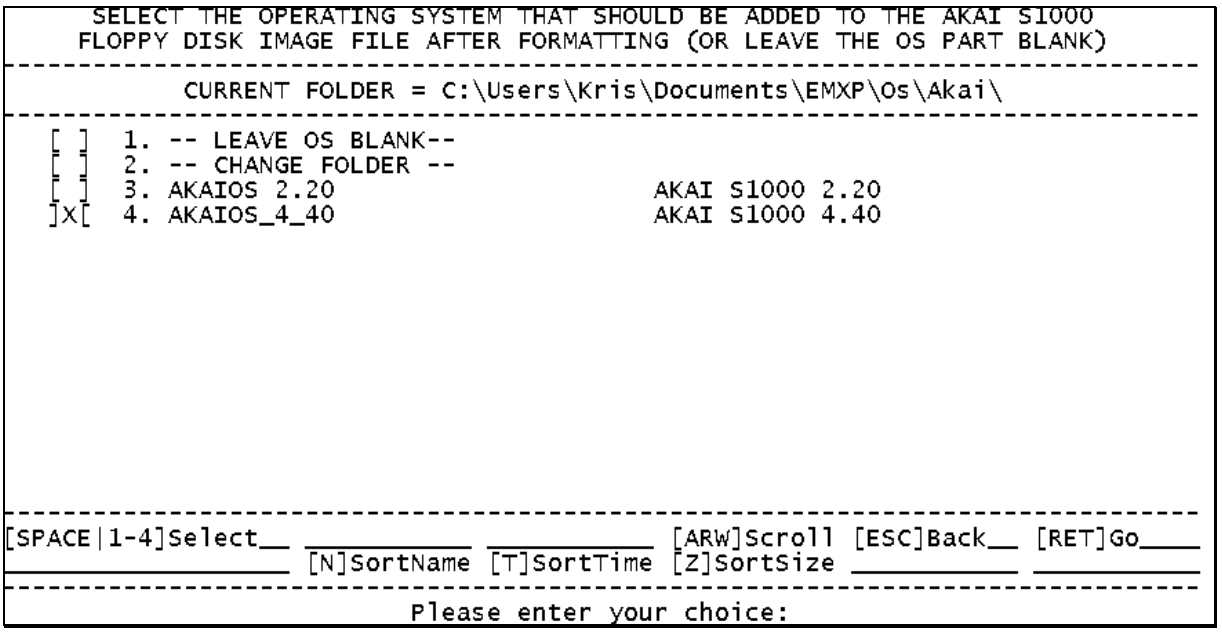
Since the Akai S1000 supports both *double density floppy disks* and *high density floppy disks,* you will have to specify the size of the image:



Select *option 1* if you are planning to restore the image to a double density floppy disk in the future.
Select *option 2* if you are planning to restore the image to a high density floppy disk in the future. Option 2 can be considered the default.

Selecting an operating system

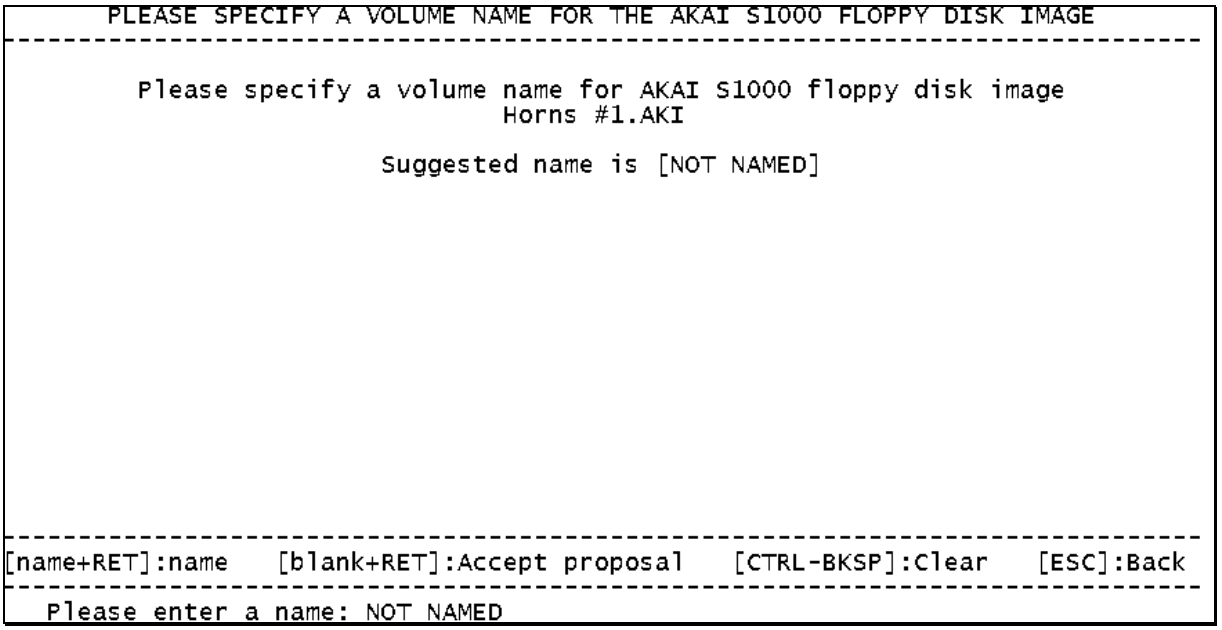
You have the possibility to select an operating system which should be saved to the floppy disk image. If you are generating multiple floppy disk image files, the request for selecting an operating system will only appear when generating the first file. The selected operating system will be used for all floppy disk image files that will be generated.
Saving an operating system when generating a floppy disk image file is *not required.* You can always save an operating system to the floppy disk image file afterwards, see *section "6.4 COPYING OPERATING SYSTEMS"*.



In the File Manager you can select the operating system that you want to save to the floppy disk image file; alternatively you can select "`-- LEAVE OS BLANK --`" if you don't want to save an operating system now.

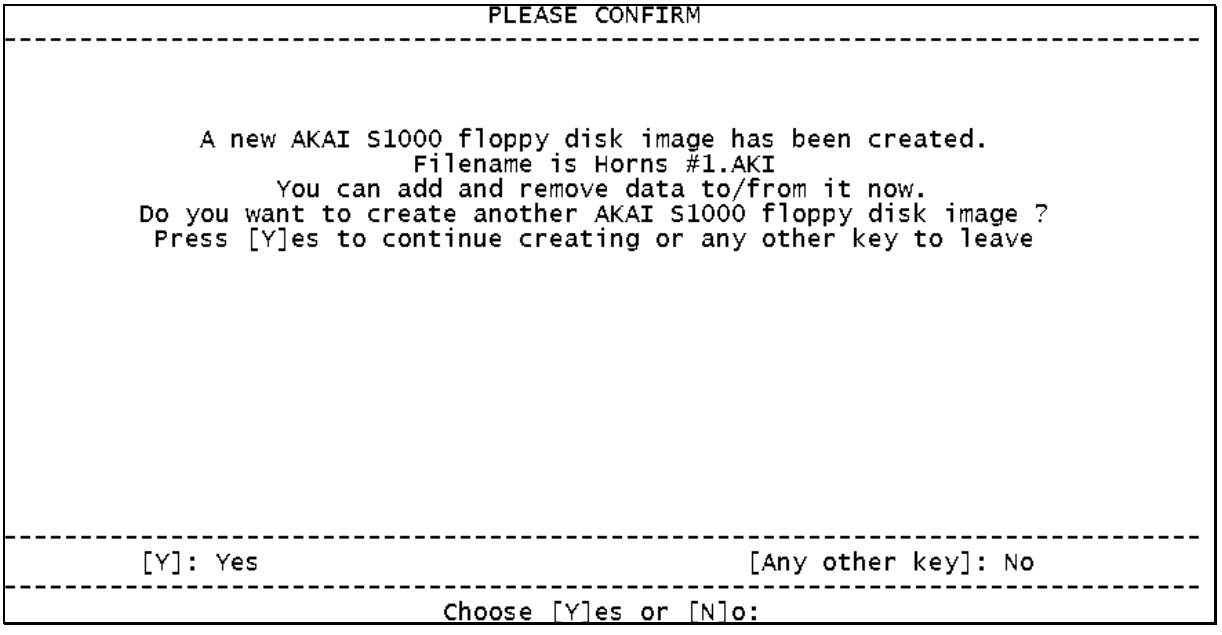
Define volume name

In the next step you have to specify a volume name for the floppy disk image or HxC floppy disk image.



Providing a meaningful volume name (instead of NOT NAMED) can be useful to quickly find out what type of samples and programs reside in the image (and on the floppy disk once the image has been restored to disk). Moreover, some of the automatic target file name derivation algorithms in EMXP use the volume name as a basis.

After the target file has been selected, EMXP will generate the file and a final message will be shown.



You can generate another floppy disk image now by pressing 'Y' or leave the generation process by pressing any other key.

9.4 CREATING CD-ROMS

You can also create EMAX-I, EMAX-II and Emulator-III/IIIX/ESI CD-ROMs with EMXP but you'll need a CD burning software because EMXP is not capable of writing CDs itself.

Creating a CD-ROM is very similar to copying a hard disk image file to a hard disk or to a memory card, see *section "6.5.2.3 Copying hard disk images or SCSI2SD hard disk image partitions"*.

Creating a CD-ROM is basically a 3-step process:

1. Create a CD image first. There are two ways to achieve this:

    a. By making a backup of an existing hard disk or CDROM (choose the "Copy [sampler] Hard Disk to [sampler] Hard Disk Image" function in either the EMAX-I, EMAX-II or Emulator-III/IIIX/ESI sampler menu). See *section "6.5.1 Copying floppy disk, hard disks and partitions of SCSI2SD* hard disk*"*. Of course the resulting image will already contain sound banks, but you can replace these by other sound banks (see step 2).

    b. By initializing a new image from scratch. This is explained in *section "9.2 GENERATING EMPTY HARD DISK IMAGES"*.

2. Add/Remove sound banks to/from the hard disk image file.
    Adding sound banks to a hard disk image file has been explained in *section "6.2 COPYING EMU SAMPLER SOUND DATA"*.
    You can also remove sound banks from the hard disk image file by selecting these banks and removing them.

3. Burn the image to a CD using a CD burning software:

    The image files produced by EMXP are ISO compliant, so you can use the "burn ISO image" function in your CD burning software.
    You'll have to take three things into account:
    - You need a CD burning software.
    - The hard disk image file size may not exceed the maximum physical capacity of the target CD (either 650 MB or 700 MB);
    - Most CD burning software packages require the ISO-images to have a file extension of .ISO. By default the images produced by EMXP have an extension of .EZ1, .EZ2 or .EZ3, but this can be changed in the preferences menu (see *section "10.5.3.1 Define the default extensions for some specific file types").* If you already generated an image with an .EZ1, .EZ2 or .EZ3 extension, you'll simply have to rename the file extension. Changing the file extension can be done with the MSDOS RENAME command or (preferably) with some free software which adds this feature to Windows Explorer[14]

[14] E.g. the free Change File Extension Shell Menu from T800 Productions, which adds the file extension changing option to the Windows Explorer's file right click menu

9.5 PLAYING SAMPLES AND WAV-FILES

9.5.1 Overview

The audio player in EMXP can be used to listen to any samples and WAV-files supported by EMXP.
Audio can be played on any WAVE compliant audio device available on your computer.

The main goal of the audio player is to help you finding a specific sound bank, sample or WAV-file in your sound library. E.g. if you remember a certain string sound, but you have no idea anymore which of the 100 sound banks on your EMAX-II CDROM contains that sound, you can use the audio player to quickly listen to and browsing through the samples of those sound banks, until you find the bank or sample you are looking for.

EMXP's audio player is *not a virtual instrument:*

- it does not take into account voice and preset parameters like filter cut-off, modulations, envelopes. *It only takes into account sample data and sample parameters like loops and truncations*
- it does not include a MIDI keyboard which allows to play samples at the pitch configured in a preset, *it simply plays each sample at original pitch*.
- it does not support "playing" *presets* or *voices,* taking only the samples assigned to that preset or voice into account. *The audio player can only be started by selecting*
    - *either one or more sound banks, which will play all samples of those sound banks, no matter in what presets they are used*
    - *or one or more individual samples or WAV-files*

It's important to know that you *don't have to* select samples one by one and don't have to start the audio player for each sample individually if you want to listen to them.
One of the nice features of the audio player in EMXP is that you can select multiple samples/WAV-files at once, start the audio player and browse through the selected samples from within the audio player by using the LEFT and RIGHT arrow keys.
You can even select multiple sound banks at once (e.g. a whole set of Emulator-II bank files, or all banks on an Emulator-III CDROM). After starting the audio player, all samples of all selected banks can be played from within the audio player. You can browse through the samples of each sound bank by using the LEFT and RIGHT arrow keys, and you can browse through the different sound banks by using the ENTER and BACKSPACE key. The navigation through the samples and sound banks can be done while the audio player is actually playing, which allows for a quick audio search through the different samples.

A WAVE compatible audio device is required in EMXP. When listening to samples for the first time after installation of EMXP, EMXP will ask you to select an audio device.
The selected audio player can be configured by means of Audio Preferences (see *section "10.7 AUDIO PREFERENCES"*). The default values for these preferences should be fine for a smooth audio play, but depending on the computer, the selected audio device and the audio device's driver it might be required to change some of the audio settings to prevent unexpected pauses or unexpected distortion during the auditioning.

9.5.2 Starting the audio play process

You start the audio player by selecting *one ore more* source items of which the audio data should be played. Here's how you can start the audio player for each of the supported sampler formats:

EMAX-I

To play all samples of EMAX-I bank files:
"1. Manage EMU Files and Disks" → "1. Manage EMU EMAX-I Files and Disks" → "1. Manage EMAX-I Bank Files" → [select one or more files] → [press 'L'] or [select "4. Play all EMAX-I Samples"]

To play all samples of EMAX-I EMX files:
"1. Manage EMU Files and Disks" → "1. Manage EMU EMAX-I Files and Disks" → "2. Manage EMAX-I EMX Files" → [select one or more files] → [press 'L'] or [select "4. Play all EMAX-I Samples"]

To play all samples of SoundDesigner for EMAX files:
"1. Manage EMU Files and Disks" → "1. Manage EMU EMAX-I Files and Disks" → "8. Manage other EMAX-I Files and Disks" → "1. Manage SoundDesigner for EMAX Files" → [select one or more files] → [press 'L'] or [select "4. Play all EMAX-I Samples"]

To play all samples of banks of an EMAX-I hard disk image file or of an EMAX-I partition in a SCSI2SD hard disk image file:
"1. Manage EMU Files and Disks" → "1. Manage EMU EMAX-I Files and Disks" → "4. Manage EMAX-I Hard Disk Images" → "1. Manage existing EMAX-I Hard Disk Images"→ [select a hard disk image file or scan for SCSI2SD and select a partition] → [press 'B'] or [select "1. Manage Banks on EMAX-I Hard Disk Image"] → [select one or more banks] → [press 'L'] or [select "4. Play all EMAX-I Samples"]

To play all samples of banks on an EMAX-I hard disk or on an EMAX-I partition of a SCSI2SD hard disk:
"1. Manage EMU Files and Disks" → "1. Manage EMU EMAX-I Files and Disks" → "5. Manage EMAX-I Hard Disks" → [select a hard disk or scan for SCSI2SD and select a partition] → [press 'B'] or [select "1. Manage Banks on EMAX-I Hard Disk"] → [select one or more banks] → [press 'L'] or [select "4. Play all EMAX-I Samples"]

To play all samples of banks on EMAX-I floppy disk image files:
"1. Manage EMU Files and Disks" → "1. Manage EMU EMAX-I Files and Disks" → "6. Manage EMAX-I Floppy Disk Images" → [select one or more files] → [press 'L'] or [select "4. Play all EMAX-I Samples"]

To play all samples of banks on EMAX-I HxC floppy disk image files:
"1. Manage EMU Files and Disks" → "1. Manage EMU EMAX-I Files and Disks" → "7. Manage EMAX-I HxC Floppy Disk Images" → [select one or more files] → [press 'L'] or [select "4. Play all EMAX-I Samples"]

To play all samples of a bank from an EMAX-I floppy disk (=single bank play mode):
"1. Manage EMU Files and Disks" → "1. Manage EMU EMAX-I Files and Disks" → "8. Manage other EMAX-I Files and Disks"→ "2. Manage EMAX-I/EMAX-II Floppy Disks" → [select a floppy drive] → [press 'B'] or [select "1. Manage Banks on Floppy Disk"] → [insert a disk if not inserted yet] → [select the bank] →[press 'L'] or select "4. Play all EMAX-I Samples"

To play all samples of all banks from a series of EMAX-I floppy disks (=multi bank play mode):
"1. Manage EMU Files and Disks" → "1. Manage EMU EMAX-I Files and Disks" → "8. Manage other EMAX-I Files and Disks"→ "2. Manage EMAX-I/EMAX-II Floppy Disks" → [select a floppy drive] → [press 'L'] or [select "8. Play all Samples from EMAX Floppy Disk(s)"]

For playing all samples of sound banks from EMAX-I floppy disks, EMXP supports two modes:

- *Single bank* play mode: in this mode, only the samples of the bank of the current floppy disk will be played
- *Multi bank* play mode: in this mode, EMXP will keep asking for floppy disks and keep playing all samples of the banks from these floppy disks until you cancel the loop by pressing ESC. This mode is useful if you want to listen to the samples of a lot of floppy disks and if you would like to speed up the auditioning process.

Besides playing *all samples* of an EMAX-I bank at once, it's also possible to play *only a few* selected samples.

To do this, go to the *samples overview of the bank* or to *the samples overview of a specific voice of a preset of the bank* and press 'L' or go to the menu and select option "2. Play selected EMAX-I Sample(s)"

EMAX-II

To play all samples of EMAX-II bank files:
"1. Manage EMU Files and Disks" → "2. Manage EMU EMAX-II Files and Disks" → "1. Manage EMAX-II Bank Files" → [select one or more files] → [press 'L'] or [select "4. Play all EMAX-II Samples"]

To play all samples of EMAX-II EMX files:
"1. Manage EMU Files and Disks" → "2. Manage EMU EMAX-II Files and Disks" → "2. Manage EMAX-II EMX Files" → [select one or more files] → [press 'L'] or [select "4. Play all EMAX-II Samples"]

To play all samples of banks of an EMAX-II hard disk image file or of an EMAX-II partition in a SCSI2SD hard disk image file::
"1. Manage EMU Files and Disks" → "2. Manage EMU EMAX-II Files and Disks" → "4. Manage EMAX-II Hard Disk Images" → "1. Manage existing EMAX-II Hard Disk Images"→ [select a hard disk image file or scan for SCSI2SD and select a partition] → [press 'B'] or [select "1. Manage Banks on EMAX-II Hard Disk Image"] → [select one or more banks] → [press 'L'] or [select "4. Play all EMAX-II Samples"]

To play all samples of banks on an EMAX-II hard disk or on an EMAX-II partition of a SCSI2SD hard disk:
"1. Manage EMU Files and Disks" → "2. Manage EMU EMAX-II Files and Disks" → "5. Manage EMAX-II Hard Disks" → [select a hard disk or scan for SCIS2SD and select a partition] → [press 'B'] or [select "1. Manage Banks on EMAX-II Hard Disk"] → [select one or more banks] → [press 'L'] or [select "4. Play all EMAX-II Samples"]

To play all samples of banks on EMAX-II floppy disk image files:
"1. Manage EMU Files and Disks" → "2. Manage EMU EMAX-II Files and Disks" → "6. Manage EMAX-II Floppy Disk Images" → [select one or more files] → [press 'L'] or [select "4. Play all EMAX-II Samples"]

To play all samples of banks on EMAX-II HxC floppy disk image files:
"1. Manage EMU Files and Disks" → "2. Manage EMU EMAX-II Files and Disks" → "7. Manage EMAX-II HxC Floppy Disk Images" → [select one or more files] → [press 'L'] or [select "4. Play all EMAX-II Samples"]

To play all samples of a bank from an EMAX-II floppy disk (=single bank play mode):
"1. Manage EMU Files and Disks" → "2. Manage EMU EMAX-II Files and Disks" → "8. Manage EMAX-I/EMAX-II Floppy Disks" → [select a floppy drive] → [press 'B'] or [select "1. Manage Banks on Floppy Disk"] → [insert a disk if not inserted yet] → [select the bank] → [press 'L'] or [select "4. Play all EMAX-II Samples"]

To play all samples of all banks from a series of EMAX-II floppy disks (=multi bank play mode):
"1. Manage EMU Files and Disks" → "2. Manage EMU EMAX-II Files and Disks" → "8. Manage EMAX-I/EMAX-II Floppy Disks" → [select a floppy drive] → [press 'L'] or [select "8. Play all samples from EMAX Floppy Disk(s)"]

Just like for EMAX-I floppy disks, EMXP supports two modes for playing the samples of sound banks from EMAX-II floppy disks:

- *Single bank* play mode: in this mode, only the samples of the bank of the current floppy disk will be played
- *Multi bank* play mode: in this mode, EMXP will keep asking for floppy disks and keep playing all samples of the banks from these floppy disks until you cancel the loop by pressing ESC. This mode is useful if you want to listen to the samples of a lot of floppy disks and if you would like to speed up the auditioning process.

If samples are being played from EMAX-II EMX files, EMAX-II floppy disks, EMAX-II floppy disk image files or EMAX-II HxC floppy disk image files, the samples may be spread across multiple files or disks. If this is true, EMXP will ask for the other files or disks later during the pre-processing phase before actually starting the audio player.

Besides playing *all samples* of an EMAX-II bank at once, it's also possible to play *only a few* selected samples.

To do this, go to the *samples overview of the bank* or to *the samples overview of a specific voice of a preset of the bank* and press 'L' or go to the menu and select option "2. Play selected EMAX-II Sample(s)"

Again, if you select samples from EMX files, floppy disks, floppy disk image files or HxC floppy disk image files which may be located in another - related - file or disk, EMXP will ask for the other file(s) or disk(s) later during the pre-processing phase before actually starting the audio player.

Emulator-I

To play all samples of Emulator-I bank files:
"1. Manage EMU Files and Disks" → "3. Manage EMU EMULATOR-I Files" → "1. Manage EMULATOR-I Bank Files" → [select one or more files] → [press 'L'] or [select "4. Play all EMULATOR-I Samples"]

To play all samples of Emulator-I lower/upper sound files:
"1. Manage EMU Files and Disks" → "3. Manage EMU EMULATOR-I Files" → "2. Manage EMULATOR-I Lower/Upper Sound Files" → [select one or more files] → [press 'L'] or [select "4. Play all EMULATOR-I Samples"]

To play all samples of banks from Emulator-I floppy disk image files:
"1. Manage EMU Files and Disks" → "3. Manage EMU EMULATOR-I Files" → "3. Manage EMULATOR-I Floppy Disk Images" → [select one or more files] → [press 'L'] or [select "4. Play all EMULATOR-I Samples"]

To play all samples of banks from Emulator-I HxC floppy disk image files:
"1. Manage EMU Files and Disks" → "3. Manage EMU EMULATOR-I Files" → "4. Manage EMULATOR-I HxC Floppy Disk Images" → [select one or more files] → [press 'L'] or [select "4. Play all EMULATOR-I Samples"]

Besides playing *all samples* of an Emulator-I bank or sound at once, it's also possible to play *only a few* selected samples.

To do this, go to the *samples overview of the bank* or to *the samples overview of a specific sound of the bank* and press 'L' or go to the menu and select option "2. Play selected EMULATOR-I Sample(s)"

Emulator-II

To play all samples of Emulator-II bank files:
"1. Manage EMU Files and Disks" → "4. Manage EMU EMULATOR-II Files and Disks" → "1. Manage EMULATOR-II Bank Files" → [select one or more files] → [press 'L'] or [select "4. Play all EMULATOR-II Samples"]

To play all samples of banks of an Emulator-II hard disk image file (e.g. DREM file):
"1. Manage EMU Files and Disks" → "1. Manage EMU EMULATOR-II Files and Disks" → "4. Manage EMULATOR-II Hard Disk Images (e.g. DREM)" → "1. Manage existing EMULATOR-II Hard Disk Images"→ [select a hard disk image file] → [press 'B'] or [select "1. Manage Banks on EMULATOR-II Hard Disk Image"] → [select one or more banks] → [press 'L'] or [select "4. Play all EMULATOR-II Samples"]

To play all samples of banks on an Emulator-II hard disk:
"1. Manage EMU Files and Disks" → "1. Manage EMU EMULATOR-II Files and Disks" → "5. Manage EMULATOR-II Hard Disks" → [select a hard disk] → [press 'B'] or [select "1. Manage Banks on EMULATOR-II Hard Disk"] → [select one or more banks] → [press 'L'] or [select "4. Play all EMULATOR-II Samples"]

To play all samples of banks from Emulator-II floppy disk image files:
"1. Manage EMU Files and Disks" → "4. Manage EMU EMULATOR-II Files and Disks" → "2. Manage EMULATOR-II Floppy Disk Images" → [select one or more files] → [press 'L'] or [select "4. Play all EMULATOR-II Samples"]

To play all samples of banks from Emulator-II HxC floppy disk image files:
"1. Manage EMU Files and Disks" → "4. Manage EMU EMULATOR-II Files and Disks" → "3. Manage EMULATOR-II HxC Floppy Disk Images" → [select one or more files] → [press 'L'] or [select "4. Play all EMULATOR-II Samples"]

Besides playing *all samples* of an Emulator-II bank at once, it's also possible to play *only a few* selected samples.

To do this, go to the *samples overview of the bank* or to *the samples overview of a specific voice* and press 'L' or go to the menu and select option "2. Play selected EMULATOR-II Sample(s)"

Emulator-III/IIIX/ESI

To play all samples of Emulator-III bank files:
"1. Manage EMU Files and Disks" → "5. Manage EMU EMULATOR-III/X/ESI Files and Disks" → "1. Manage Emulator-III Bank Files" → [select one or more files] → [press 'L'] or [select "4. Play all EMULATOR-III Samples"]

To play all samples of Emulator-IIIX bank files:
"1. Manage EMU Files and Disks" → "5. Manage EMU EMULATOR-III/X/ESI Files and Disks" → "2. Manage Emulator-IIIX Bank Files" → [select one or more files] → [press 'L'] or [select "4. Play all EMULATOR-IIIX Samples"]

To play all samples of ESI bank files:
"1. Manage EMU Files and Disks" → "5. Manage EMU EMULATOR-III/X/ESI Files and Disks" → "3. Manage ESI-V3 Bank Files" → [select one or more files] → [press 'L'] or [select "4. Play all ESI-V3 Samples"]

To play all samples of banks from an Emulator-III/IIIX/ESI hard disk image file or from an Emulator-III/IIIX/ESI partition in a SCSI2SD hard disk image file::
"1. Manage EMU Files and Disks" → "5. Manage EMU EMULATOR-III/X/ESI Files and Disks" → "4. Manage Emulator-III/X/ESI Hard Disk Images" → "1. Manage existing Emulator-III/X/ESI Hard Disk Images" → [select one hard disk image file or scan for SCSI2SD and select a partition] → *to see all banks* [press "B"] or [select "1. Manage all Banks on Emulator-III/X/ESI Hard Disk Image"]; *to see Emulator-III banks only* [press "E"] or [select "2. Manage Emulator-III Banks only on Hard Disk Image"]; *to see Emulator-IIIX banks only* [press "X"] or [select "3. Manage Emulator-IIIX Banks only on Hard Disk Image"]; *to see ESI banks only* [press "J"] or [select "4. Manage ESI-V3 Banks only on Hard Disk Image"] → [select one or more banks] → [press 'L'] or [select "4. Play all EMULATOR-III/X/ESI Samples"]

To play all samples of banks from an Emulator-III/IIIX/ESI hard disk or from an Emulator-III/IIIX/ESI partition on a SCSI2SD hard disk:
"1. Manage EMU Files and Disks" → "5. Manage EMU EMULATOR-III/X/ESI Files and Disks" → "5. Manage Emulator-III/X/ESI Hard Disks" → [select a hard disk or scan for SCSI2SD and select a partition] → *to see all banks* [press "B"] or [select "1. Manage all Banks on Emulator-III/X/ESI Hard Disk"]; *to see Emulator-III banks only* [press "E"] or [select "2. Manage Emulator-III Banks only on Hard Disk"]; *to see Emulator-IIIX banks only* [press "X"] or [select "3. Manage Emulator-IIIX Banks only on Hard Disk"]; *to see ESI banks only* [press "J"] or [select "4. Manage ESI-V3 Banks only on Hard Disk"]→ [select one or more banks] → [press 'L'] or [select "4. Play all EMULATOR-III/X/ESI Samples"]

Besides playing *all samples* of an Emulator-III/IIIX/ESI bank at once, it's also possible to play *only a few* selected samples.

To do this, go to the *samples overview of the bank* or to *the samples overview of a specific voice* and press 'L' or go to the menu and select option "2. Play selected EMULATOR-III Sample(s)", "2. Play selected EMULATOR-IIIX Sample(s)" or "2. Play selected ESI-V3 Sample(s)"

SP-12

To play all samples of SP-12 sound bank files:
"1. Manage EMU Files and Disks" → "6. Manage EMU SP-12 Files" → "1. Manage SP-12 Sound Bank Files" → [select one or more files] → [press 'L'] or [select "4. Play all SP-12 Samples"]

Besides playing *all samples* of an SP-12 sound bank at once, it's also possible to play *only a few* selected samples.

To do this, go to the *(RAM) samples overview of the bank* or to *the (RAM) samples overview of a specific sound* and press 'L' or go the menu and select option "2. Play selected SP-12 Sample(s)"

SoundFont2

To play all samples of SoundFont2 files:
"4. Manage SOUNDFONT2 Files" → [select one or more files] → [press 'L'] or [select "4. Play all SOUNDFONT2 Samples"]

Besides playing *all samples* of a SoundFont2 bank at once, it's also possible to play *only a few* selected samples.

To do this, go to the *samples overview of the bank* or to *the samples overview of a specific instrument or instrument zone* and press 'L' or go to the menu and select option "2. Play selected SOUNDFONT2 Sample(s)"

Akai S1000

To play Akai S1000 sample files:
"2. Manage AKAI S1000 Files and Disks" → "3. Manage AKAI S1000 Sample Files only" → [select one or more files] → [press 'L'] or [select "3. Play selected AKAI S1000 Sample File(s)"]

To play all Akai S1000 samples from floppy disk images:
"2. Manage AKAI S1000 Files and Disks" → "6. Manage AKAI S1000 Floppy Disk Images" → "1. Manage existing AKAI S1000 Floppy Disk Images" → [select one or more floppy disk image files] → [press 'L'] or [select "3. Play all AKAI S1000 Samples"]

To play some Akai S1000 samples from a floppy disk image:
"2. Manage AKAI S1000 Files and Disks" → "6. Manage AKAI S1000 Floppy Disk Images" → "1. Manage existing AKAI S1000 Floppy Disk Images"→ [select a floppy disk image file] → [press 'S'] or [select "6. Show AKAI S1000 Sample Files only"] → [select one or more samples] → [press 'L'] or [select "3. Play selected AKAI S1000 Sample File(s)"]

To play all Akai S1000 samples from HxC floppy disk images:
"2. Manage AKAI S1000 Files and Disks" → "7. Manage AKAI S1000 HxC Floppy Disk Images" → "1. Manage existing AKAI S1000 HxC Floppy Disk Images" → [select one or more HxC floppy disk image files] → [press 'L'] or [select "3. Play all AKAI S1000 Samples"]

To play some Akai S1000 samples from an HxC floppy disk image:
"2. Manage AKAI S1000 Files and Disks" → "7. Manage AKAI S1000 HxC Floppy Disk Images" → "1. Manage existing AKAI S1000 HxC Floppy Disk Images"→ [select an HxC floppy disk image file] → [press 'S'] or [select "6. Show AKAI S1000 Sample Files only"] → [select one or more samples] → [press 'L'] or [select "3. Play selected AKAI S1000 Sample File(s)"]

To play all Akai S1000 samples from a floppy disk (single disk play mode) :
"2. Manage AKAI S1000 Files and Disks" → "8. Manage AKAI S1000 Floppy Disks" → [select a floppy drive] → [press 'D'] or [select "1. Manage AKAI S1000 Files on Floppy Disk"] → [insert a disk if not inserted yet] → [select the volume] → [press 'L'] or [select "8. Play all AKAI S1000 Samples"]

To play some Akai S1000 samples from a floppy disk:
"2. Manage AKAI S1000 Files and Disks" → "8. Manage AKAI S1000 Floppy Disks" → [select a floppy drive] →[press 'D'] or [select "1. Manage AKAI S1000 Files on Floppy Disk"] → [insert a disk if not inserted yet] → [select the volume] → [press 'S'] or [select "3. Show AKAI S1000 Sample Files only"] → [select one or more samples] → [press 'L'] or [select "3. Play selected AKAI S1000 Sample File(s)"]

To play all Akai S1000 samples from multiple floppy disks (multi disk play mode) :
"2. Manage AKAI S1000 Files and Disks" → "8. Manage AKAI S1000 Floppy Disks" → [select a floppy drive] → [press 'L'] or [select "8. Play all Samples from AKAI S1000 Floppy Disk(s)"]

For playing all samples from Akai S1000 floppy disks, EMXP supports two modes:

- *Single disk* play mode: in this mode, only the samples of the current floppy disk will be played
- *Multi disk*play mode: in this mode, EMXP will keep asking for floppy disks and keep playing all samples from these floppy disks until you cancel the loop by pressing ESC. This mode is useful if you want to listen to the samples of a lot of floppy disks and if you would like to speed up the auditioning process.

WAV

To play WAV files:
"3. Manage WAV Files" → "1. Manage WAV Files" → [select one or more WAV files] → [press 'L'] or [select "5.Play selected WAV File(s)"]

Please note that not all WAV files can be played by EMXP.
EMXP can only play WAV files with following characteristics:

- The WAV file should be either MONO or STEREO. Multi-channel .WAV files (e.g. 5.1 surround) are not supported.
- The WAV files should contain raw linear audio. Encoded audio is not supported.
- The WAV file should be 16-bit. Lower or higher precisions are not supported.

9.5.3 Configuring conversion parameters for audio play

By default EMXP will launch the audio pre-processor and the audio player immediately after having selected the samples, sound banks or WAV-files.

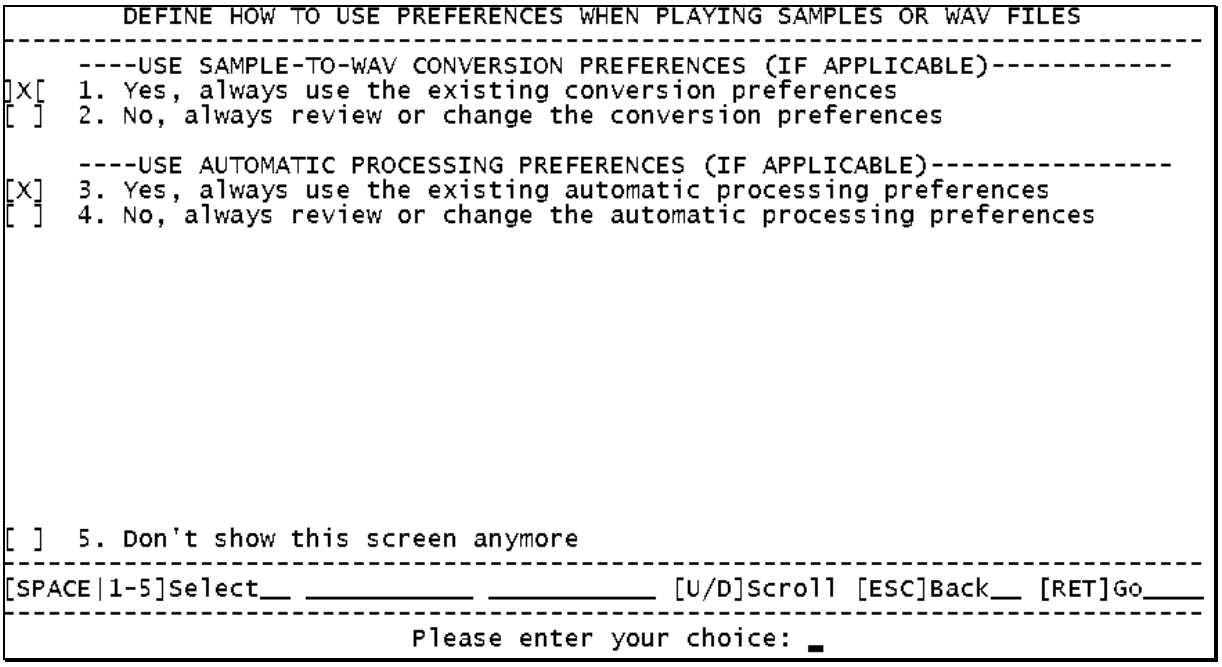
The audio pre-processor

- filters out any select bank or file that doesn't contain any playable sample (e.g. invalid banks)
- extracts the selected samples from the selected sound banks or from the selected Akai S1000 files
- may perform some **sample conversions** if the samples are Emulator-I, Emulator-II, SoundFont2 or SP-12 samples. This depends on the nature of the selected samples.
- may perform audio conversions if the audio device is not compatible with the sample-rate or the number of audio channels of the selected samples or selected WAV-files

For performing **sample conversions for audio play**, EMXP uses the same conversion preferences as the ones that have been defined for sample conversions to target sample formats (see *chapter "7.3 NEXT STEPS PER TARGET SAMPLER TYPE"*).
If you would like to define these preferences *every time you launch the audio player*, you have to instruct EMXP to do so by setting a preference. See *section "10.2.2.3 Define if sample play preferences should always be asked*".

As mentioned, this mode is disabled by default.

If it is enabled however, the next screen will pop up after having selected samples or sound banks for audio play (the screen is different if WAV-files have been selected, see below)

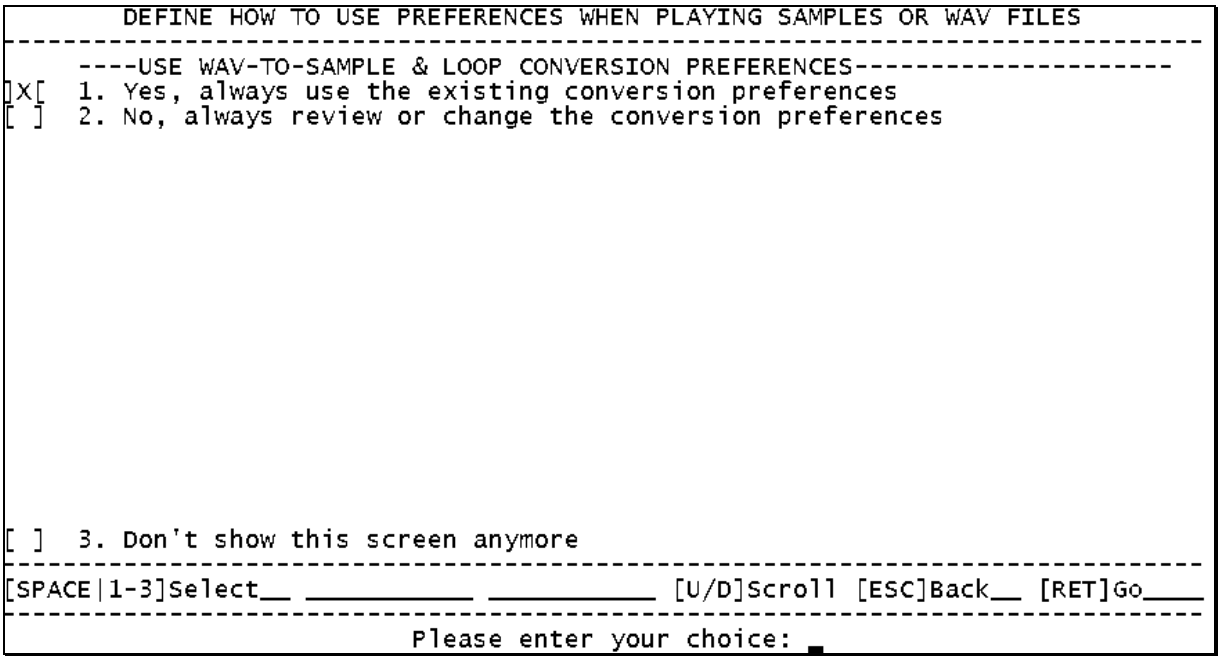


By selection *option 5*, the screen will not be shown anymore the next time you start the audio player.

If you select *option 2*, you will have the possibility to change the sample conversion preferences now (if any are applicable). If you select option 1, the preferences will be used as they were defined before.
The preferences that can be defined are explained later in this section.

If you select *option 4*, you will have the possibility to define whether the audio pre-processing can be done in a fully automated way or not. In practice, this option is only useful if you have selected (samples from) EMAX-II EMX files, EMAX-II floppy disk image files or EMAX-II HxC floppy disk image files. In that case you can define whether EMXP can look for any required related EMX files, floppy disk image files or HxC floppy disk image files by itself, or whether you want to select them manually. If you select option 3, the preference for this mode will be used as it has been defined before.

If WAV-files have been selected for audio play, the screen looks differently:

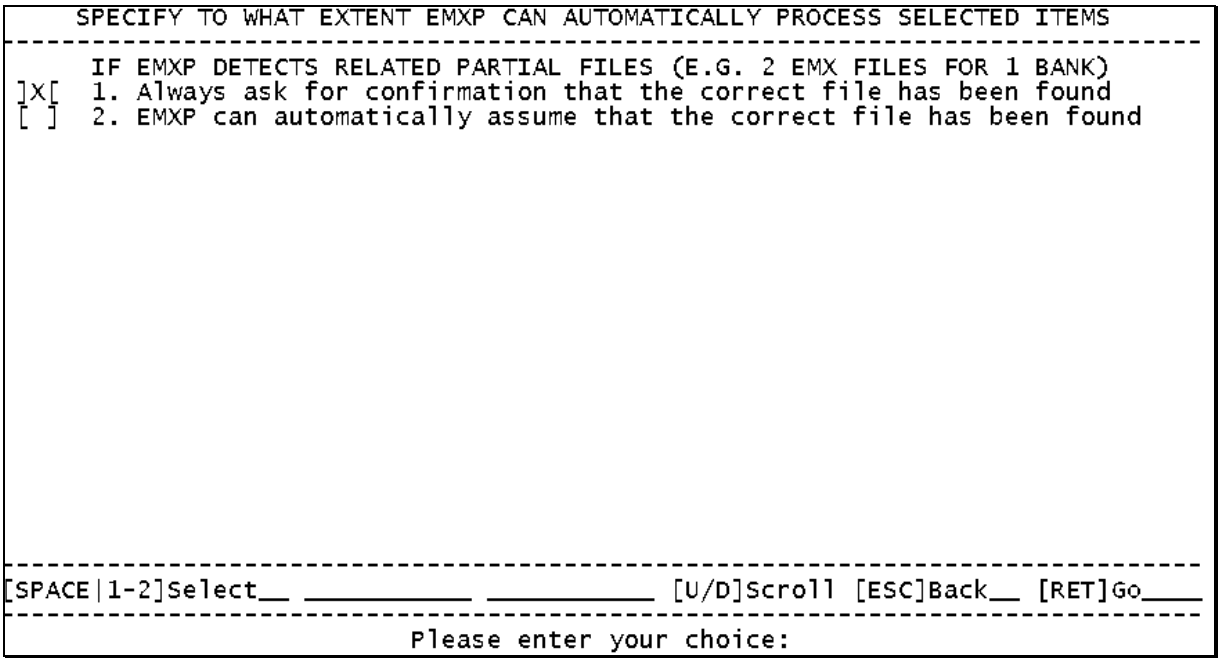


By selection *option 3*, the screen will not be shown anymore the next time you start the audio player.

If you select *option 2*, you will have the possibility to change the WAV conversion preferences now (if any are applicable). If you select option 1, the preferences will be used as they were defined before.
The preferences that can be defined are explained later in this section.

9.5.3.1 Playing samples from EMAX-II EMX files or from EMAX-II floppy disk image files

If you have requested EMXP to play samples from EMAX-II EMX files, from EMAX-II floppy disk image files or from EMAX-II HxC floppy disk image files, you can specify whether EMXP can look for any required related EMX files, floppy disk image files or HxC floppy disk image files by itself, or whether you want to select them manually.



For more information, see *paragraph "B. Level of automation" in section "6.2.2.2 MANUAL Mode"*.

9.5.3.2 Playing Emulator-I samples

If you have requested EMXP to play Emulator-I samples , you can specify whether the attenuation of the audio should be adapted or not.

For more information, see *paragraph "Emulator-I Loudness Attenuation" in section "7.3.10 Conversion from Emulator-I"*.

9.5.3.3 Playing Emulator-II/SoundFont2/SP-12 that are not voice/zone/sound specific

If you have selected to play Emulator-II, SoundFont2 or SP-12 samples, and you didn't select the sample(s) from a specific voice, zone or sound but rather from a list of samples or on bank level, you can define whether EMXP should play the samples based on their basic, voice/zone/sound independent parameters, or whether additional sample settings should be taken into account based on the voices/zones/sounds the samples are used.

For more information, *see paragraph "Generic or Voice/Zone/Sound specific Sample Conversion ..." in section "7.3.8 Conversion to WAV"*.

9.5.3.4 Playing stereo linked SoundFont2 samples

If you have selected to play SoundFont2 samples which are linked to other SoundFont2 samples (forming a stereo sample), you can specify whether the samples should be played as mono samples or as stereo samples.

For more information, see *paragraph "SoundFont2 Stereo Handling" in section "7.3.8 Conversion to WAV"*.

9.5.3.5 Playing looped WAV files

If you have selected to play WAV files, some of them may consist of multiple loops of different loop types. EMXP needs to know which loop should be used in the audio player.

For more information, see *paragraphs "WAV Loop Type" and "WAV Loop Number" in section "7.3.9 Conversion from WAV"*.

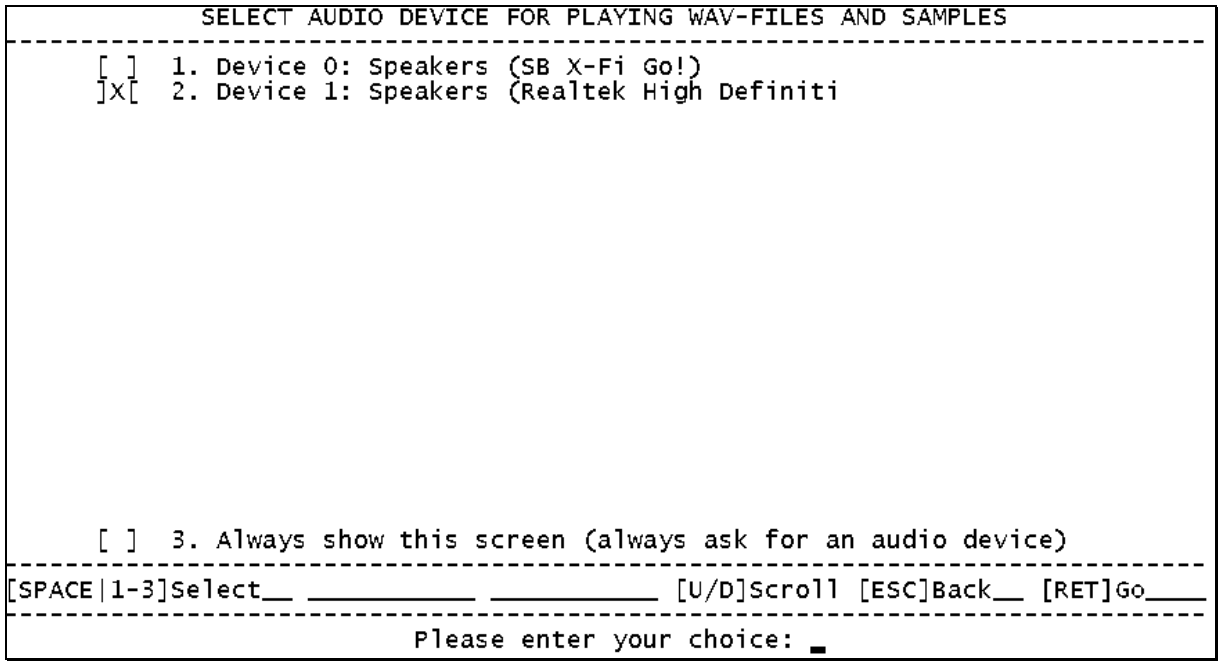
9.5.4 Selecting the audio device

If the audio player is used for the first time after a clean installation of EMXP, you will have to select the default audio device that will be used for playing audio in EMXP.

Once an audio device has been selected, EMXP will never ask for an audio device again, except if

- the default audio device can't be found anymore
- you have explicitly instructed EMXP to always ask for an audio device

By selecting the option "Always show this screen" in the screen below, EMXP will always ask for an audio device. The option number depends on the number of available audio devices, here it is option 3.
You can always change this mode - as well as the default audio device - in the Audio Preferences menu. See *section "10.7.2 Define if audio device should always be asked"* and *section "10.7.1 Manage audio device preferences"*.



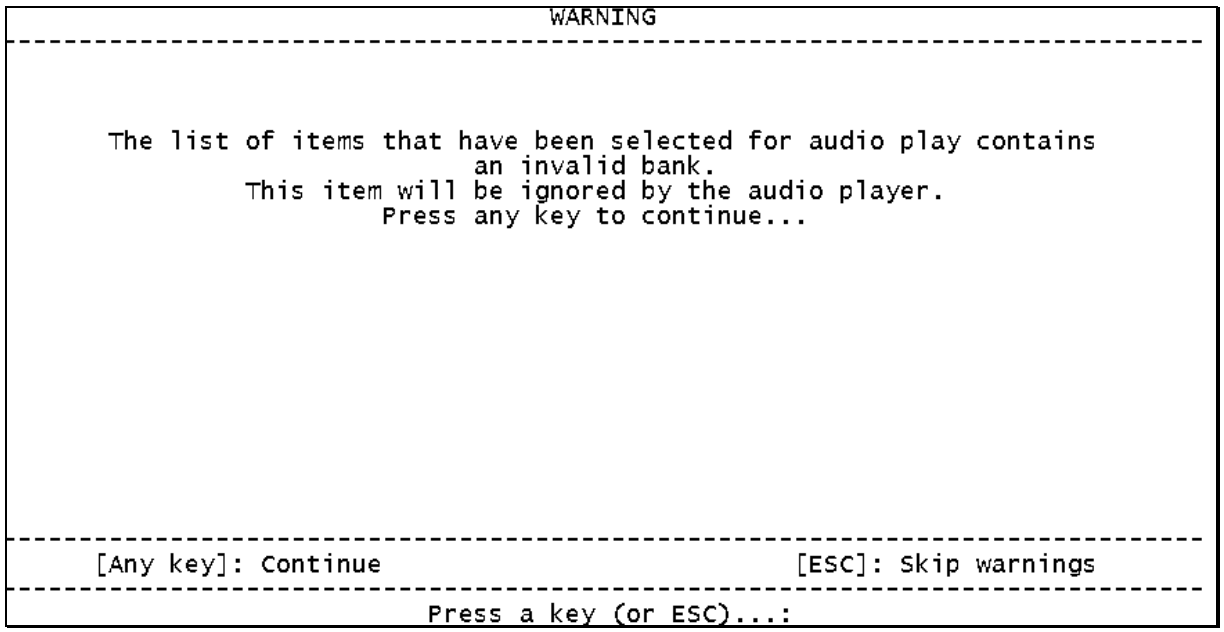
9.5.5 Using the audio player

9.5.5.1 Audio pre-processor

For each selected Emu or SoundFont2 sound bank, Akai S1000 volume or Akai S1000 sample file, EMXP will perform some pre-processing before actually starting the audio player. As explained, the audio pre-processor

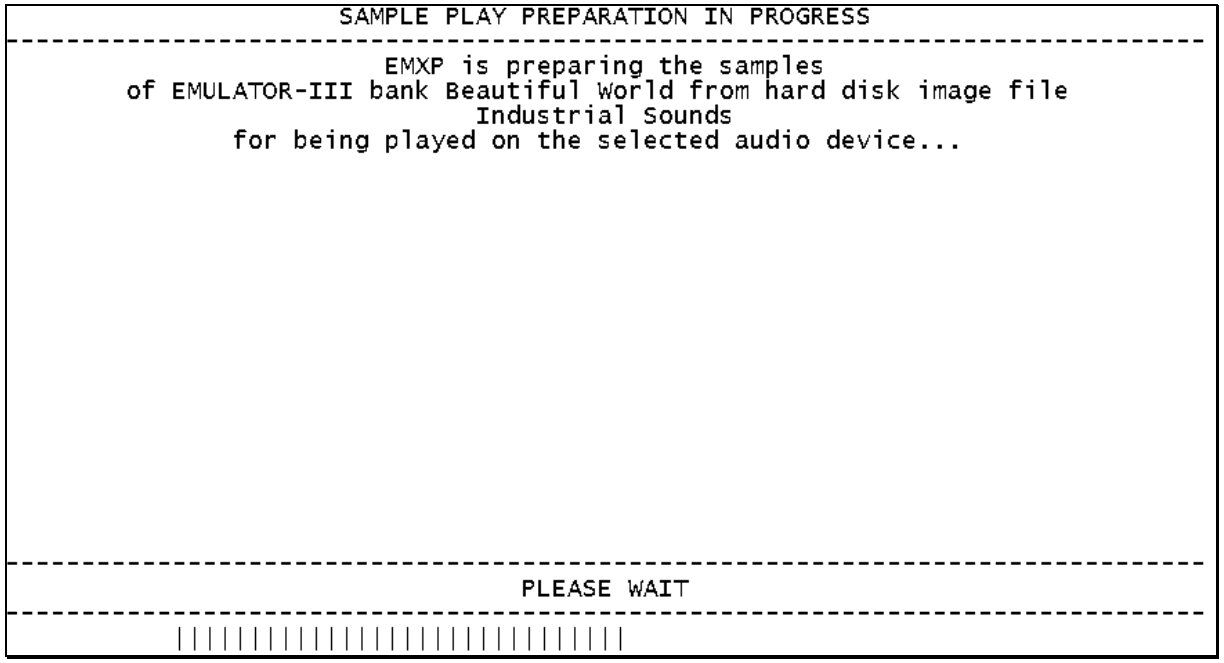
- filters out any select bank or file that doesn't contain any playable sample (e.g. invalid banks)
- extracts the selected samples from the selected sound banks or from the selected Akai S1000 files
- may perform some **sample conversions** if the samples are Emulator-I, Emulator-II, SoundFont2 or SP-12 samples. This depends on the nature of the selected samples.
- may perform audio conversions if the audio device is not compatible with the sample-rate or the number of audio channels of the selected samples or selected WAV-files

Invalid sound banks or unplayable Akai S1000files (drums or program files) will be filtered from the input item list before pre-processing continues. In that case EMXP will give a warning, as illustrated below:



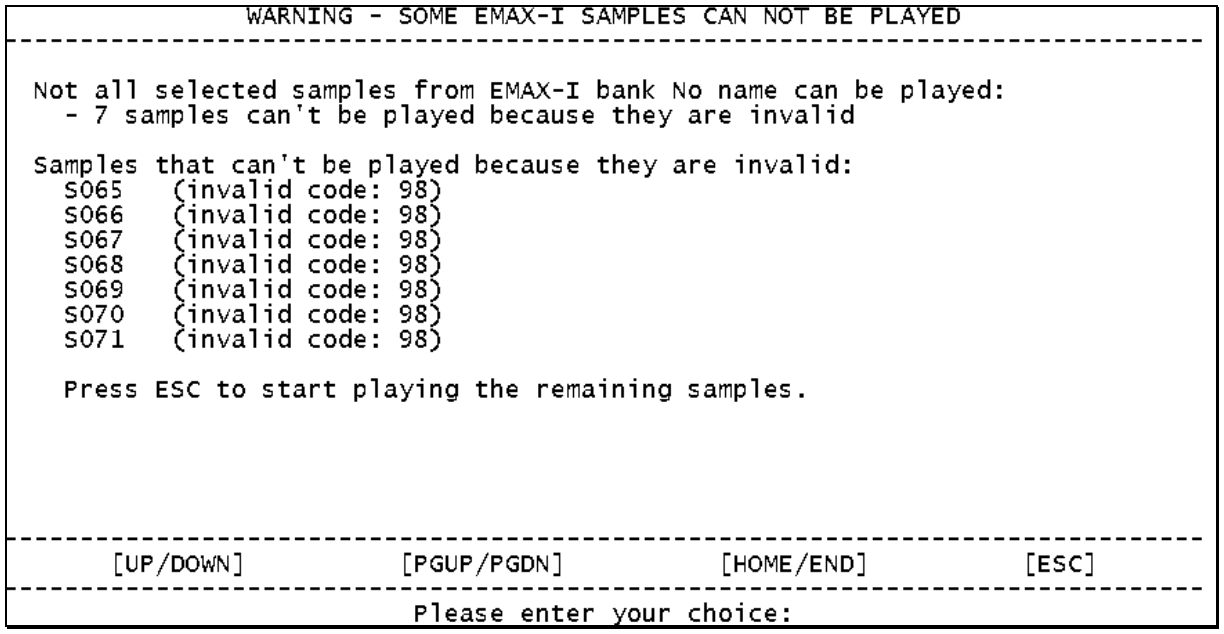
If the selected sound bank or file is big or is stored on a slow device, the pre-processing can take a while.

EMXP will inform you of the pre-processing stage with a screen like the one below:



Fortunately, once a sound bank or file has been pre-processed, the result is kept in a cache on disk.
This cache is active as long as you don't leave the audio player.
For more information about this cache and how it can be configured, see *section "10.7.3 Define disk cache size for playing samples from multiple files"*.

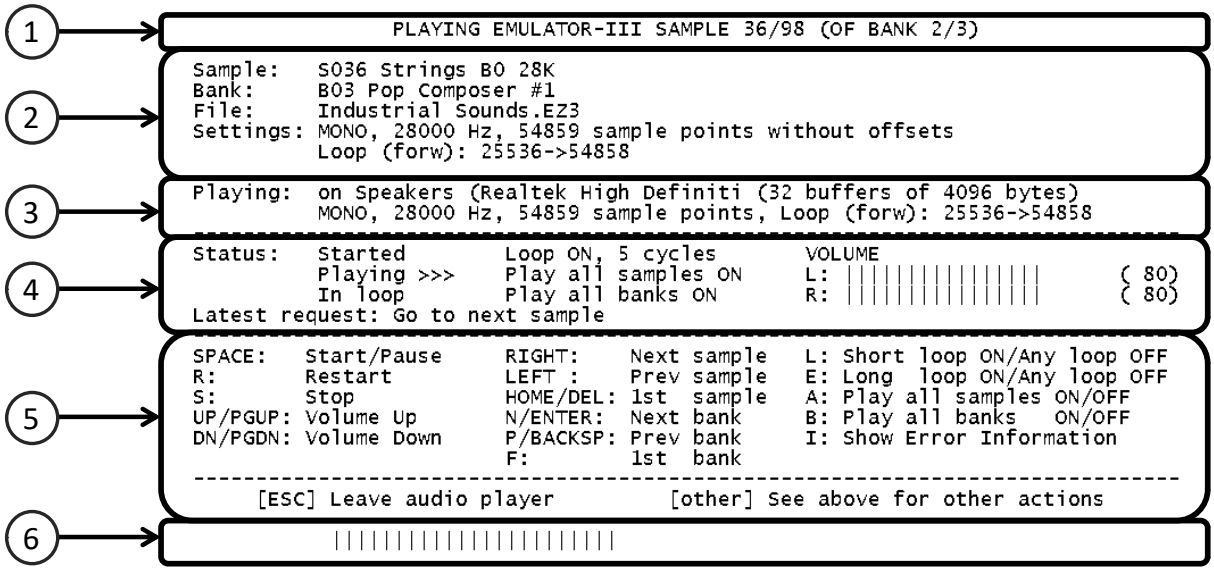
During the pre-processing stage EMXP may encounter some problems, e.g. regarding samples that are corrupt or that can't be played for one or another reason.
If problems have been encountered, they will be reported before launching the audio player. An example can be found in the screen shown below. Press ESC to continue and to start the audio player.



This report can always be viewed from the audio player, by pressing the 'I' (Info) key. See *section "9.5.5.2 The audio player"*.

9.5.5.2 The audio player

Audio playing can be controlled from one single screen in EMXP.



The contents of the screen is dynamic and depends on the (number of) samples and (number of) sound banks/files that have been selected for audio play. The available control keys also depend on which sample from which sound bank/file is currently being played.

The screen of the audio player consists of 6 areas:

- *(1) the title bar*: here you can find
  - the sampler type of the sample being played (e.g. Emulator-III),
  - the sequence number of the sample that is currently being played (e.g. 36)
  - the total number of samples that are queued for being played (e.g. 98)

  These values are limited to the current sound bank, except if WAV-files or Akai S1000 sample files have been selected. If multiple sound banks or image files have been selected for audio play, the following information is shown as well:
  - the sequence number of the current sound bank/file (e.g. 2)
  - the total number of selected sound banks/files (e.g. 3)
- *(2) sample information:* in this area the main characteristics of the sample that is currently being played are displayed:
  - the sample number (if any is available)
  - the sample name (if any is available)
  - the sound bank name and/or sound bank number (only if the sample has been selected from a sound bank),
  - the file or disk or SCSI2SD partition containing the audio data (this can be the WAV-file name as well)
  - the original sample rate
  - the original number of channels (MONO or STEREO)
  - the sample size in sample points, excluding any leading or trailing offset points (*)
  - the loop type, loop start point and loop size of the sample's loop(s) (if at least one loop has been defined) (**)

  (*) this sample size may slightly deviate from the sample size shown in the Show Sample Details screens elsewhere in EMXP, because those sample sizes include the offset points
  (**) if Akai S1000 samples or WAV-files are being played, the selected loop for audio play are based on the WAV-to-sample conversion preferences, *see section "10.3.10.3 Define which WAV loops should be used"* and *section "10.3.10.4 Define which WAV loop type should be converted to sampler sustain loops"*.

- *(3) audio player information:* here you can find
    - the audio device name
    - the number of audio buffers used by EMXP for playing audio on this device
    - the audio buffer size used by EMXP for playing audio on this device

    These settings can be changed in the Audio Preferences menu, see *section "10.7.1 Manage audio device preferences"*.
    Also shown are:
    - the sample rate
    - the number of channels (MONO or STEREO)
    - the loop information

    which are *actually being used* by the audio player. In normal circumstances this information is the same as the information mentioned in the previous area, but:
        - if the sample has both a SUSTAIN loop and an IN RELEASE loop defined, the SUSTAIN loop will be used.
        - if the audio device is not compatible with the original sample's sample rate and/or number of channels, the audio pre-processor may have changed the sample rate and/or number of channels.
- *(4) audio player status:* the status information of the audio player can be found here:
    - whether the player has been started, stopped, paused or not started yet
    - the play direction (forward >>> or backward <<<). Backward play is only supported for backward or alternating loops. If the whole sample is defined as a reverse sample, EMXP will not play the sample in reverse direction.
    - if the audio currently being played is part of the loop or not
    - if playing loops is enabled or not. If "finite" looping is enabled, the number of loop cycles that will be played is shown. If "infinite" looping is enabled, this is mentioned as well.
    - if sequential playing of all selected samples is enabled or not
    - if sequential playing of all selected sound banks is enabled or not
    - the audio volume of the LEFT and RIGHT channel. The level is shown as a bar and as a percentage of the maximum volume that has been assigned to the audio device in the Windows audio mixer
    - the latest user request/action. Only actions by the user are mentioned, not the actions that are automatically initiated by EMXP.
- *(5) available control keys*: these are explained below
- *(6) proceeding bar:* the bar proceeds from sample start till sample end. If infinite looping is enabled, the bar will restart after having played a few loop cycles

The number of available actions in the audio player depends on the number of samples and/or number of sound banks/files that have been selected.
In the example shown above, all actions are available.

Actions can be performed by pressing one of the **control keys** that are mentioned in area 5.

- *Starting and stopping audio play*:

    The audio player may have automatically been started - this can be configured in the Audio Preferences menu. See *section "10.7.4 Define if audio player should automatically start"*.

    - Use control key 'R' to (re)start playing the current sample
    - Use control key 'S' to stop playing the current sample
    - Control key SPACE can be used to start playing the sample as well, but is also used for pausing/continuing sample play.

- *Pausing and continuing audio play*:

    Use control key SPACE to pause and to continue playing of the current sample

- *Browsing through the selected samples*:

  This is only possible if multiple samples (or WAV-files) have been selected. If the samples belong to sound banks or Akai S1000 volumes (as opposed to WAV-files or Akai S1000 sample files), these control keys can only be used for browsing through the samples of the current sound bank or Akai S1000 volume. See next paragraph for navigating to other sound banks or Akai S1000 volumes.

  - Use control key RIGHT (right arrow, →) to go to the next selected sample/WAV-file. This control key is only available if the current sample is not the last sample.
  - Use control key LEFT (left arrow, ←) to go to the previous selected sample/WAV-file. This control key is only available if the current sample is not the first sample.
  - Use control keys HOME or DEL(ete) to go to the first selected sample/WAV-file. This control key is only available if the current sample is not the first sample.

  When using these control keys, audio playing will immediately stop.

  When quickly pressing the LEFT or RIGHT keys multiple times, you can quickly bypass a few samples before the audio player will start again

  Using some of these control keys may automatically disable the sequential playing of samples or sound banks/Akai S1000 volumes as well. This depends on the audio preferences. See *section "10.7.5 Manage the automated sequential play of multiple samples/files"*.

- *Browsing through the selected sound banks or Akai S1000 volumes*:

  This is only possible if multiple sampler sound banks or Akai S1000 volumes have been selected.

  - Use control keys ENTER or 'N' (next) to go to the next selected sound bank/volume. This control key is only available if the current sound bank/volume is not the last sound bank/volume.
  - Use control keys BACKSPACE or 'P' (previous) to go to the previous selected sound bank/volume. This control key is only available if the current sound bank/volume is not the first sound bank/volume.
  - Use control key 'F' (first) to go to the first selected sound bank/volume. This control key is only available if the current sound bank/volume is not the first sound bank/volume.

  When using these control keys, audio playing will immediately stop.

  When quickly pressing the ENTER/N or BACKSPACE/P keys multiple times, you can quickly bypass a few sound banks/volumes before the audio player will start again

  Using some of these control keys may automatically disable the sequential playing of samples or sound banks/Akai S1000 volumes as well. This depends on the audio preferences. See *section "10.7.5 Manage the automated sequential play of multiple samples/files"*.

  When jumping to a sound bank or Akai S1000 volume that has not been played yet, the audio pre-processor may be started before the sound bank or volume is ready for being played. This is also true if a previously played sound bank/volume is not in the disk cache anymore. See *section "9.5.5.1 Audio pre-processor"*.

- *Enabling and disabling loops*:

  If a loop is defined in the selected sample, EMXP will play that loop. If multiple loops are defined in the selected sample, the loop played by EMXP depends on the WAV-to-sample conversion settings for WAV-files and Akai S1000 samples. For other samplers, the SUSTAIN loop will be used.
  If no loop is defined in the selected sample; EMXP will loop the entire sample.

Information about the loop actually being used by the audio player can be found in the *audio player status area (see (3) on the previous picture)*

- Use control key 'L' to enable *finite* loop playing. The loop will only be played for a limited number of cycles. The number of cycles is determined by EMXP and depends on the ratio of the loop size versus the total sample size.
- Use control key 'E' to enable *infinite* loop playing.

To disable loop playing, both control keys ('L' and 'E') can be used, no matter what kind of loop playing was enabled.

After having enabled loop playing, the actual looping will only start if the loop start point is reached.

After having disabled loop playing, the looping may not stop immediately. All audio data belonging to one or more loop cycles that have already been streamed to the audio buffers will be played before the loop will be left. The higher the number of audio buffers, the larger the buffer size and the smaller the loop, the longer you will have to wait before the loop will stop playing.

- *Enabling and disabling the automated sequential play of all selected samples and/or sound banks:*

Sequential play means that EMXP will automatically start playing the next sample, sound bank or Akai S1000 volume when the previous sample has finished.
Sequential play of multiple samples is only available if multiple samples have been selected.
Sequential play of multiple sound banks or Akai S1000 volumes is only available if multiple sound banks or Akai S1000 volumes have been selected.

The sequential play mode may have been automatically enabled by EMXP when starting the audio player. Whether this is applicable or not depends on the audio preferences. See *section "10.7.5 Manage the automated sequential play of multiple samples/files"*.

- Use control key 'A' (all) to enable or disable the sequential play of WAV-files, Akai S1000 sample files or the samples of a sound bank/Akai S1000 volume
- Use control key 'B' (banks) to enable or disable the sequential play of sound banks or Akai S1000 volumes.

If sequential play of sound banks is enabled, sequential play of samples is enabled as well.
If sequential play of samples if disabled, sequential play of sound banks is disabled as well.

As mentioned before, using some of the sample/sound bank navigation control keys (like LEFT or BACKSPACE) may disable the sequential play mode. This can also be true when using the 'S' (stop) control key. See *section "10.7.5 Manage the automated sequential play of multiple samples/files"*.

- *Changing the volume*:

The volume of the audio device can be controlled in the audio player of EMXP.
However, the volume level set by EMXP is relative to the maximum volume level that has been set for the audio device in the main volume control (mixer) of Windows.
E.g. even if the volume in EMXP is set to 100%, no sound can be heard if the main volume of the audio device has been set to 0 (outside of EMXP).

- Use control key 'UP' (arrow up) to increase the volume with 5%
- Use control key 'DOWN' (arrow down) to decrease the volume with 5%
- Use control key 'PGUP' to increase the volume with 10%
- Use control key 'PGDN' to decrease the volume with 10%

- *Showing information about the problems encountered during audio pre-processing*:

  This option is only available if the audio pre-processor has detected some problems with one or more samples of the sound bank or Akai S1000 volume which is currently being played.
  The report which has been shown after the pre-processor had finished can be viewed again any time during audio play. See *section "9.5.5.1 Audio pre-processor"* for an example of a report.

  - Use control key 'I' (info) to display the report.

  While the report is displayed on the screen, audio playing can still go on and all audio control keys are still available, except for:
  - browsing through sound banks/Akai S1000 volumes
  - changing the volume

  Following additional control keys are available while the report is displayed:
  - UP (arrow up), DOWN (arrow down), PGUP, PGDN for scrolling in the report
  - ESC to leave the report mode

- *Leaving the audio player*:

  Use control key 'ESC' (escape) to leave the audio player.

  By leaving the audio player, the disk cache containing all pre-processed audio will be flushed/cleaned. If you start the audio player again for playing the same sound banks/Akai S1000 volumes or samples, the audio will have to be pre-processed again.

9.6 TRANSFERRING BANKS VIA RS422 WITH EMXP

EMXP supports high speed serial communication between a Windows computer and the EMAX-I, EMAX-II, Emulator-II and Oberheim DPX-1.
A special RS422 port is required in the computer. See next section.
The communication possibilities consist of:

- Up- and downloading **complete sound banks**. This feature is supported for the Emulator-II, the EMAX-I and the Oberheim DPX-1. The EMAX-II is only supported if the bank is an EMAX-I 12-bit sound bank, not a native 16-bit EMAX-II bank.
- Up- and downloading **individual samples** as WAV-files. This feature is supported for the EMAX-I, EMAX-II and Emulator-II, and in addition to RS422 is also available via MIDI for EMAX-I and EMAX-II. See *section "9.8 TRANSFERRING WAV FILES TO/FROM EMAX VIA RS422 OR MIDI"* and *section "9.9 TRANSFERRING WAV FILES TO/FROM EMULATOR-II VIA RS422*".

Remote bank editing and sample editing are not supported.

If you are using an EMAX-I sampler, make sure it runs one of the SE operating systems or higher (SE, SE HD, Plus).

Always save your sound banks on the sampler before using the communication transfer functions. In exceptional cases bank dumps via RS422 may cause the sampler to hang or to crash.

9.6.1 RS422 Hardware Adapter

In order to be able to set up high speed serial communications between EMXP and the EMAX-I, EMAX-II, Emulator-II or Oberheim DPX-1, a special RS422 port device or adapter is required on the computer.
A cheap off-the-shelf commercial USB←→RS422 adapter will NOT work.
Make sure following conditions are met:

- The adapter is capable of **synchronous communication**, which means it can be **externally clocked.** Most non-industrial RS422 adapters only support internal clocking, i.e. the RS422 port is clocked by the adapter itself at a baud rate which is configured by the driver/software in Windows. This kind of RS422 adapters can not be used with the EMAX-I, EMAX-II, Emulator-II and Oberheim DPX-1.
- The adapter must switch from internal clocking to external clocking **on receiving a normal baud rate set instruction** from Windows. The standard serial drivers in Windows (and Mac) don't support a specific command to activate external clocking. Because of this, EMXP sends a user-configurable baud rate set instruction to the RS422 port and expects this port to switch to external clocking instead of setting its clock to that baud rate. By default, the baud rate used to "cheat" the RS422 port is set to 500000 baud for Windows and 50 for Wine on macOS, but it can be changed in the Preferences menu of EMXP.

It can be assumed that no commercial RS422 port/USB-adapter complies with the above requirements. Especially the second requirement is quite "specific"… and the first one often results in expensive devices.

However we have developed a custom device called **EmuSer** for use with the EMAX-I, EMAX-II, Emulator-II and Oberheim DPX-1.This device is very affordable. Be aware though that this device is a "do it yourself" project. More information can be found in a separate document which can be downloaded from the EMXP website.

Important note

When using the EmuSer USB/RS422 adapter, make sure to connect it to a *high powered* USB port of your computer; if a non-powered or low-powered USB port is used, the communication may fail.
Also make sure that the EmuSer is compliant with the latest design specifications:

- version 1.02b or higher of the hardware specifications, especially with respect to capacitors C4 and C5 for which capacitance values of 22pF or 39pF are strongly recommended (instead of 220pF)
- version 1.02 or higher of the EmuSer firmware

9.6.2 Configuring EMXP for RS422 communication

The stability and speed of the RS422 communication with the EMAX-I, EMAX-II, Emulator-II and Oberheim DPX-1 is determined by a set of communication parameters. These parameters can be changed in the Preferences menu (see *section "10.6 COMMUNICATION PREFERENCES*"). The out-of-the-box values of these parameters may not be the best for your specific set-up. The values that should be used depend on the speed of the computer and on the reliability of the USB ports. The most important ones are the "Delay time ..." settings.

Don't worry or get angry if the communication (always) fails when using EMXP with the initial (factory) communication preference settings !

Just go to the Communication Preferences (option 6.5 in the Main Menu) and change the values of the "Delay time ..." settings:

- Decrease these values if you have an old or slow computer, or if you want to increase the speed of the data transfer. The communication will be faster but could be less reliable.
- Increase these values if you have a fast modern computer. The communication will slow down but could be more reliable.

If the communication fails and additional attempts result in EMXP errors saying that **no data could be written to the RS422 port due to reason code 31**, you will have to unplug the RS422 port and plug it in again. Then retry sending or receiving the data in EMXP.
If the **EMAX-I or EMAX-II** was still in a "sending or receiving data over RS422" wait mode, it will be interrupted by the next data transfer attempt saying a bad packet has been received. Don't worry. A next data transfer attempt will probably be accepted again by the EMAX-I or EMAX-II.

9.6.3 How to upload and download banks with EMXP

Make sure you have a compatible RS422 adapter connected to your computer, and that you know the COM port number of that RS422 port. To find out the COM port number, check the Ports section in the Device Manager (configuration panel) of Windows.

EMXP supports the upload and download of complete sound banks with the EMAX-I, Emulator-II and Oberheim DPX-1. Uploads to EMAX-II are supported as well, but only if the bank is an EMAX-I bank.

9.6.3.1 EMAX-I and EMAX-II

To upload EMAX-I bank files to the EMAX-I:
"1. Manage EMU Files and Disks" → "1. Manage EMU EMAX-I Files and Disks" → "1. Manage EMAX-I Bank Files" → [select one or more banks and press ENTER] → [press 'U'] or [select "5. Send EMAX-I Bank File(s) to EMAX via RS422" followed by "1. Send EMAX-I Bank File(s) to EMAX-I via RS422"] → [optionally (*): specify COM port number] → [press ENTER for uploading each of the selected banks]

To upload EMAX-I EMX files to the EMAX-I:
"1. Manage EMU Files and Disks" → "1. Manage EMU EMAX-I Files and Disks" → "2. Manage EMAX-I EMX Files" → [select one or more EMX files and press ENTER] → [press 'U'] or [select "5. Send EMAX-I EMX File(s) to EMAX via RS422" followed by "1. Send EMAX-I EMX File(s) to EMAX-I via RS422"] → [optionally (*): specify COM port number] → [press ENTER for uploading each of the selected banks]

To upload SoundDesigner for EMAX files to the EMAX-I:
"1. Manage EMU Files and Disks" → "1. Manage EMU EMAX-I Files and Disks" → "8. Manage other EMAX-I Files and Disks" → "1. Manage SoundDesigner for EMAX Files" → [select one or more files and press ENTER] → [press 'U'] or [select "5. Send SoundDesigner for EMAX File(s) to EMAX via RS422" followed by "1. Send SoundDesigner for EMAX File(s) to EMAX-I via RS422"] → [optionally (*): specify COM port number] → [press ENTER for uploading each of the selected files]

To upload banks from an EMAX-I hard disk to the EMAX-I:
"1. Manage EMU Files and Disks" → "1. Manage EMU EMAX-I Files and Disks" → "5. Manage EMAX-I Hard Disks" → [select a drive] → [press 'B'] or [select "1. Manage Banks on EMAX-I Hard Disk"] → [select one or more banks] → [press 'U'] or [select "5. Send EMAX-I Bank(s) to EMAX via RS422" followed by "1. Send EMAX-I Bank(s) to EMAX-I via RS422"] → [optionally (*): specify COM port number] → [press ENTER for uploading each of the selected banks]

To upload banks from an EMAX-I hard disk image to the EMAX-I:
"1. Manage EMU Files and Disks" → "1. Manage EMU EMAX-I Files and Disks" → "4. Manage EMAX-I Hard Disk Images" → "1. Manage existing EMAX-I Hard Disk Images"→ [select a hard disk image file] → [press "B"] or [select "1. Manage Banks on EMAX-I Hard Disk Image"] → [select one or more banks] → [press 'U'] or [select "5. Send EMAX-I Bank(s) to EMAX via RS422" followed by "1. Send EMAX-I Bank(s) to EMAX-I via RS422"] → [optionally (*): specify COM port number] → [press ENTER for uploading each of the selected banks]

To upload EMAX-I bank files to the EMAX-II:
"1. Manage EMU Files and Disks" → "1. Manage EMU EMAX-I Files and Disks" → "1. Manage EMAX-I Bank Files" → [select one or more banks and press ENTER] → [press 'J'] or [select "5. Send EMAX-I Bank File(s) to EMAX via RS422" followed by "2. Send EMAX-I Bank File(s) to EMAX-II via RS422"] → [optionally (*): specify COM port number] → [press ENTER for uploading each of the selected banks]

To upload EMAX-I EMX files to the EMAX-II:
"1. Manage EMU Files and Disks" → "1. Manage EMU EMAX-I Files and Disks" → "2. Manage EMAX-I EMX Files" → [select one or more EMX files and press ENTER] → [press 'J'] or [select "5. Send EMAX-I EMX File(s) to EMAX via RS422" followed by "2. Send EMAX-I EMX File(s) to EMAX-II via RS422"] → [optionally (*): specify COM port number] → [press ENTER for uploading each of the selected banks]

To upload SoundDesigner for EMAX files to the EMAX-II:
"1. Manage EMU Files and Disks" → "1. Manage EMU EMAX-I Files and Disks" → "8. Manage other EMAX-I Files and Disks" → "1. Manage SoundDesigner for EMAX Files" → [select one or more files and press ENTER] → [press 'J'] or [select "5. Send SoundDesigner for EMAX File(s) to EMAX via RS422" followed by "2. Send SoundDesigner for EMAX File(s) to EMAX-II via RS422"] → [optionally (*): specify COM port number] → [press ENTER for uploading each of the selected files]

To upload banks from an EMAX-I hard disk to the EMAX-II:
"1. Manage EMU Files and Disks" → "1. Manage EMU EMAX-I Files and Disks" → "5. Manage EMAX-I Hard Disks" → [select a drive] → [press 'B'] or [select "1. Manage Banks on EMAX-I Hard Disk"] → [select one or more banks] → [press 'J'] or [select "5. Send EMAX-I Bank(s) to EMAX via RS422" followed by "2. Send EMAX-I Bank(s) to EMAX-II via RS422"] → [optionally (*): specify COM port number] → [press ENTER for uploading each of the selected banks]

To upload banks from an EMAX-I hard disk image to the EMAX-II:
"1. Manage EMU Files and Disks" → "1. Manage EMU EMAX-I Files and Disks" → "4. Manage EMAX-I Hard Disk Images" → "1. Manage existing EMAX-I Hard Disk Images"→ [select a hard disk image file] → [press "B"] or [select "1. Manage Banks on EMAX-I Hard Disk Image"] → [select one or more banks] → [press 'J'] or [select "5. Send EMAX-I Bank(s) to EMAX via RS422" followed by "2. Send EMAX-I Bank(s) to EMAX-II via RS422"] → [optionally (*): specify COM port number] → [press ENTER for uploading each of the selected banks]

To download a bank from the EMAX-I to an EMAX-I bank file:
"1. Manage EMU Files and Disks" → "1. Manage EMU EMAX-I Files and Disks" → "9. Receive Banks or Samples from EMAX-I via RS422/MIDI" → "1. Receive Bank File from EMAX-I via RS422" → [optionally (*): specify COM port number] → [specify name of bank file in which the downloaded bank must be saved and press ENTER]

To download a bank from the EMAX-I to an EMAX-I EMX file:
"1. Manage EMU Files and Disks" → "1. Manage EMU EMAX-I Files and Disks" → "9. Receive Banks or Samples from EMAX-I via RS422/MIDI" → "2. Receive EMX File from EMAX-I via RS422" → [optionally (*): specify COM port number] → [specify name of EMX file in which the downloaded bank must be saved and press ENTER]

To download a bank from the EMAX-I to a SoundDesigner for EMAX file:
"1. Manage EMU Files and Disks" → "1. Manage EMU EMAX-I Files and Disks" → "9. Receive Banks or Samples from EMAX-I via RS422/MIDI" → "3. Receive SoundDesigner for EMAX File from EMAX-I via RS422" → [optionally (*): specify COM port number] → [specify name of SoundDesigner for EMAX file in which the downloaded bank must be saved and press ENTER]

9.6.3.2 Emulator-II

To upload a bank from an Emulator-II bank file to the Emulator-II:
"1. Manage EMU Files and Disks" → "4. Manage EMU EMULATOR-II Files and Disks" → "1. Manage EMULATOR-II Bank Files" → [select one or more files and press ENTER] → [press 'U'] or [select "5. Send EMULATOR-II Bank File(s) to EMULATOR-II via RS422"] → [optionally (*): specify COM port number] → [press ENTER for uploading each of the selected files]

To upload a bank from an Emulator-II hard disk to the Emulator-II:
"1. Manage EMU Files and Disks" → "1. Manage EMU EMULATOR-II Files and Disks" → "5. Manage EMULATOR-II Hard Disks" → [select a drive] → [press 'B'] or [select "1. Manage Banks on EMULATOR-II Hard Disk"] → [select one or more banks] → [press 'U'] or [select "5. Send EMULATOR-II Bank(s) to EMULATOR-II via RS422"] → [optionally (*): specify COM port number] → [press ENTER for uploading each of the selected banks]

To upload a bank from an Emulator-II hard disk image (e.g. DREM file) to the Emulator-II:
"1. Manage EMU Files and Disks" → "1. Manage EMU EMULATOR-II Files and Disks" → "4. Manage EMULATOR-II Hard Disk Images (e.g. DREM)" → "1. Manage existing EMULATOR-II Hard Disk Images"→ [select a hard disk image file] → [press "B"] or [select "1. Manage Banks on EMULATOR-II Hard Disk Image"] → [select one or more banks] → [press 'U'] or [select "5. Send EMULATOR-II Bank(s) to EMULATOR-II via RS422"] → [optionally (*): specify COM port number] → [press ENTER for uploading each of the selected banks]

To upload a bank from an Emulator-II floppy disk image file to the Emulator-II:
"1. Manage EMU Files and Disks" → "4. Manage EMU EMULATOR-II Files and Disks" → "2. Manage EMULATOR-II Floppy Disk Images" → [select one or more files and press ENTER] → [press 'U'] or [select "6. Send EMULATOR-II Bank to EMULATOR-II or DPX-1 via RS422" followed by "1. Send EMULATOR-II Bank to EMULATOR-II via RS422"]→ [optionally (*): specify COM port number] → [press ENTER for uploading each of the selected files]

To upload a bank from an Emulator-II HxC floppy disk image file to the Emulator-II:
"1. Manage EMU Files and Disks" → "4. Manage EMU EMULATOR-II Files and Disks" → "3. Manage EMULATOR-II HxC Floppy Disk Images" → [select one or more files and press ENTER] → [press 'U'] or [select "6. Send EMULATOR-II Bank to EMULATOR-II or DPX-1 via RS422" followed by "1. Send EMULATOR-II Bank to EMULATOR-II via RS422"] → [optionally (*): specify COM port number] → [press ENTER for uploading each of the selected files]

To download a bank from the Emulator-II:
"1. Manage EMU Files and Disks" → "4. Manage EMULATOR-II Files and Disks" → "7. Receive Banks from EMULATOR-II via RS422" → [optionally (*): specify COM port number] → [specify name of bank file in which the downloaded bank must be saved and press ENTER]

9.6.3.3 Oberheim DPX-1

To upload a bank from an Emulator-II bank file to the Oberheim DPX-1:
"1. Manage EMU Files and Disks" → "4. Manage EMU EMULATOR-II Files and Disks" → "1. Manage EMULATOR-II Bank Files" → [select one or more files and press ENTER] → [press 'J'] or [select "6. Send EMULATOR-II Bank File(s) to DPX-1 via RS422"] → [optionally (*): specify COM port number] → [press ENTER for uploading each of the selected files]

To upload a bank from an Emulator-II hard disk to the Oberheim DPX-1
"1. Manage EMU Files and Disks" → "1. Manage EMU EMULATOR-II Files and Disks" → "5. Manage EMULATOR-II Hard Disks" → [select a drive] → [press 'B'] or [select "1. Manage Banks on EMULATOR-II Hard Disk"] → [select one or more banks] → [press 'J'] or [select "6. Send EMULATOR-II Bank(s) to DPX-1 via RS422"] → [optionally (*): specify COM port number] → [press ENTER for uploading each of the selected banks]

To upload a bank from an Emulator-II hard disk image (e.g. DREM file) to the Oberheim DPX-1:
"1. Manage EMU Files and Disks" → "1. Manage EMU EMULATOR-II Files and Disks" → "4. Manage EMULATOR-II Hard Disk Images (e.g. DREM)" → "1. Manage existing EMULATOR-II Hard Disk Images"→ [select a hard disk image file] → [press "B"] or [select "1. Manage Banks on EMULATOR-II Hard Disk Image"] → [select one or more banks] → [press 'J'] or [select "6. Send EMULATOR-II Bank(s) to DPX-1 via RS422"] → [optionally (*): specify COM port number] → [press ENTER for uploading each of the selected banks]

To upload a bank from an Emulator-II floppy disk image file to the Oberheim DPX-1:
"1. Manage EMU Files and Disks" → "4. Manage EMU EMULATOR-II Files and Disks" → "2. Manage EMULATOR-II Floppy Disk Images" → [select one or more files and press ENTER] → [press 'J'] or [select "6. Send EMULATOR-II Bank to EMULATOR-II or DPX-1 via RS422" followed by "2. Send EMULATOR-II Bank to DPX-1 via RS422"]→ [optionally (*): specify COM port number] → [press ENTER for uploading each of the selected files]

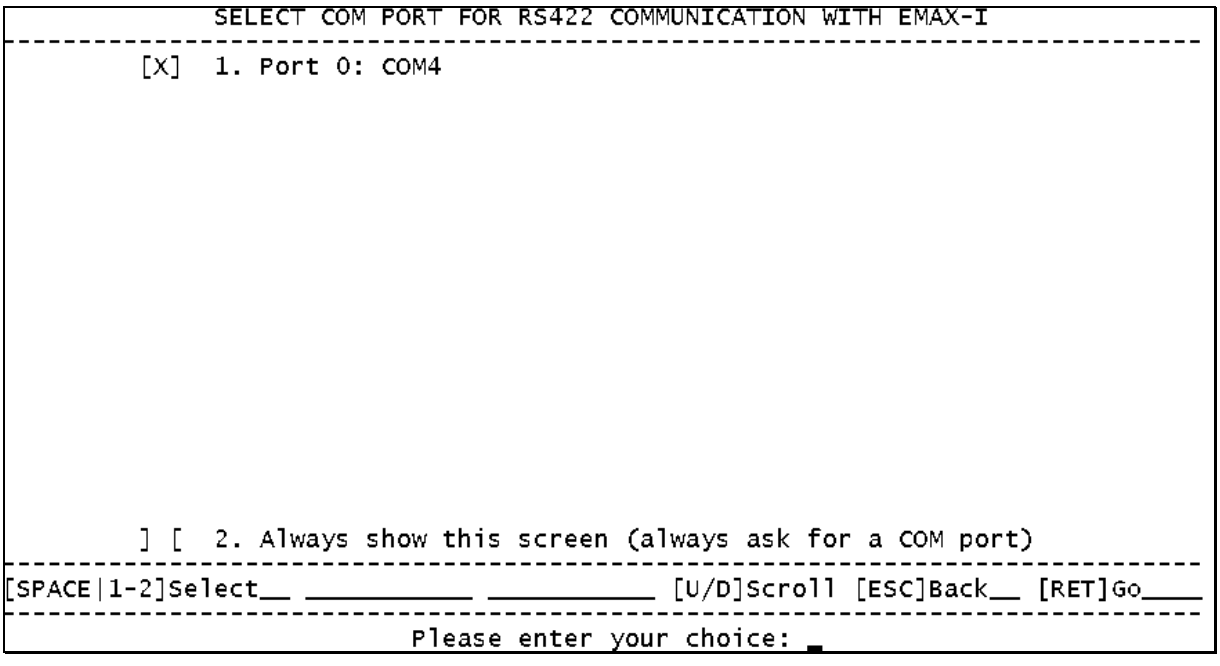
To upload a bank from an Emulator-II HxC floppy disk image file to the Oberheimd DPX-1:
"1. Manage EMU Files and Disks" → "4. Manage EMU EMULATOR-II Files and Disks" → "3. Manage EMULATOR-II HxC Floppy Disk Images" → [select one or more files and press ENTER] → [press 'J'] or [select "6. Send EMULATOR-II Bank to EMULATOR-II or DPX-1 via RS422" followed by "2. Send EMULATOR-II Bank to DPX-1 via RS422"] → [optionally (*): specify COM port number] → [press ENTER for uploading each of the selected files]

9.6.3.4 Selecting a COM port (*)

If RS422 communication with the selected sampler is used for the first time after a clean installation of EMXP, you will have to select the RS422 COM port that will be used for the selected sampler in EMXP.

Once a COM port has been selected, EMXP will never ask for a COM port for the sampler again, except if

- the default COM port can't be found anymore
- you have explicitly instructed EMXP to always ask for a COM port



By selecting the option "Always show this screen" in the screen above, EMXP will always ask for a COM port. The option number depends on the number of available COM ports, here it is option 2.
You can always change this mode - as well as the default COM port - in the Communication Preferences menu. See *section "10.6.6.3 Define if RS422 port should always be asked", section "10.6.1 Manage Emulator-II RS422 communication preferences" , section "10.6.2 Manage DPX-1 RS422 communication preferences"* and *section "10.6.3 Manage EMAX-I and EMAX-II RS422 communication preferences"*.

9.7 TRANSFERRING SOUNDS AND SEQUENCES TO/FROM SP-12 VIA MIDI

EMXP supports the transfer of sounds and sequences between a Windows computer and the SP-12. Following transfers are supported:

- Upload complete sound banks to the SP-12
- Upload individual sounds to the SP-12
- Upload complete sequence banks to the SP-12
- Upload individual segments to the SP-12
- Download complete sound banks from the SP-12
- Download complete sequence banks from the SP-12

Downloading individual sounds/segments is not available because the SP-12 does not support these transfers. The same is true for uploading/downloading individual songs.

The transfers can be done through a standard MIDI connection. Please note that MIDI communication is pretty slow, so the transfer of large sounds can take quite a while (almost 2 minutes for 5 seconds of samples).

It is advised to save your sounds and sequences on the SP-12 (on floppy disk) before using the communication transfer functions. In exceptional cases MIDI dumps may cause the SP-12 to hang or to crash.

When running EMXP under Wine on macOS, MIDI communication with the SP-12 will not work. This is (most probably) due to the Wine software which expects the transferred MIDI messages to be 100% MMA-compliant, while SP-12 MIDI message are not MMA-compliant. See also paragraph *"MIDI MMA incompatibility"* in *section "9.7.3 General remarks"*.

9.7.1 MIDI Interface

In order to be able to set up a MIDI connection between EMXP and the SP-12, any MIDI interface for Windows should work fine.

9.7.2 Configuring EMXP for MIDI communication

EMXP is configured with default MIDI communication settings which should allow for a smooth communication with the SP-12.
However, depending on the type of MIDI hardware being used, or the Windows OS, the communication link could be less reliable than assumed by EMXP. If this is the case, you may encounter errors during uploading or downloading of the data.

Moreover the SP-12 is pushing the MIDI interface to its limits, e.g. a single packet is much larger than with any other MIDI sampler/synthesizer.

Some fine tuning of the configuration parameters for MIDI may be required to make the connection more reliable in your particular setup. See *section "10.6 COMMUNICATION PREFERENCES"* for more details.

9.7.3 General remarks

SP-12 is host, EMXP is slave

As opposed to the EMAX-I, EMAX-II and Emulator-II, the serial communication is controlled by the SP-12 instead of by EMXP. Speaking in technical terms, the SP-12 is the *host* and EMXP is the *slave* of the data transfers.
In practice this means that you have to press a few buttons on the SP-12 to invoke a data transfer - EMXP can not instruct the SP-12 to start the communication, the user/musician has to do this. Once the data transfer has been invoked on the SP-12, EMXP will detect this (by *listening* to the MIDI port) and will start responding on the MIDI instructions sent by the SP-12.

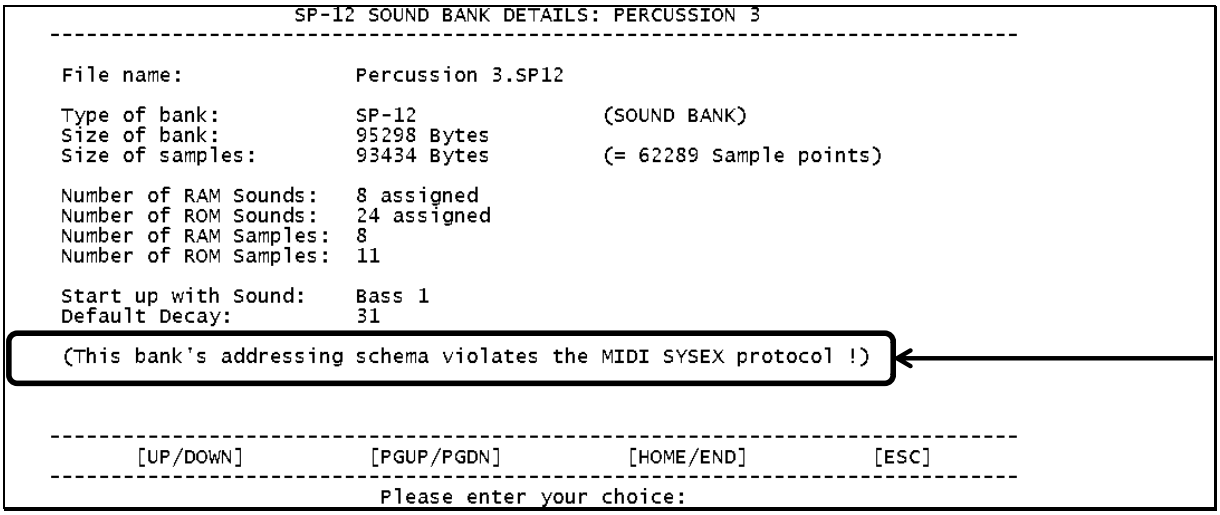
MIDI MMA incompatibility

Another particular issue with the SP-12 MIDI communication is that the MIDI protocol implemented in the Turbo SP-12 units *violates* the MIDI MMA specification which states that most significant bit of each transferred byte should not be used for normal MIDI payload data (they are reserved for SYSEX start/end instructions).
The drivers that are provided with commercial MIDI interfaces, and the standard MIDI function libraries provided with operating systems like Windows assume that all communication is compliant with the MIDI MMA standard.

In order to assure a wide compatibility with MIDI interfaces and with Windows, we have not developed a custom MIDI driver nor a set of custom MIDI communication functions which would bypass the standard Windows functions. Some special heuristic logic has been added to EMXP instead, which deals with these incompatibilities.

In general this doesn't impact the use of SP-12 MIDI functions in EMXP, but depending on the location of the sounds, segments or songs in the SP-12 sound bank files/sequence files, the possibilities for *uploading individual sounds or segments* in EMXP can be different between files which would could result in MIDI MMA violations, and files which won't result in MIDI MMA violations. See *section "9.7.6 How to upload individual SP-12 sounds and individual SP-12 segments with EMXP"*.

If an SP-12 sound bank file or sequence file can result in MIDI MMA violations, a special message is shown if you query the file's details. This is illustrated in the screen below (for an SP-12 sound bank file):



No check of available memory by EMXP

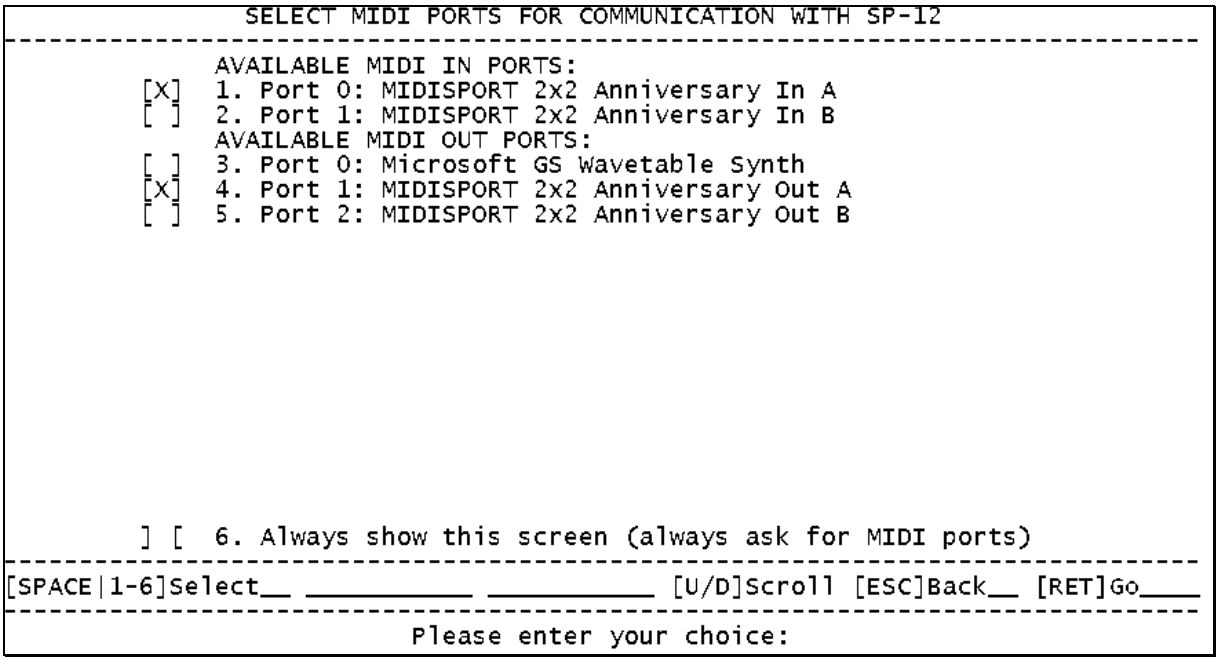
There is no MIDI SYSEX instruction available to request for the available memory in the SP-12. This means that EMXP can not know if the connected SP-12 is a Standard model or a Turbo model, and as a consequence can't give a warning if a selected (Turbo) sound bank file or sequence file would not fit in a Standard SP-12. Fortunately the SP-12 operating system itself will perform this check upon receiving the first data packets from EMXP. If the file doesn't fit, the SP-12 will abort the transfer, and an error message will appear in EMXP.

9.7.4 Selecting the MIDI ports

If MIDI communication with the SP-12 is used for the first time after a clean installation of EMXP, you will have to select the MIDI IN and MIDI OUT ports that will be used for the SP-12 in EMXP.

Once MIDI ports have been selected, EMXP will never ask for MIDI ports for the SP-12 again, except if

- the default MIDI ports can't be found anymore
- you have explicitly instructed EMXP to always ask for MIDI ports



By selecting the option "Always show this screen" in the screen above, EMXP will always ask for MIDI ports. The option number depends on the number of available MIDI ports, here it is option 6.
You can always change this mode - as well as the default MIDI ports - in the Communication Preferences menu. See *section "10.6.6.4 Define if MIDI ports should always be asked"* and *section "10.6.5 Manage SP-12 MIDI communication preferences"*.

9.7.5 How to upload and download SP-12 sound banks and SP-12 sequence banks with EMXP

9.7.5.1 Uploading sound bank files or sequence files

Make sure you have a MIDI interface connected to your computer with one IN and one OUT port connected to the SP-12.

To upload a sound bank file to the SP-12:
"1. Manage EMU Files and Disks" → "6. Manage EMU SP-12 Files" → "1. Manage SP-12 Sound Bank Files" → [select one or more SP-12 sound bank files and press ENTER] → [press 'U'] or [select "5. Send SP-12 Sound Bank File(s) to SP-12 via MIDI" *or* "5. Send SP-12 Sound Bank File (or any of its sounds) to SP-12 via MIDI"] (*) → [optionally (***): select a MIDI IN and MIDI OUT port and press ENTER] → For each selected SP-12 sound bank file → [on SP-12: activate Cassette/Disk module and press 3 and 5 followed by ENTER] → [EMXP automatically starts uploading the sound bank] (**)

To upload a sequence file to the SP-12:
"1. Manage EMU Files and Disks" → "6. Manage EMU SP-12 Files" → "2. Manage SP-12 Sequence Files" → [select one or more SP-12 sequence files and press ENTER] → [press 'U'] or [select "1. Send SP-12 Sequence File(s) to SP-12 via MIDI" *or* "1. Send SP-12 Sequence File (or any of its Segments) to SP-12 via MIDI"] (*) → [optionally (***): select a MIDI IN and MIDI OUT port and press ENTER] → For each selected SP-12 sequence file → [on SP-12: activate Cassette/Disk module and press 3 and 3 followed by ENTER] → [EMXP automatically starts uploading the sequences] (**)

Notes (*) and (**):

- When uploading sound bank files, the meaning of menu option 5 (*) depends on the number and nature of files that have been selected:
    - If exactly one sound file has been selected for upload, and its structure would not result in MIDI MMA violations when uploading any of its individual sounds, *option 5 stands for " Send SP-12*

Sound Bank File (or any of its sounds) to SP-12 via MIDI". This means that by selecting option 5 it's not only possible to upload a complete sound bank, but also any of its individual sounds (see also *section "9.7.6.2 Uploading sounds or segments without pre-selection"*).

The screen (**) that will appear when EMXP is waiting for the "Load Sounds" instruction from the SP-12 looks like this:

```
  PLEASE ACTIVATE THE "LOAD SOUNDS" OR "LOAD SOUND#" FUNCTION ON THE SP-12
------------------------------------------------------------------------------
          Ready to upload sound bank or one of its sounds from file
                                Rock Drums.SP12

          Please activate the Cassette/Disk module on the SP-12 and
           press 3, 5 and Enter to start uploading the sound bank
                                    OR
                        press 3, 6 and hit a sound pad
       followed by pressing Enter twice to start uploading the sound.

              Press ESCAPE to leave the Upload Sound(s) function.
------------------------------------------------------------------------------
 Overview of sounds in the sound bank file:   (use arrow keys to scroll)

 01.  Hard Hat              *RAM S00    315 ms      Decay:  0   Bass 1
 02.  Edge Hat              *RAM S01    377 ms      Decay:  0   Bass 2
 03.  Open Hat Srt          *RAM S02    520 ms      Decay:  0   Snare 1
 04.  Snare 2                ROM S03    268 ms      Tuned: -1   Snare 2
 05.  El Snare 1             ROM S04    413 ms      Tuned:  7   El Snare 1
 06.  El Snare 2             ROM S04    413 ms      Tuned:  0   El Snare 2
------------------------------------------------------------------------------
[UP/DOWN] Scroll by line      [PGUP/PGDN] Scroll by screen       [ESC] Leave
------------------------------------------------------------------------------
    Select "Load Sounds" or "Load Sound#" on the SP-12 or press Escape...:
```

Besides a short description of the expected user actions on the SP-12, this screen also contains a list of all sounds available in the SP-12 sound bank file. You can scroll through this list with the UP/DOWN or PAGE UP/PAGE DOWN keys. This list can be helpful if you want to upload individual sounds using the "Load Sound#" function (3-6) in the Cassette/Disk Module on the SP-12.

Once you have started the "Load Sounds" (3→5→ENTER) or "Load Sound#" (3→6→select a sound→ENTER→ENTER) function in the Cassette/Disk Module on the SP-12, EMXP will automatically "*awake"* and respond by sending the requested data to the SP-12. If EMXP does not react, you may have to change some MIDI preferences. See *section "10.6.5 Manage SP-12 MIDI communication preferences"*.

- If multiple sound files have been selected for upload, or only one file has been selected but its structure could result in MIDI MMA violations when uploading any of its individual sounds, *option 5 stands for "Send SP-12 Sound Bank File(s) to SP-12 via MIDI"*. This means that by selecting option 5 it's only possible to upload complete sound banks. For uploading individual sounds, see *section "9.7.6.1 Uploading pre-selected sounds or segments only"*.

  The screen (**) that will appear when EMXP is waiting for the "Load Sounds" instruction from the SP-12 looks more simple than the one in the previous paragraph. It basically only contains a short description of the expected user actions on the SP-12.

  Once you have started the "Load Sounds" (3→5→ENTER) function in the Cassette/Disk Module on the SP-12, EMXP will automatically "*awake"* and respond by sending the requested data to the SP-12. If EMXP does not react, you may have to change some MIDI preferences. See *section "10.6.5 Manage SP-12 MIDI communication preferences"*.

```
          PLEASE ACTIVATE THE "LOAD SOUNDS" FUNCTION ON THE SP-12
------------------------------------------------------------------------------

                    Ready to upload sound bank from file
                                Drumkit.SP12

          Please activate the Cassette/Disk module on the SP-12 and
           press 3, 5 and Enter to start uploading the sound bank.

               (It's not possible to load individual sounds !)

              Press ESCAPE to leave the Upload Sounds function.









------------------------------------------------------------------------------
                                  [ESC] Leave
------------------------------------------------------------------------------
            Select "Load Sounds" on the SP-12 or press Escape...: _
```

- When uploading sequence files, the meaning of option 1 (*) depends on the number and nature of files that have been selected:
    - If exactly one sequence file has been selected for upload, and its structure would not result in MIDI MMA violations when uploading any of its individual segments, *option 1 stands for " Send SP-12 Sequence File (or any of its Segments) to SP-12 via MIDI"*. This means that by selecting option 1 it's not only possible to upload a complete sequence file, but also any of its individual segments (see also *section "9.7.6.2 Uploading sounds or segments without pre-selection"*).

      The screen (**) that will appear when EMXP is waiting for the "Load Sequences" instruction from the SP-12 looks like this:

```
PLEASE ACTIVATE THE "LOAD SEQUENCES" OR "LOAD SEGMENT#" FUNCTION ON THE SP-12
------------------------------------------------------------------------------
       Ready to upload all sequences or one of the segments from file
                              A segment.SQ12

          Please activate the Cassette/Disk module on the SP-12 and
            press 3, 3 and Enter to start uploading the sequences
                                   OR
                press 3, 4 and select a segment number
      followed by pressing Enter twice to start uploading the segment.

     Press ESCAPE to leave the Upload Sequences/Upload Segment function.
------------------------------------------------------------------------------
 Overview of segments in the sequences file:   (use arrow keys to scroll)

 010. Segment 09            (empty)     N/A          N/A          Segment 09
 011. Segment 10            (empty)     N/A          N/A          Segment 10
 012. Segment 11            #Evt: 1350  Len: 99/99   Ts: 04/04    Segment 11
 013. Segment 12            (empty)     N/A          N/A          Segment 12
 014. Segment 13            (empty)     N/A          N/A          Segment 13
 015. Segment 14            (empty)     N/A          N/A          Segment 14
------------------------------------------------------------------------------
[UP/DOWN] Scroll by line      [PGUP/PGDN] Scroll by screen       [ESC] Leave
------------------------------------------------------------------------------
 Select "Load Sequences" or "Load Segment#" on the SP-12 or press Escape...:
```

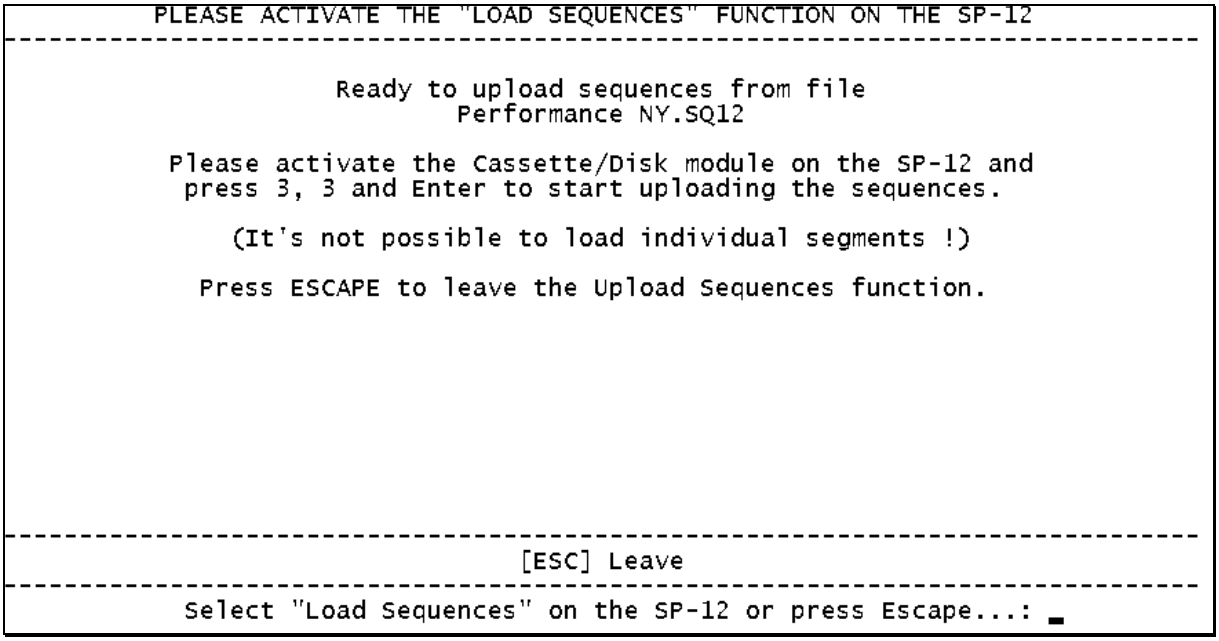
      Besides a short description of the expected user actions on the SP-12, this screen also contains a list of all segments available in the SP-12 sequence file. You can scroll through this list with the UP/DOWN or PAGE UP/PAGE DOWN keys. This list can be helpful if you want to upload individual segments using the "Load Segment#" function (3-4) in the Cassette/Disk Module on the SP-12.

Once you have started the "Load Sequences" (3→3→ENTER) or "Load Segment#" (3→4→select a segment→ENTER→ENTER) function in the Cassette/Disk Module on the SP-12, EMXP will automatically "*awake"* and respond by sending the requested data to the SP-12. If EMXP does not react, you may have to change some MIDI preferences. See *section "10.6.5 Manage SP-12 MIDI communication preferences"*.

- If multiple sequence files have been selected for upload, or only one file has been selected but its structure could result in MIDI MMA violations when uploading any of its individual segments, *option 1 stands for "Send SP-12 Sequence File(s) to SP-12 via MIDI"*. This means that by selecting option 1 it's only possible to upload complete sequence files. For uploading individual segments, see *section "9.7.6.1 Uploading pre-selected sounds or segments only"*.

  The screen (**) that will appear when EMXP is waiting for the "Load Sequences" instruction from the SP-12 looks more simple than the one in the previous paragraph. It basically only contains a short description of the expected user actions on the SP-12.

  Once you have started the "Load Sequences" (3→3→ENTER) function in the Cassette/Disk Module on the SP-12, EMXP will automatically "*awake"* and respond by sending the requested data to the SP-12. If EMXP does not react, you may have to change some MIDI preferences. See *section "10.6.5 Manage SP-12 MIDI communication preferences"*.



Note (***): see *section "9.7.4 Selecting the MIDI ports"*.

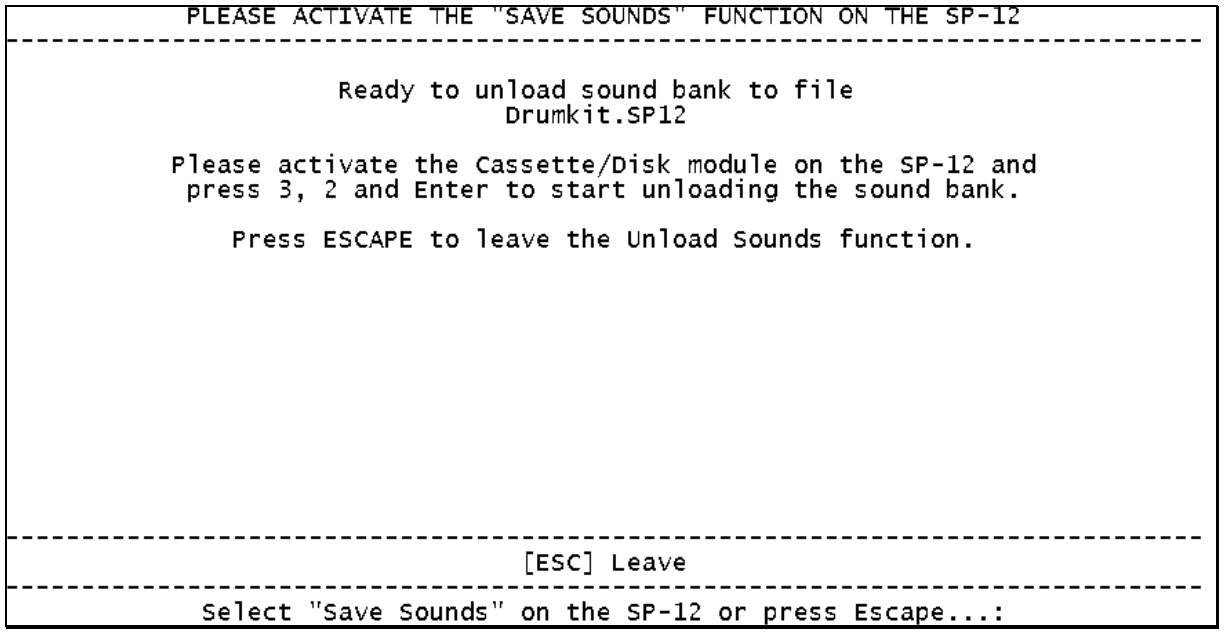
9.7.5.2 Downloading sound bank files or sequence files

Make sure you have a MIDI interface connected to your computer with one IN and one OUT port connected to the SP-12.

To download a sound bank file from the SP-12:
"1. Manage EMU Files and Disks" → "6. Manage EMU SP-12 Files" → "3. Receive Sound Banks from SP-12 via MIDI" → [optionally (***): select a MIDI IN and MIDI OUT port and press ENTER] → [specify name of sound bank file in which the downloaded sound bank must be saved and press ENTER] → [on SP-12: activate Cassette/Disk module and press 3 and 2 followed by ENTER] → [EMXP automatically starts downloading the sound bank] (*)

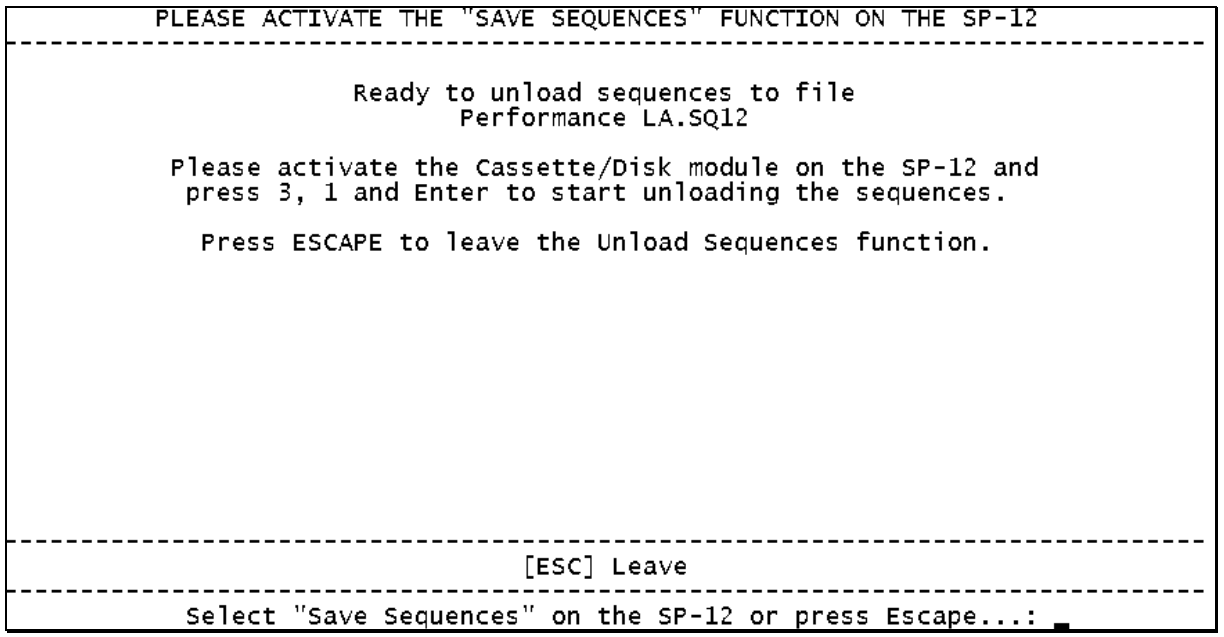
To download a sequence file from the SP-12:
"1. Manage EMU Files and Disks" → "6. Manage EMU SP-12 Files" → "4. Receive Sequences from SP-12 via MIDI" → [optionally (***): select a MIDI IN and MIDI OUT port and press ENTER] → [specify name of sequence file in which the downloaded sequences must be saved and press ENTER] → [on SP-12: activate Cassette/Disk module and press 3 and 1 followed by ENTER] → [EMXP automatically starts downloading the sequences] (**)

Notes
(*) The screen that will appear when EMXP is waiting for the "Save Sounds" instruction from the SP-12 looks like this:



Once you have started the "Save Sounds" (3→2→ENTER) function in the Cassette/Disk Module on the SP-12, EMXP will automatically "*awake"* and respond by receiving the data from the SP-12. If EMXP does not react, you may have to change some MIDI preferences. See *section "10.6.5 Manage SP-12 MIDI communication preferences"*.

(**) The screen that will appear when EMXP is waiting for the "Save Sequences" instruction from the SP-12 looks like this:



Once you have started the "Save Sequences" (3→1→ENTER) function in the Cassette/Disk Module on the SP-12, EMXP will automatically "*awake"* and respond by receiving the data from the SP-12. If EMXP does not react, you may have to change some MIDI preferences. See *section "10.6.5 Manage SP-12 MIDI communication preferences"*.

(***): See section *"9.7.4 Selecting the MIDI ports"*.

9.7.6 How to upload individual SP-12 sounds and individual SP-12 segments with EMXP

There are two ways to upload individual SP-12 sounds or segments to the SP-12, but one of them is only available under certain conditions:

- You can select one or more *specific* sounds or segments in EMXP and instruct the SP-12 to "load" them into the sound or segment number which corresponds the sound or segment number of the selected sound or segment in EMXP. *This upload mode is always available.*
- You can select a complete bank or sequence file in EMXP and make it available for "loads" by the SP-12. You don't have to pre-select specific sounds or segments in EMXP. In this mode, EMXP behaves as a "disk drive" for the SP-12, and you can invoke any "load" instruction from the SP-12 (load sounds, load sound#, load sequences, load sequence#). *This upload mode is only available if uploading individual sounds or segments can never result in MIDI MMA SYSEX violations.*

9.7.6.1 Uploading pre-selected sounds or segments only

This mode is always available in the EMXP menu after selecting an SP-12 sound bank file or SP-12 sequence file.

Make sure you have a MIDI interface connected to your computer with one IN and one OUT port connected to the SP-12.

Uploading sounds

To upload one or more sounds to the SP-12:

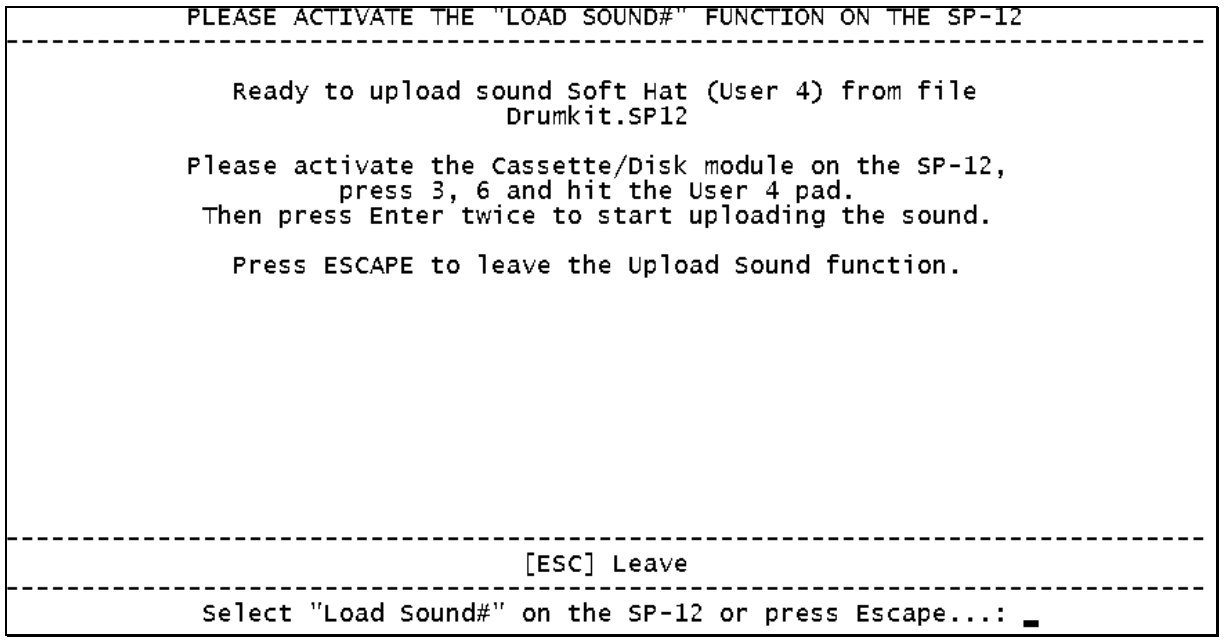
Possibility 1:
"1. Manage EMU Files and Disks" → "6. Manage EMU SP-12 Files" → "1. Manage SP-12 Sound Bank Files" → [select a single SP-12 sound bank file and press ENTER] → [press 'J'] or [select "7. Send Individual Sounds from SP-12 Sound Bank File to SP-12 via MIDI"] → (**) [select a sound and press ENTER] → (optionally (*) and if not done for a previous upload yet:) [select a MIDI IN and MIDI OUT port and press ENTER] → [on SP-12: activate Cassette/Disk module and press 3 and 6 followed by pressing the Sound Pad corresponding to the selected sound, followed by ENTER twice] → [EMXP automatically starts uploading the sound] → [select another sound or leave, see step (**)]

Possibility 2:
"1. Manage EMU Files and Disks" → "6. Manage EMU SP-12 Files" → "1. Manage SP-12 Sound Bank Files" → [select a single SP-12 sound bank file and press ENTER] → "8. Show Details" → [press 'V'] or [select "1. Show All Sounds"] *or* [press 'K'] or [select "2. Show RAM Sounds only"] → [select one or more RAM sounds] → [press 'U'] or [select "1. Send Sound(s) to SP-12 via MIDI"] → [optionally (*): select a MIDI IN and MIDI OUT port and press ENTER] → *for each selected sound* →[on SP-12: activate Cassette/Disk module and press 3 and 6 followed by pressing the Sound Pad corresponding to the selected sound, followed by ENTER twice] → [EMXP automatically starts uploading the sound]

Note (*): see section *"9.7.4 Selecting the MIDI ports"*.

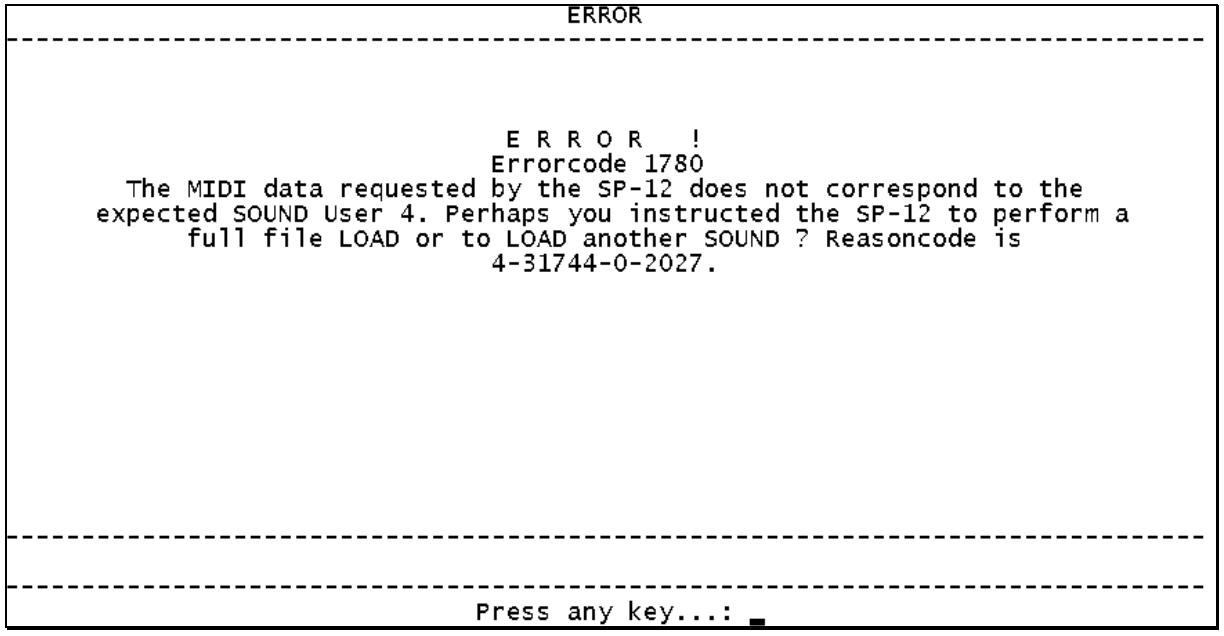
When using possibility 2, you can select both ROM sounds and RAM sounds, and the RAM sounds can be empty or not. However when processing the selected sounds one by one, EMXP will ignore the ROM sounds and the empty RAM sounds (a warning message will be displayed for each of these sounds).

The screen which is displayed when waiting for the "load" instruction from the SP-12 looks like this:



Once you have started the "Load Sound#" (3→6→select sound #→ENTER→ENTER) function in the Cassette/Disk Module on the SP-12, EMXP will automatically "*awake"* and respond by sending the requested data to the SP-12. If EMXP does not react, you may have to change some MIDI preferences. See *section "10.6.5 Manage SP-12 MIDI communication preferences"*.

If the sound selected on the SP-12 does not correspond with the selected sound in EMXP, the upload may fail. Most of the time EMXP is able to detect that the sounds don't match, based on either the sound size, the sound start address or both. If a mismatch is detected, the upload process will be interrupted and EMXP will display an error (see picture below). Note however that the selected sound on the SP-12 will have been erased !



Uploading segments

To upload one or more segments to the SP-12:

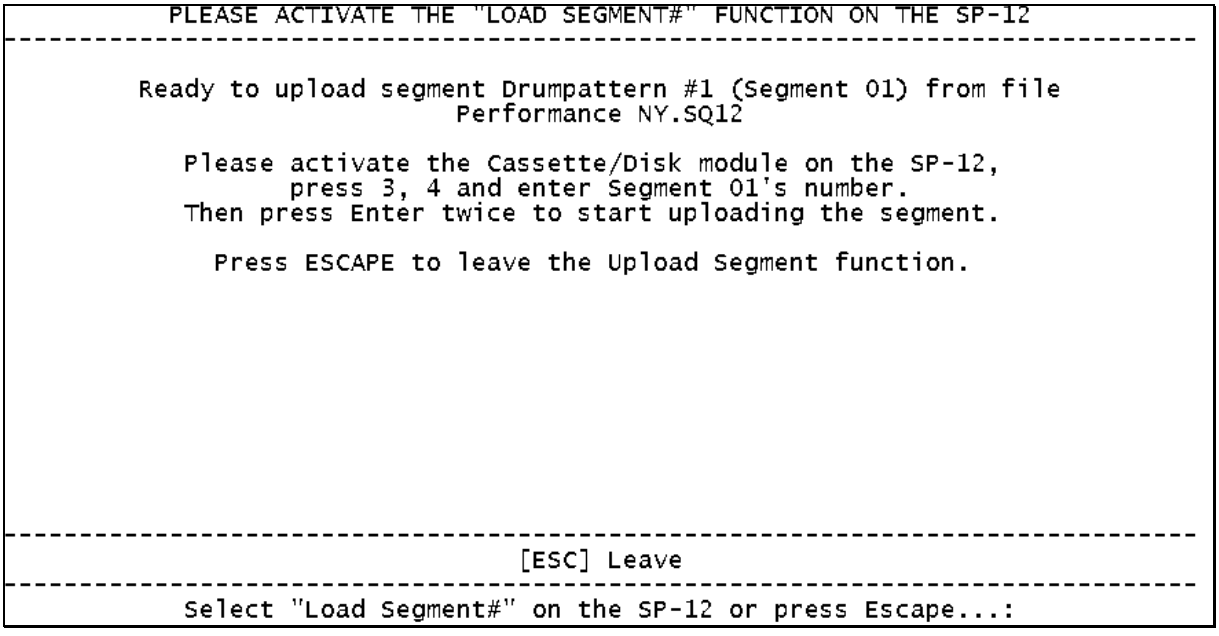
Possibility 1:
"1. Manage EMU Files and Disks" → "6. Manage EMU SP-12 Files" → "2. Manage SP-12 Sequence Files" → [select a single SP-12 sequence file and press ENTER] → [press 'U'] or [select "3. Send Individual Segments from SP-12 Sequence File to SP-12 via MIDI"] → (**) [select a segment and press ENTER] → (optionally (*) and if not done for a previous upload yet:) [select a MIDI IN and MIDI OUT port and press ENTER] → [on SP-12: activate Cassette/Disk module and press 3 and 4 followed by pressing the Segment number corresponding to the selected segment, followed by ENTER twice] → [EMXP automatically starts uploading the segment] → [select another segment or leave, see step (**)]

Possibility 2:
"1. Manage EMU Files and Disks" → "6. Manage EMU SP-12 Files" → "2. Manage SP-12 Sequence Files" → [select a single SP-12 sequence file and press ENTER] → [press 'G'] or [select "4. Show All Segments"] *or* [press 'Q'] or [select "5. Show Defined Segments only"] → [select one or more segments] → [press 'T'] or select "1. Send Segment(s) to SP-12 via MIDI" → [optionally (*): select a MIDI IN and MIDI OUT port and press ENTER] → *for each selected segment* → [on SP-12: activate Cassette/Disk module and press 3 and 4 followed by typing the Segment number corresponding to the selected segment, followed by ENTER twice] → [EMXP automatically starts uploading the segment]

Note (*): see section *"9.7.4 Selecting the MIDI ports"*.

When using possibility 2, you can select both empty (undefined) and defined segments. However when processing the selected segments one by one, EMXP will ignore the undefined segments (a warning message will be displayed for each of these segments).

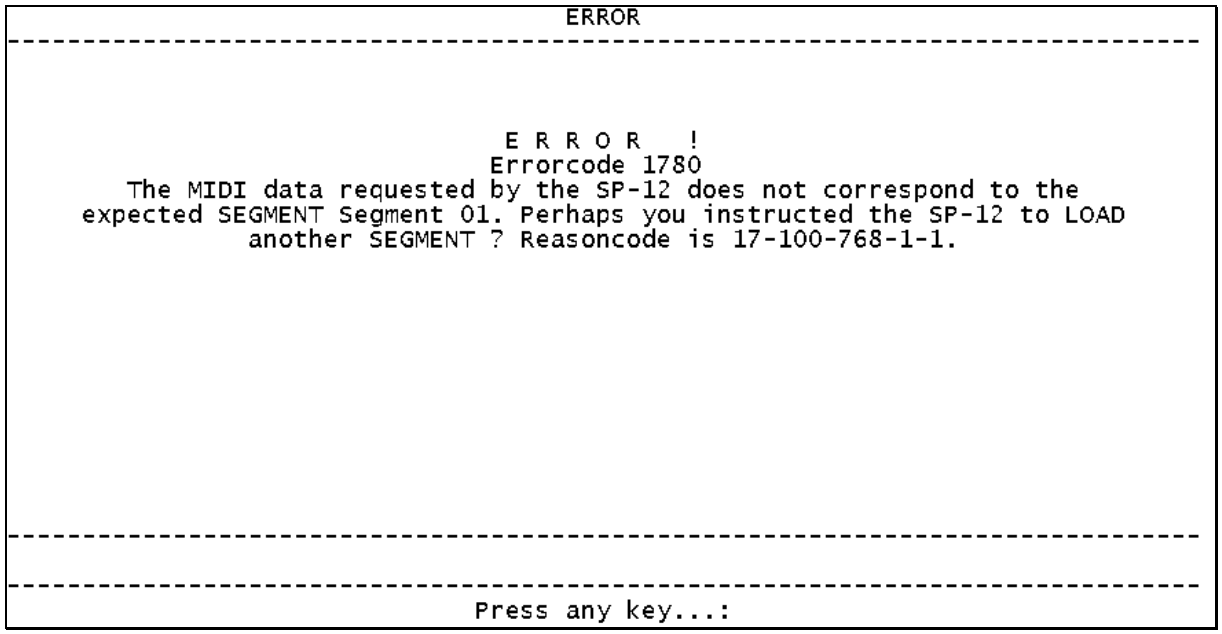
The screen which is displayed when waiting for the "load" instruction from the SP-12 looks like this:



Once you have started the "Load Segment#" (3→4→select segment #→ENTER→ENTER) function in the Cassette/Disk Module on the SP-12, EMXP will automatically "*awake"* and respond by sending the requested data to the SP-12. If EMXP does not react, you may have to change some MIDI preferences. See *section "10.6.5 Manage SP-12 MIDI communication preferences"*.

If the segment selected on the SP-12 does not correspond with the selected segment in EMXP, the upload may fail. Most of the time EMXP is able to detect that the segments don't match, based on either the segment size, the

segment start address or both. If a mismatch is detected, the upload process will be interrupted and EMXP will display an error (see picture below). Note however that the selected segment on the SP-12 will have been erased!



9.7.6.2 Uploading sounds or segments without pre-selection

This mode is only available in the EMXP menu after selecting an SP-12 sound bank file or SP-12 sequence file *if uploading individual sounds or segments can never result in MIDI MMA SYSEX violations.*
See paragraph "MIDI MMA incompatibility" in *section "9.7.3 General remarks"* for more information.

Make sure you have a MIDI interface connected to your computer with one IN and one OUT port connected to the SP-12.

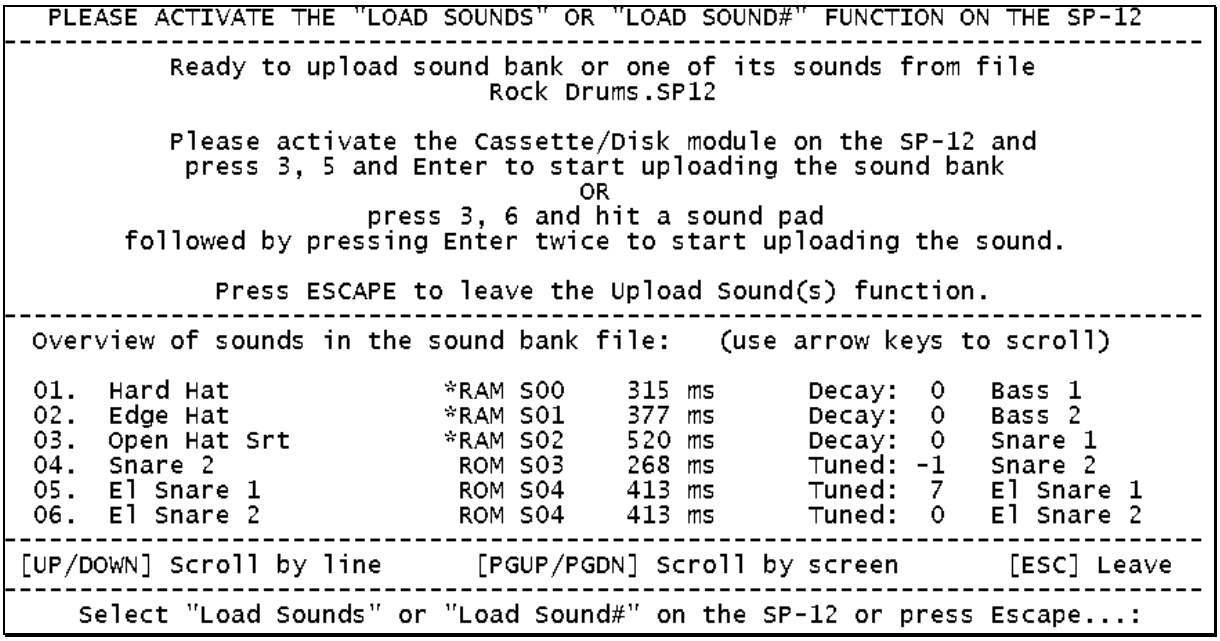
Uploading sounds

To upload sounds to the SP-12:
"1. Manage EMU Files and Disks" → "6. Manage EMU SP-12 Files" → "1. Manage SP-12 Sound Bank Files" → [select a single sound bank file which won't violate the MIDI MMA protocol] → [press 'U'] or [select "5. Send SP-12 Sound Bank File (or any of its sounds) to SP-12 via MIDI"] → [optionally (*): select a MIDI IN and MIDI OUT port and press ENTER] → *for each sound that you want to upload* → [on SP-12: activate Cassette/Disk module and press 3 and 6, followed by any sound pad, followed by ENTER twice] → [EMXP automatically starts uploading the sound]

Note (*): see section *"9.7.4 Selecting the MIDI ports"*.

The screen which is displayed when waiting for the "load" instruction from the SP-12 looks like the picture below.

Besides a short description of the expected user actions on the SP-12, this screen also contains a list of all sounds available in the SP-12 sound bank file. You can scroll through this list with the UP/DOWN or PAGE UP/PAGE DOWN keys. This list can be helpful as a reminder of which sounds are available on which sound location in the selected SP-12 sound bank file.



Once you have started the "Load Sound#" (3→6→select a sound→ENTER→ENTER) function in the Cassette/Disk Module on the SP-12, EMXP will automatically "*awake"* and respond by sending the requested data to the SP-12. If EMXP does not react, you may have to change some MIDI preferences. See *section "10.6.5 Manage SP-12 MIDI communication preferences"*.

If the target sound selected on the SP-12 corresponds to a ROM sound in the SP-12 sound bank file, the upload will fail and the SP-12 will display a "Non-existant" error on its display.

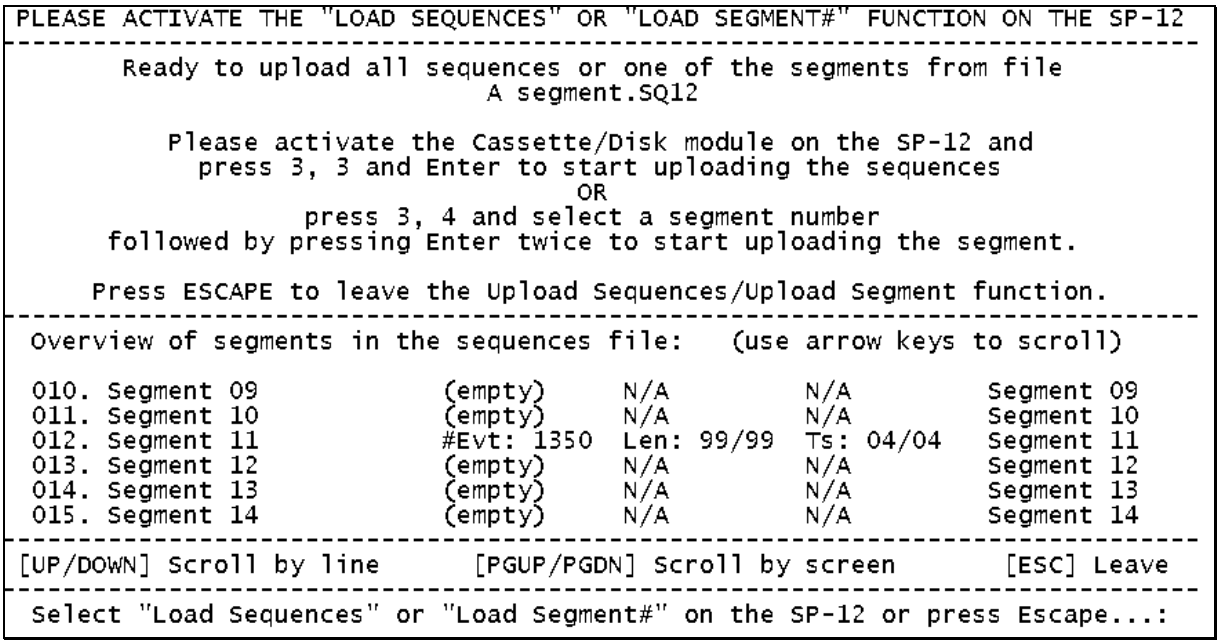
Uploading segments

To upload segments to the SP-12:
"1. Manage EMU Files and Disks" → "6. Manage EMU SP-12 Files" → "2. Manage SP-12 Sequence Files" → [select a single sequence file which won't violate the MIDI MMA protocol] → [press 'U'] or [select "1. Send SP-12 Sequence File (or any of its segments) to SP-12 via MIDI"] → [optionally (*): select a MIDI IN and MIDI OUT port and press ENTER] → *for each segment that you want to upload* → [on SP-12: activate Cassette/Disk module and press 3 and 4, followed by any segment number, followed by ENTER twice] → [EMXP automatically starts uploading the segment]

Note (*): see section *"9.7.4 Selecting the MIDI ports"*.

The screen which is displayed when waiting for the "load" instruction from the SP-12 looks like the picture below.

Besides a short description of the expected user actions on the SP-12, this screen also contains a list of all segments available in the SP-12 sequence file. You can scroll through this list with the UP/DOWN or PAGE UP/PAGE DOWN keys. This list can be helpful as a reminder of which segments are available in the selected SP-12 sequence file.



Once you have started the "Load Segment#" (3→4→select a segment→ENTER→ENTER) function in the Cassette/Disk Module on the SP-12, EMXP will automatically "*awake"* and respond by sending the requested data to the SP-12. If EMXP does not react, you may have to change some MIDI preferences. See *section "10.6.5 Manage SP-12 MIDI communication preferences"*.

If the target segment number selected on the SP-12 corresponds to an undefined segment in the SP-12 sequence file, the upload will fail and the SP-12 will display a "Non-existant" error on its display.

9.8 TRANSFERRING WAV FILES TO/FROM EMAX VIA RS422 OR MIDI

EMXP supports real time transfer of individual samples between a Windows computer and the EMAX-I or EMAX-II.

The sample transfer can be done either through a high speed RS422 serial communication connection, or through a low speed MIDI connection. For transferring large samples, the RS422 solution is recommended because MIDI is rather slow. As a general rule an RS422 sample transfer is about 10 times faster than a MIDI sample transfer.

If you are using en EMAX-I sampler, make sure it runs one of the SE operating systems or higher (SE, SE HD, Plus).

Always save your sound banks on the sampler before using the communication transfer functions. In exceptional cases sample dumps via RS422 or MIDI may cause the sampler to hang or to crash.

9.8.1 RS422 Hardware Adapter and MIDI Interface

In order to be able to set up high speed serial communications between EMXP and the EMAX-I or EMAX-II, a special RS422 port device or adapter is required on the computer. See *section "9.6.1 RS422 Hardware Adapter"* for more details.

In order to be able to set up a MIDI connection between EMXP and the EMAX-I or EMAX-II, any MIDI interface for Windows should work fine.

Note however that especially the EMAX-II seems not to have the most reliable RS422 and MIDI interface. Some fine tuning of the configuration parameters for RS422 and MIDI may be required to make the connection more reliable in your particular setup. See *section "10.6 COMMUNICATION PREFERENCES"* for more details. This problem is not unique to the combination of an EMAX-II and EMXP or Windows: also the older Mac based solutions suffer from the same instabilities when communicating with the EMAX-II.

If EMXP doesn't detect any MIDI port on your Windows system, you may have to restart EMXP; sometimes the list of available MIDI ports is not up-to-date when you have unplugged/plugged a MIDI interface to your computer while EMXP was running.

9.8.2 Configuring EMXP for RS422 and MIDI communication

The stability and speed of the RS422 (and MIDI) communication with the EMAX-I and EMAX-II is determined by a set of communication parameters. These parameters can be changed in the Preferences menu (see *section "10.6 COMMUNICATION PREFERENCES*"). The out-of-the-box values of these parameters may not be the best for your specific set-up. The values that should be used depend on the speed of the computer and on the reliability of the USB ports. The most important ones are the "Delay time ..." settings.

Don't worry or get angry if the communication (always) fails when using EMXP with the initial (factory) communication preference settings !

Just go to the Communication Preferences (option 6.5 in the Main Menu) and change the values of the "Delay time ..." settings:

- Decrease these values if you have an old or slow computer, or if you want to increase the speed of the data transfer. The communication will be faster but could be less reliable.
- Increase these values if you have a fast modern computer. The communication will slow down but could be more reliable.

When using RS422:
If the communication fails and additional attempts result in EMXP errors saying that **no data could be written to the RS422 port due to reason code 31**, you will have to unplug the RS422 port and plug it in again. Then retry sending or receiving the data in EMXP.

If the EMAX-I or EMAX-II was still in a "sending or receiving data over RS422" wait mode, it will be interrupted by the next data transfer attempt saying a bad packet has been received. Don't worry. A next data transfer attempt will probably be accepted again by the EMAX-I or EMAX-II.

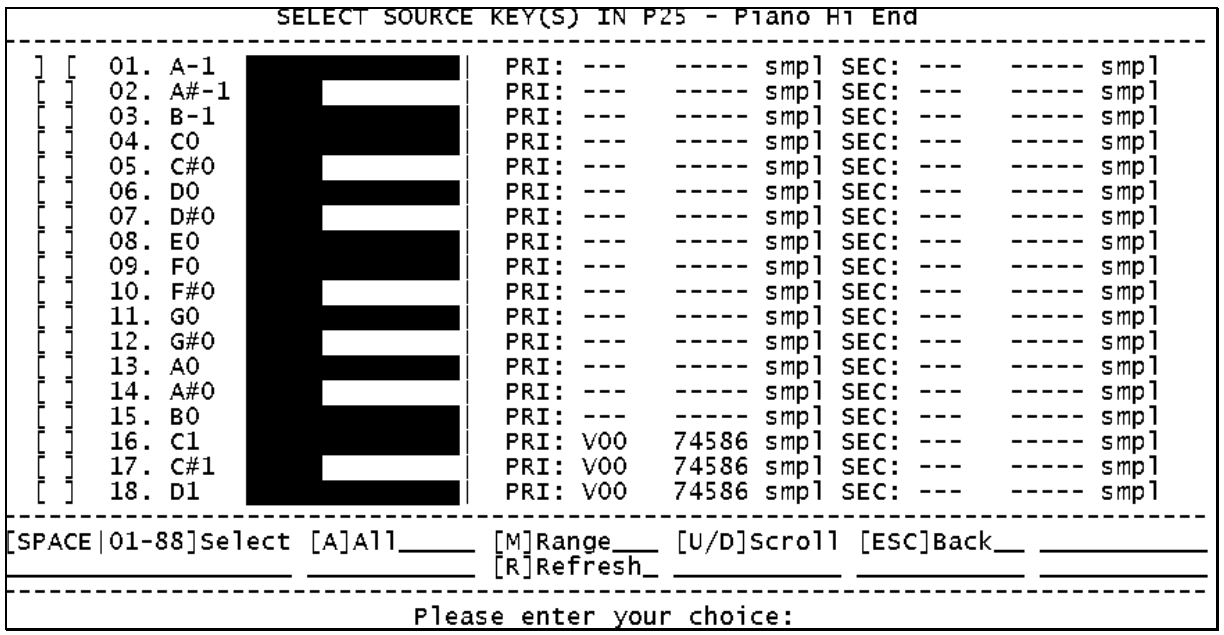
9.8.3 General characteristics

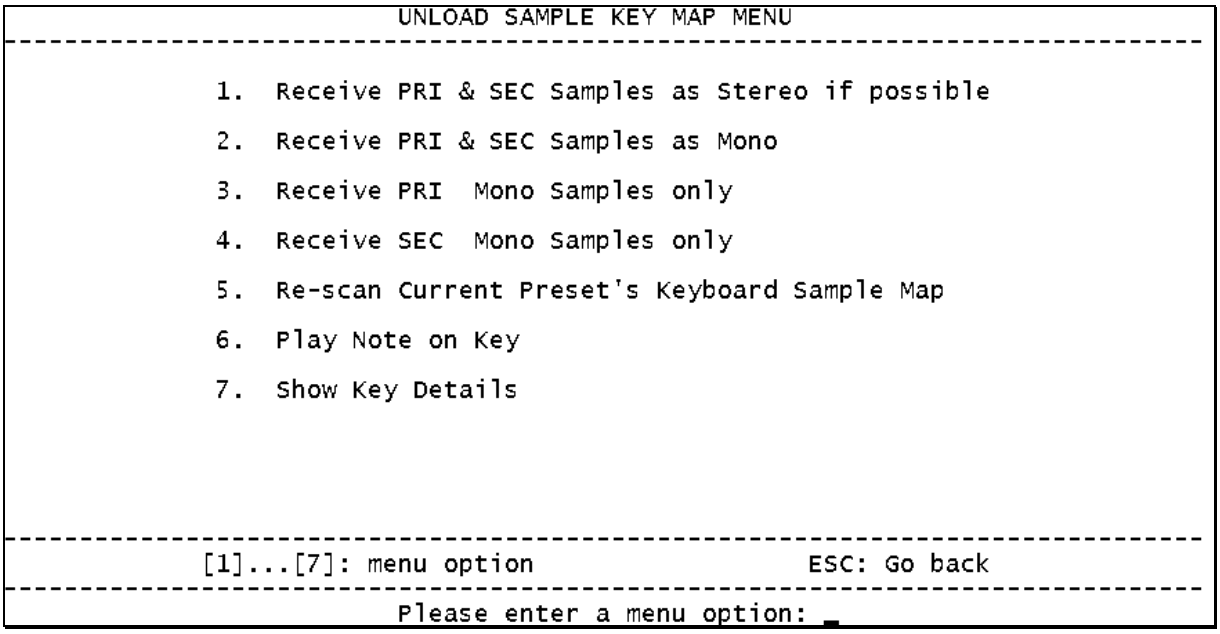
The source files for uploading samples from the computer to the EMAX-I or EMAX-II should be **16-bit WAV files**, either mono or stereo.
The target files created by downloading samples from the EMAX-I or EMAX-II to the computer are 16-bit WAV files as well, either mono or stereo.

The data transferred by EMXP are the **actual sound data** (samples) including some basic characteristics: the sample length and the sample rate. Optionally loop **settings can be transferred** as well, so you can define a starting and end loop point in the WAV file upfront with your favourite sound editor and transfer this loop along with the WAV sound data to the EMAX-I and EMAX-II. When *replacing* samples on the EMAX-I or EMAX-II, you have also the possibility to preserve the previous loop settings on the EMAX-I or EMAX-II. See next section.

Uploading and downloading samples is always done to and from the **current preset** on the EMAX-I and EMAX-II. So make sure that you have selected the appropriate preset on the EMAX-I or EMAX-II before transferring samples. An initialized empty preset is sufficient (sometimes called NULL PRESET or UNTITLED). An empty bank however (EMAX-I) will not allow sample transfers.

The sample transfer function of EMXP lets you define to or from which **key** in the current preset the sample should be transferred. In addition you have the possibility to select either the **primary or secondary voice**, or both.
At any time you can ask EMXP to **re-scan the current preset** and display the key map of the current preset again (by pressing 'R' in the key overview screen or by selecting option 5 in the menu, see second picture below). This can be useful if you want to change the current preset on the EMAX-I/EMAX-II sampler and use this changed preset in EMXP for unloading samples.



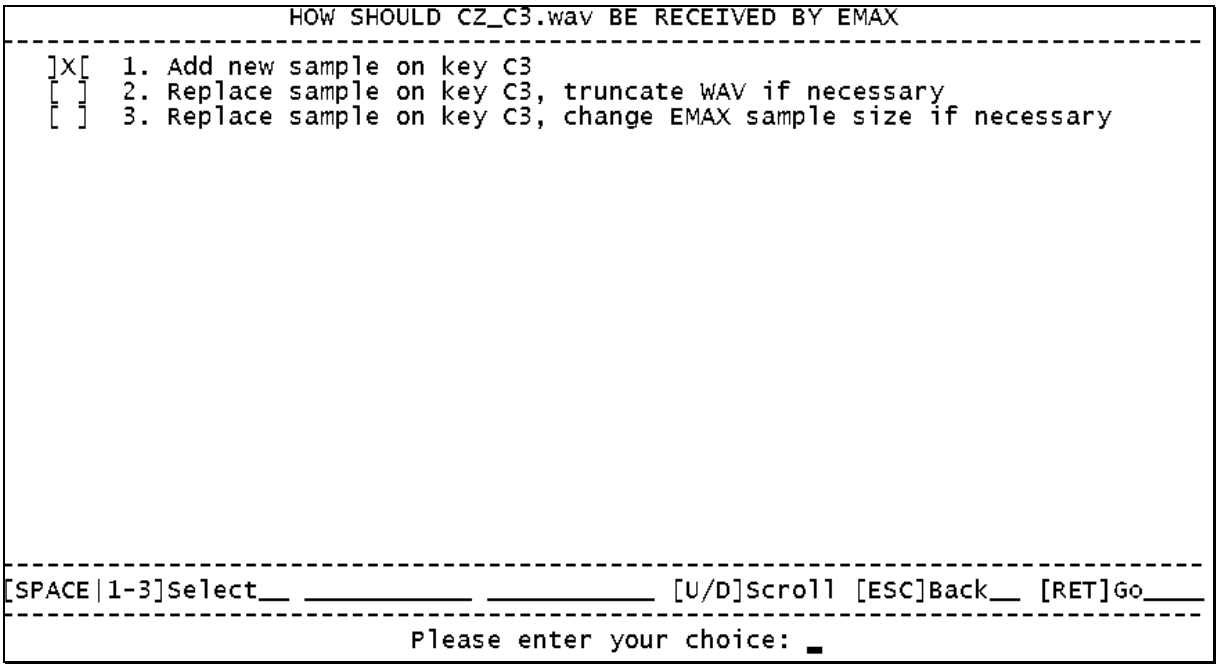


When transferring samples, you can always select the key and voices that you want to use

Supported sample upload modes

Uploading WAV files to the EMAX-I or EMAX-II (referred to as EMAX in the text below) can be done in three ways:

- *Mode 1 : Adding samples*. In this mode, an additional sample is created in the current preset.
    - All existing samples in the current preset are preserved, *unless the selected key in the current preset is the only key in the whole bank which uses the existing original sample: in that case the original sample will be replaced by the EMAX (*)*
    - This mode is only possible if the EMAX has sufficient free memory available to receive the additional sample. If the new sample would actually replace the existing one (see (*) before) the EMAX does *not* take into account the fact that the memory taken by the current sample will be re-used. So the EMAX (and EMXP) may still refuse the sample transfer.
    - A new voice is created in the current preset and default parameters are set (e.g. for filter). If you specifically requested *not* to convert WAV loops, the EMAX sample's loops will be turned off, and the loop points will be initialized to the first and last sample points of the new sample. The original key is set to the same value as the key the sample has been uploaded to.
    - This mode is supported through RS422 and MIDI.



The three upload modes when using RS422

- *Mode 2: Replacing samples with truncation*. In this mode, the sample on the selected key will be replaced.

    - If the new sample exceeds the length of the original existing sample, the new sample will be truncated to the length of the original sample. This means that no additional free memory is required in the EMAX.
    - If the new sample is shorter than the original sample, the remaining memory on the EMAX is freed up.
    - If the selected key is part of a voice which spans multiple keys, all keys linked to that voice will receive the new sample.
    - The current voice and its parameters are being fully reused. E.g. filter settings are still valid.
    - When no transfer of the WAV loop has been requested, the loop settings of the original sample are preserved, unless the new sample is shorter than the original one: in that case the loop points are set to the first and last sample point of the new sample.
      When a transfer of the WAV loop has been requested but the size of the WAV loop exceeds the size of the truncated sample, the WAV loop will not be transferred and the new sample's loop will be disabled. The same is true if the WAV file does not contain any loop.
    - The original key from the original sample is preserved.
    - Be aware that this sample transfer mode is *destructive*. You will lose the previous sample on the EMAX.
    - This mode is only supported through RS422.

- *Mode 3: Replacing samples with sample length adoption*. In this mode the sample on the selected key will be replaced. This mode is similar to Mode 2, but the new sample will not be truncated.

    - If the new sample exceeds the length of the original existing sample, additional EMAX sample memory will be assigned to the key's voice to make sure that the new sample will fit. This means that additional free memory is required in the EMAX. If there's not enough free memory in the EMAX, EMXP will not allow the sample transfer.
    - If the new sample is shorter than the original sample, the remaining memory on the EMAX is freed up, just like in Mode 2.
    - If the selected key is part of a voice which spans multiple keys, all keys linked to that voice will receive the new sample.
    - The current voice and its parameters are being fully reused. E.g. filter settings are still valid.

- When no transfer of the WAV loop has been requested, the loop settings of the original sample are preserved, unless the new sample is shorter than the original one: in that case the loop points are set to the first and last sample point of the new sample.
- The original key from the original sample is preserved.
- Be aware that this sample transfer mode is *destructive*. You will lose the previous sample on the EMAX.
- This mode is only supported through RS422.

Sample size

The sample sizes supported by EMXP for transfer over RS422 or MIDI are different depending on the sampler type:

- *EMAX-I* : EMXP supports the maximum sample size of the EMAX-I (512Kb) for both unloading and uploading WAV files. As a result, the maximum 16-bit WAV audio size (of one channel) that can be exchanged with the EMAX-I is 1MB.
- *EMAX-II*: Due to technical limitations of the EMAX-II communication protocols, it is not possible to upload samples larger than 2M of sample points (4MB WAV files). This limit is not applicable for sample downloads. So the maximal sample sizes are as follows:
  - For *uploading* samples: 2M sample points (= 2 097 152 sample points, = 4 194 304 bytes). EMXP will propose lower sample rates however as a possible way to "shrink" the WAV file and make it fit.
  - For *unloading* samples: 4M sample points (= 4 194 304 sample points, = 8 388 608 bytes). However EMXP will only unload such large samples if the "support for >2M samples" configuration parameter for RS422 or MIDI has been set. See *section "10.6 COMMUNICATION PREFERENCES"* for more details.
    - If a sample is larger than 2M *while the parameter is NOT set*, EMXP will stop unloading the sample after receiving [sample size *minus* 2M] sample points. The EMAX-II will continue sending data though. This can be stopped by going into the "Receive samples" menu in EMXP: by doing this the EMAX-II will receive new, unexpected instructions and as a result it will interrupt its sample transfer process.
    - If a sample is larger than 2M *while the parameter is set*, EMXP will inform you during the sample unload process that it detected a >2M sample and will continue receiving the 2M of sample points.

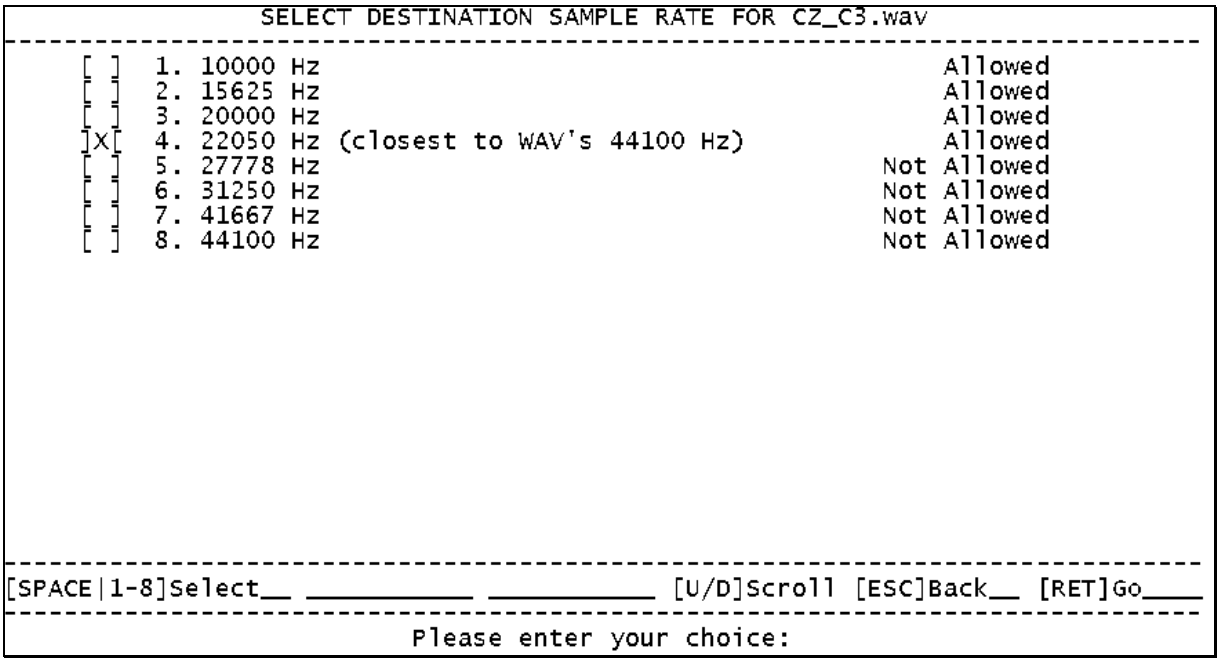
  Note: the actual allowed maximum WAV sound data size will be a little bit smaller than the aforementioned limits, because some offset sample points must be taken into account also.

Sample rate conversion

The EMAX-I and EMAX-II support only a limited number of sample rates. EMXP will always perform a sample rate conversion to a sample rate which is supported by the EMAX-I or EMAX-II. The user is given the possibility to choose which of the supported sample rates should be used.

Thanks to this feature, it is also possible to upload samples which otherwise wouldn't fit into the EMAX available memory: by decreasing the sample rate, the sample becomes smaller and as a result may fit into the available memory.

EMXP will show the maximum sample rate at which the sample will still fit in the EMAX available memory: this is done by indicating a *"not allowed"* warning for the sample rates that are too high.



Notes:

- When transferring samples over MIDI, the MMA/SYSEX protocol in fact allows *any* sample rate to be used, but once the sample is received by the EMAX-I/EMAX-II, the EMAX-I/EMAX-II would *round off* (*not convert !)* the sample rate to the closest supported value. Since this may result in a wrong pitch, EMXP will also do a sample rate conversion when transferring samples over MIDI.
- EMXP is using a simple linear sample rate converter. If you want higher-quality sample rate conversions, you should prepare your WAV files first with your favourite audio editor before using them in EMXP.

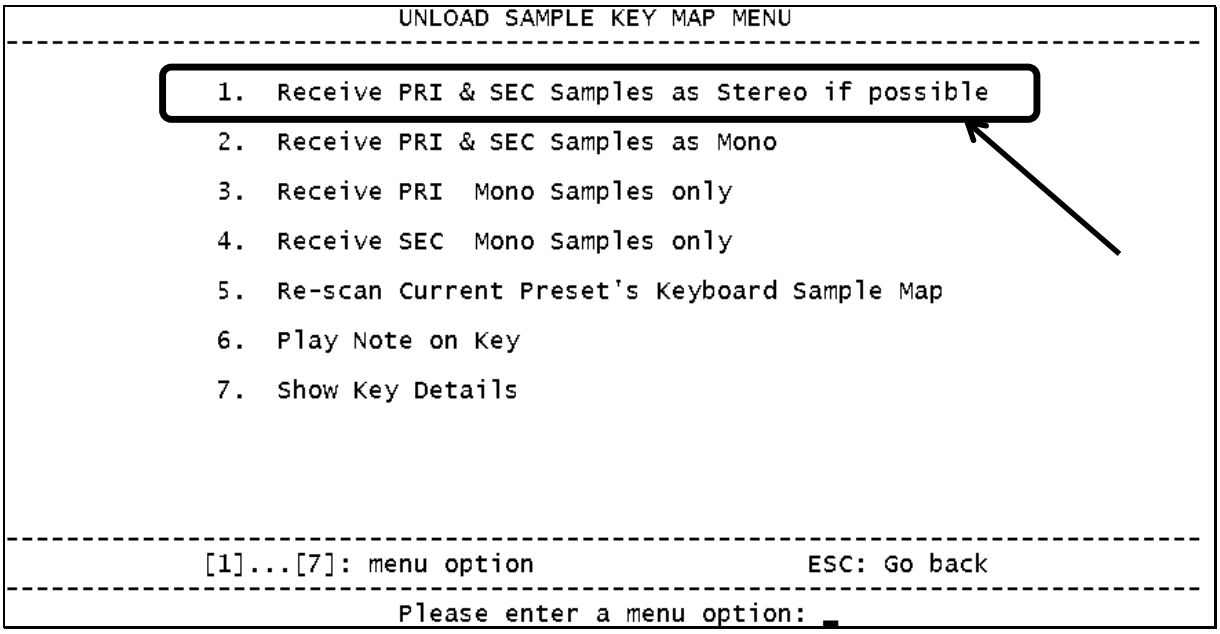
Stereo samples

EMXP supports the exchange of stereo samples with both the EMAX-I and the EMAX-II:

- When *downloading samples* from the EMAX-I/EMAX-II to the computer, EMXP will detect whether the sample is part of a stereo voice or not.
    - If EMXP considers the sample to be part of a stereo sample, **and** if you have asked EMXP to transfer the sample as a stereo sample if possible (see picture below), EMXP will download both the PRImary and SECondary sample from the EMAX-I/EMAX-II and save it into a stereo WAV file.
    - EMXP considers the sample to be part of a stereo sample if:
        - Both the PRI and SEC voice on the selected key are used on the EMAX-I/EMAX-II (no empty voice)

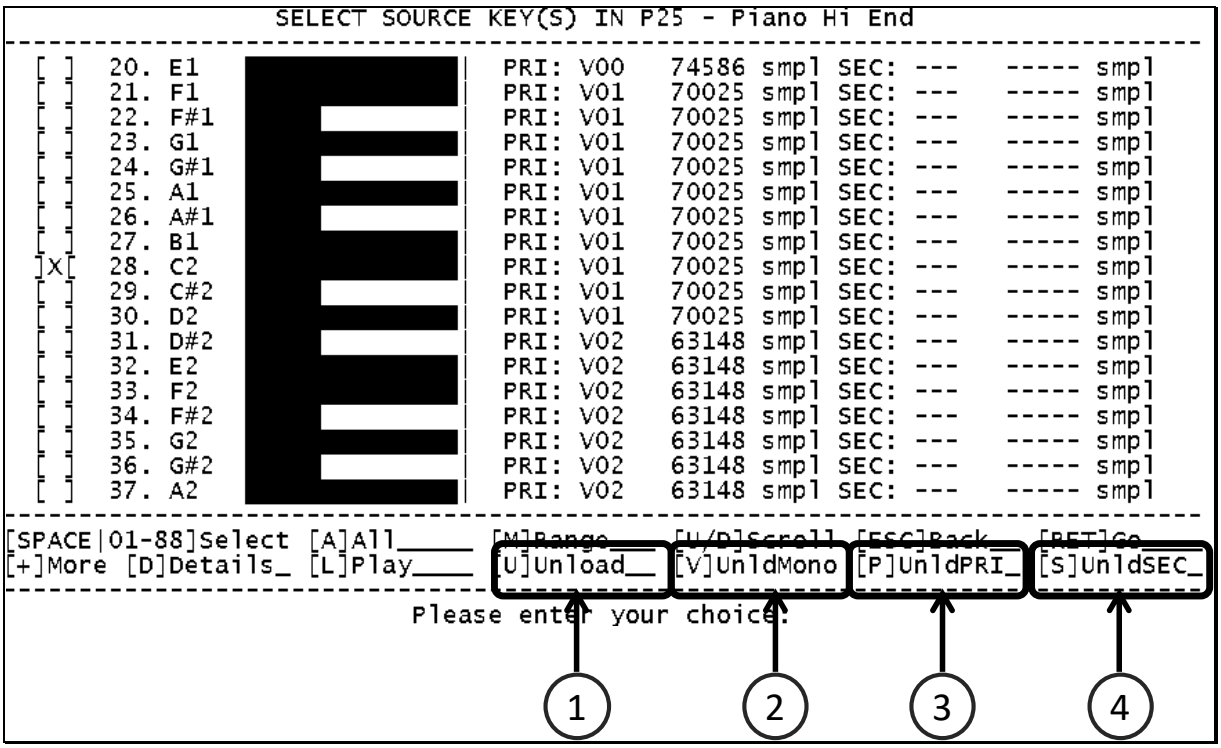
      AND
        - (EMAX-II only:) The Stereo Voice parameter is set to ON

          OR
        - (EMAX-I or EMAX-II:) The PRI and SEC samples have the same length, the same sample rate and the same original key, and they have opposite panning settings, i.e. one voice's pan is set to value -7 and the other voice's panning is set to +7.

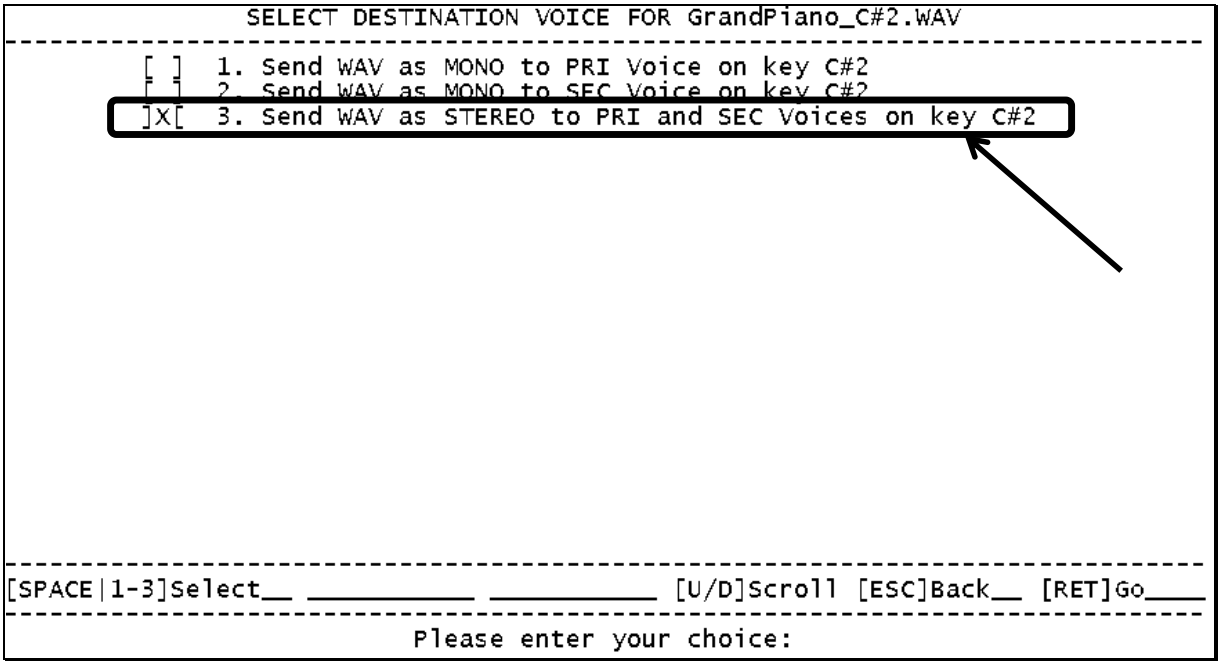


Select option '1. Receive PRI & SEC Samples as Stereo if possible' if you want to create stereo WAV files

The four download options 1 → 4 in the menu screen are also accessible directly from the sampler's key overview screen by means of four shortcut keys (see picture below).

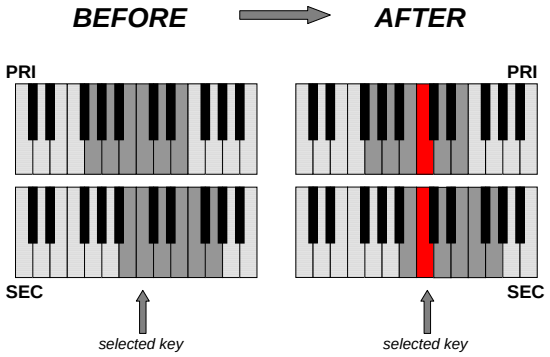


- When *uploading stereo WAV files* to the EMAX-I/EMAX-II, EMXP will create a stereo sample in the EMAX-I/EMAX-II **only if** you have asked EMXP to do so (see picture below). A stereo sample is created as follows:

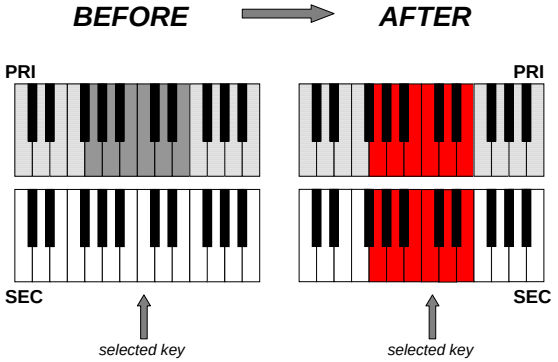


Select option '3. Send WAV as STEREO to PRI and SEC Voices' if you want to create a stereo sample

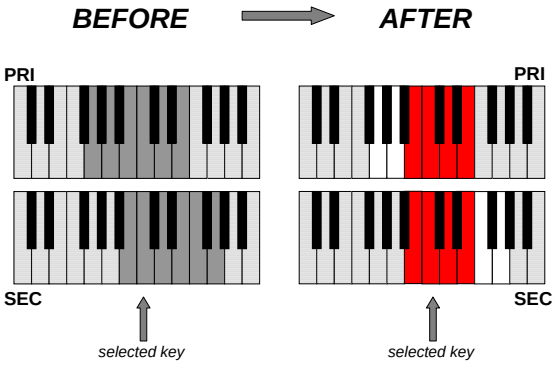
- The right channel of the WAV file is assigned to the PRImary voice of the selected key
- The left channel of the WAV file is assigned to the SECondary voice of the selected key
- The original key, output channels, sample length, sample rate and sample loop settings are set identical for both voices:
  - If the new sample is *added* to the selected key (Mode 1), the values for these parameters are the defaults: original key = selected key, output channels 0→7 (EMAX-I) or Main Outs (EMAX-II), sample length and sample rate are defined by WAV, as well as the loop settings unless no transfer of the WAV loops is requested. In that case the loops will be turned off and loop sample points will be set to the first and last sample points of the sample.
  - If both original samples of the PRI and SEC voice are being *replaced* (Mode 2 or 3), then the parameters from the PRI voice are taken and copied to the SEC voice. Sample length and sample rate are still derived from the WAV file of course.
  - If either the PRI or SEC voice is being replaced, and the other one is added (because there was no original sample on that voice), then the parameters of either the PRI or SEC voice are being copied to the other voice. Again, sample length and sample rate are still derived from the WAV file. The sample rate will be adjusted to the the memory available (replace sample's size + available memory size), and depending on the chosen mode, in addition the WAV file can be truncated too.
- Cross Fade is turned OFF, PRI is set on top of SEC.
- (EMAX-I only:) The panning parameter of the PRI voice is set to +7, the panning parameter of the SEC voice is set to -7. Dual Voice is turned OFF.
- (EMAX-II only:) The Stereo Voice parameter of the key area is turned ON. *Experience shows however that switching on this parameter does not always succeed. EMXP will automatically validate if the command is completed successfully. If not, EMXP will set the panning parameters in the same way as is being done for the EMAX-I. As an alternative, you can still turn Stereo Voice ON on the EMAX-II sampler itself.*
- The first and last key of the key area which contains this stereo voice depends on the Mode that has been used, and the key assignments of the original voices in the EMAX-I/EMAX-II.
  - If the sample is being *added*, the key area is exactly one key long, i.e. the selected key itself.



- If the sample is *replacing only one voice* (and the other sample's channel is being added), the key area is the same as the original key area. E.g. if the sample is replacing the original PRI sample which was assigned to keys G2 → E3, while the SEC voice was empty, then the new stereo voice can be found on both voices in the key area G2→ E3.



- If the sample is *replacing two original samples – one on the PRI and one on the SEC voice* - then the new key area of the stereo sample will be the area defined by the *portion which is common* to both the original PRI and SEC voices. The remaining portions of those voices will be empty now. The picture below illustrates this.



Transferring loops

Besides transferring the *audio* data, EMXP supports the transfer of *loops* as well - both in upload and unload mode. However EMXP will only transfer loops if you specifically request EMXP to do this, either by setting the preference (see *section "10.3.10.2 Define if loop settings should be converted to/from WAV files"*) or by selecting this option in MANUAL or SEMI-MANUAL mode (see *section "9.8.5 How to upload and download samples with EMXP"*).

Following rules are applied by EMXP when **unloading samples** with loops:

- By default loops are translated to *forward* loops (type 00) in the WAV file
- Whether the source loop is a "sustain" loop or rather an "in release" loop is not translated to the WAV file - both loop types result in standard WAV loops
- If the "sustain" loop differs from the "in release" loop in the source EMAX-I or EMAX-II sample, and both loops are enabled, EMXP will convert both loops to the WAV file. However this will only be done

if the "sustain" and "in release" loop ranges are not overlapping. If there's an overlap, only the "sustain" loop will be converted.

- The WAV loop length will be set to *endless/indefinite*.
- When unloading the PRI and SEC voice's samples to a *stereo* WAV file, EMXP will use the loops of the sample for which a *sustain* loop has been defined (if both have a sustain loop defined, the PRI sample settings will be used). If neither the PRI sample nor the SEC sample has a sustain loop, EMXP will use the loops of the sample for which an *in release* loop has been defined (again, if both have an in release loop defined, the PRI sample settings will be used).
- When unloading looped EMAX-II samples which are larger than 2M sample points, EMXP can not guarantee that the loops will be converted correctly to WAV loops. This is especially true if the loop's range crosses or is beyond the 2M sample point.
- Besides loop settings, the "SMPL" chunk in the WAV file format also contains SMPTE information and MIDI note and fine tuning settings. However EMXP is not converting these parameters from the source samples. Default values are used in the generated WAV files: SMPTE is disabled, SMPTE Offset is set to 0, MIDI note is set to 60 (C3/C4) and MIDI tuning is set to 0.

Following rules are applied by EMXP when **uploading samples**:

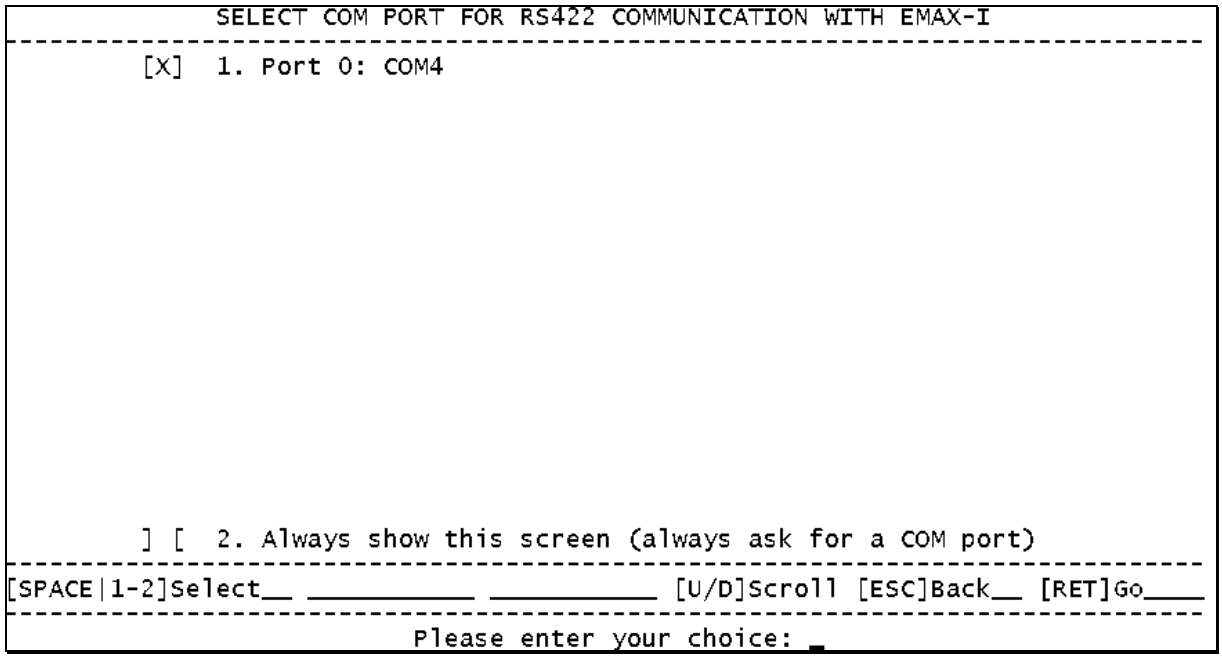
- Only one WAV loop can be converted into an EMAX-I/EMAX-II sample loop. If the WAV files contain multiple loops, you can specify which of these loops should be subject for conversion. It's also possible to define whether the loop should be converted to a *sustain loop* or rather to an *in release* loop. This can be done in the preferences (see *sections "10.3.10.3 Define which WAV loops should be used"*, *"10.3.10.4 Define which WAV loop type should be converted to sampler sustain loops"* and *"10.3.10.5 Define to which sampler loop type WAV loops should be converted"*) or by selecting these options in MANUAL or SEMI-MANUAL mode (see *section "9.8.5.1 Uploading samples"*).
- If you instruct EMXP to transfer WAV loop information, but the source WAV file does not contain any loop, the loop of the uploaded sample will be disabled (switched OFF). This is even true when replacing an existing sample of which the loop was originally enabled (switched ON).
- If you instruct EMXP *not* to transfer WAV loop information, and if you are *replacing an existing sample*, the uploaded sample will use the loop of the previous sample.
- If you instruct EMXP to transfer WAV loop information, and if your are *replacing an existing sample* but the WAV file must be *truncated* to fit in the original sample size, the uploaded sample's loop will be disabled (switched OFF) if the WAV loop would exceed the truncated sample size.
- If the WAV loop is incompatible with the minimal EMAX-I/EMAX-II loop requirements (see *section "7.7.9 Issues with conversions of "loop" settings"*), EMXP will add blank bytes at the start and/or at the end of the sample in order to meet these minimal requirements. However this method does not resolve problems related to minimal loop lengths not being met.

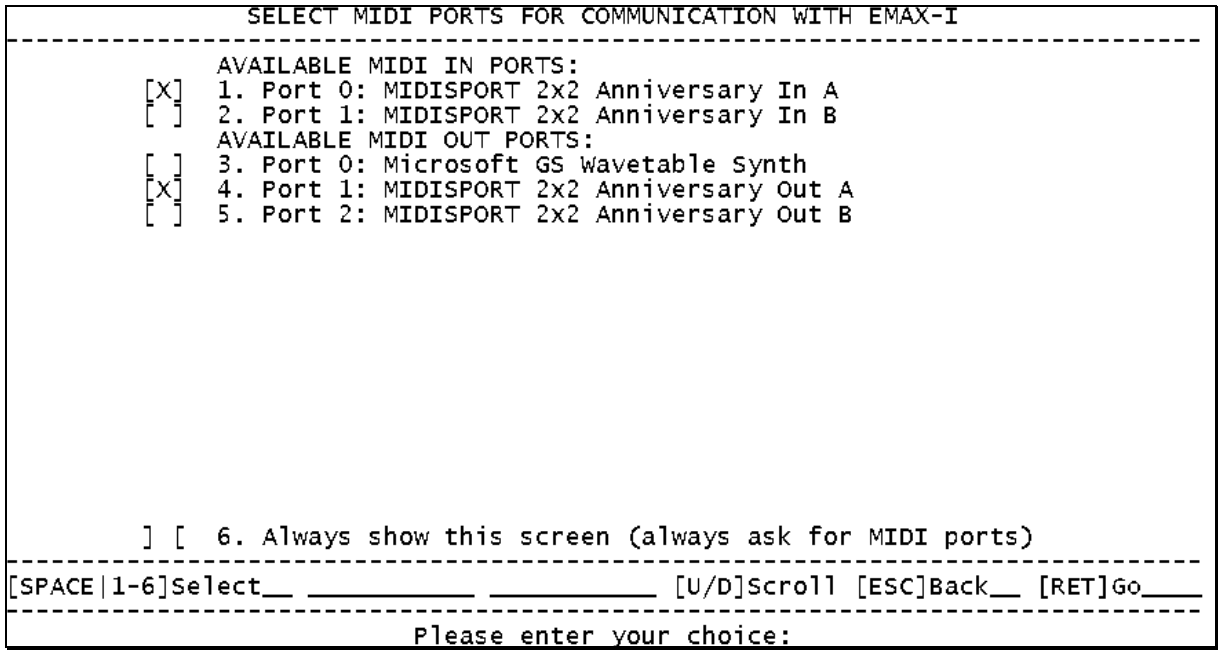
9.8.4 Selecting the RS422 or MIDI ports

If RS422 or MIDI communication with the EMAX-I/EMAX-II is used for the first time after a clean installation of EMXP, you will have to select the RS422 COM port or MIDI IN and MIDI OUT ports that will be used for the EMAX-I/EMAX-II in EMXP.

Once a COM port or MIDI ports have been selected, EMXP will never ask for a COM port or MIDI ports for the EMAX-I/EMAX-II again, except if

- the default COM port or MIDI ports can't be found anymore
- you have explicitly instructed EMXP to always ask for a COM port or for MIDI ports





By selecting the option "Always show this screen" in the screens above, EMXP will always ask for a COM port or for MIDI ports. The option number depends on the number of available ports, here it is option 2 and option 6. You can always change this mode - as well as the default COM port and MIDI ports - in the Communication Preferences menu. See *section "10.6.6.4 Define if MIDI ports should always be asked", section "10.6.6.3 Define if RS422 port should always be asked", section "10.6.4 Manage EMAX-I and EMAX-II MIDI communication preferences"* and *section "10.6.3 Manage EMAX-I and EMAX-II RS422 communication preferences"*.

9.8.5 How to upload and download samples with EMXP

9.8.5.1 Uploading samples

Starting the upload process with RS422

Make sure you have a compatible RS422 adapter connected to your computer, and that you know the COM port number of that RS422 port. To find out the COM port number, check the Ports section in the Device Manager (configuration panel) of Windows.

To upload a WAV file to the EMAX-I:
"3. Manage WAV Files" → "1. Manage WAV Files" → [select one or more WAV files and press ENTER] → [press 'U'] or [select "2. Send WAV file(s) to EMAX via RS422/MIDI" followed by [select "1. Send WAV file(s) to EMAX-I via RS422"]

To upload a WAV file to the EMAX-II:
"3. Manage WAV Files" → "1. Manage WAV Files" → [select one or more WAV files and press ENTER] → [press 'V'] or [select "2. Send WAV file(s) to EMAX via RS422/MIDI" followed by "2. Send WAV file(s) to EMAX-II via RS422"]

Starting the upload process with MIDI

Make sure you have a MIDI interface connected to your computer with one IN and one OUT port connected to the EMAX.

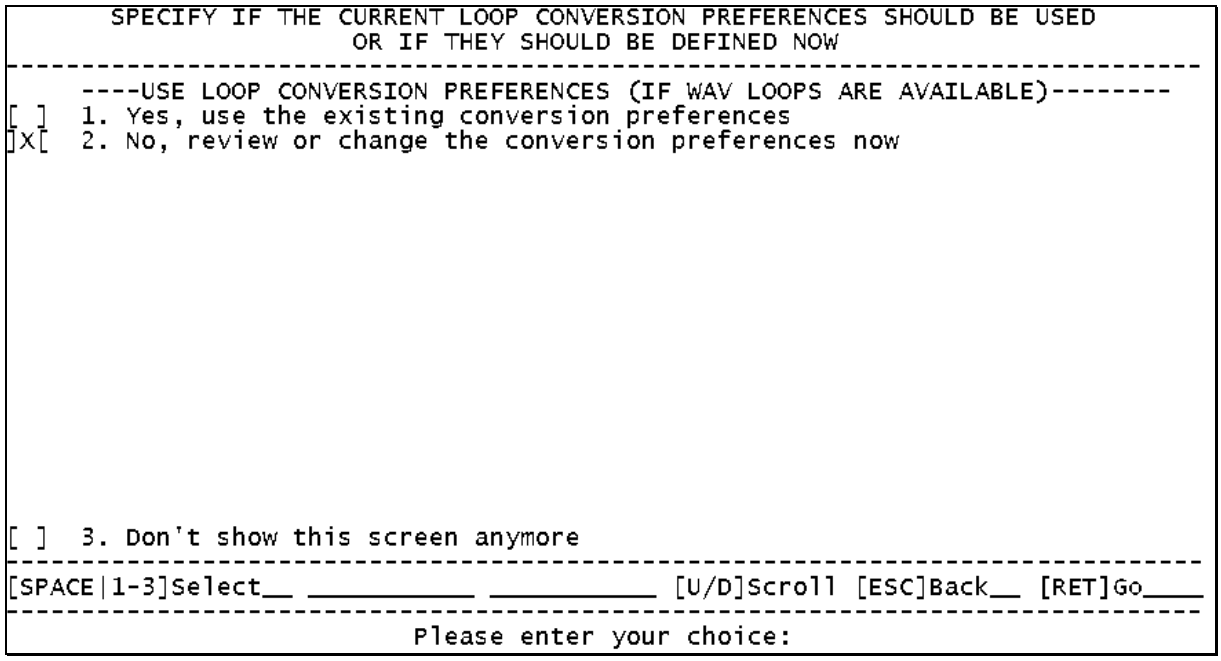
To upload a WAV file to the EMAX-I:
"3. Manage WAV Files" → "1. Manage WAV Files" → [select one or more WAV files and press ENTER] → [press 'W'] or [select "2. Send WAV file(s) to EMAX via RS422/MIDI" followed by "3. Send WAV file(s) to EMAX-I via MIDI"]

To upload a WAV file to the EMAX-II:
"3. Manage WAV Files" → "1. Manage WAV Files" → [select one or more WAV files and press ENTER] → [press 'X'] or [select "2. Send WAV file(s) to EMAX via RS422/MIDI" followed by "4. Send WAV file(s) to EMAX-II via MIDI"]

Selecting the loop conversion parameters

If at least one of the selected WAV files contains a loop, EMXP will ask if you would like to specify the loop conversion parameters now, or if you would like to use the preferences related to loop conversions.

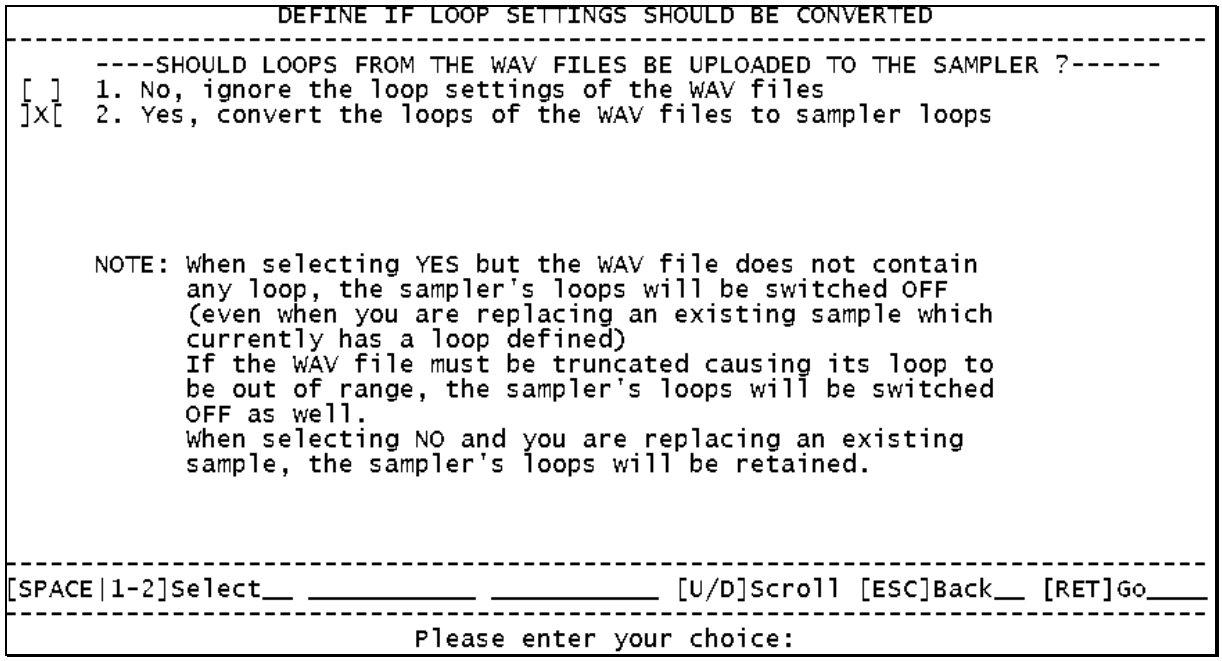
Note that EMXP will *not* show the screen below if you have explicitly instructed EMXP not to do so. This can be done by activating option 3 "Don't show this screen anymore" at the bottom of the screen. This option can also be set in the Advanced Automation/Workflow Preferences. See *section "10.2.2.1 Define if copy/conversion/unload preferences should always be asked", options 1 and 2.*



If you select **option 1**, EMXP will use the loop conversion parameters as defined in the preferences. See *sections "10.3.10.2 Define if loop settings should be converted to/from WAV files", "10.3.10.3 Define which WAV loops should be used", "10.3.10.4 Define which WAV loop type should be converted to sampler sustain loops"* and *"10.3.10.5 Define to which sampler loop type WAV loops should be converted"*.

If you select **option 2**, you can define the loop conversion parameters now. The process and screens to define the loop conversion parameters are the same as the ones explained in *section "7.3.9 Conversion from WAV"*. We refer to that section for more details.

Note: the screen in which you can select whether you would like to convert the loops or not looks slightly different than the one shown in *section "7.3.9 Conversion from WAV"*. See picture below. The meaning of the available options is identical however.



Continuing the upload process

After (optionally) having specified how EMXP should deal with WAV loops, you can now continue the sample upload process:

To upload a WAV file with RS422
[optionally (**): select a COM port number and press ENTER] → [wait while EMXP gets all key information of the current EMAX-I/EMAX-II preset" → [select a key to which you want to upload the WAV file] (*) → [select to which voice(s) you want to upload the WAV file] → Only if an existing voice is already assigned to the selected key: [select the upload mode (add/replace1/replace2)] → [select a sample rate] → [wait while EMXP is uploading the WAV file] → [this process - starting at (*) - is repeated for every selected WAV file]

To upload a WAV file with MIDI
[optionally (**): select a MIDI IN and MIDI OUT port and press ENTER] → [wait while EMXP gets all key information of the current EMAX-I/EMAX-II preset" → [select a key to which you want to upload the WAV file] → [select to which voice(s) you want to upload the WAV file] → [select a sample rate] → [wait while EMXP is uploading the WAV file]

Note (**): see *section "9.8.4 Selecting the RS422 or MIDI ports"*.

9.8.5.2 Downloading samples

Starting the unload process with RS422

Make sure you have a compatible RS422 adapter connected to your computer, and that you know the COM port number of that RS422 port. To find out the COM port number, check the Ports section in the Device Manager (configuration panel) of Windows.

To download a sample from the EMAX-I:
"1. Manage EMU Files and Disks" → 1. Manage EMU EMAX-I Files and Disks"→ "9. Receive Banks or Samples from EMAX-I via RS422/MIDI"→ "4. Receive Samples from EMAX-I via RS422" → [optionally (*): select a COM port number and press ENTER] → [wait while EMXP gets all key information of the current EMAX-I preset" → [select one or more keys from which you want to download the samples] → For each selected key → [select from which voice(s) you want to download the sample]

To download a sample from the EMAX-II:
"1. Manage EMU Files and Disks" → 2. Manage EMU EMAX-II Files and Disks"→ "9. Receive Samples from EMAX-II via RS422/MIDI"→ "1. Receive Samples from EMAX-II via RS422" → [optionally (*): select a COM port number and press ENTER] → [wait while EMXP gets all key information of the current EMAX-II preset" → [select one or more keys from which you want to download the samples] → For each selected key → [select from which voice(s) you want to download the sample]

Note (*): see *section "9.8.4 Selecting the RS422 or MIDI ports"*.

Starting the unload process with MIDI

Make sure you have a MIDI interface connected to your computer with one IN and one OUT port connected to the EMAX.

To download a sample from the EMAX-I:
"1. Manage EMU Files and Disks" → 1. Manage EMU EMAX-I Files and Disks"→ "9. Receive Banks or Samples from EMAX-I via RS422/MIDI"→ "5. Receive Samples from EMAX-I via MIDI" → [optionally (*): select a MIDI IN and MIDI OUT port and press ENTER]→ [wait while EMXP gets all key information of the current EMAX-I preset" → [select one or more keys from which you want to download the samples(*)] → For each selected key → [select from which voice(s) you want to download the sample]

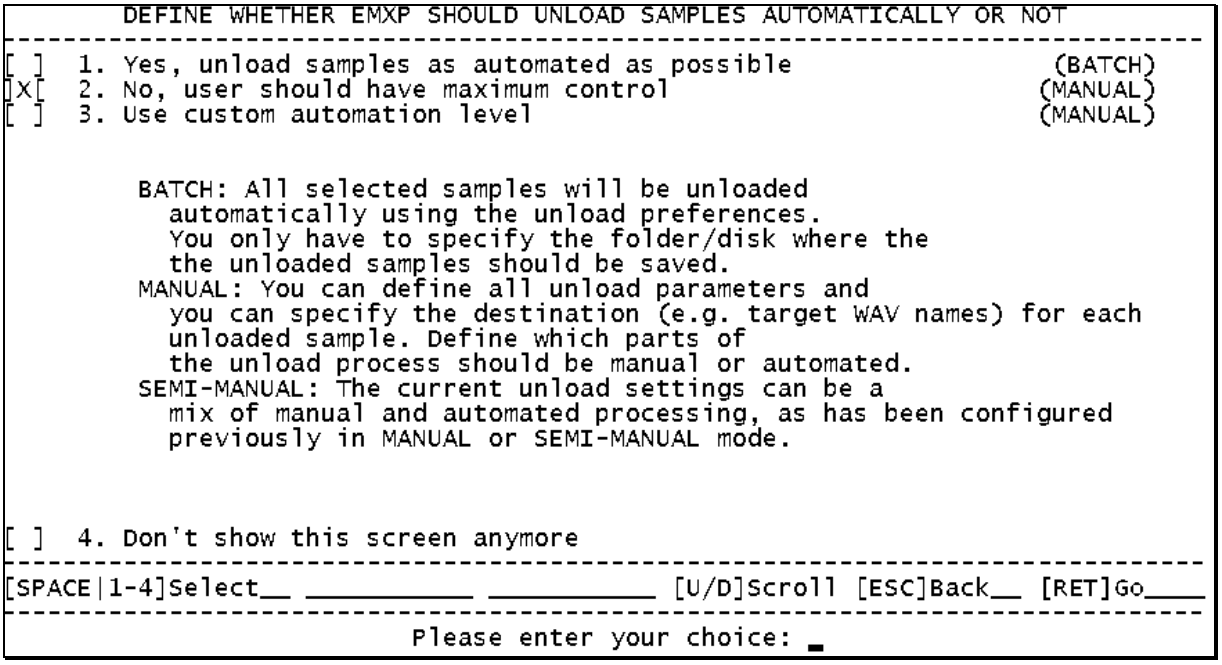
To download a sample from the EMAX-II:
"1. Manage EMU Files and Disks" → 2. Manage EMU EMAX-II Files and Disks"→ "9. Receive Samples from EMAX-II via RS422/MIDI"→ "2. Receive Samples from EMAX-II via MIDI" → [optionally (*): select a MIDI IN and MIDI OUT port and press ENTER]→ [wait while EMXP gets all key information of the current EMAX-II preset" → [select one or more keys from which you want to download the samples(*)] → For each selected key → [select from which voice(s) you want to download the sample]

Note (*): see *section "9.8.4 Selecting the RS422 or MIDI ports"*.

Batch or manual sample unload process

After having selected the sample unload option - either with RS422 or MIDI - EMXP will ask in which of the three modes you would like to proceed.
These three modes are similar to the ones that can be selected when copying or converting items in EMXP:

- *batch mode*, which allows for a fully automated unload of all samples on all selected keys
- *manual mode*, which allows for a fully manually controlled sample-per-sample unload process
- *semi-manual mode*, which allows for a partially automated and partial manually controlled sample unload process. The degree of automation can be defined by the user.



EMXP will *always show this screen* unless you explicitly ask EMXP not to do so by enabling "`4. Don't show this screen anymore`". In that case EMXP will choose the mode that you have selected the last time when you were unloading samples (or copying/converting sound banks).

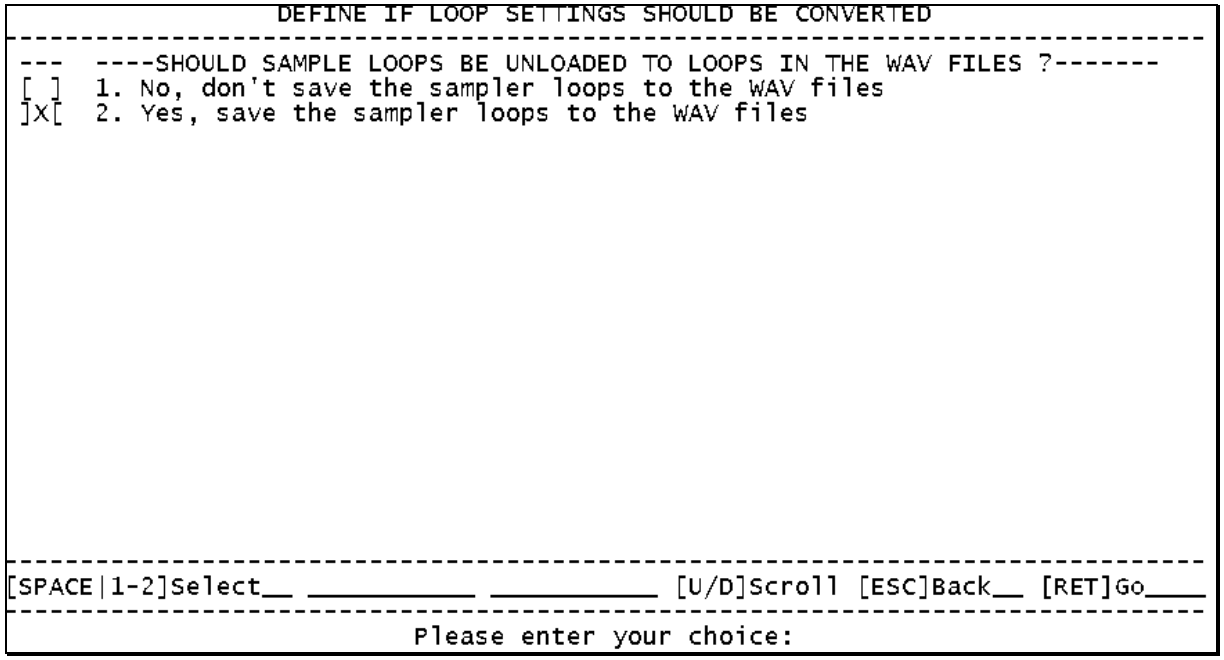
You can always change the mode afterwards in the Automation/Workflow Preferences. See *section "10.2.1 Quick definition of settings for automated or manual processing"*.

- By selecting 1, the sample unload process will be done in a fully automated mode. The only user intervention required is selecting the target folder for the WAV files.
- By selecting 2, the sample unload process can be done in a fully manual mode. In practice this means that you will be able to define whether loops should be converted and you will have the possibility to provide a WAV file name for each individual sample that is being unloaded.
- By selecting 3, you can define the level of automation yourself. In this custom automation level mode, you have the same possibilities as in a fully manual mode, but *you can configure which of the parameter request screens should be displayed and which should be skipped.* E.g. if you never want to be "bothered" with having to choose between the possibility to select the target file names yourself and the possibility that EMXP determines the target file names automatically, you can configure the workflow of EMXP in such way that this expected behaviour is taken into account. Hence the purpose

of the custom automation level mode is to make the copy/conversion workflow more comfortable and to tune it to your needs.

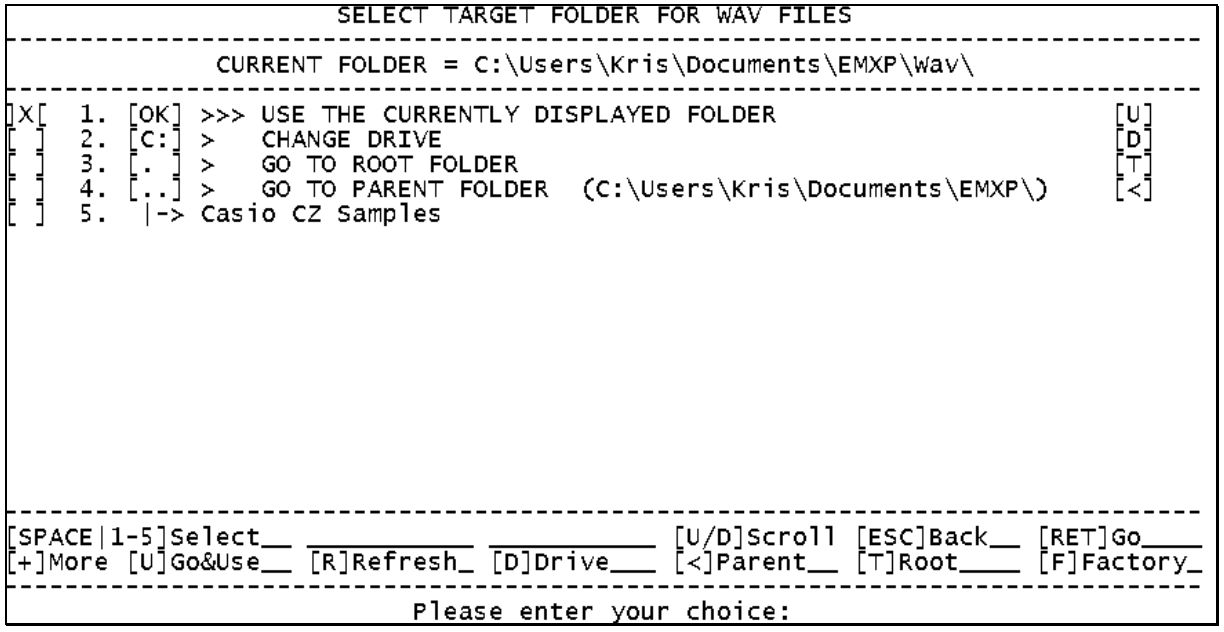
Loop conversion

If any of the samples on the selected keys have loops enabled, EMXP can save these loops in the target WAV file. Whether EMXP should save the loop definitions can be defined in the screen shown below. This screen is only shown in MANUAL or in SEMI-MANUAL mode, and only if at least one of the samples contains a loop.



Select the target folder for the WAV files

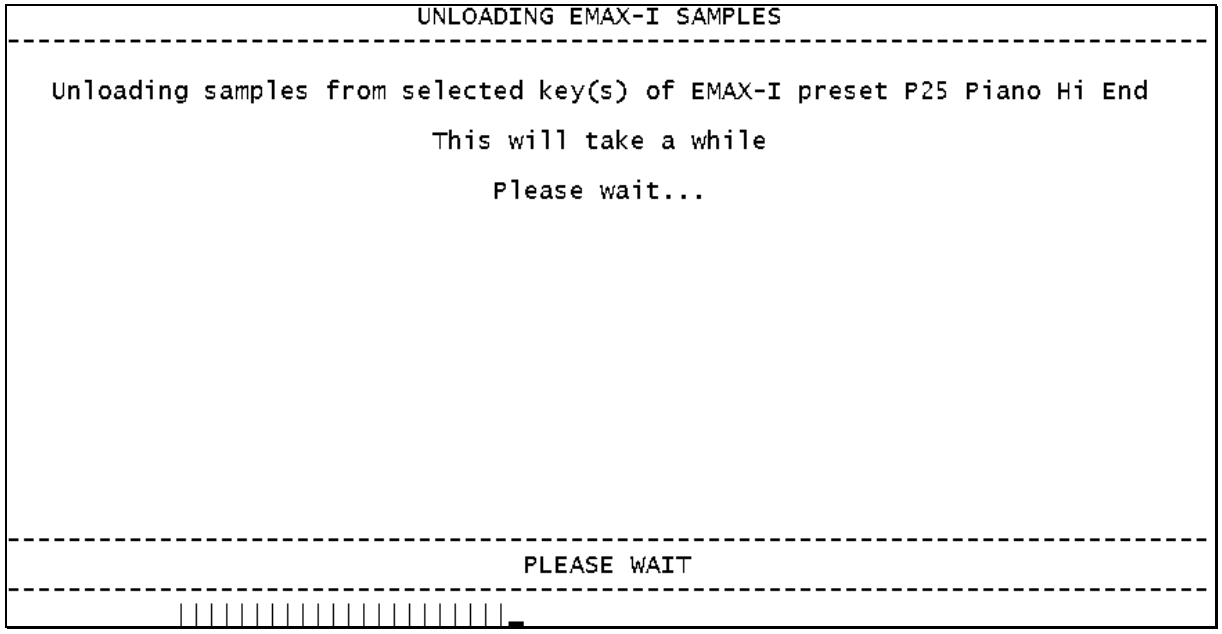
If you selected the BATCH mode or if you specified that EMXP can select the target WAV file names in an automated way (in MANUAL or SEMI-MANUAL mode), EMXP will ask in which folder the WAV files should be saved.



Starting the actual download of samples

EMXP will now start the actual unload of all selected samples.

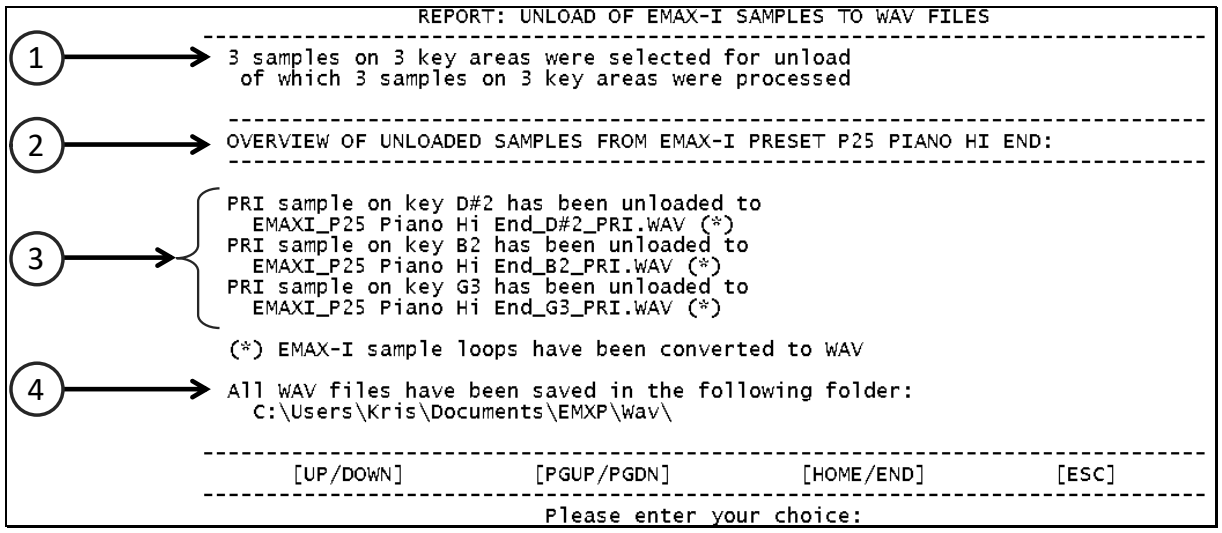
If multiple keys have been selected for sample download, EMXP will download each different sample only once. E.g. if 2 keys have been selected which have been assigned to the same PRI voice, the sample of this PRI voice will be downloaded only once.



If you have chosen to enter the target WAV file names yourself, EMXP will ask for a WAV file name *for each sample that is being unloaded.*

Sample unload execution report

Once the unload of all samples is finished, EMXP will display a report containing the results of the sample unload process:



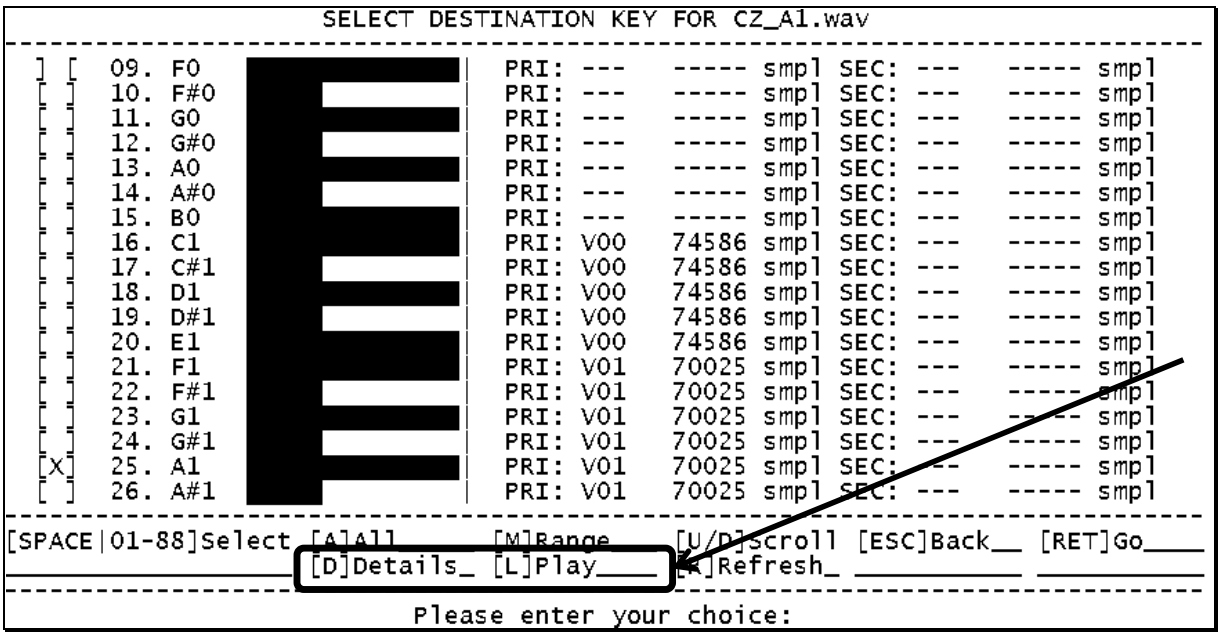
In this example, 3 samples of an EMAX-I preset "P25 Piano Hi End" have been successfully downloaded:

- The first line summarizes how many samples from how many key areas have been unloaded. See (1).
- The report also shows from which preset the samples have been unloaded. See (2).
- For every unloaded sample, the report explains from which key and which layer (PRI/SEC) the sample originates, and in which target WAV file the sample has been saved. See (3).
- The (*) at the end of a WAV file indicates that loop(s) have been converted to the WAV file as well.
- The folder in which the WAV files have been saved can be found at the end of the report. See (4).

This report has been saved to disk as well, unless you explicitly instructed EMXP not to do so; see *section "10.8.1 Define how copy/conversion/unload results will be written to reports"*.

9.8.5.3 Getting information about the current sample on a selected key

When uploading or downloading WAV files, you might want to know more information about the samples/voices that are currently assigned to a particular key in the EMAX-I/EMAX-II's current preset.



When uploading samples, the sound of the selected key can be played on the EMAX by pressing 'L'.

EMXP gives two options (besides the option to refresh the key map overview of the current preset):

- Play the sound on the EMAX-I/EMAX-II for 2 seconds. This can be done
  - (when uploading or downloading:) by pressing 'L' on the key map overview, after having selected one of the keys. See above picture.
  - (when downloading:) by choosing *"6. Play Note on Key"* after having selected a key and having pressed [ENTER] on the key map overview screen.

- Get some basic information about the PRI and SEC voice, including sample information. This can be done
  - (when uploading or downloading:) by pressing 'D' on the key map overview, after having selected one of the keys. See above picture.
  - (when downloading:) by choosing *"7. Show Key Details"* after having selected a key and having pressed [ENTER] on the key map overview screen.

```
                    DETAILS KEY A1 OF PRESET P25 Piano Hi End
--------------------------------------------------------------------------------
..CURRENT SAMPLER STATUS.....................................................

Sampler:                  EMAX-I
Operating System:         Emax Plus rev4.0
Available sample memory:  8670        sample points
Available preset memory:  14787       bytes
Current Preset:           P25  Piano Hi End
Current MIDI Channel:     CH000

..KEY AREA DETAILS...........................................................

Selected Key:    A1       (part of key area F1 -> D2)
Stereo Voice:    No
Crossfade:       Off
Primary Voice on top of Secondary Voice

..VOICE AND SAMPLE DETAILS : See Next Page...................................


--------------------------------------------------------------------------------
       [UP/DOWN]          [PGUP/PGDN]          [HOME/END]          [ESC]
--------------------------------------------------------------------------------
                           Please enter your choice:
```

```
                    DETAILS KEY A1 OF PRESET P25 Piano Hi End
--------------------------------------------------------------------------------
..PRIMARY VOICE DETAILS......................................................

Voice:           V01
Original Key:    A1        Output Channel:  1 -> 8
Sample Rate:     27778 Hz  Sample Length:   70025       (sample points)
Sustain Loop:    On        from 40719       to 70023    (sample points)
Release Loop:    On        from 40719       to 70023    (sample points)
Backward Play:   Off

..SECONDARY VOICE DETAILS....................................................

Voice:           No voice defined









--------------------------------------------------------------------------------
       [UP/DOWN]          [PGUP/PGDN]          [HOME/END]          [ESC]
--------------------------------------------------------------------------------
                           Please enter your choice:
```

If you ask for more details of the selected key, the above information will be displayed

9.9 TRANSFERRING WAV FILES TO/FROM EMULATOR-II VIA RS422

EMXP supports real time transfer of individual samples between a Windows computer and the Emulator-II.

The sample transfer can be done through a high speed RS422 serial communication connection only (the Emulator-II does not support MIDI sample dumps)

Always save your sound banks on the sampler before using the communication transfer functions. In exceptional cases sample dumps via RS422 may cause the sampler to hang or to crash.

9.9.1 RS422 Hardware Adapter

In order to be able to set up high speed serial communications between EMXP and the Emulator-II, a special RS422 port device or adapter is required on the computer. See *section "9.6.1 RS422 Hardware Adapter"* for more details.

9.9.2 Configuring EMXP for RS422 communication

The stability and speed of the RS422 communication with the Emulator-II is determined by a set of communication parameters. These parameters can be changed in the Preferences menu (see *section "10.6 COMMUNICATION PREFERENCES*"). The out-of-the-box values of these parameters may not be the best for your specific set-up. The values that should be used depend on the speed of the computer and on the reliability of the USB ports. The most important ones are the "Delay time ..." settings.

Don't worry or get angry if the communication (always) fails when using EMXP with the initial (factory) communication preference settings !

Just go to the Communication Preferences (option 6.5 in the Main Menu) and change the values of the "Delay time ..." settings:

- Decrease these values if you have an old or slow computer, or if you want to increase the speed of the data transfer. The communication will be faster but could be less reliable.
- Increase these values if you have a fast modern computer. The communication will slow down but could be more reliable.

If the communication fails and additional attempts result in EMXP errors saying that **no data could be written to the RS422 port due to reason code 31**, you will have to unplug the RS422 port and plug it in again. Then retry sending or receiving the data in EMXP.

9.9.3 General characteristics

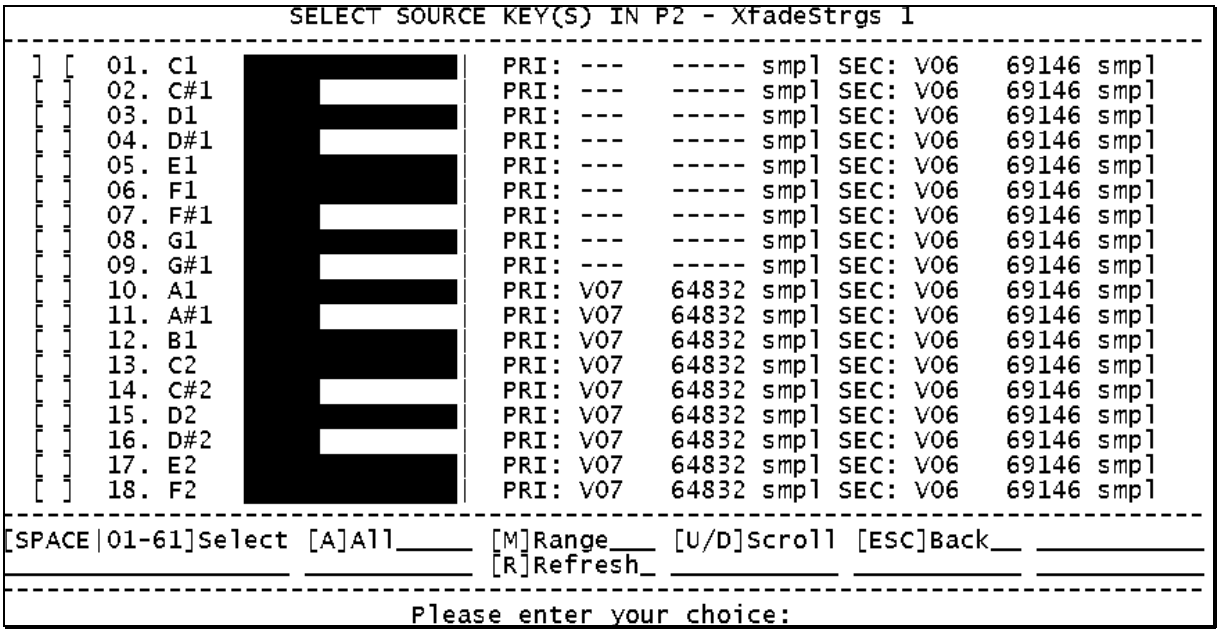
The source files for uploading samples from the computer to the Emulator-II should be **16-bit WAV files**, either mono or stereo.
The target files created by downloading samples from the Emulator-II to the computer are also 16-bit WAV files, either mono or stereo.

The data transferred by EMXP are the **actual sound data** (samples) including some basic characteristics: the sample length and the sample rate. Optionally loop **settings can be transferred** as well, so you can define a starting and end loop point in the WAV file upfront with your favourite sound editor and transfer this loop along with the WAV sound data to the Emulator-II. There's also the possibility *not to transfer the WAV file's loop* and to preserve the previous loop settings of the Emulator-II sample being replaced by the WAV file. This however will only be done if the WAV file has the same or a larger size than the previous sample. See next section.

Uploading and downloading samples is always done to and from the **current preset** on the Emulator-II. So make sure that you have selected the appropriate preset on the Emulator-II before transferring samples.

The RS422 instruction set of the Emulator-II **only supports the replacement of existing samples.** Adding samples to empty voices is not possible, as opposed to the EMAX-I/EMAX-II. So if you want to compose a preset from scratch by uploading WAV files to the Emulator-II via RS422, you will first have to make "dummy" samples using the SAMPLE module on the Emulator-II. When sampling these dummy (empty) sounds, you will also have to set their sample length to the value closest (but greater than or equal) to the length of the WAV file which will be uploaded. After having transferred the WAV file, EMXP will automatically set the correct sample length by performing a truncate operation on the allocated dummy sample's memory.
This is not the most convenient way of working, but it's a limitation imposed by the Emulator-II itself, and Sound Designer for Emulator-II was limited in the same way.[15]

The sample transfer function of EMXP lets you define to or from which **key** in the current preset the sample should be transferred. In addition you have the possibility to select either the **primary or secondary voice**, or both. See picture below.



When transferring samples, you can always select the key and voices that you want to use

Supported sample unload modes

A sample in an Emulator-II voice can be "soft" truncated, i.e. only part of the sample is actually played in that voice. Soft truncation can be set in sub-module *"11. Truncate…"* on the Emulator-II. The same sample can be "soft" truncated differently in different voices.
If a sample is "soft" truncated and only used in one voice, it can be "hard" truncated in a second step, by answering *yes* if the Emulator-II asks to *permanently truncate* the sample. Once a sample has been "hard" truncated, the memory of the bank is re-organized and the unused portions at the beginning and end of the sample are freed – this part of the memory is available then for new samples.

- If EMXP detects that one or more of the samples on the selected source keys have been "soft" truncated, it will ask if you want to download the truncated parts or the full samples.

[15] A future version of EMXP may overcome this limitation via a trick, but this advanced feature is not on the EMXP roadmap yet ☺.

```
   DEFINE HOW TO UNLOAD EMU-II SAMPLES (MIDI/RS422) IF THEY ARE TRUNCATED
--------------------------------------------------------------------------------
   [ ]  1. Unload original samples even if EMU-II samples are truncated
   ]X[  2. Unload truncated samples if EMU-II samples are truncated
--------------------------------------------------------------------------------
[SPACE|1-2]Select__ _____________ _____________ [U/D]Scroll [ESC]Back__ [RET]Go____
--------------------------------------------------------------------------------
                          Please enter your choice: _
```

- Depending on whether the PRI and or SEC voice are defined (i.e. are not empty), you will be given the possibility to download either the PRI or the SEC or both samples. These possibilities are available both in the source key overview screen (by means of shortcut keys) and in the menu. See pictures below. If in addition EMXP detects that the PRI and SEC voice of the selected source key are probably forming a STEREO sample, you are even given the possibility to download both samples as one STEREO sample (see later for more information on how EMXP deals with stereo samples on the Emulator-II).

```
                          UNLOAD SAMPLE KEY MAP MENU
--------------------------------------------------------------------------------

              1.  Receive PRI & SEC Samples as Stereo if possible

              2.  Receive PRI & SEC Samples as Mono

              3.  Receive PRI  Mono Samples only

              4.  Receive SEC  Mono Samples only

              5.  Re-scan Current Preset's Keyboard Sample Map

              6.  Play Note on Key

              7.  Show Key Details




--------------------------------------------------------------------------------
            [1]...[7]: menu option                  ESC: Go back
--------------------------------------------------------------------------------
                          Please enter a menu option:
```

Note that the download menu and key overview screen will *always* give you the four download options. But if one or more of them are not applicable, EMXP will always inform you about this when you select these options.

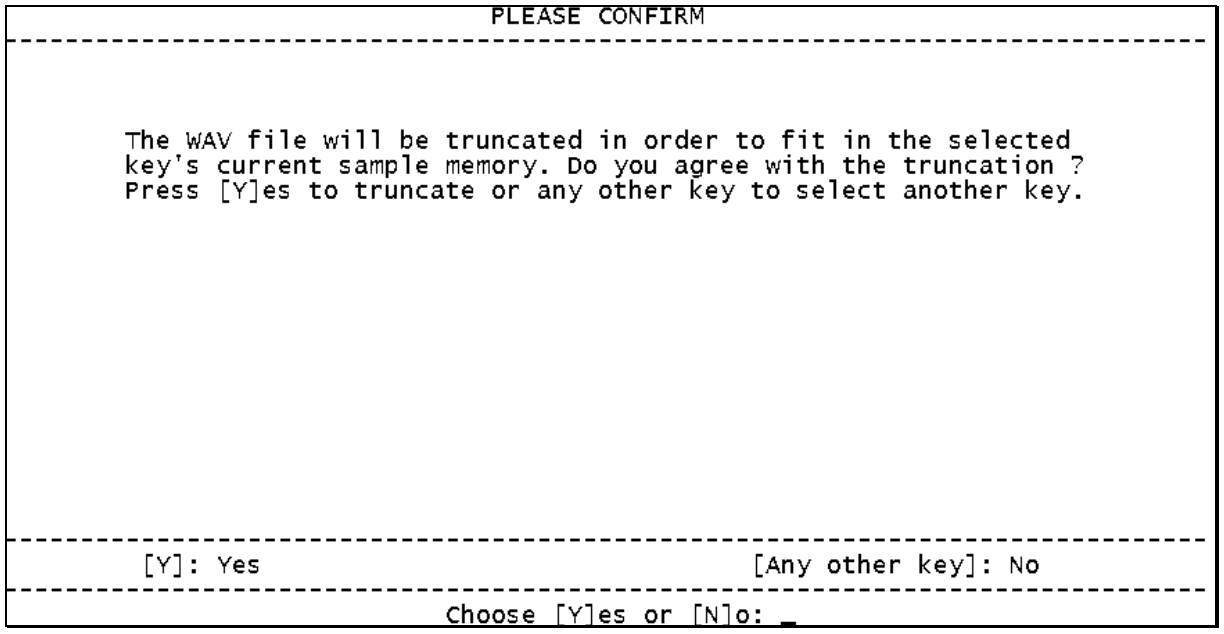
Supported sample upload modes

Only one mode of uploading WAV files to the Emulator-II is supported: **replacing samples with truncation**. Other modes, like adding samples, are not supported due to a lack of appropriate software instructions in the Emulator-II operating system communication protocol.

Moreover (as already explained) it is required that there is **already a sample of sufficient length on the selected target key of the current preset in the Emulator-II's memory**. This existing sample will then be overwritten by EMXP with the selected WAV file.

Characteristics of the sample upload mode:

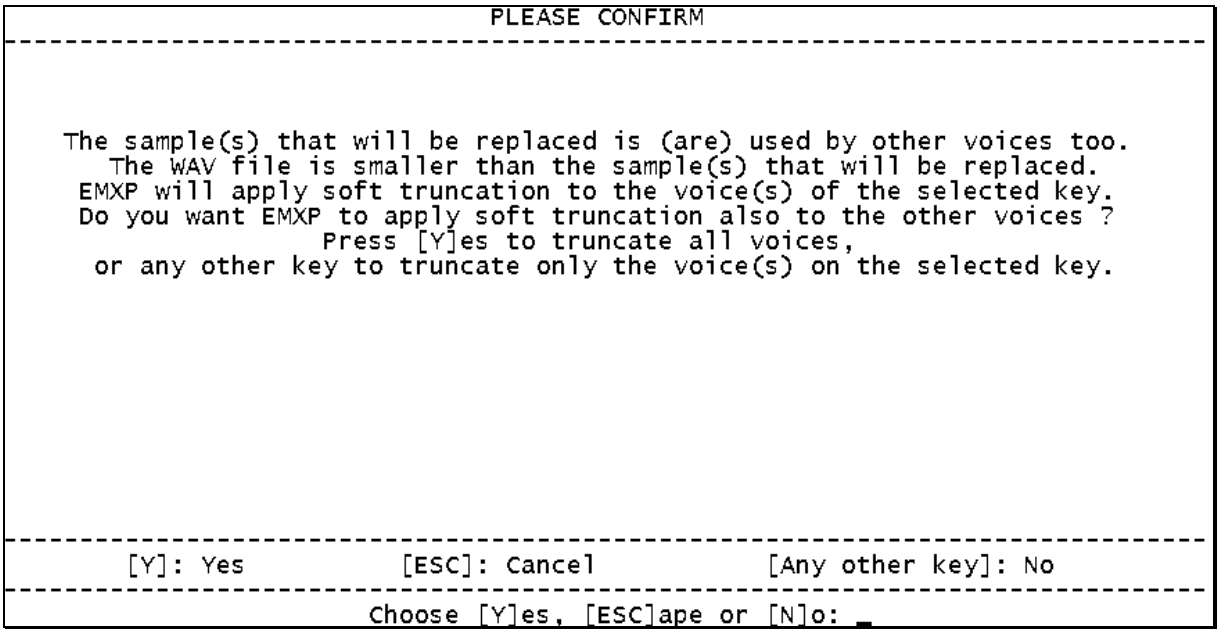
- If the new WAV sample exceeds the length of the original existing sample, the new sample will be truncated to the length of the original sample. EMXP will give a warning and ask for conformation if this will happen (see picture). Any available free memory in the Emulator-II will not be used.



If the WAV file doesn't fit in the current sample's size, the WAV file has to be truncated

- If the new sample is shorter than the original sample:
    - The sample length will be set to the correct (shorter) value by applying "soft" truncation. This means that the sample will sound perfectly normal with the correct length, but the remaining unused memory is not freed up (yet – see hereafter).
    - If the sample being replaced is used by other voices too, EMXP will ask if these other voices should also be "soft" truncated.
    - The remaining unused memory of the original sample on the Emulator-II is **not** freed up and is not made available for other samples unless you perform a "hard" truncation for the new sample *on the Emulator-II itself*. This is done by entering the *"11. Truncate…"* submodule on the Emulator-II and by answering *"yes"* on the question whether the truncation should be made permanent. Hard truncation can not be performed by EMXP because no remote instruction exists for this function.
    - Note: if the sample is used by multiple voices, the remaining unused sample space can *never* be freed up anymore because in that particular situation the Emulator-II's OS does not accept hard truncations

- If the sample on the selected key's voice is being used by other voices too (in either the current preset or in other presets), the sample of these other voices will of course be replaced as well. As explained before, if the new sample is shorter than the original sample, EMXP will ask whether these voices should be "soft" truncated too or not.



Soft truncation can be limited to the selected key's voice or can be applied to all voices using the sample

- If the selected key is part of a voice which spans multiple keys, all keys linked to that voice will receive the new sample.

- The current voice and its parameters are being fully reused. E.g. filter settings are still valid.

- When no transfer of the WAV loop has been requested, the loop settings of the original sample are preserved, unless the new sample is shorter than the original one in that case the loop points are set to the first and last sample point of the new sample, the loops themselves are disabled and any original "soft" truncation settings are removed.
  When a transfer of the WAV loop has been requested, the loop settings of the WAV file will be used in the uploaded sample. If the WAV file does not contain any loop, the loop of the uploaded sample will be disabled (switched off).

- The original key from the original sample is preserved.

- Be aware that this sample transfer mode is *destructive*. You will lose the previous sample on the Emulator-II.

Sample size

The max. allowed sample size that can be transferred to/from the Emulator-II via RS422 is the same as the max. allowed sample size on the Emulator-II: 484599 sample points. As a result, the maximum 16-bit WAV audio size (of one channel) that can be exchanged with the Emulator-II is 946 KB.

The actual maximum can be lower depending on the number of voices, presets, samples and sequences that have already been defined in the sound bank.

Sample rate conversion

The Emulator-II only supports one sample rate: 27778 Hz. EMXP will always perform a sample rate conversion to the 27778 Hz sample rate.

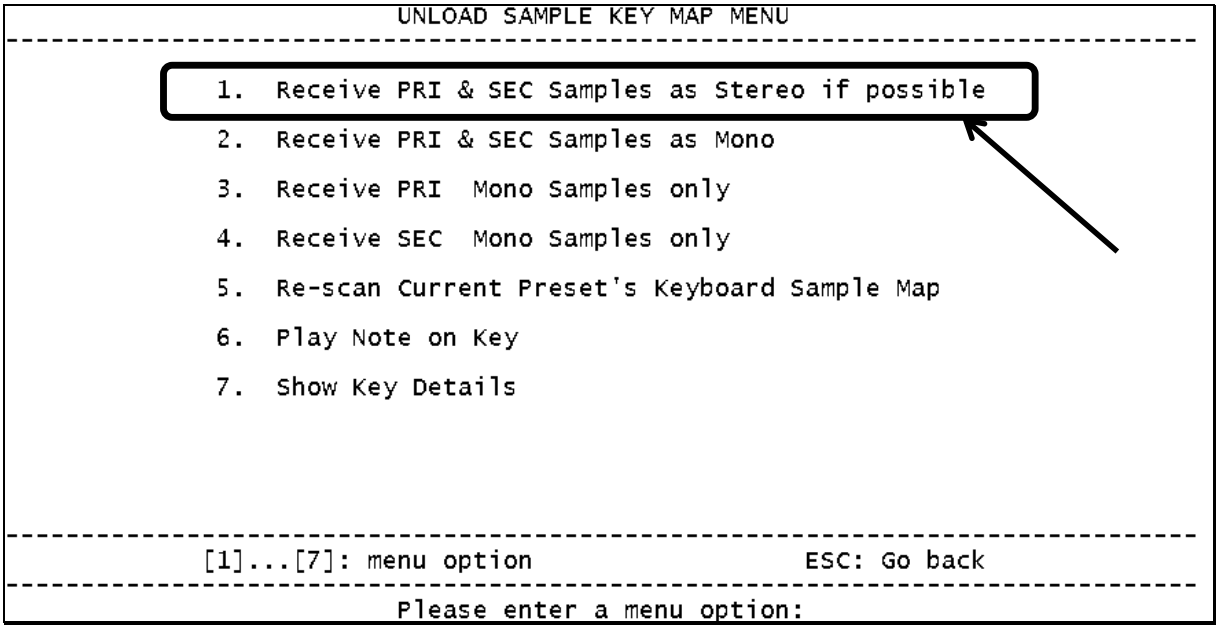
Stereo samples

Although the Emulator-II doesn't support true stereo samples, a basic stereo effect can be created by using the PRI voice for one channel of the stereo sound and the SEC voice for the other channel of the stereo sound, and by assigning the PRI voice to other output channels than the SEC voice. When connected accordingly to a sound mixer/amplifier, a stereo effect can be achieved.
EMXP supports the exchange of stereo samples in this "basic version" with the Emulator-II as follows:

- When *downloading samples* from the Emulator-II to the computer, EMXP will detect whether the sample is part of a stereo voice or not.
    - If EMXP considers the sample to be part of a stereo sample, **and** if you have asked EMXP to transfer the sample as a stereo sample if possible (see picture below), EMXP will download both the PRImary and SECondary sample from the Emulator-II and save it into a stereo WAV file.
    - EMXP considers the sample to be part of a stereo sample if:
        - Both the PRI and SEC voice on the selected key are used on the Emulator-II (no empty voice)

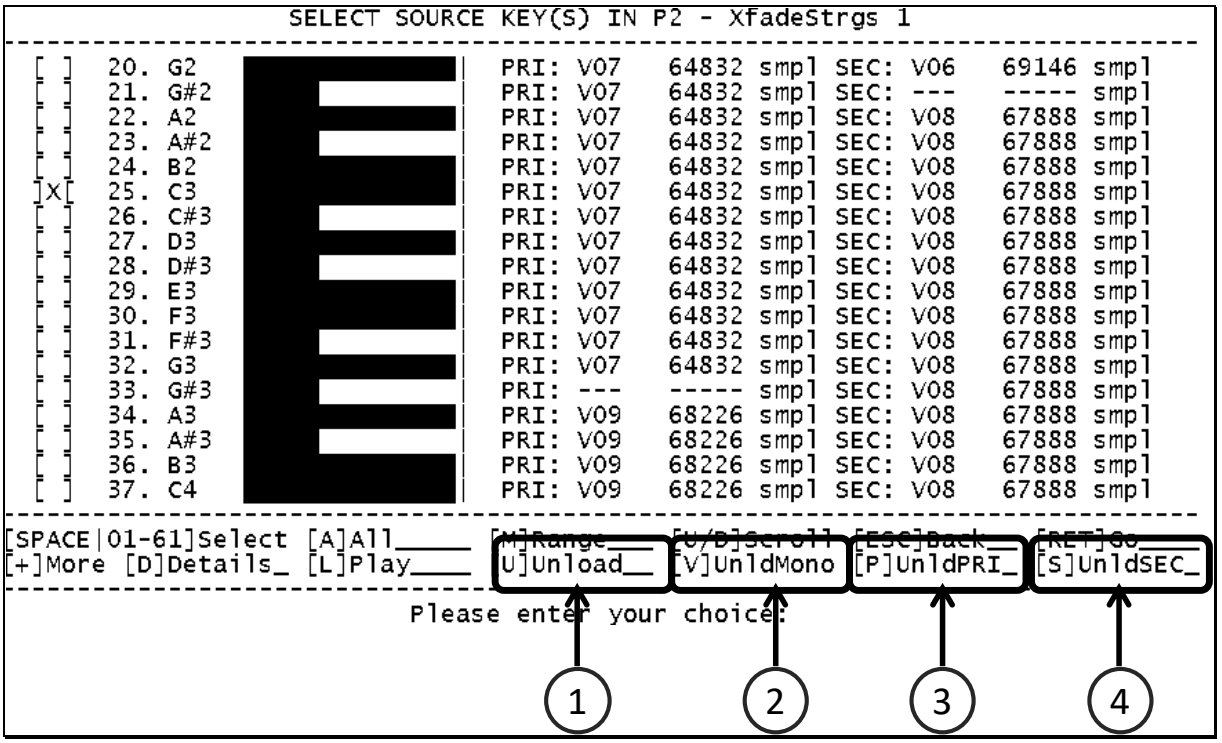
      AND
        - The PRI and SEC samples have the same length (*), the same sample rate and the same original key, and they are assigned to mutual exclusive output channels, e.g. PRI voice is assigned to channels 1→4 and SEC voice is assigned to channels 5→8.

          (*) the length is either the full length of the sample or the truncated length of the sample, depending on the choice you made when downloading truncated samples.

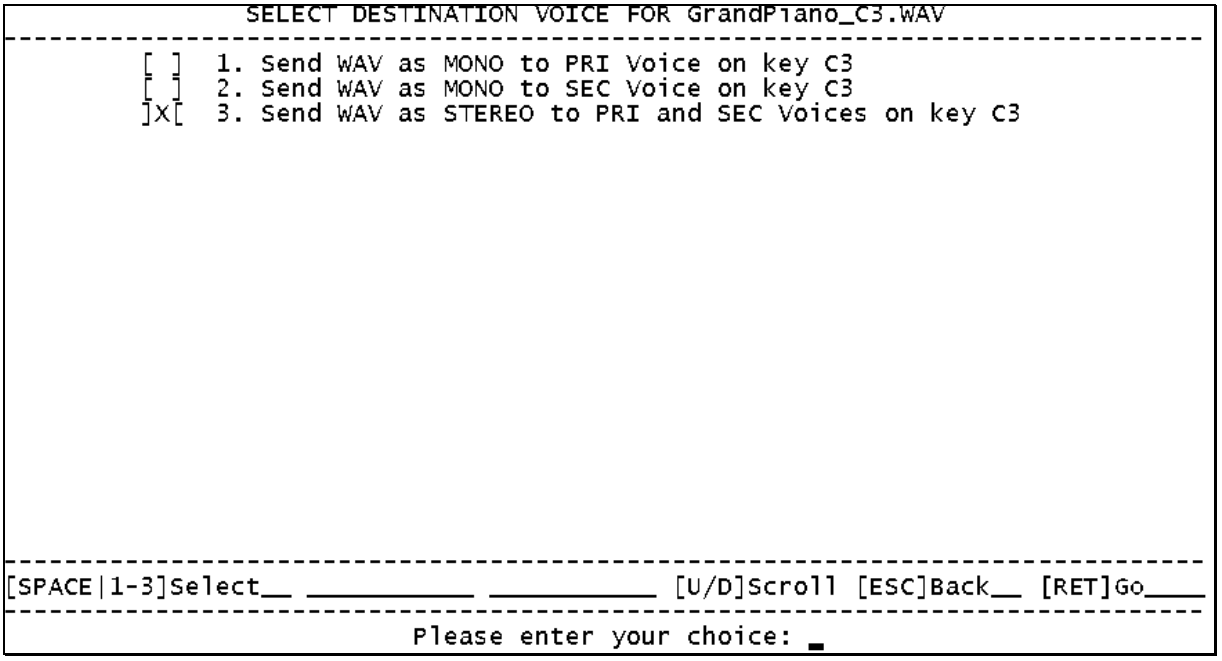


Select option '1. Receive PRI & SEC Samples as Stereo if possible' if you want to create stereo WAV files

The four download options 1 → 4 in the menu screen are also accessible directly from the sampler's key overview screen by means of four shortcut keys (see picture below).

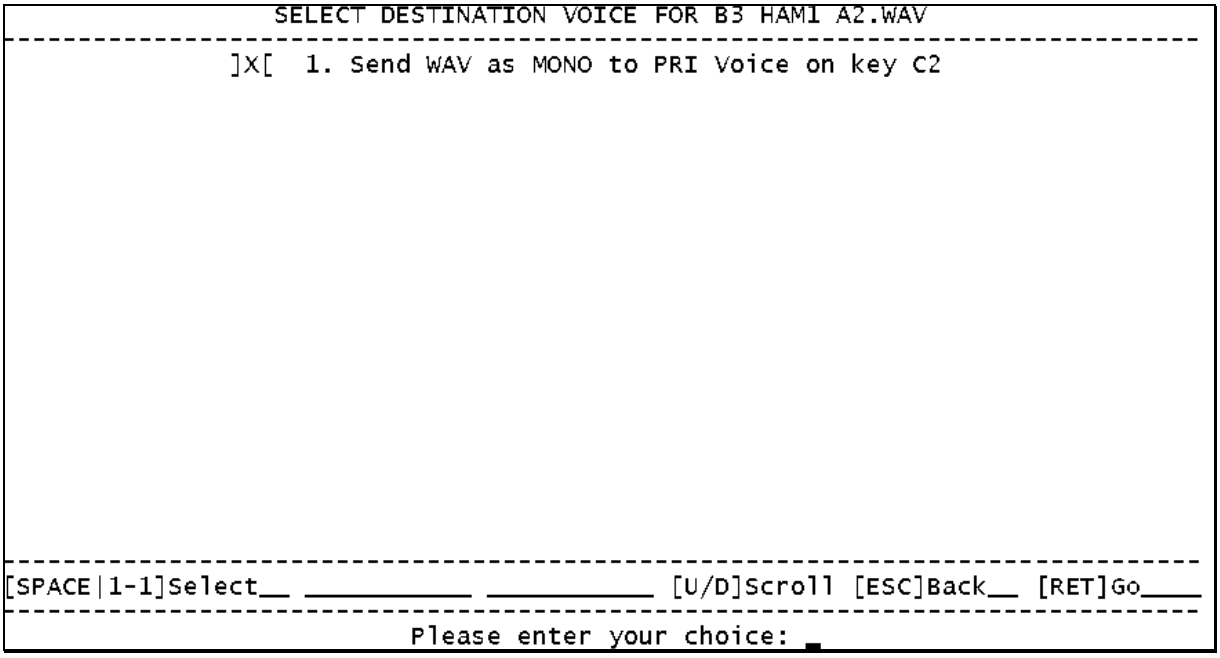


- When *uploading stereo WAV files* to the Emulator-II, EMXP will create a **pseudo-stereo** sample, and EMXP will **only do this if** you have asked EMXP to do so.
    - The option to upload a stereo WAV to both PRI and SEC voices is only provided if the WAV file is a STEREO WAV *and if the destination key's PRI and SEC voices are* ***not empty***. This is shown in the picture below: the PRI and SEC voice of key C3 are assigned in the current preset, so a STEREO WAV can be uploaded.



Select option '3. Send WAV as STEREO to PRI and SEC Voices' if you want to create a stereo sample

- If the destination key has only the PRI or SEC voice assigned, the menu will limit the upload possibilities to MONO uploads, either to PRI or SEC. In that case EMXP will temporarily convert the STEREO WAV file to a MONO WAV file and send the result to the Emulator-II. In the following picture key C2 has only the PRI voice assigned in the current preset, so even if the WAV file is STEREO, only a MONO upload is possible.



If the destination key has only the PRI voice assigned, the stereo WAV file can only be sent as MONO to PRI.

- The right channel of the WAV file is assigned to the PRImary voice of the selected key
- The left channel of the WAV file is assigned to the SECondary voice of the selected key
- The size of the uploaded PRI and SEC samples are the same, but all other voice settings from the original PRI and SEC voices are preserved
    - If a single channel of the WAV file would not fit in the PRI and/or SEC sample size, the WAV file will be truncated and the new size will correspond to the size of the PRI or SEC sample which is the shortest of the two (if any difference would exist).
    - If the WAV file itself does not contain any loop or if you decided not to transfer the WAV file's loop, and if a single channel of the WAV file is smaller than the original PRI or SEC sample size, the loop points will be set to the beginning and end of the sample, the loop will be disabled and any original sample "soft" truncation will be removed. This only happens to those voices (PRI and/or SEC) whose sample sizes are longer than a single WAV channel.
    - If a single channel of the WAV file has the same size or is larger than the original PRI or SEC sample size, all original voice settings of that voice are preserved, except for the "soft" truncation settings. The output channel settings, cross fade settings and even original key settings are preserved. This is even true for the loop settings, unless you have specified that the WAV file's loop should be transferred to the Emulator-II. The result is not necessarily a true stereo sample however; that's why we call it a **pseudo-stereo sample.**
    - Note: although EMXP only assumes stereo samples if the output channel assignment of the PRI and SEC voice are mutually exclusive *when unloading samples*, EMXP will *not* change the output channels in this way *when uploading samples*. Again, this shows why we consider the uploaded sample only to be a kind of pseudo-stereo sample.

Transferring loops

Besides transferring the *audio* data, EMXP supports the transfer of *loops* as well - both in upload and unload mode. However EMXP will only transfer loops if you specifically request EMXP to do this, either by setting the preference (see *section "10.3.10.2 Define if loop settings should be converted to/from WAV files"*) or by selecting this option in MANUAL or SEMI-MANUAL mode (see *section "9.9.5 How to upload and download samples with EMXP"*).

Following rules are applied by EMXP when **unloading samples** with loops:

- By default loops are translated to *forward* loops (type 00) in the WAV file
- Whether the source loop is a "sustain" loop or rather an "in release" loop is not translated to the WAV file - both loop types result in standard WAV loops
- The WAV loop length will be set to *endless/indefinite.*
- EMXP is always using the loop settings which have been specifically defined for the *voice which has been assigned to the selected key* (the same sample may be shared with other voices on the Emulator-II which may have other loops defined, but those are ignored).
- When unloading the PRI and SEC voice's samples to a *stereo* WAV file, EMXP will use the loops of the sample for which a *sustain* loop has been defined (if both have a sustain loop defined, the PRI sample settings will be used). If neither the PRI sample nor the SEC sample has a sustain loop, EMXP will use the loops of the sample for which an *in release* loop has been defined (again, if both have an in release loop defined, the PRI sample settings will be used).
- Besides loop settings, the "SMPL" chunk in the WAV file format also contains SMPTE information and MIDI note and fine tuning settings. However EMXP is not converting these parameters from the source samples. Default values are used in the generated WAV files: SMPTE is disabled, SMPTE Offset is set to 0, MIDI note is set to 60 (C3/C4) and MIDI tuning is set to 0.

Following rules are applied by EMXP when **uploading samples**:

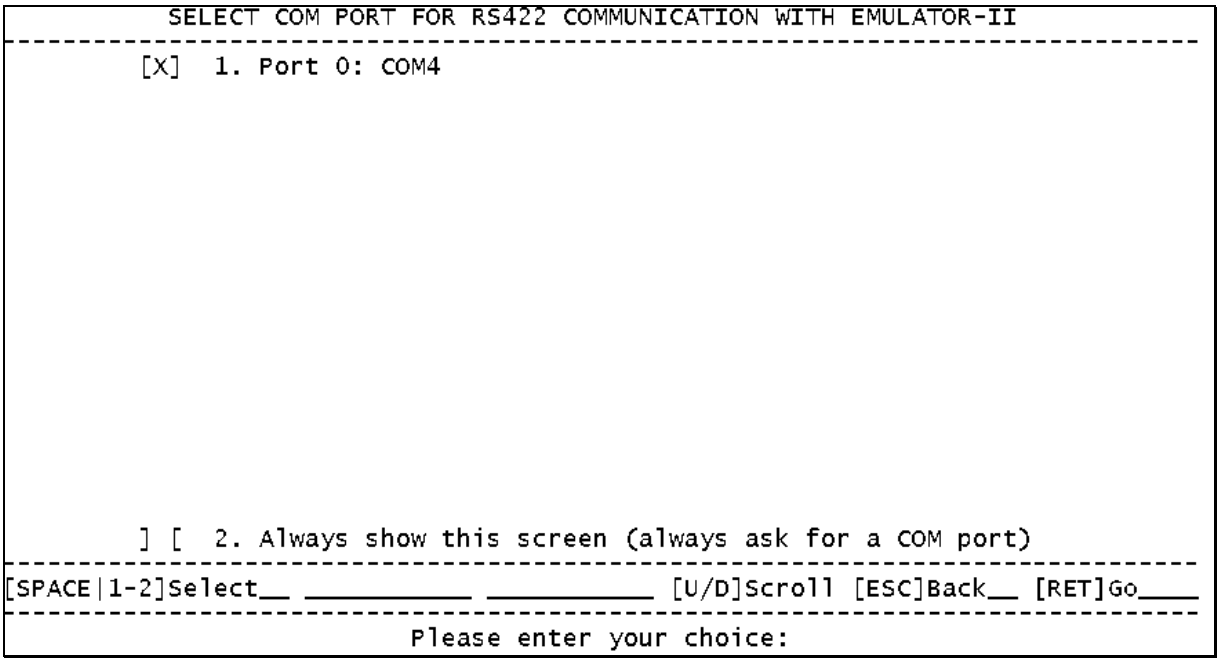
- Only one WAV loop can be converted into an Emulator-II sample loop. If the WAV files contain multiple loops, you can specify which of these loops should be subject for conversion. It's also possible to define whether the loop should be converted to a *sustain loop* or rather to an *in release* loop. This can be done in the preferences (see *sections "10.3.10.3 Define which WAV loops should be used", "10.3.10.4 Define which WAV loop type should be converted to sampler sustain loops"* and *"10.3.10.5 Define to which sampler loop type WAV loops should be converted"*) or by selecting these options in MANUAL or SEMI-MANUAL mode (see *section "9.9.5.1 Uploading samples"*).
- If you instruct EMXP to transfer WAV loop information, but the source WAV file does not contain any loop, the loop of the uploaded sample will be disabled (switched OFF). This is even true if the previous sample (being replaced) had its loop enabled (switched ON).
- If you instruct EMXP *not* to transfer WAV loop information, the uploaded sample will use the loop of the previous sample, unless it exceeds the size of the new (uploaded) sample. In the latter case, the loop will be switched OFF.
- If the WAV loop is incompatible with the minimal Emulator-II loop requirements (see *section "7.7.9 Issues with conversions of "loop" settings"*), EMXP will add blank bytes at the start and/or at the end of the sample in order to meet these minimal requirements. However this method does not resolve problems related to minimal loop lengths not being met.

9.9.4 Selecting the RS422 COM port

If RS422 communication with the Emulator-II is used for the first time after a clean installation of EMXP, you will have to select the RS422 COM port that will be used for the Emulator-II in EMXP.

Once a COM port has been selected, EMXP will never ask for a COM port for the Emulator-II again, except if

- the default COM port can't be found anymore
- you have explicitly instructed EMXP to always ask for a COM port



By selecting the option "Always show this screen" in the screen above, EMXP will always ask for a COM port. The option number depends on the number of available COM ports, here it is option 2.
You can always change this mode - as well as the default COM port - in the Communication Preferences menu. See *section "10.6.6.3 Define if RS422 port should always be asked"* and *section "10.6.1 Manage Emulator-II RS422 communication preferences"*

9.9.5 How to upload and download samples with EMXP

Make sure you have a compatible RS422 adapter connected to your computer, and that you know the COM port number of that RS422 port. To find out the COM port number, check the Ports section in the Device Manager (configuration panel) of Windows.

9.9.5.1 Uploading samples

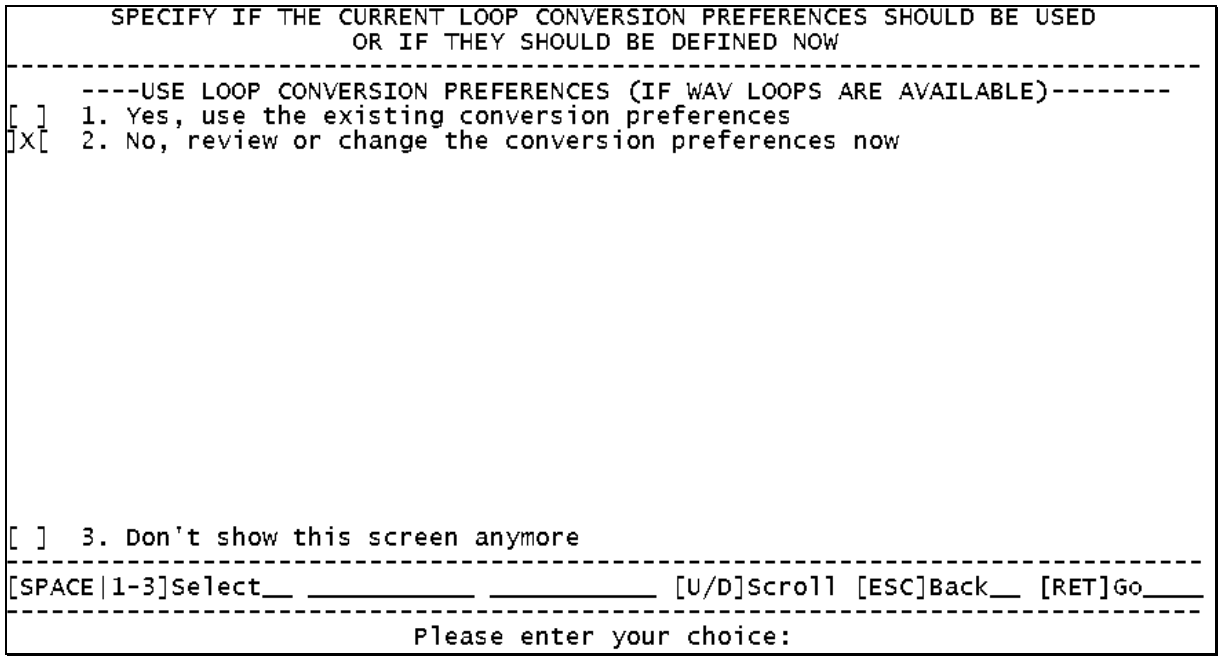
Starting the upload process

To upload a WAV file to the Emulator-II:
"3. Manage WAV Files" → "1. Manage WAV Files" → [select one or more WAV files and press ENTER] → [press 'E'] or [select "3. Send WAV File(s) to Emulator-II via RS422"]

Selecting the loop conversion parameters

If at least one of the selected WAV files contains a loop, EMXP will ask if you would like to specify the loop conversion parameters now, or if you would like to use the preferences related to loop conversions.

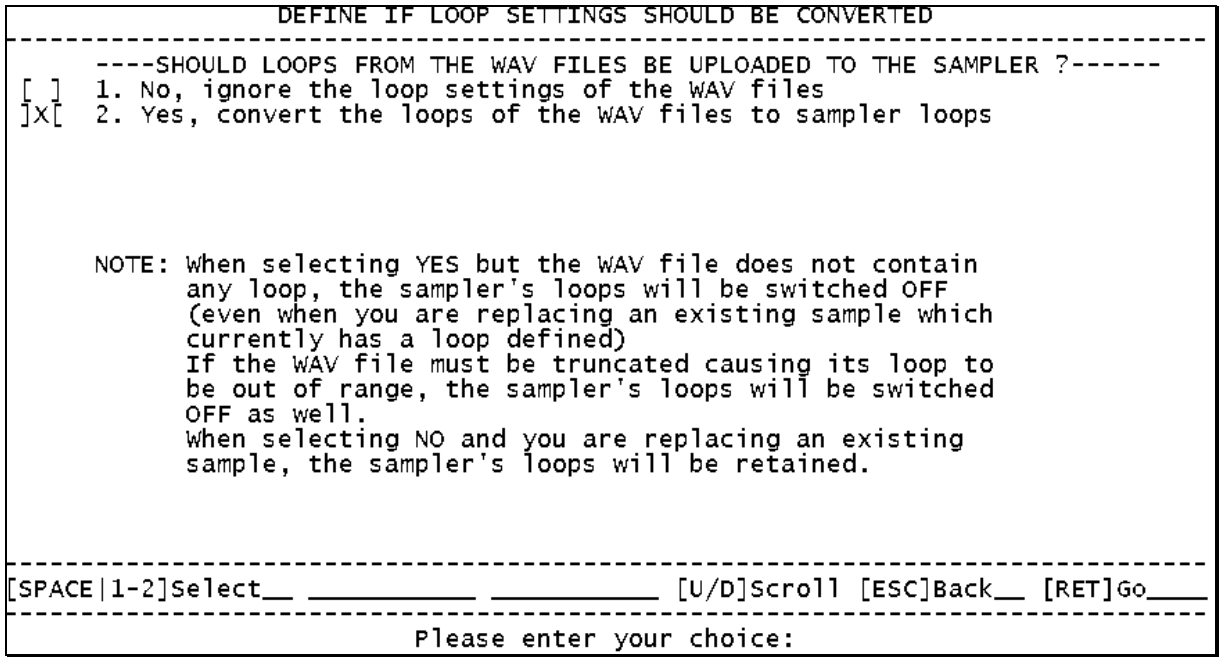
Note that EMXP will *not* show the screen below if you have explicitly instructed EMXP not to do so. This can be done by activating option 3 "Don't show this screen anymore" at the bottom of the screen. This option can also be set in the Advanced Automation/Workflow Preferences. See *section "10.2.2.1 Define if copy/conversion/unload preferences should always be asked", options 1 and 2.*



If you select **option 1**, EMXP will use the loop conversion parameters as defined in the preferences. See *sections "10.3.10.2 Define if loop settings should be converted to/from WAV files", "10.3.10.3 Define which WAV loops should be used", "10.3.10.4 Define which WAV loop type should be converted to sampler sustain loops"* and *"10.3.10.5 Define to which sampler loop type WAV loops should be converted"*.

If you select **option 2**, you can define the loop conversion parameters now. The process and screens to define the loop conversion parameters are the same as the ones explained in *section "7.3.9 Conversion from WAV"*. We refer to that section for more details.

Note: the screen in which you can select whether you would like to convert the loops or not looks slightly different than the one shown in *section "7.3.9 Conversion from WAV"*. See picture below. The meaning of the available options is identical however.



Continuing the upload process

After (optionally) having specified how EMXP should deal with WAV loops, you can now continue the sample upload process:

[optionally (*): select a COM port number and press ENTER] → [wait while EMXP gets all key information of the current Emulator-II preset" → [select a key to which you want to upload the WAV file] → [select to which voice(s) you want to upload the WAV file] → [answer all questions about truncation if applicable] → [wait while EMXP is uploading the WAV file]

Note (*): see *section "9.9.4 Selecting the RS422 COM port"*.

9.9.5.2 Downloading samples

Starting the unload process

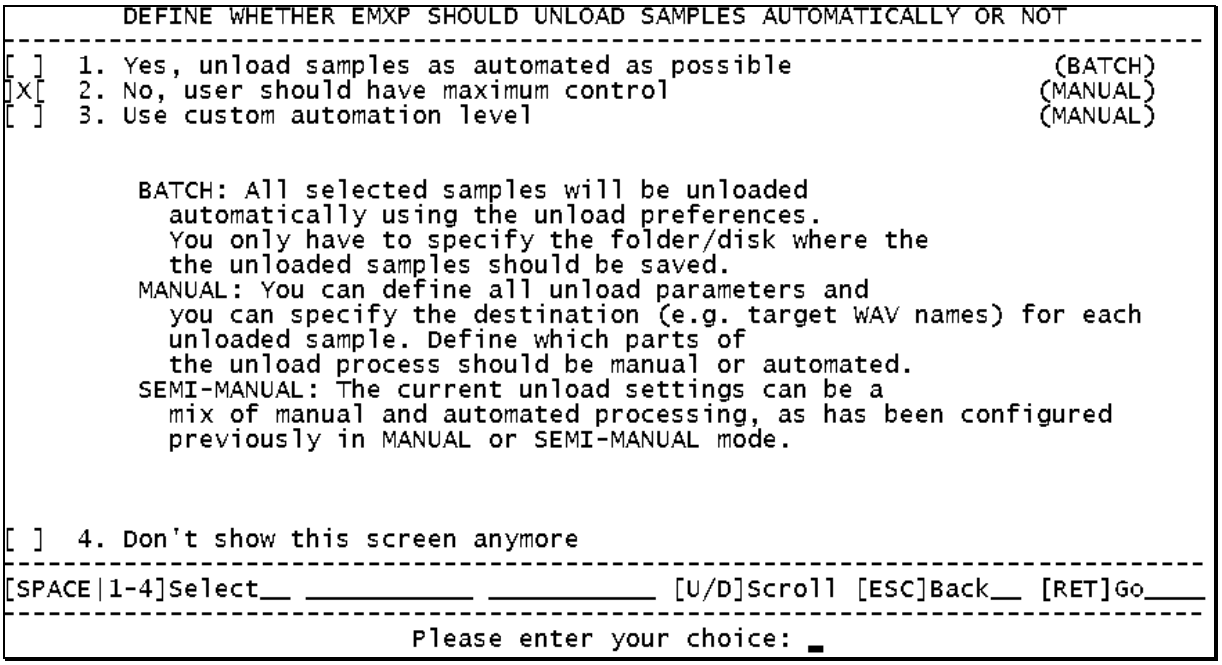
To download a sample from the Emulator-II:
"1. Manage EMU Files and Disks"→ "4. Manage EMU EMULATOR-II Files and Disks" → "8. Receive Samples from EMULATOR-II via RS422"→ [optionally (*): select a COM port number and press ENTER] → [wait while EMXP gets all key information of the current Emulator-II preset" → [select one or more keys from which you want to download the samples] → For each selected key → [select from which voice(s) you want to download the sample]

Note (*): see *section "9.9.4 Selecting the RS422 COM port"*.

Batch or manual sample unload process

After having selected the sample unload option EMXP will ask in which of the three modes you would like to proceed.
These three modes are similar to the ones that can be selected when copying or converting items in EMXP:

- *batch mode*, which allows for a fully automated unload of all samples on all selected keys
- *manual mode*, which allows for a fully manually controlled sample-per-sample unload process
- *semi-manual mode*, which allows for a partially automated and partial manually controlled sample unload process. The degree of automation can be defined by the user.



EMXP will *always show this screen* unless you explicitly ask EMXP not to do so by enabling "`4. Don't show this screen anymore`". In that case EMXP will select the mode that you have selected the last time when you ware unloading samples (or copying/converting sound banks).
You can always change the mode afterwards in the Automation/Workflow Preferences. See *section "10.2.1 Quick definition of settings for automated or manual processing"*.

- By selecting 1, the sample unload process will be done in a fully automated mode. The only user intervention required is selecting the target folder for the WAV files.
- By selecting 2, the sample unload process can be done in a fully manual mode. In practice this means that you will be able to define whether loops should be converted, you will have the possibility to provide a WAV file name for each individual sample that is being unloaded, and you will have the opportunity to decide how to deal with soft truncation if one or more of the selected samples have been soft truncated
- By selecting 3, you can define the level of automation yourself. In this custom automation level mode, you have the same possibilities as in a fully manual mode, but *you can configure which of the parameter request screens should be displayed and which should be skipped.* E.g. if you never want to be "bothered" with having to choose between the possibility to select the target file names yourself and the possibility that EMXP determines the target file names automatically, you can configure the workflow of EMXP in such way that this expected behaviour is taken into account. Hence the purpose of the custom automation level mode is to make the copy/conversion workflow more comfortable and to tune it to your needs.

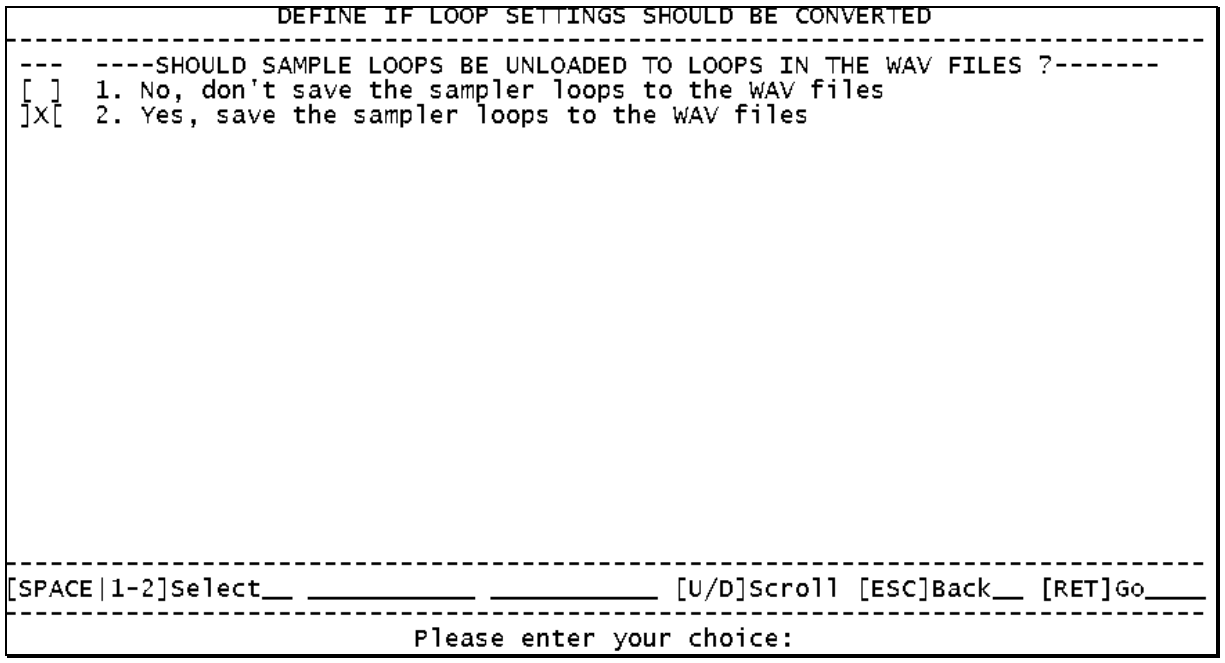
Select soft truncated or full length samples

If you have selected the MANUAL or SEMI-MANUAL mode, and at least one of the selected keys has a voice assigned to it which refers to a soft truncated sample, EMXP will now ask whether the soft truncated version of the sample(s) should be unloaded, or rather the original "full length" sample(s).
See *section "9.9.3 General characteristics"* for more details.

If you have selected the BATCH mode or automated MANUAL mode, EMXP will simply use the preference for this setting. See *section "10.6.6.1 Manage Emulator-II sample unload preferences"*.

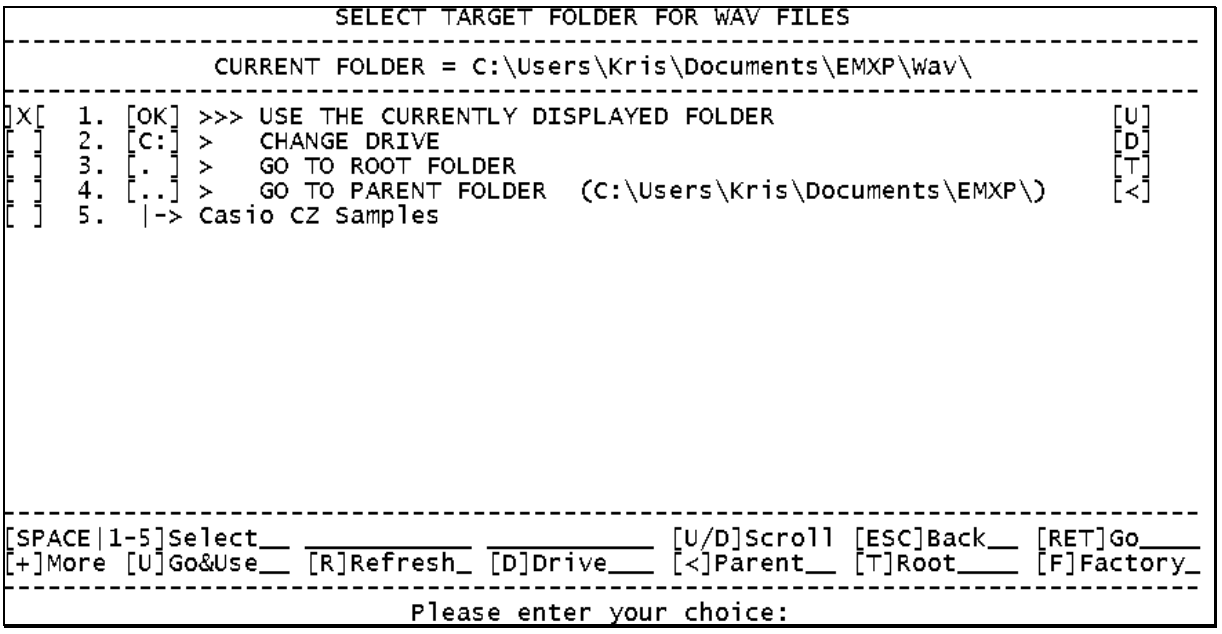
Loop conversion

If any of the samples on the selected keys have a loop enabled, EMXP can save this loop in the target WAV file. Whether EMXP should save the loop definitions can be defined in the screen shown below. This screen is only shown in MANUAL or in SEMI-MANUAL mode, and only if at least one of the samples contains a loop.



Select the target folder for the WAV files

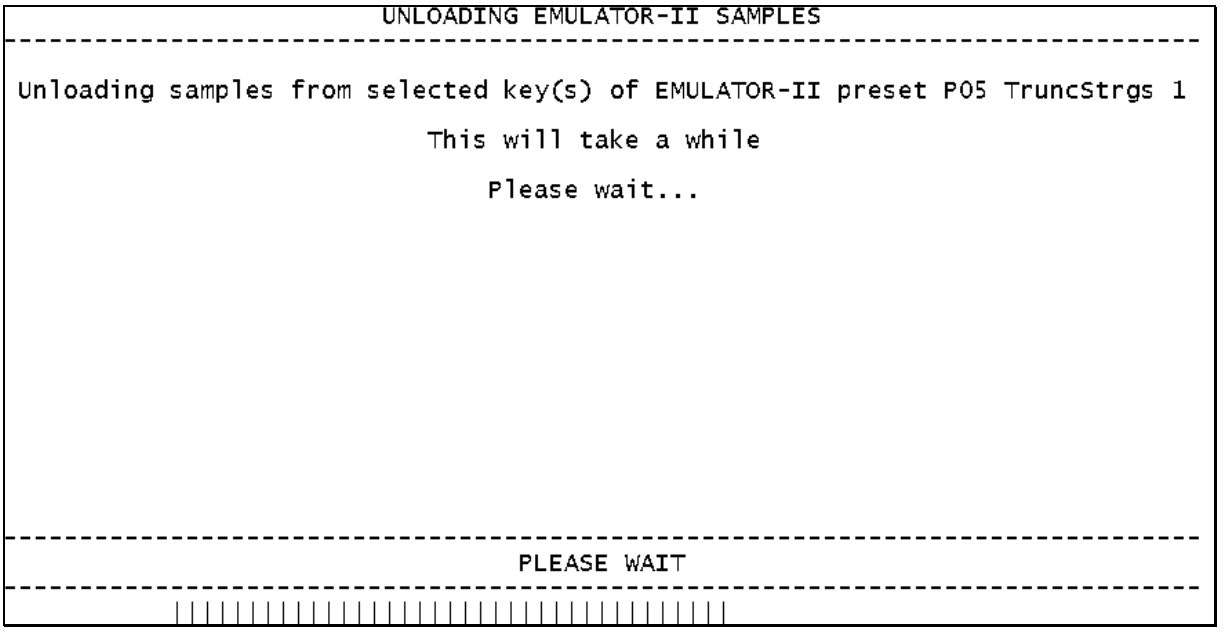
If you have selected the BATCH mode or if you specified that EMXP can select the target WAV file names in an automated way (in MANUAL or SEMI-MANUAL mode), EMXP will ask in which folder the WAV files should be saved. See picture below.



Starting the actual download of samples

EMXP will now start the actual unload of all selected samples.

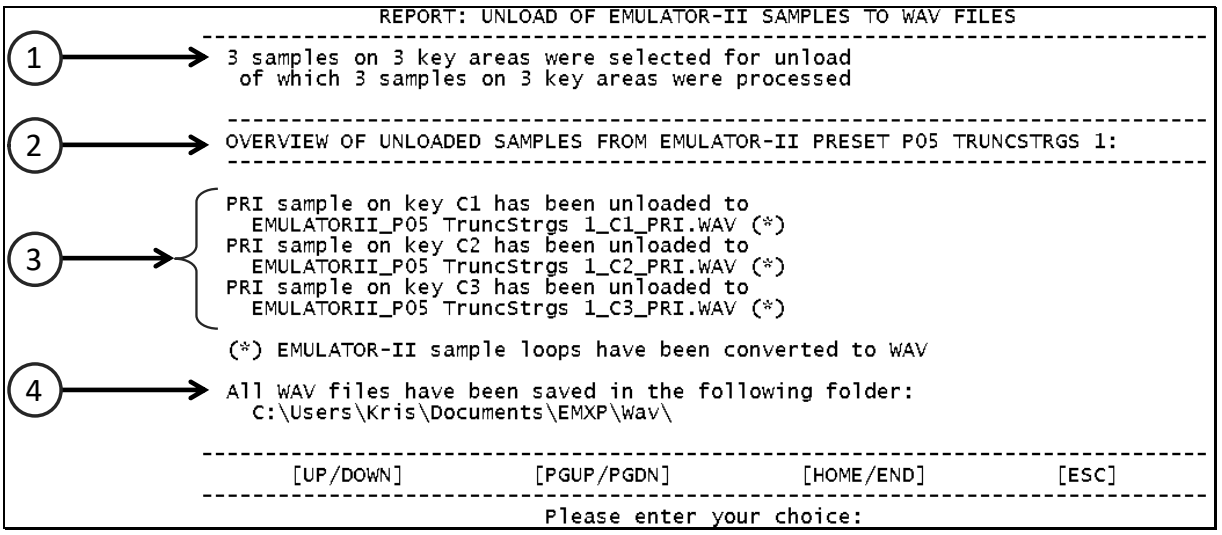
If multiple keys have been selected for sample download, EMXP will download each different sample only once. E.g. if 2 keys have been selected which have been assigned to the same PRI voice, the sample of this PRI voice will be downloaded only once.



If you have chosen to enter the target WAV file names yourself, EMXP will ask for a WAV file name *for each sample that is being unloaded.*

Sample unload execution report

Once the unload of all samples is finished, EMXP will display a report containing the results of the sample unload process:



In this example, 3 samples of Emulator-II preset "P05 TRUNCSTRGS 1" have been successfully downloaded:

- The first line summarizes how many samples from how many key areas have been unloaded. See (1).
- The report also shows from which preset the samples have been unloaded. See (2).
- For every unloaded sample, the report explains from which key and which layer (PRI/SEC) the sample originates, and in which target WAV file the sample has been saved. See (3).
- The (*) at the end of a WAV file indicates that loop(s) have been converted to the WAV file as well.
- The folder in which the WAV files have been saved can be found at the end of the report. See (4).

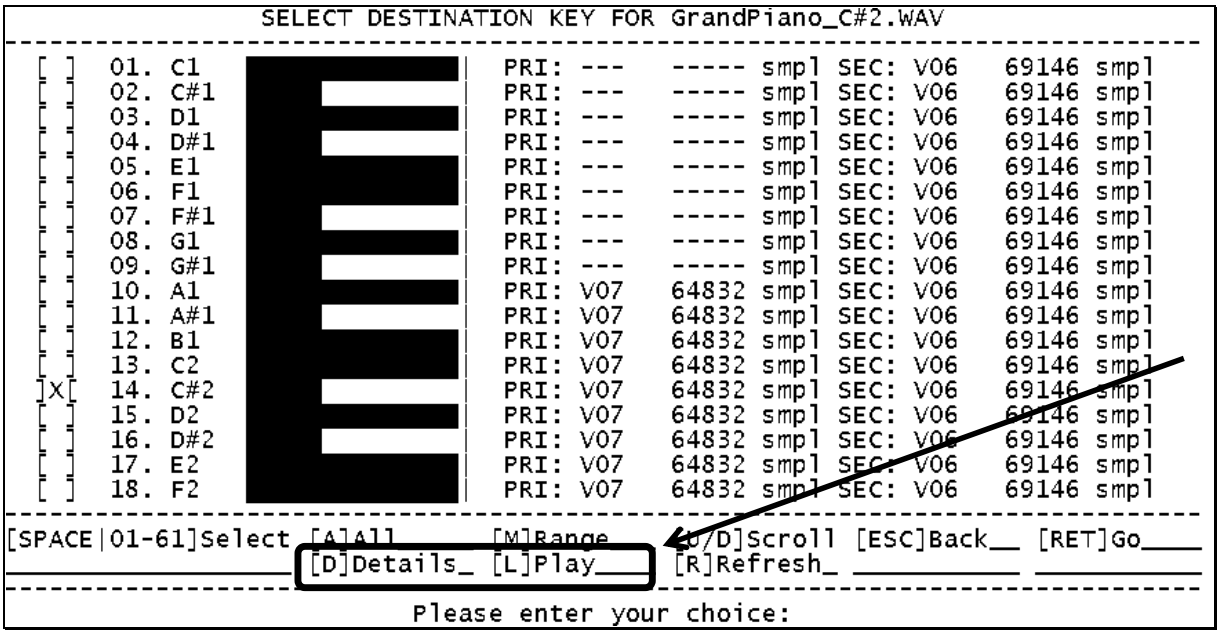
This report has been saved to disk as well, unless you explicitly instructed EMXP not to do so; see *section "10.8.1 Define how copy/conversion/unload results will be written to reports"*.

9.9.5.3 Getting information about the current sample on a selected key

When uploading or downloading WAV files, you might want to know more information about the samples/voices that are currently assigned to a particular key in the Emulator-II's current preset.

EMXP gives two options (besides the option to refresh the key map overview of the current preset):

- Play the sound on the Emulator-II for 2 seconds. This can be done
    - (when uploading or downloading:) by pressing 'L' on the key map overview, after having selected one of the keys. See picture below.
    - (when downloading:) by choosing *"6. Play Note on Key"* after having selected a key and having pressed [ENTER] on the key map overview screen.
- Get some basic information about the PRI and SEC voice, including sample information. This can be done
    - (when uploading and downloading:) by pressing 'D' on the key map overview, after having selected one of the keys. See picture below.
    - (when downloading:) by choosing *"7. Show Key Details"* after having selected a key and having pressed [ENTER] on the key map overview screen.



When uploading samples, the sound of the selected key can be played on the Emulator-II by pressing 'L'. More information about the samples and voices assigned to the selected key can be found by pressing 'D'

```
                DETAILS KEY C#2 OF PRESET P02 XfadeStrgs 1
--------------------------------------------------------------------------------
..CURRENT SAMPLER STATUS.....................................................

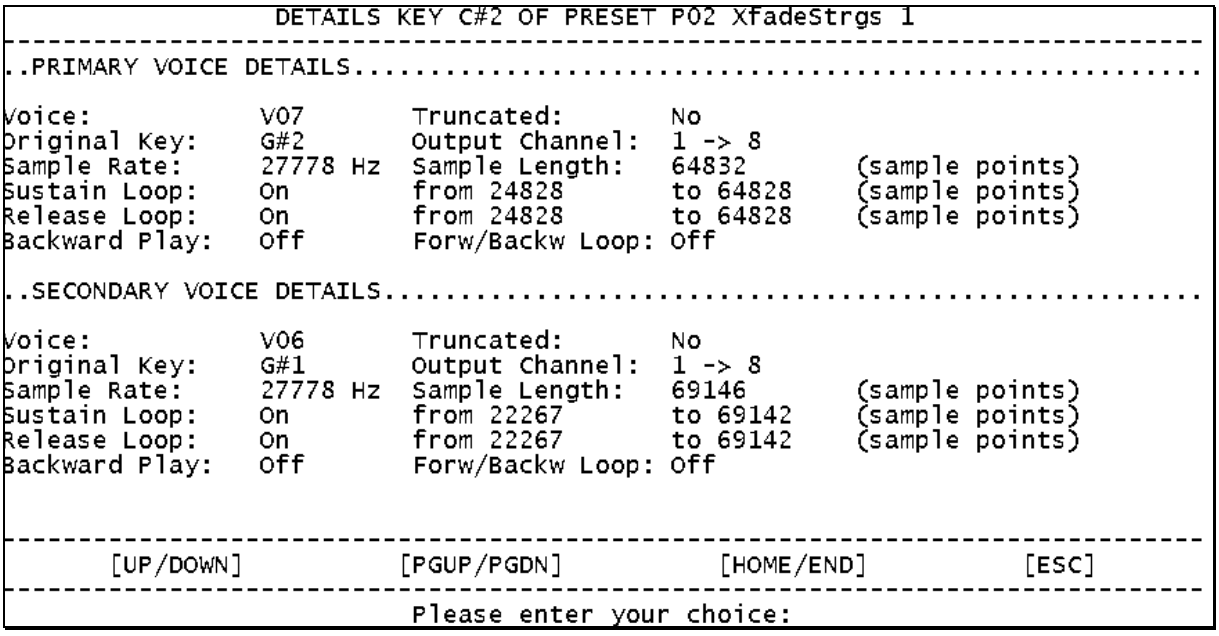
Sampler:                  EMULATOR-II
Operating System:         Software Rev.3.1
Available sample memory:  84465       sample points
Available preset memory:  10590       bytes
Current Preset:           P02  XfadeStrgs 1
Current MIDI Channel:     CH000

..KEY AREA DETAILS...........................................................

Selected Key:    C#2      (part of key area A1 -> G2)
Stereo Voice:    No
Crossfade:       Positional
Primary Voice on top of Secondary Voice

..VOICE AND SAMPLE DETAILS : See Next Page...................................


--------------------------------------------------------------------------------
      [UP/DOWN]          [PGUP/PGDN]          [HOME/END]          [ESC]
--------------------------------------------------------------------------------
                          Please enter your choice:
```



If you ask for more details of the selected key, the above information will be shown

9.10 TRANSFERRING WAV FILES TO SP-12 VIA MIDI

EMXP supports the real time load of WAV-files from a Windows computer to the SP-12.
Transferring samples from the SP-12 to WAV-files on a Windows computer is not supported however, because this operation is not supported by the SP-12 operating system.

The WAV-file transfers can be done through a standard MIDI connection. Please note that MIDI communication is pretty slow, so the transfer of large WAV-files can take quite a while (almost one minute for a sample of 2.5 seconds).

It is advised to save your sounds on the SP-12 (on floppy disk) before using the communication transfer functions. In exceptional cases MIDI dumps may cause the SP-12 to hang or to crash.

When running EMXP under Wine on macOS, MIDI communication with the SP-12 will not work. This is (most probably) due to the Wine software which expects the transferred MIDI messages to be 100% MMA-compliant, while SP-12 MIDI message are not MMA-compliant. See also paragraph *"MIDI MMA incompatibility"* in *section "9.7.3 General remarks"*.

9.10.1 MIDI Interface

In order to be able to set up a MIDI connection between EMXP and the SP-12, any MIDI interface for Windows should work fine.

9.10.2 Configuring EMXP for MIDI communication

EMXP is configured with default MIDI communication settings which should allow for a smooth communication with the SP-12.
However, depending on the type of MIDI hardware being used, or the Windows OS, the communication link could be less reliable than assumed by EMXP. If this is the case, you may encounter errors during uploading or downloading of the data.

Moreover the SP-12 is pushing the MIDI interface to its limits, e.g. a single packet is much larger than with any other MIDI sampler/synthesizer.

Some fine tuning of the configuration parameters for MIDI may be required to make the connection more reliable in your particular setup. See *section "10.6 COMMUNICATION PREFERENCES"* for more details.

9.10.3 General characteristics

The source files for uploading samples from the computer to the SP-12 should be **16-bit WAV files**, either mono or stereo.

The data transferred by EMXP are the **actual sound data** (samples) including some basic characteristics: the sample length and the sample rate. Optionally loop **settings can be transferred** as well, so you can define a starting and end loop point in the WAV file upfront with your favourite sound editor and transfer this loop along with the WAV sound data to the SP-12. Note however that the SP-12 has some important constraints regarding the loop settings (especially regarding the loop's end point), so you may decide not to transfer the loop settings even if the WAV-file contains a loop. See *section "7.7.5 SP-12"* for more details.

When uploading WAV-files to a selected target sound on the SP-12, the existing SP-12 sound will *be replaced*.

Sample size

The max. allowed sample size that can be transferred to the SP-12 is 32768 sample points for a Standard SP-12 and 131072 sample points for a Turbo SP-12 sampler. As a result, the maximum 16-bit WAV audio size (of one channel) that can be sent to the SP-12 is either 64KB or 256KB.

The actual maximum can be lower depending on the size of the samples which may already be available in the SP-12's memory. EMXP can't detect the available memory size in the SP-12. If there is no sufficient memory available, the SP-12 will raise an error and EMXP will cancel the transfer of the WAV-file.

Sample rate conversion

The SP-12 only supports one sample rate: 26040 Hz. EMXP will always perform a sample rate conversion to the 26040 Hz sample rate.

Stereo samples

The SP-12 doesn’t support stereo samples. If the selected WAV-file is a stereo WAV-file, it will be converted to a mono sample before sending it to the SP-12.

Transferring loops

Besides transferring the *audio* data, EMXP supports the transfer of *loops* as well - both in upload and unload mode. However EMXP will only transfer loops if you specifically request EMXP to do this, either by setting the preference (see *section "10.3.10.2 Define if loop settings should be converted to/from WAV files")* or by selecting this option in MANUAL or SEMI-MANUAL mode (see *section "9.10.5 How to upload samples with EMXP"*).

Following rules are applied by EMXP when uploading WAV-files:

- Only one WAV loop can be converted into an SP-12 sample loop. If the WAV files contain multiple loops, you can specify which of these loops should be subject for conversion. This can be done in the preferences (see *sections "10.3.10.3 Define which WAV loops should be used"* and *"10.3.10.4 Define which WAV loop type should be converted to sampler sustain loops"*) or by selecting these options in MANUAL or SEMI-MANUAL mode (see *section "9.10.5 How to upload samples with EMXP"*).
- The selected loop will converted into a *sustain loop* on the SP-12.
- If you instruct EMXP to transfer WAV loop information, but the source WAV file does not contain any loop, the loop of the uploaded sample will be disabled (switched OFF).
- If you instruct EMXP *not* to transfer WAV loop information, the loop of the uploaded sample will be disabled (switched OFF) as well.
- If the WAV loop is incompatible with the minimal SP-12 loop requirements (see *section "7.7.9 Issues with conversions of "loop" settings"*), EMXP will add blank bytes at the start and/or at the end of the sample in order to meet these minimal requirements. However this method does not resolve problems related to minimal loop lengths not being met, and the requirement that the SP-12 loop's end point should match the sample's end point.

Tune/Decay

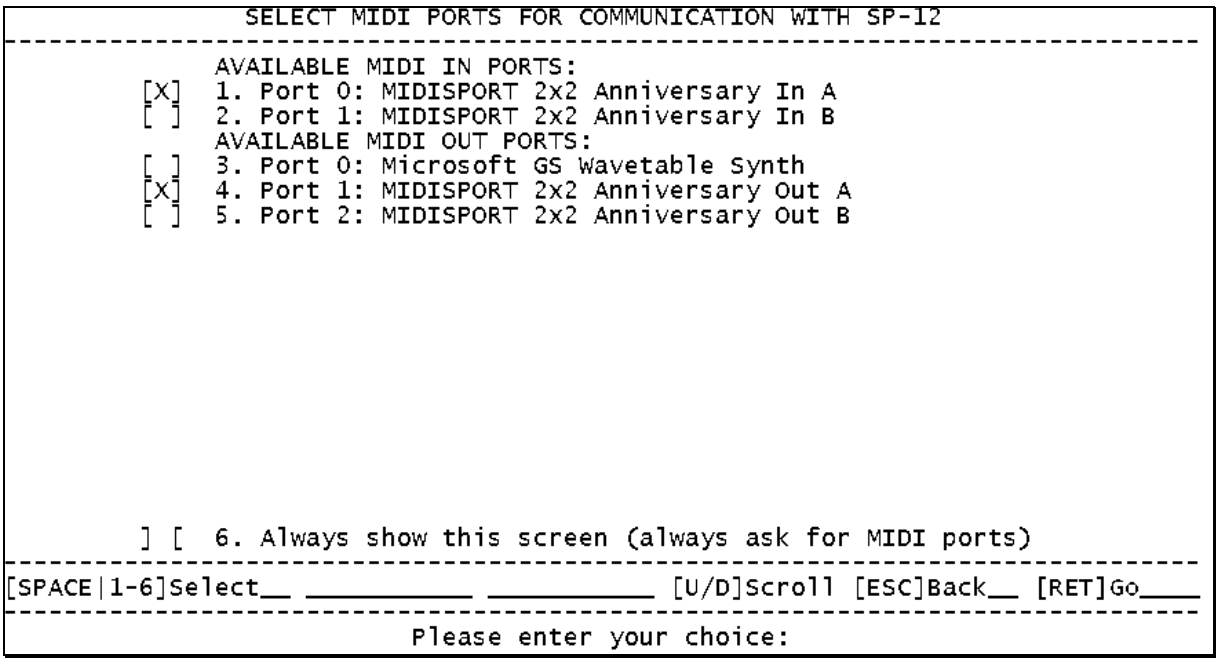
Although an uploaded WAV-file will always result in an un-transposed sound on the SP-12 without any additional tuning, it's possible to specify whether the WAV-files should result in *tuned* sounds or in *decayed* sounds. This can be done by setting the preference (see *section "10.3.6.8 Define tune/decay handling conversions from WAV to SP-12")* or by selecting this option in MANUAL or SEMI-MANUAL mode (see *section "9.10.5 How to upload samples with EMXP"*).
If you decide to convert the WAV-files into tuned sounds, the current value for the Default Decay in the SP-12 will be used as decay amount (EMXP won't change this default decay setting in the SP-12).

9.10.4 Selecting the MIDI ports

If MIDI communication with the SP-12 is used for the first time after a clean installation of EMXP, you will have to select the MIDI IN and MIDI OUT ports that will be used for the SP-12 in EMXP.

Once MIDI ports have been selected, EMXP will never ask for MIDI ports for the SP-12 again, except if

- the default MIDI ports can't be found anymore
- you have explicitly instructed EMXP to always ask for MIDI ports



By selecting the option "Always show this screen" in the screen above, EMXP will always ask for MIDI ports. The option number depends on the number of available MIDI ports, here it is option 6.
You can always change this mode - as well as the default MIDI ports - in the Communication Preferences menu. See *section "10.6.6.4 Define if MIDI ports should always be asked"* and *section "10.6.5 Manage SP-12 MIDI communication preferences"*.

9.10.5 How to upload samples with EMXP

Make sure you have a MIDI interface connected to your computer with one IN and one OUT port connected to the SP-12.

Starting the upload process

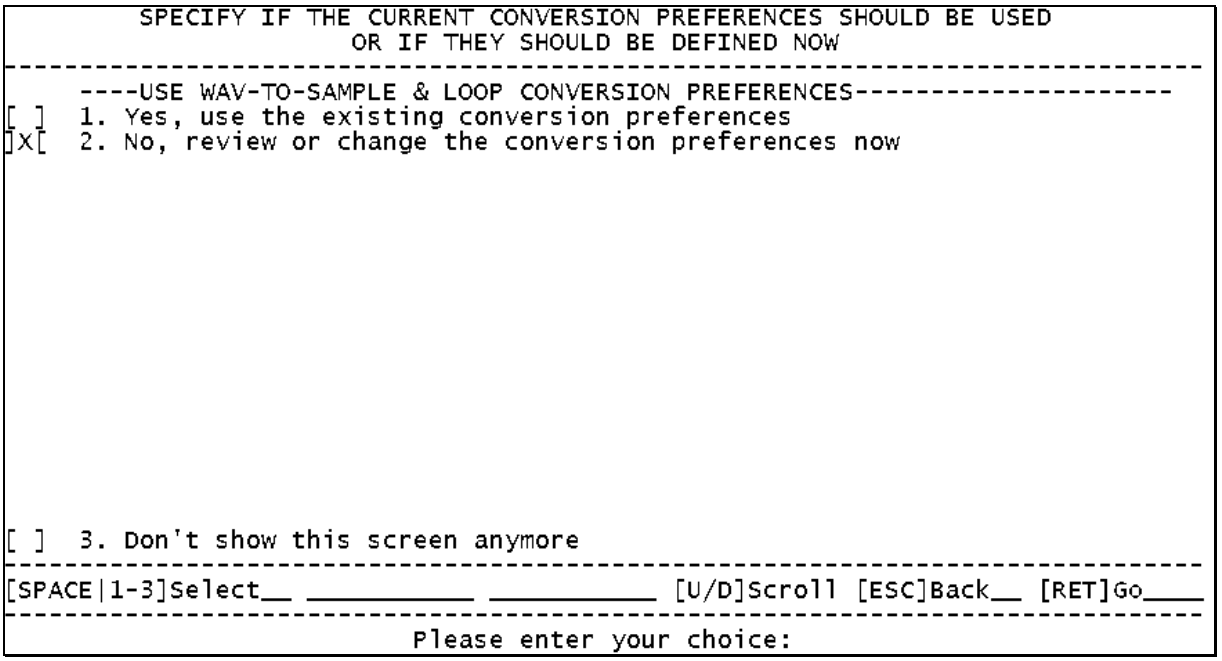
To upload a WAV file to the SP-12:
"3. Manage WAV Files" → "1. Manage WAV Files" → [select one or more WAV files and press ENTER] → [press 'S'] or [select "4. Send WAV File(s) to SP-12 via MIDI"]

Selecting the conversion parameters

EMXP will ask if you would like to specify the loop conversion and other SP-12 conversion parameters now, or if you would like to use the preferences instead.

Note that EMXP will *not* show the screen below if you have explicitly instructed EMXP not to do so. This can be done by activating option 3 "Don't show this screen anymore" at the bottom of the screen. This option can

also be set in the Advanced Automation/Workflow Preferences. See *section "10.2.2.1 Define if copy/conversion/unload preferences should always be asked", options 1 and 2.*

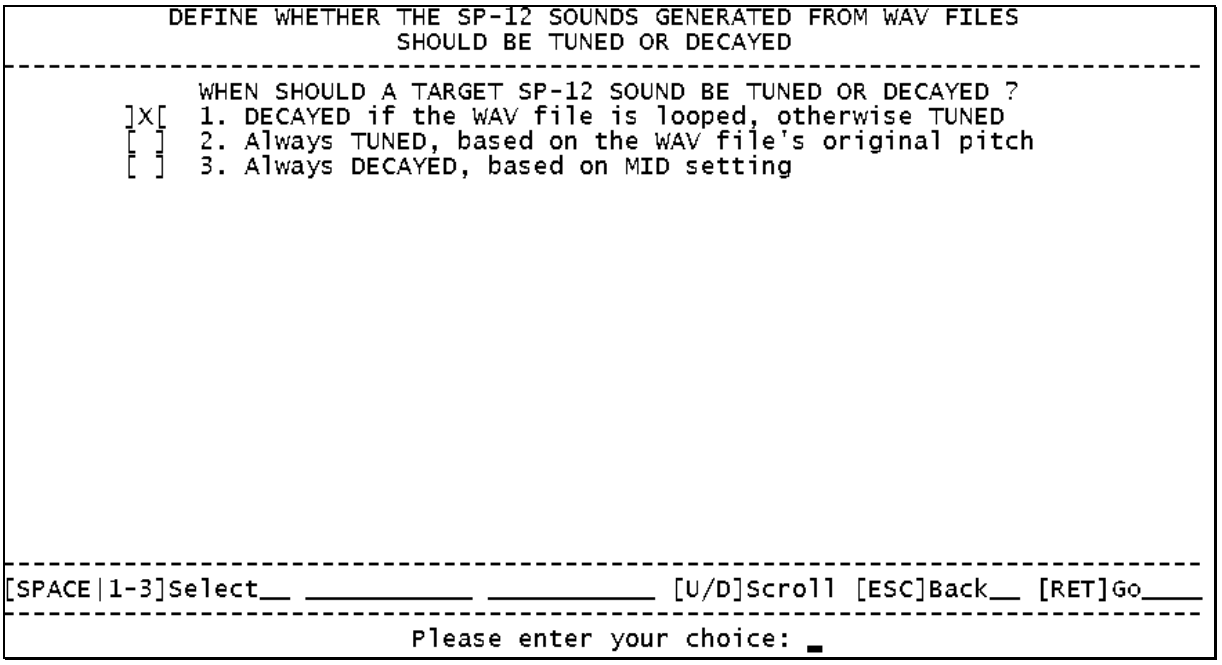


If you select **option 1**, EMXP will use the WAV-to-SP12-sample and loop conversion parameters as defined in the preferences. See *sections "10.3.10.2 Define if loop settings should be converted to/from WAV files", "10.3.10.3 Define which WAV loops should be used", "10.3.10.4 Define which WAV loop type should be converted to sampler sustain loops, "10.3.6.10 Define target SP-12 memory size for conversions to SP-12" and "10.3.6.8 Define tune/decay handling conversions from WAV to SP-12"*

If you select **option 2**, you can define the WAV-to-SP12-sample and loop conversion parameters now:

- The screens related to loop conversion settings will only appear if at least one of the selected WAV-files contains a loop. The process and screens to define the loop conversion parameters are the same as the ones explained in *section "7.3.9 Conversion from WAV".* We refer to that section for more details. *Note:* the screen in which you can select whether you would like to convert the loops or not looks slightly different than the one shown in *section "7.3.9 Conversion from WAV".* See picture below. The meaning of the available options is identical however.
- The other WAV-to-SP12-sample conversions settings that can be defined are
    - The target SP-12 memory size (standard or turbo). This setting will only be used to validate whether the total size of the selected WAV-files would in the SP-12 memory if all of this memory would be available (not use any SP-12 sound yet).
    - The Tune/Decay setting of the target SP-12 sounds

  The process and screens to define these parameters are the same as the ones explained in *section "7.3.6.2 Conversion from WAV files".* We refer to that section for more details. *Note:* the screen in which you can select the Tune/Decay setting looks different than the one shown in *section "7.3.6.2 Conversion from WAV files".* See picture below. The options related to the Default Decay parameter are not shown, since EMXP will not change/set this parameter when uploading WAV-files. The meaning of the other options is identical however.



Continuing the upload process

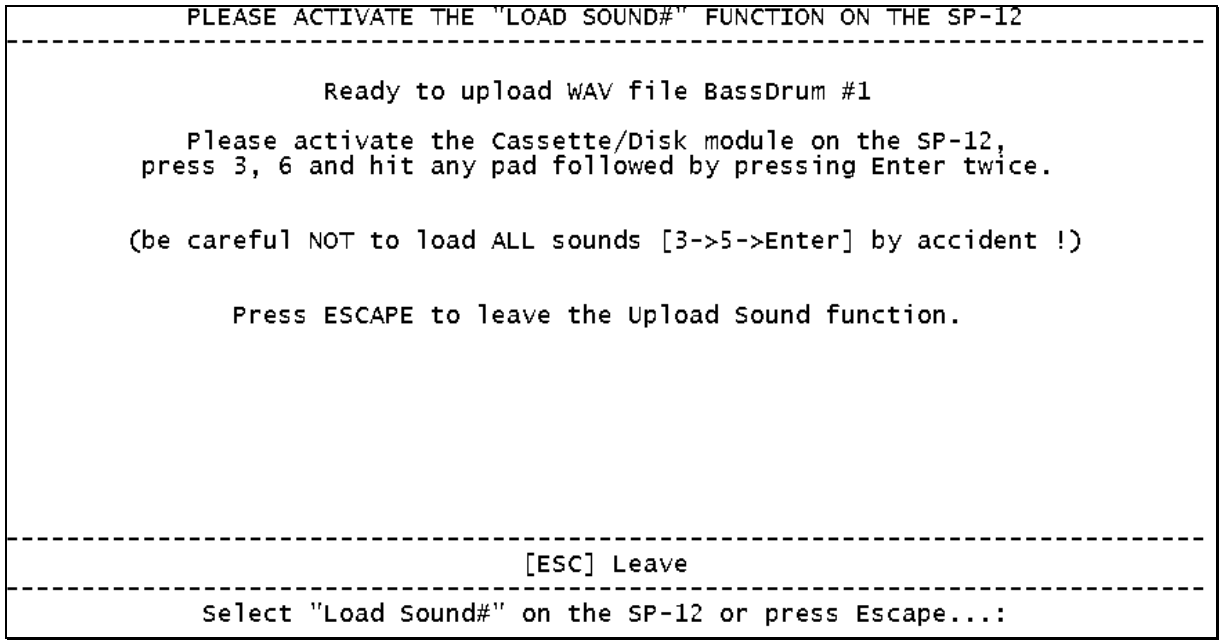
After (optionally) having specified how EMXP should deal with WAV loops and the Tune/Decay settings, you can now continue the sample upload process:

[optionally (**): select a MIDI IN and MIDI OUT port and press ENTER] → *For each selected WAV-file (*)* → [on SP-12: activate Cassette/Disk module and press 3 and 6, followed by pressing any sound pad, followed by ENTER twice] → [EMXP automatically starts uploading the WAV-file]

(*) Before allowing a WAV-file to be uploaded to the SP-12, EMXP will perform some validations. These validations are done for each selected WAV-file individually. If a WAV-file violates the SP-12 limits, a "validation error" screen will be displayed, and EMXP will jump to the next WAV-file. See *section "7.3.14 Validation check when converting WAV files"* for an overview of the possible validation errors.

(**) See *section "9.10.4 Selecting the MIDI ports"*.

The screen that will appear when EMXP is waiting for the "Load Sound#" instruction from the SP-12 looks like this:



You can upload the WAV-file by invoking a "Load Sound#" instruction (3→6) on the SP-12. Any target sound location can be chosen on the SP-12.
Be careful not to invoke the "Load Sounds" instruction (3→5), because that would result in assigning the WAV-file to *all 32 sounds at once*.

Once you have started the "Load Sound#" (3→6→select a sound→ENTER→ENTER) function in the Cassette/Disk Module on the SP-12, EMXP will automatically "*awake"* and respond by sending the requested data to the SP-12. If EMXP does not react, you may have to change some MIDI preferences. See *section "10.6.5 Manage SP-12 MIDI communication preferences"*.

If more than one WAV-file has been selected for upload, the procedure described above will be repeated for each selected WAV-file.

9.11 CREATING REPORTS CONTAINING BANK-PRESET OVERVIEWS

9.11.1 Introduction

EMXP can generate reports showing for each selected **bank** the **presets** which belong to that bank.

Two types of reports can be generated:

- TEXT reports: these are *plain vanilla* .TXT files containing the report in a readable format
- CSV reports: these are *comma separated value* .CSV files containing the report in a structured format which can easily be recognized and interpreted by software programs like Microsoft Excel (with the Data Import function). In a CSV report each data element (bank number, bank name, preset number, …) is separated by a so-called *delimiter character*, which is typically a *comma (",")*. The delimiter used by EMXP can be changed in *"6. Preferences"* → *"7. Manage Reporting and Log Preferences"* → *"2. Define Delimiter Character for CSV Reports"*.

The reports can be saved to a user-selectable folder on your computer.

In order to generate a Bank/Preset overview report, EMXP always needs a **set of banks (or bank files) selected by the user first.** Any bank or bank file overview screen of EMXP can be used to select the set of banks which should be subject of the report. Akai S1000 files however are not supported by the reporting engine, nor are Emulator-I and SP-12 banks because those only contain one preset per bank and these presets don't have a meaningful name. For SP-12 there is another reporting function available, which generates reports containing the sounds, segments and songs of selected SP-12 files. See *section "9.12 CREATING REPORTS CONTAINING SP-12 BANK-SOUND/SEQUENCE OVERVIEWS"*.
Here's a list of the overview screens supported for reporting:

- EMAX-I/EMAX-II:
  - Bank Files
  - EMX Files
  - Floppy Disk image files
  - HxC Floppy Disk image files
  - Sound Designer for EMAX Files
  - Bank on an EMAX floppy disk
  - Banks on an EMAX (partition of a SCSI2SD) hard disk (zip disk, cd-rom, memory card, …)
  - Banks on an EMAX (partition of a SCSI2SD) hard disk image file
- Emulator-II:
  - Bank Files (Sound Designer for Emulator-II files)
  - Floppy Disk image files
  - HxC Floppy Disk image files
  - Banks on an Emulator-II hard disk
  - Banks on an Emulator-II hard disk image file, like a DREM .DSK file
- Emulator-III/Emulator-IIIX/ESI:
  - Bank Files
  - Banks on an Emulator-III/IIIX/ESI (partition of a SCSI2SD) hard disk (cdrom, SD card, …)
  - Banks on an Emulator-III/IIIX/ESI (partition of a SCSI2SD) hard disk image file
- SoundFont2:
  - SoundFont2 Files

9.11.2 Location and file name of report files

EMXP will always ask for the name and the folder of a report before generating the report and writing it to disk. The file extension is added to the file name by EMXP:

- .TXT for text reports
- .CSV for comma separated value reports

9.11.3 How to generate a report

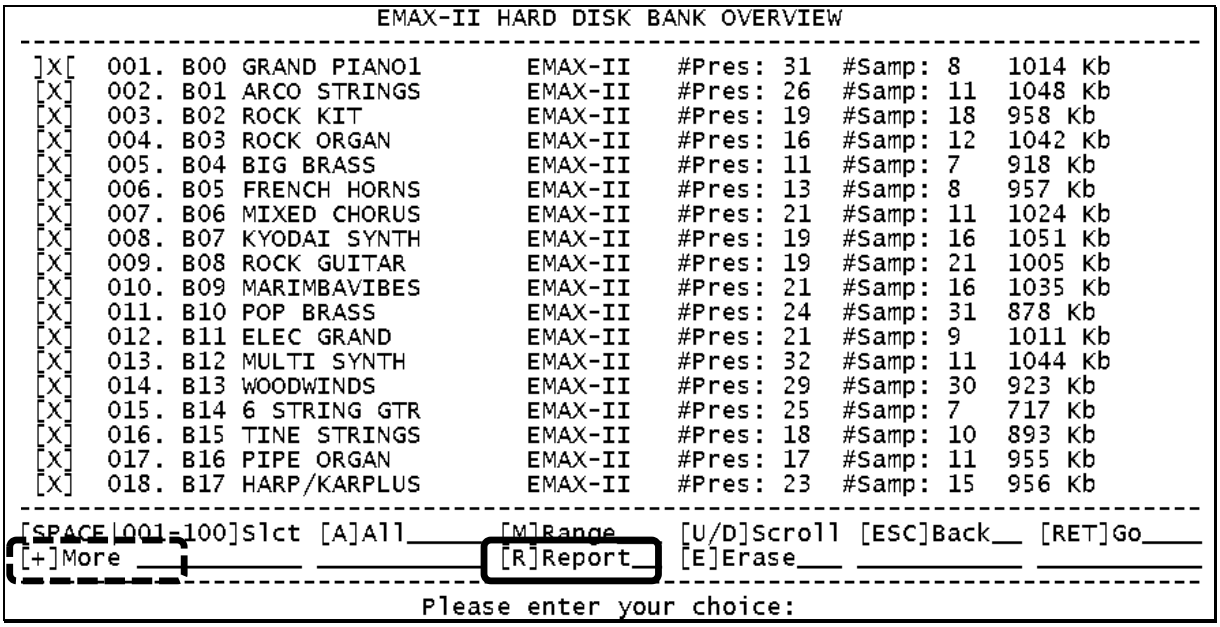
As just explained, any bank overview screen can be the starting point for generating a report.
In each of these bank overview screens, you can select one or more – or even all – banks for which EMXP should create the report.

Hint: if you want to create a report of the contents of an EMAX-I, EMAX-II, Emulator-II or Emulator-III/IIIX/ESI cdrom, hard disk or SCSI2SD partition, simply go to the bank overview screen of that cdrom , hard disk, or SCSI2SD partition and select *all banks* (by pressing 'A' and Enter).

Example: we will show how to create a report of the EMAX-II Elements Of Sound Volume 1 cdrom.

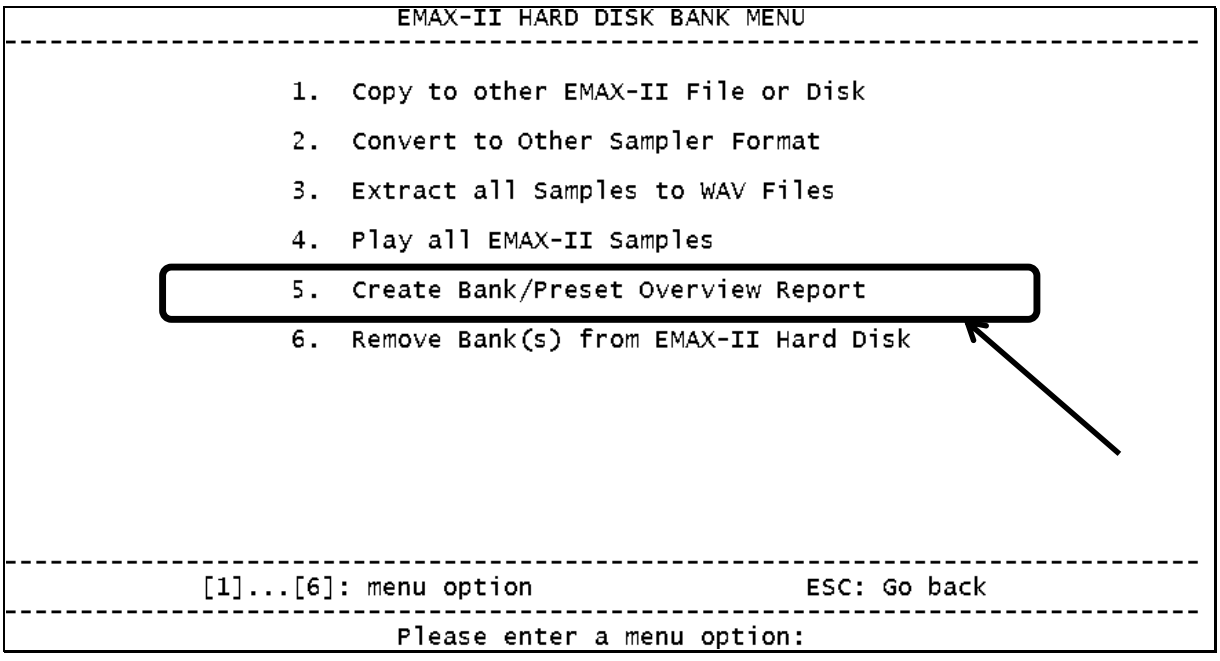
- *"1. Manage EMU Files and Disks" → "2. Manage EMU EMAX-II Files and Disks" → "5. Manage EMAX-II Hard Disks" → [select the drive] → [press 'B'] or [select "1. Manage Banks on EMAX-II Hard Disk"]*

- In the bank overview screen, select all banks which should be subject of the report. Since we want to have a report of the full cdrom, we simply *press 'A'* (for 'All banks')

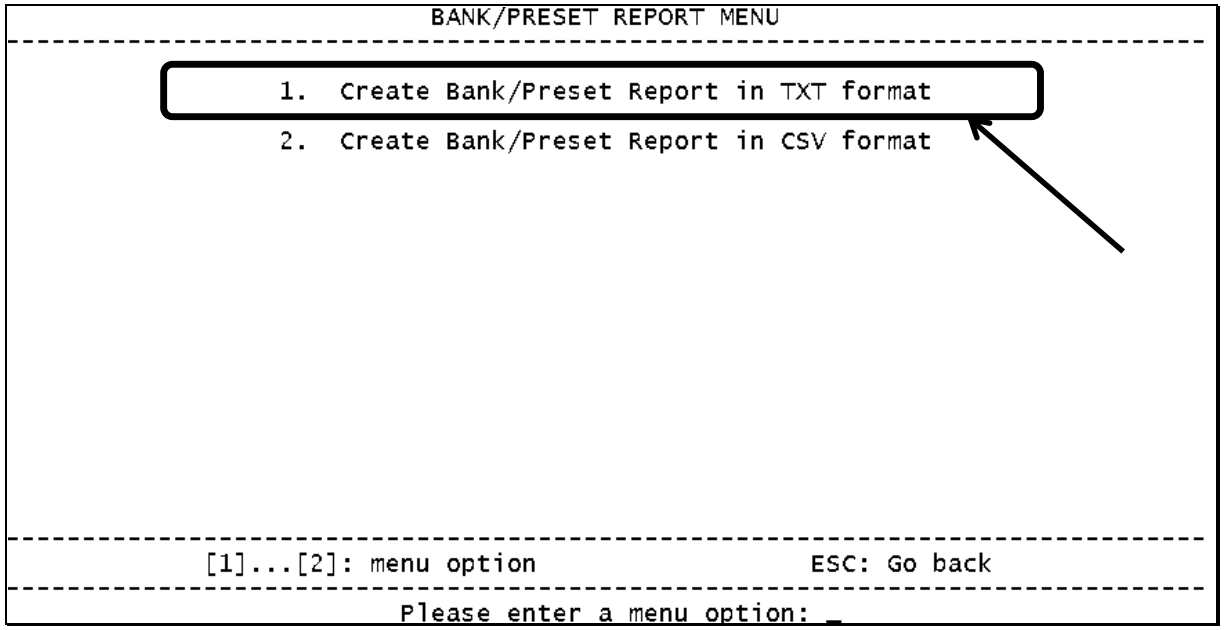


All banks have been selected in the EMAX-II Hard Disk bank overview screen

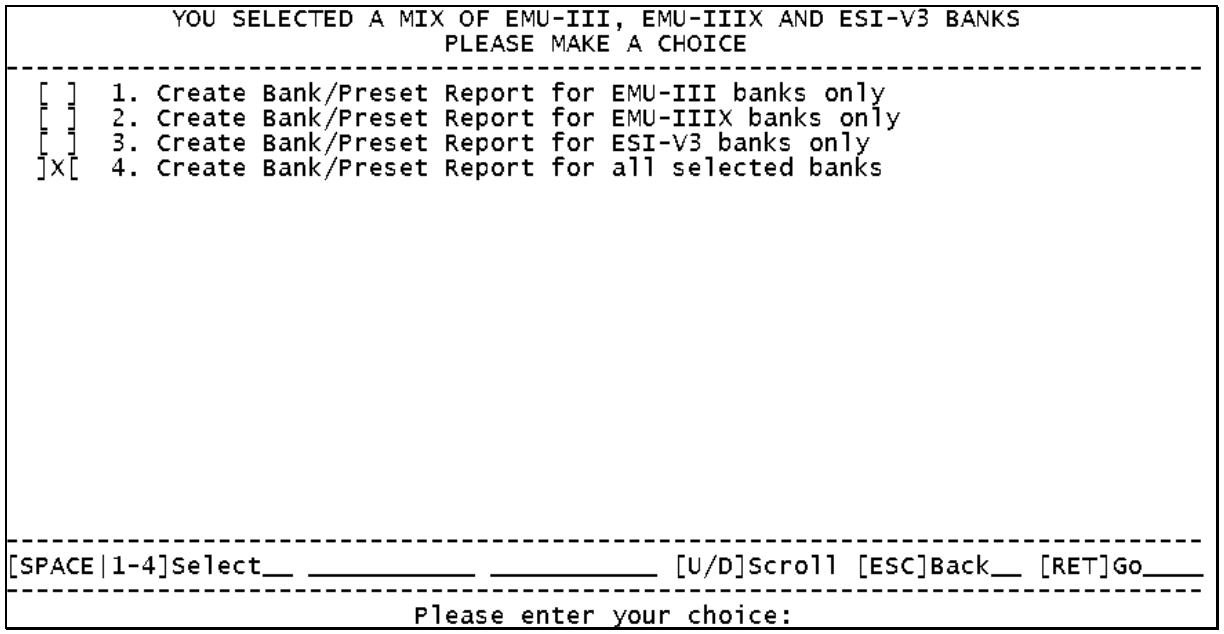
- Press 'R' in the bank overview screen, or press Enter and select *"5. Create Bank/Preset Overview Report"* from the menu after.



- Then select the type of report that you want to create: TXT or CSV. In this example, we will generate a TXT report: *"1. Create Bank/Preset Report in TXT format"*

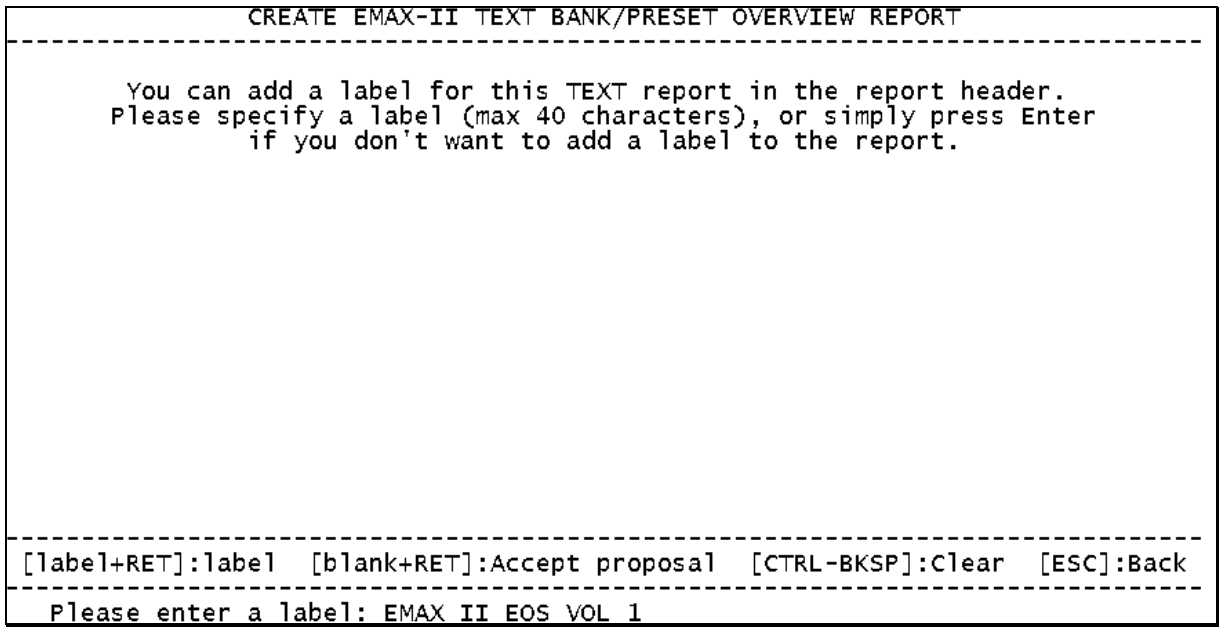


- When creating a report for banks on an Emulator-III/IIIX/ESI hard disk or hard disk image, you may have selected a mix of Emulator-III, Emulator-IIIX and ESI-V3 banks. If this is true, EMXP offers the possibility to limit the report to banks in one of these sampler formats only, or to include all selected banks in the report. *This screen will not appear when creating reports for other types of disks or images or for other sampler formats.*

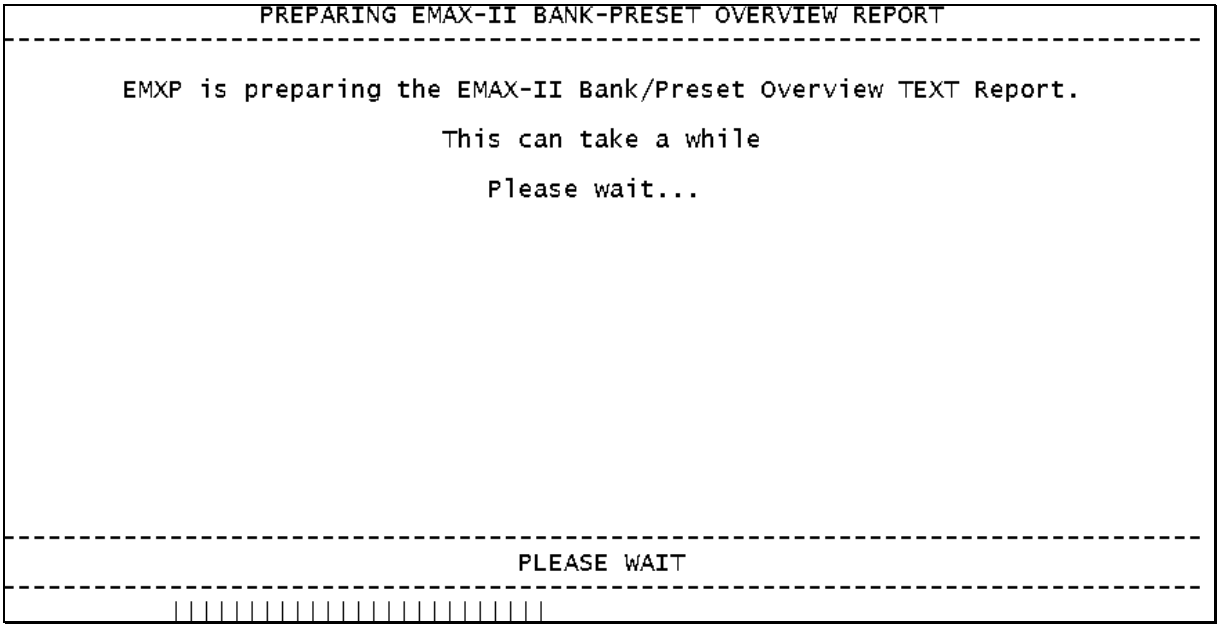


- EMXP will ask for the report file name and folder now. You can either replace an existing file or select the "`-- NEW FILE --`" item in which case EMXP will give a suggestion for a file name, which can be accepted by simply pressing Enter, or which can be replaced by a new name. The *file extension* (.TXT or .CSV) should NOT be part of the name – it will be added by EMXP automatically.

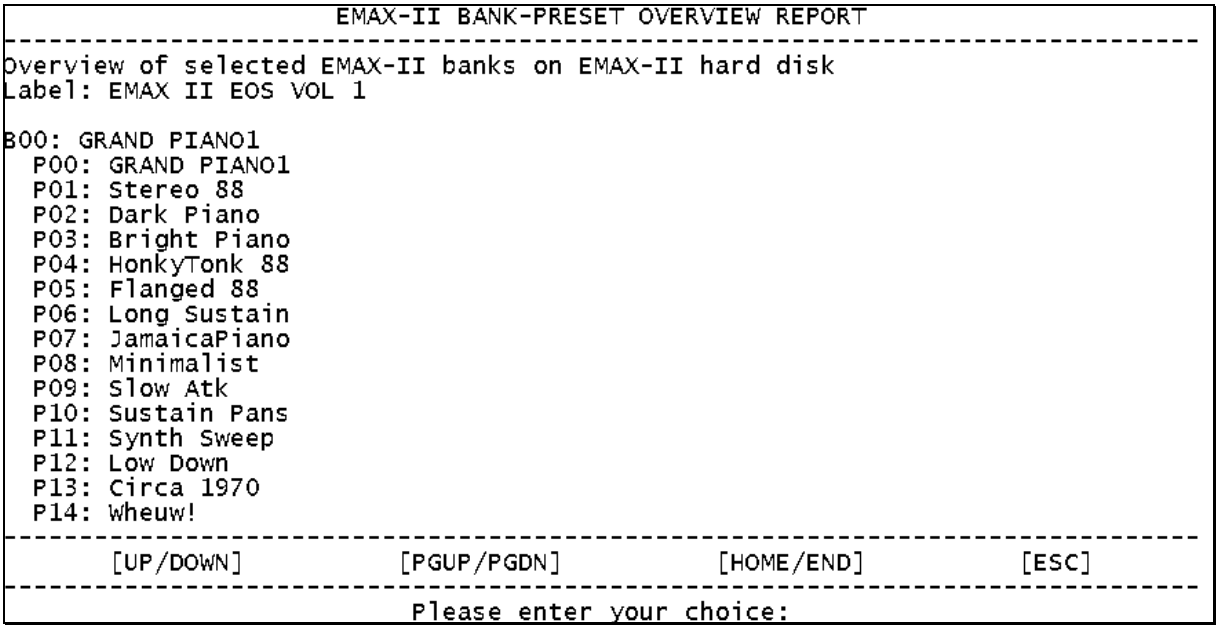
- *(For TEXT reports only:)* Optionally you can also provide a *label* which will be printed as part of the report title at the beginning of the report. The title (automatically generated) and the user-provided label are only generated in TEXT report.



- The report generation is performed now. Note that the process for collecting the bank and preset data can take quite some time, especially when EMAX-I, EMAX-II or Emulator-III/IIIX/ESI hard disks/cdroms are being used…



- When the report generation is finished, you will be informed by EMXP. By pressing any key on that screen, the TEXT version of the report will be shown *even if you have chosen to generate a CSV report.* The real report (TEXT or CSV) can be found in the previously selected folder on your computer's drive.



- Here’s a part of the actual TEXT report that can be found in the selected folder:

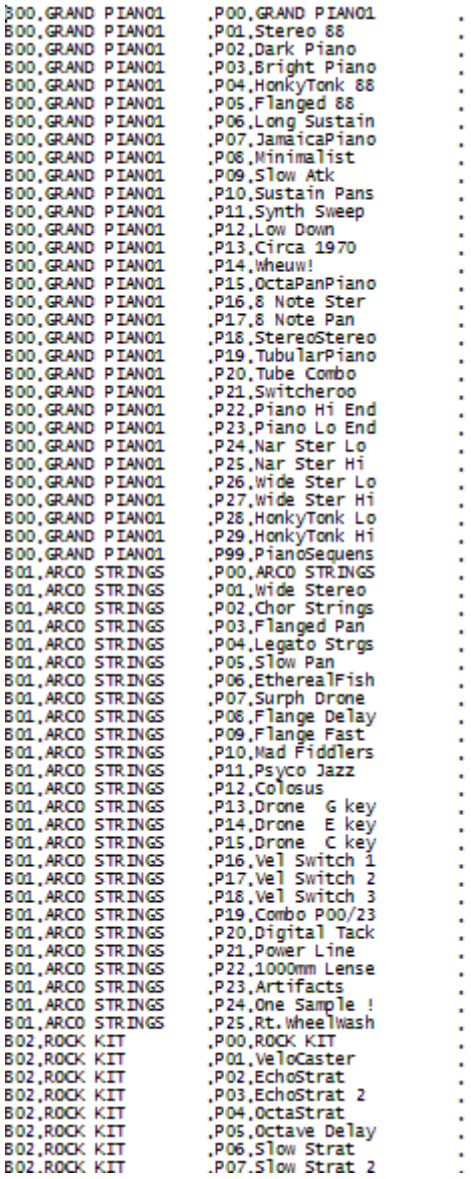
```
Overview of selected EMAX-II banks on EMAX-II hard disk
Label: EMAX II EOS VOL 1

B00: GRAND PIANO1
  P00: GRAND PIANO1
  P01: Stereo 88
  P02: Dark Piano
  P03: Bright Piano
  P04: HonkyTonk 88
  P05: Flanged 88
  P06: Long Sustain
  P07: JamaicaPiano
  P08: Minimalist
  P09: Slow Atk
  P10: Sustain Pans
  P11: Synth Sweep
  P12: Low Down
  P13: Circa 1970
  P14: Wheuw!
  P15: OctaPanPiano
  P16: 8 Note Ster
  P17: 8 Note Pan
  P18: StereoStereo
  P19: TubularPiano
  P20: Tube Combo
  P21: Switcheroo
  P22: Piano Hi End
  P23: Piano Lo End
  P24: Nar Ster Lo
  P25: Nar Ster Hi
  P26: Wide Ster Lo
  P27: Wide Ster Hi
  P28: HonkyTonk Lo
  P29: HonkyTonk Hi
  P99: PianoSequens

B01: ARCO STRINGS
  P00: ARCO STRINGS
  P01: Wide Stereo
  P02: Chor Strings
  P03: Flanged Pan
  P04: Legato Strgs
  P05: Slow Pan
  P06: EtherealFish
  P07: Surph Drone
  P08: Flange Delay
  P09: Flange Fast
  P10: Mad Fiddlers
  P11: Psyco Jazz
  P12: Colosus
  P13: Drone  G key
  P14: Drone  E key
  P15: Drone  C key
  P16: Vel Switch 1
  P17: Vel Switch 2
  P18: Vel Switch 3
  P19: Combo P00/23
  P20: Digital Tack
  P21: Power Line
  P22: 1000mm Lense
  P23: Artifacts
  P24: One Sample !
  P25: Rt.Wheelwash

B02: ROCK KIT
  P00: ROCK KIT
  P01: VeloCaster
  P02: EchoStrat
  P03: EchoStrat 2
  P04: OctaStrat
  P05: Octave Delay
  P06: Slow Strat
  P07: Slow Strat 2
```

- Here's how the same report would look like in CSV format:



9.11.4 Description of the TEXT report structure

A TEXT report is built up as follows:

```
TITLE
LABEL
Blank line
[Iteration of:]
      BANK RECORD
      [Iteration of:]
            PRESET RECORD
      Blank line
```

- The TITLE is always present and is automatically generated.
- The LABEL is only generated if a non-empty label string has been provided by the user. This label is preceded by the prefix "LABEL:"

- The order in which banks are reported is:
    - By ascending Bank Number if the banks are on an EMU hard disk or hard disk image file (or on an EMU partition on a SCSI2SD hard disk or hard disk image file)
    - By the order in which the banks/bank files were shown on the overview screen where the user made the selection, if the banks are individual bank images on the computer's hard disk.
- The order in which presets are reported is by ascending Preset Number.
- A BANK RECORD is structured as follows:

  `[B<Bank Number>: ]<Bank Name>[ (<Bank Type>)][ (ERROR<Error Number>)][ <File Name>]`

  Except for the bank name, which will always be shown, the other information is only shown under specific conditions:
  - Bank Number is only reported if the bank is on an EMU hard disk or hard disk image file.
  - Bank Type is only reported if the set of banks consists of a mixture of either EMAX-I and EMAX-II banks, or Emulator-III, Emulator-IIIX and ESI banks. The possible values are:
    - EMAX-I
    - EMAX-II
    - EMU-III
    - EMU-IIIX
    - ESI
  - The error information is only shown if the bank is corrupt. The provided information is the actual error code corresponding to the error.
  - File Name is only reported if the bank is in an individual bank image file on the computer's hard disk; it is not reported for EMU hard disks or hard disk image files.
- A PRESET RECORD is structured as follows:

  (E-Mu:) `P<Preset Number>: <Preset Name>[ (ERROR<Error Number>)]`
  (SF2:) `B<MIDI Bank Number>-P<MIDI Preset Number>: <Preset Name>[ (ERROR<Error Number>)]`

  Preset Number (or MIDI Bank Number and MIDI Preset Number in case of SoundFont2) and Preset Name are always reported.
  - The error information is only shown if the preset is corrupt. The provided information is the actual error code corresponding to the error.
  - If the bank is a SoundFont2 bank, the preset number does *not correspond* with the location of the preset in the SF2 bank (which is rather random). Instead, the MIDI Bank number and MIDI Preset number are being shown.

9.11.5 Description of the CSV report structure

A CSV report is built up as follows:

```
[Iteration of:]
      BANK-PRESET RECORD
```

A BANK-PRESET RECORD is constructed as follows:

- For E-Mu banks:

  `[B<Bank Number>,]<Bank Name>,[<Bank Type>,][ERROR<Error Number>,][<File Name>,]P<Preset Number>,<Preset Name>,[ERROR<Error Number>,]`
- For SF2 banks:

  `[B<Bank Number>,]<Bank Name>,[<Bank Type>,][ERROR<Error Number>,][<File Name>,]B<MIDI Bank Number>-P<MIDI Preset Number>,<Preset Name>,[ERROR<Error Number>,]`

For more information about these data items and under which conditions they are being reported or not, see **Description of the TEXT report structure** in the previous section.

The "," delimiter character shown in the above syntax can actually be another delimiter character, depending on the delimiter character that has been defined in the "6. Preferences" menu.

9.12 CREATING REPORTS CONTAINING SP-12 BANK-SOUND/SEQUENCE OVERVIEWS

9.12.1 Introduction

Specifically for SP-12 files, EMXP can generate reports showing

- for each selected **sound bank file** the **sounds** which belong to that sound bank file
- for each selected **sequence file** the **segments and songs** which belong to that sequence file

Since SP-12 sounds, segments and songs can have user-defined names instead of the factory names, the reports will contain both the user-defined names and the factory names. If no user-defined names have been assigned, the factory name will be used instead of the user-defined name, so the factory name will appear twice.

Only non-empty sounds - both ROM and RAM - will be reported for sound bank files; empty RAM sounds will be skipped.
For sequence files, only defined segments and defined songs will be reported; unrecorded segments and songs will be skipped.

Two types of reports can be generated:

- TEXT reports: these are *plain vanilla* .TXT files containing the report in a readable format
- CSV reports: these are *comma separated value* .CSV files containing the report in a structured format which can easily be recognized and interpreted by software programs like Microsoft Excel (with the Data Import function). In a CSV report each data element (file name, sound name, …) is separated by a so-called *delimiter character*, which is typically a *comma (",")*. The delimiter used by EMXP can be changed in *"6. Preferences" → "7. Manage Reporting and Log Preferences" → "2. Define Delimiter Character for CSV Reports".*

The reports can be saved to a user-selectable folder on your computer.

In order to generate a Bank/Sound overview report, EMXP needs a **set of sound bank files selected by the user first.** In order to generate a Bank/Sequence overview report, EMXP needs a **set of sequence files selected by the user first.**

9.12.2 Location and file name of report files

EMXP will always ask for the name and the folder of a report before generating the report and writing it to disk. The file extension is added to the file name by EMXP:

- .TXT for text reports
- .CSV for comma separated value reports

9.12.3 How to generate a report

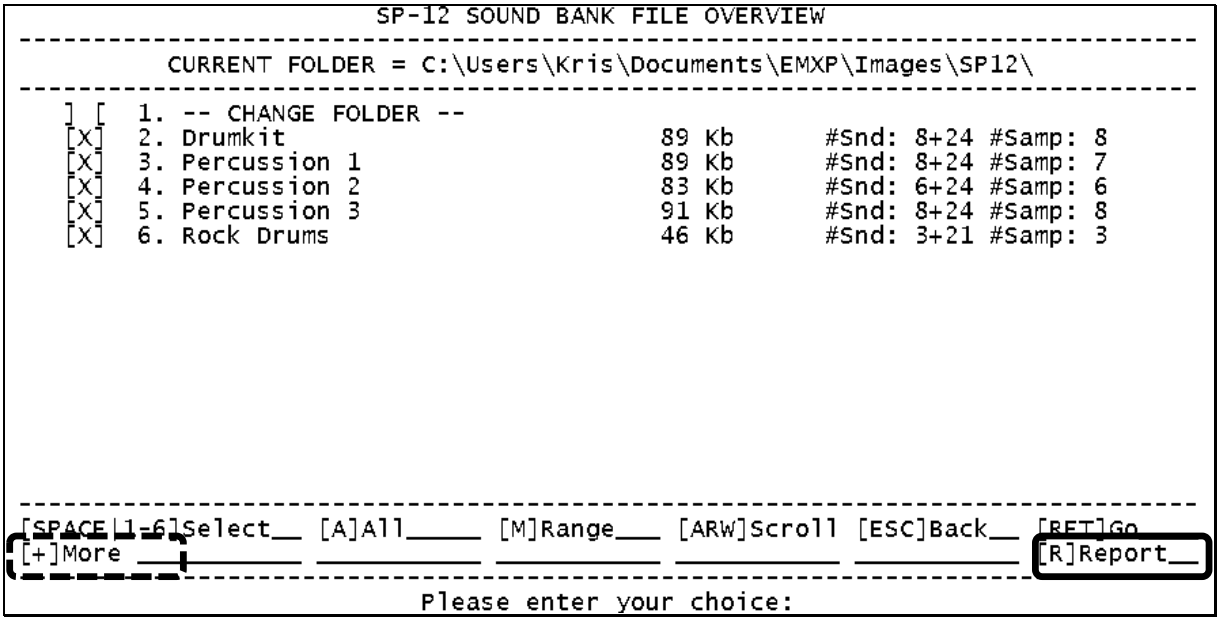
As just explained, you first have to select one or more SP-12 files. Either SP-12 sound bank files or SP-12 sequence files should be selected; it's not possible to generate a report for a mix of sound bank files and sequence files.

Hint: if you want to create a report of the contents of all SP-12 files in a folder, simply go to the file overview screen, navigate to the folder and select *all files* (by pressing 'A' and Enter).

Example: we will show how to create a report of all SP-12 sound bank files in a folder.

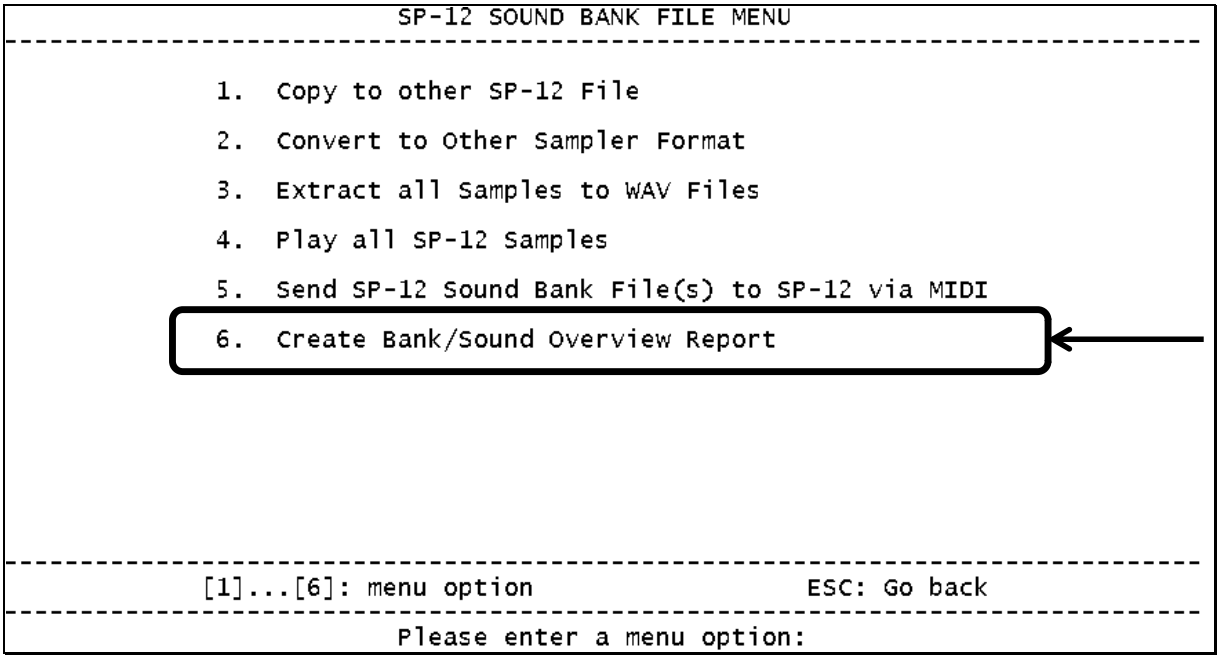
- *"1. Manage EMU Files and Disks" → "6. Manage EMU SP-12 Files" → "1. Manage SP-12 Sound Bank Files"*

- In the SP-12 sound bank file overview screen, select all files which should be subject of the report. Since we want to have a report of the all files in the folder, we simply *press 'A'* (for 'All files')

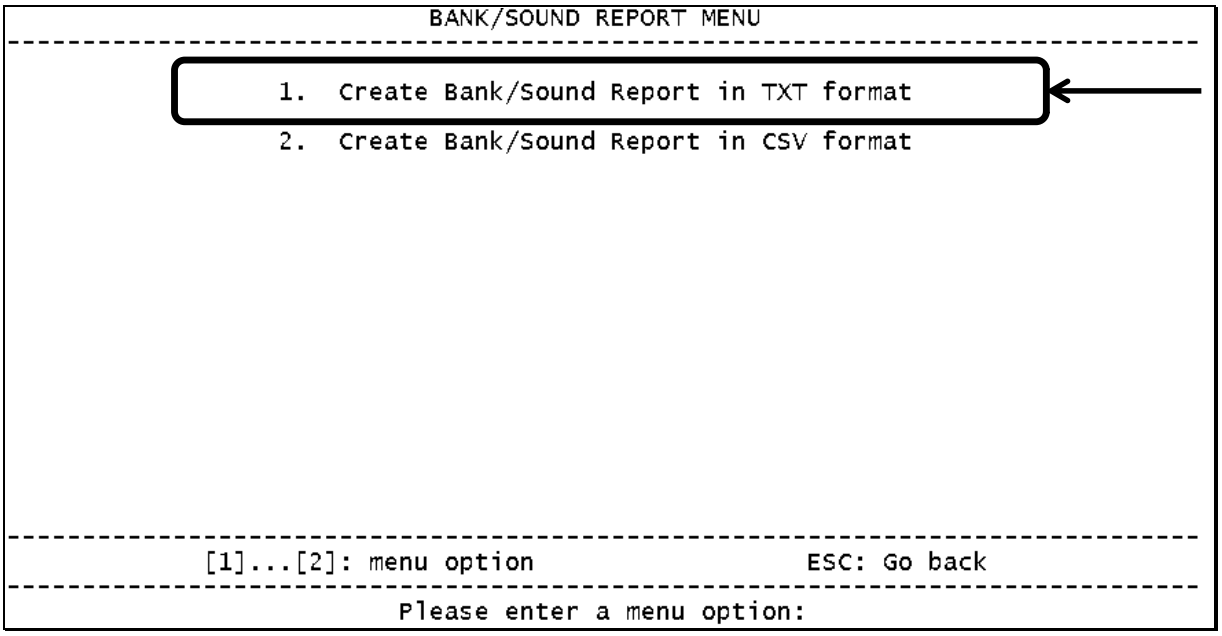


All files have been selected in the SP-12 sound bank file overview screen

- Press 'R' in the bank overview screen, or press Enter and select *"6. Create Bank/Sound Overview Report"* from the menu.

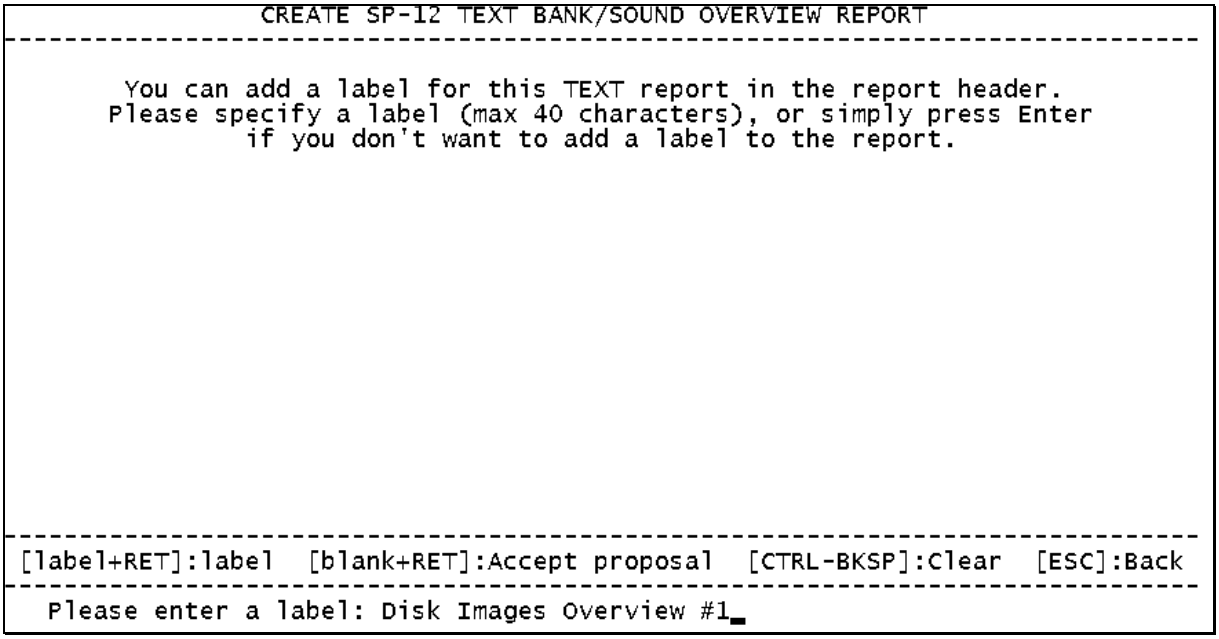


- Then select the type of report that you want to create: TXT or CSV. In this example, we will generate a TXT report: *"1. Create Bank/Sound Report in TXT format"*

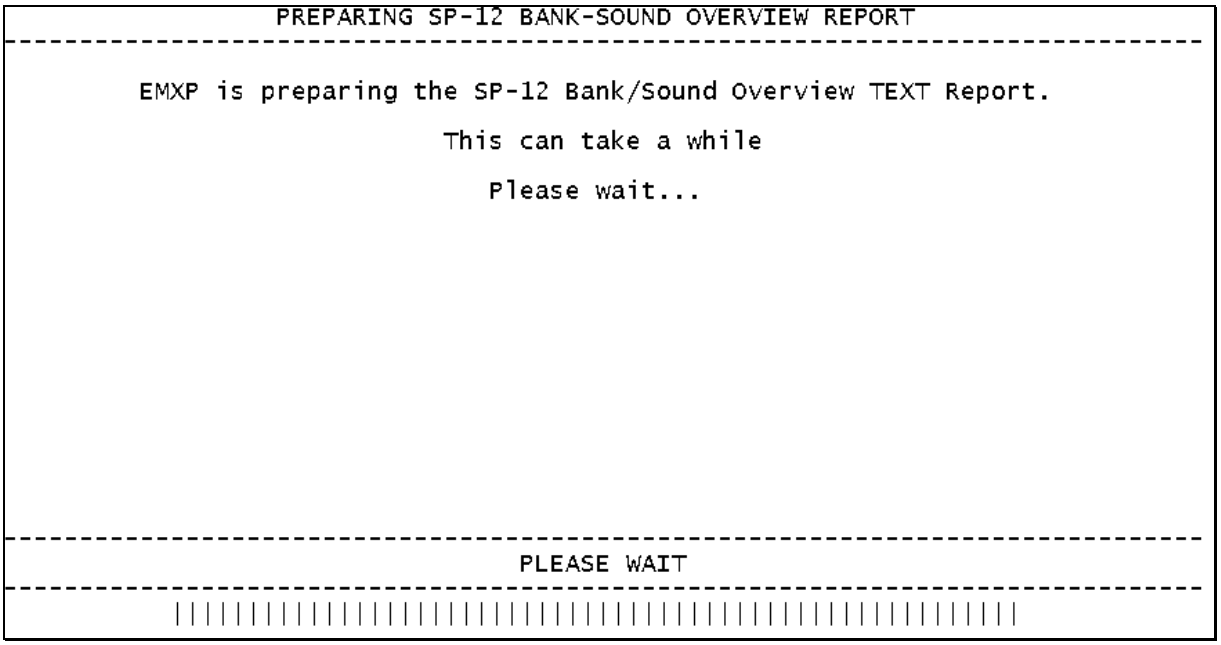


- EMXP will ask for the report file name and folder now. You can either replace an existing file or select the "`-- NEW FILE --`" item in which case EMXP will give a suggestion for a file name, which can be accepted by simply pressing Enter, or which can be replaced by a new name. The *file extension* (.TXT or .CSV) should NOT be part of the name – it will be added by EMXP automatically.

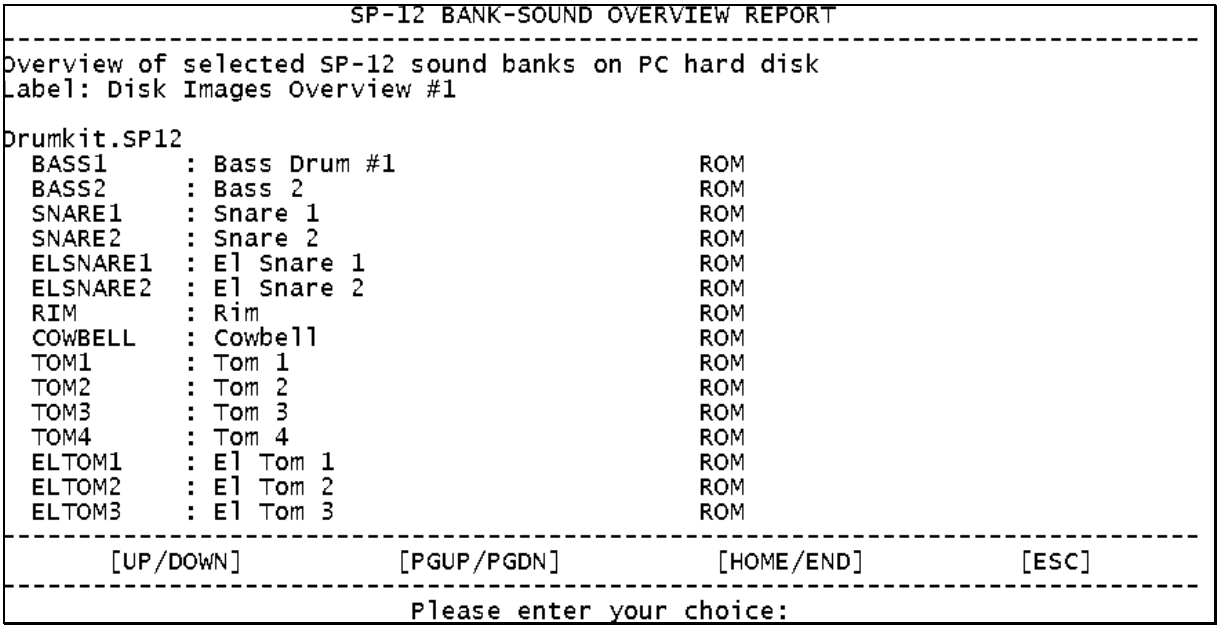
- *(For TEXT reports only:)* Optionally you can also provide a *label* which will be printed as part of the report title at the beginning of the report. The title (automatically generated) and the user-provided label are only generated in TEXT report.



- The report generation is performed now. Note that the process for collecting the sound data can take quite some time, especially when a lot of SP-12 files have been selected…



- When the report generation is finished, you will be informed by EMXP. By pressing any key on that screen, the TEXT version of the report will be shown *even if you have chosen to generate a CSV report.* The real report (TEXT or CSV) can be found in the previously selected folder on your computer's drive.



- Here's a part of the actual TEXT report that can be found in the selected folder:

```
Overview of selected SP-12 sound banks on PC hard disk
Label: Disk Images Overview #1

Drumkit.SP12
  BASS1     : Bass 1                      ROM
  BASS2     : Bass 2                      ROM
  SNARE1    : Snare 1                     ROM
  SNARE2    : Snare 2                     ROM
  ELSNARE1  : El Snare 1                  ROM
  ELSNARE2  : El Snare 2                  ROM
  RIM       : Rim                         ROM
  COWBELL   : Cowbell                     ROM
  TOM1      : Tom 1                       ROM
  TOM2      : Tom 2                       ROM
  TOM3      : Tom 3                       ROM
  TOM4      : Tom 4                       ROM
  ELTOM1    : El Tom 1                    ROM
  ELTOM2    : El Tom 2                    ROM
  ELTOM3    : El Tom 3                    ROM
  ELTOM4    : El Tom 4                    ROM
  HIHAT1    : Hihat 1                     ROM
  HIHAT2    : Hihat 2                     ROM
  HIHAT3    : Hihat 3                     ROM
  CLAPS1    : Claps 1                     ROM
  CLAPS2    : Claps 2                     ROM
  RIDE1     : Ride 1                      ROM
  RIDE2     : Ride 2                      ROM
  CRASH     : Crash                       ROM
  USER1     : Kick 2                     *RAM
  USER2     : Snare 1                    *RAM
  USER3     : Snare 2                    *RAM
  USER4     : Soft Hat                   *RAM
  USER5     : Hard Hat                   *RAM
  USER6     : Edge Hat                   *RAM
  USER7     : Open Hat Srt               *RAM
  USER8     : Rim                        *RAM

Percussion 1.SP12
  BASS1     : Bass 1                      ROM
  BASS2     : Bass 2                      ROM
  SNARE1    : Snare 1                     ROM
  SNARE2    : Snare 2                     ROM
  ELSNARE1  : El Snare 1                  ROM
  ELSNARE2  : El Snare 2                  ROM
  RIM       : Rim                         ROM
  COWBELL   : Cowbell                     ROM
  TOM1      : Tom 1                       ROM
  TOM2      : Tom 2                       ROM
  TOM3      : Tom 3                       ROM
  TOM4      : Tom 4                       ROM
  ELTOM1    : El Tom 1                    ROM
  ELTOM2    : El Tom 2                    ROM
  ELTOM3    : El Tom 3                    ROM
  ELTOM4    : El Tom 4                    ROM
  HIHAT1    : Hihat 1                     ROM
```

- Here's how the same report would look like in CSV format:

```
Drumkit.SP12,BASS1     ,Bass 1                          , ROM,
Drumkit.SP12,BASS2     ,Bass 2                          , ROM,
Drumkit.SP12,SNARE1    ,Snare 1                         , ROM,
Drumkit.SP12,SNARE2    ,Snare 2                         , ROM,
Drumkit.SP12,ELSNARE1  ,El Snare 1                      , ROM,
Drumkit.SP12,ELSNARE2  ,El Snare 2                      , ROM,
Drumkit.SP12,RIM       ,Rim                             , ROM,
Drumkit.SP12,COWBELL   ,Cowbell                         , ROM,
Drumkit.SP12,TOM1      ,Tom 1                           , ROM,
Drumkit.SP12,TOM2      ,Tom 2                           , ROM,
Drumkit.SP12,TOM3      ,Tom 3                           , ROM,
Drumkit.SP12,TOM4      ,Tom 4                           , ROM,
Drumkit.SP12,ELTOM1    ,El Tom 1                        , ROM,
Drumkit.SP12,ELTOM2    ,El Tom 2                        , ROM,
Drumkit.SP12,ELTOM3    ,El Tom 3                        , ROM,
Drumkit.SP12,ELTOM4    ,El Tom 4                        , ROM,
Drumkit.SP12,HIHAT1    ,Hihat 1                         , ROM,
Drumkit.SP12,HIHAT2    ,Hihat 2                         , ROM,
Drumkit.SP12,HIHAT3    ,Hihat 3                         , ROM,
Drumkit.SP12,CLAPS1    ,Claps 1                         , ROM,
Drumkit.SP12,CLAPS2    ,Claps 2                         , ROM,
Drumkit.SP12,RIDE1     ,Ride 1                          , ROM,
Drumkit.SP12,RIDE2     ,Ride 2                          , ROM,
Drumkit.SP12,CRASH     ,Crash                           , ROM,
Drumkit.SP12,USER1     ,Kick 2                          ,*RAM,
Drumkit.SP12,USER2     ,Snare 1                         ,*RAM,
Drumkit.SP12,USER3     ,Snare 2                         ,*RAM,
Drumkit.SP12,USER4     ,Soft Hat                        ,*RAM,
Drumkit.SP12,USER5     ,Hard Hat                        ,*RAM,
Drumkit.SP12,USER6     ,Edge Hat                        ,*RAM,
Drumkit.SP12,USER7     ,Open Hat Srt                    ,*RAM,
Drumkit.SP12,USER8     ,Rim                             ,*RAM,
Percussion 1.SP12,BASS1     ,Bass 1                          , ROM,
Percussion 1.SP12,BASS2     ,Bass 2                          , ROM,
Percussion 1.SP12,SNARE1    ,Snare 1                         , ROM,
Percussion 1.SP12,SNARE2    ,Snare 2                         , ROM,
Percussion 1.SP12,ELSNARE1  ,El Snare 1                      , ROM,
Percussion 1.SP12,ELSNARE2  ,El Snare 2                      , ROM,
Percussion 1.SP12,RIM       ,Rim                             , ROM,
Percussion 1.SP12,COWBELL   ,Cowbell                         , ROM,
Percussion 1.SP12,TOM1      ,Tom 1                           , ROM,
Percussion 1.SP12,TOM2      ,Tom 2                           , ROM,
Percussion 1.SP12,TOM3      ,Tom 3                           , ROM,
Percussion 1.SP12,TOM4      ,Tom 4                           , ROM,
Percussion 1.SP12,ELTOM1    ,El Tom 1                        , ROM,
Percussion 1.SP12,ELTOM2    ,El Tom 2                        , ROM,
Percussion 1.SP12,ELTOM3    ,El Tom 3                        , ROM,
Percussion 1.SP12,ELTOM4    ,El Tom 4                        , ROM,
Percussion 1.SP12,HIHAT1    ,Hihat 1                         , ROM,
Percussion 1.SP12,HIHAT2    ,Hihat 2                         , ROM,
Percussion 1.SP12,HIHAT3    ,Hihat 3                         , ROM,
Percussion 1.SP12,CLAPS1    ,Claps 1                         , ROM,
Percussion 1.SP12,CLAPS2    ,Claps 2                         , ROM,
Percussion 1.SP12,RIDE1     ,Ride 1                          , ROM,
Percussion 1.SP12,RIDE2     ,Ride 2                          , ROM,
```

9.12.4 Description of the TEXT report structure for sound bank files

A TEXT report is built up as follows:

```
TITLE
LABEL
Blank line
[Iteration of:]
      FILE RECORD
      [Iteration of:]
            SOUND RECORD
```

```
Blank line
```

- The TITLE is always present and is automatically generated.
- The LABEL is only generated if a non-empty label string has been provided by the user. This label is preceded by the prefix “LABEL:”
- The order in which files are reported is the order in which the files were shown on the overview screen where the user made the selection.
- The order in which sounds are reported is by ascending sound location (from Bass 1 till User 8).
- A FILE RECORD is structured as follows:

```
[ (ERROR<Error Number>) ]<File Name>
```

  - The file name is always shown.
  - The error information is only shown if the sound bank is corrupt. The provided information is the actual error code corresponding to the error.
- A SOUND RECORD is structured as follows:

```
<Factory Sound Name>: <User Sound Name> <Sound Type>[
(ERROR<Error Number>)]
```

  - The factory sound name, user-defined sound name and sound type are always reported.
  - The error information is only shown if the sound is corrupt. The provided information is the actual error code corresponding to the error.
  - The factory sound name length has a fixed size of 10 characters (spaces are added at the end, the name itself does not contain any spaces)
  - The user sound name length has a fixed size of 30 characters (spaces are added). If no user-defined name exists for a sound, the factory name is mentioned, which may consist of spaces.
  - The sound type can have two values: " ROM" for ROM sounds (mind the space at the beginning), and "*RAM" for RAM sounds
  - There are no sound records for empty RAM sounds

9.12.5 Description of the CSV report structure for sound bank files

A CSV report is built up as follows:

```
[Iteration of:]
      FILE-SOUND RECORD
```

A FILE-SOUND RECORD is constructed as follows:

```
[ERROR<Error Number>,]<File Name>,<Factory Sound Name>,<User Sound
Name>,<Sound Type>,[ERROR<Error Number>,]
```

For more information about these data items and under which conditions they are being reported or not, see **Description of the TEXT report structure for sound bank files** in the previous section.

The “,” delimiter character shown in the above syntax can actually be another delimiter character, depending on the delimiter character that has been defined in the “6. Preferences” menu.

9.12.6 Description of the TEXT report structure for sequence files

A TEXT report is built up as follows:

```
TITLE
LABEL
Blank line
[Iteration of:]
      FILE RECORD
```

```
[Iteration of:]
      SEQUENCE RECORD
Blank line
```

- The TITLE is always present and is automatically generated.
- The LABEL is only generated if a non-empty label string has been provided by the user. This label is preceded by the prefix “LABEL:”
- The order in which files are reported is the order in which the files were shown on the overview screen where the user made the selection.
- The order in which sequences are reported is:
  - first the songs, then the segments
  - songs and segments are reported in ascending order (from 00 to 99).
- A FILE RECORD is structured as follows:

```
[ (ERROR<Error Number>) ]<File Name>
```

  - The file name is always shown.
  - The error information is only shown if the sequence file is corrupt. The provided information is the actual error code corresponding to the error.
- A SEQUENCE RECORD is structured as follows:

```
<Factory Sequence Name>: <User Sequence Name> <Sequence Type>[
(ERROR<Error Number>)]
```

  - The factory sequence name, user-defined sequence name and sequence type are always reported. A sequence is either a segment or a song.
  - The error information is only shown if the segment or song is corrupt. The provided information is the actual error code corresponding to the error.
  - The factory sequence name length has a fixed size of 10 characters (spaces are added at the end, the name itself does not contain any spaces). The name consists of the term "SEGMENT" or "SONG" followed by a 2-digit number (between 00 and 99)
  - The user sequence name length has a fixed size of 30 characters (spaces are added). If no user-defined name exists for a segment or song, the factory name is mentioned, which consists of the term "SEGMENT" or "SONG" followed by a space and a 2-digit number (between 00 and 99)
  - The sequence type can have two values: "SNG" for songs and "SEG" for segments
  - There are no sequence records for unrecorded songs and segments

9.12.7 Description of the CSV report structure for sequence files

A CSV report is built up as follows:

```
[Iteration of:]
      FILE-SEQUENCE RECORD
```

A FILE-SEQUENCE RECORD is constructed as follows:

```
[ERROR<Error Number>,]<File Name>,<Factory Sequence Name>,<User
Sequence Name>,<Sequence Type>,[ERROR<Error Number>,]
```

For more information about these data items and under which conditions they are being reported or not, see **Description of the TEXT report structure for sequence files** in the previous section.

The “,” delimiter character shown in the above syntax can actually be another delimiter character, depending on the delimiter character that has been defined in the “6. Preferences” menu.

9.13 ASSIGNING NAMES TO SP-12 SOUNDS AND SEQUENCES

9.13.1 Introduction

The SP-12 itself does not natively support names for sounds, segments and songs: no actual names exist in the SP-12 memory for these objects, they are only referred to by internal addresses.
The same is true for sounds in Emulator-I banks.

EMXP converts these internal addresses to readable strings, which are called "factory names" in EMXP and in this manual. Examples are "Bass 1" and "User 1" for sounds, "Segment 00" and "Segment 78" for segments and "Song 01" and "Song 99" for songs.

In addition it is also possible to assign **user-defined names** to sounds, segments and songs. These names are saved in the SP-12 sound bank files and SP-12 sequence files, but they are not transferred to the SP-12 when uploading these files via MIDI since the SP-12 can't do anything useful with this information.

Besides being a useful feature for "librarian" purposes, the main reason why EMXP supports these *user defined names* for SP-12 sounds, segments and songs is to achieve compatibility with files created by the *SP-12 Librarian*[16] software for Mac computers. See also *chapter "12. EXCHANGING FILES BETWEEN EMXP AND SP-12 LIBRARIAN"*.

9.13.2 How to create user-defined names

Selecting the sounds, segments or songs

To assign user-defined names to SP-12 sounds, segments or songs, or to change their current user-defined name, you simply have to navigate to the sounds, segments or songs and select the ones that should be (re-)named.

To assign user-defined names to SP-12 sounds:
"1. Manage EMU Files and Disks" → "6. Manage EMU SP-12 Files" → "1. Manage SP-12 Sound Bank Files" → [select a single SP-12 sound bank file] → [press 'V'] or [select "9. Show More Details" followed by "1. Show All Sounds"] *or* [press 'K'] or [select "9. Show More Details" followed by "2. Show RAM Sounds only"] → [select one or more ROM or RAM sounds] → [press 'N'] or [select "2. Assign User-Defined Name to Sound(s)"]

To assign user-defined names to SP-12 segments:
"1. Manage EMU Files and Disks" → "6. Manage EMU SP-12 Files" → "2. Manage SP-12 Sequence Files" → [select a single SP-12 sequence file] → [press 'G'] or [select "4. Show All Segments"] *or* [press 'Q'] or ["5. Show Defined Segments only"] → [select one or more segments] → [press 'N'] or [select "2. Assign User-Defined Name to Segment(s)"]

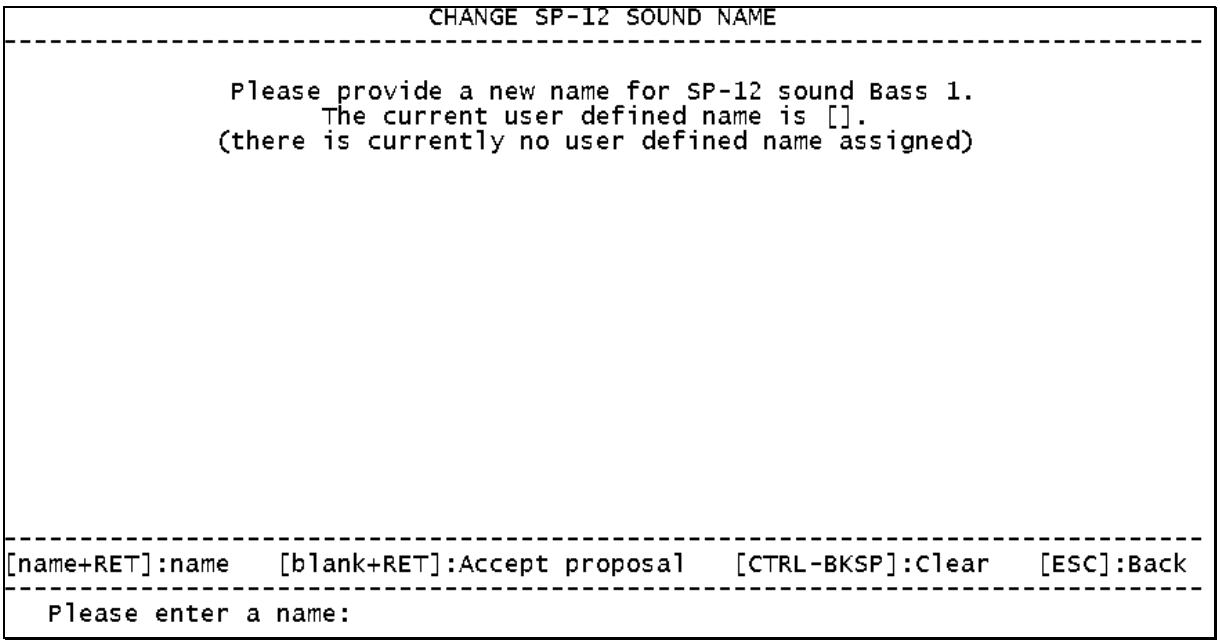
To assign user-defined names to SP-12 songs:
"1. Manage EMU Files and Disks" → "6. Manage EMU SP-12 Files" → "2. Manage SP-12 Sequence Files" → [select a single SP-12 sequence file] → [press 'K'] or [select "6. Show All Songs"] *or* [press 'S'] or [select "7. Show Defined Songs only"] → [select one or more songs] → [press 'N'] or [select "1. Assign User-Defined Name to Song(s)"]

Assigning the user-defined names

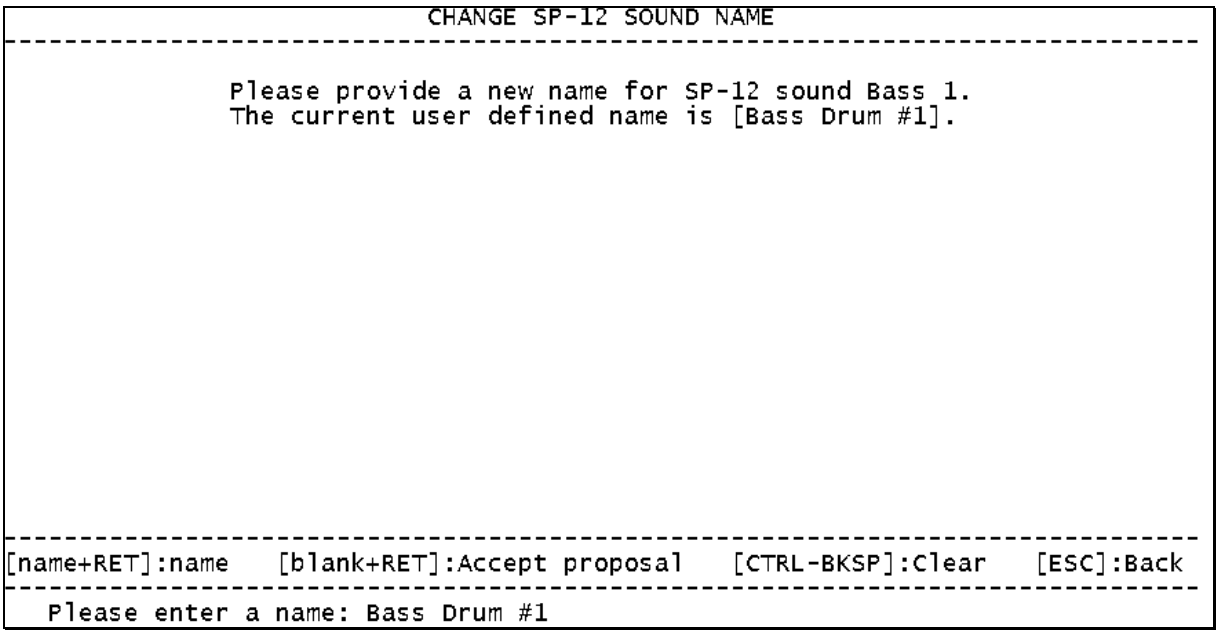
You can select multiple sounds, segments or songs at once. For each selected item, a screen will appear in which the user-defined name for that specific item can be assigned.

[16] SP-12 Librarian is software for Mac from Water's Edge Software (copyrighted by Steve Makohin)

In the picture below, a screen is shown for assigning a name to an SP-12 sound which doesn't have a user-defined name yet.



If an item already has a user-defined name, it will be mentioned on the screen (between [brackets]) and you can overwrite it or accept it by simply pressing ENTER. Whether the current user-defined name is automatically pre-filled on the bottom line (as depicted in the screen shown below) depends on the pre-fill preference (see *section "10.4.6 Define if user response area should be pre-filled with suggested response"*).

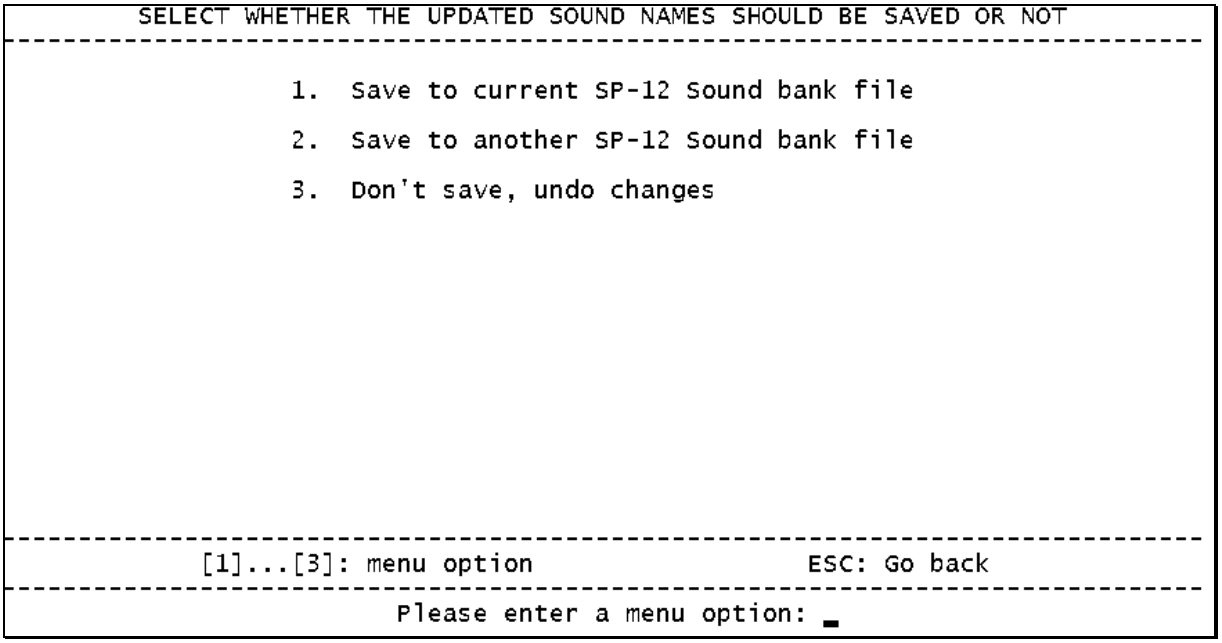


After pressing ENTER, the screen for the next selected item will appear. This process will continue until you have assigned a name to all items, or until you press ESCAPE and cancel the process.

A user-defined name can have a maximum of 30 standard ASCII characters. This constraint has been built into EMXP in order to preserve compatibility with the *SP-12 Librarian* software for Mac computers.

Saving the user-defined names

After all user-defined names have been entered, you have to save these updated names to the SP-12 sound bank file or SP-12 sequence file.
This can be done on the next screen. The screen in the picture below will appear after you have assigned names to SP-12 sounds. For saving SP-12 segment or song names, the screen will look slightly different, but the same options will be available.
Note that this screen will only appear if at least one user-defined name has been changed.



Three options are available:

- When selecting *option 1*, the current selected SP-12 file will be updated.
- When selecting *option 2*, you can save the updates to a different (new) SP-12 file and keep the current selected file unchanged. If you select this option, the *File Manager* will be launched and you will be able to select or define the file to which you want to save the sound bank or sequences.
- When selecting *option 3*, all changes you have made will be ignored and the original names will be preserved.

After having saved the sound bank or sequences, the sound names, segment names or song names in the EMXP overview screens will automatically be refreshed. If you have saved to a new/different file (option 2), this file will be automatically have been loaded in EMXP when you return to the previous (overview) screens.

9.14 CHANGING THE EMULATOR-I BOOT ROM NUMBER

9.14.1 Introduction

The Emulator-I uses a copy protection method for accessing floppy disks containing special system software such as the User Formatting disk and the Multi Sampling disk.

Originally all Emulator disks were copy protected, but owners who had more than one Emulator-I complained about this, so E-Mu decreased dramatically the impact of this copy protection schema in subsequent operating system versions quite soon after the initial release of the Emulator-I.

These protected disks uniquely belonged to the Emulator-I on which they were created or for which they were created in the factory. This results in not being able to use some floppy disks from Emulator A on another Emulator B.

It is reported that if an Emulator-I still refuses to load system software from a certain disk, it's just a matter of write-enabling the disk so that the Emulator-I can write its protection key to that disk.

So fortunately this copy protection schema is not that important anymore. But the mechanism is still there to some extent… and EMXP provides an option to update floppy disk image files and operating system files which makes them "compatible" with your specific Emulator-I.

The copy protection is based on a *unique key which resides in the Emulator-I's boot eprom IC* and which is uniquely derived from the serial number of the boot eprom. Note that this serial number is not the same as the serial number of the Emulator-I itself.

The copy protection mechanism of the Emulator-I validates the boot rom's protection key against the serial number that has been written to the (system software) floppy disks of the Emulator-I.

The *boot rom serial number* can be found on the label of the boot eprom inside of your Emulator-I.
E.g. for a boot eprom labeled "600X.PROM(C) 820816#0197", the boot rom serial number if 0197, which is a hexadecimal value (so it can contain characters A → F as well).
EMXP can write this boot rom serial number to Emulator-I operating system files, Emulator-I floppy disk image files and Emulator-I HxC floppy disk image files.

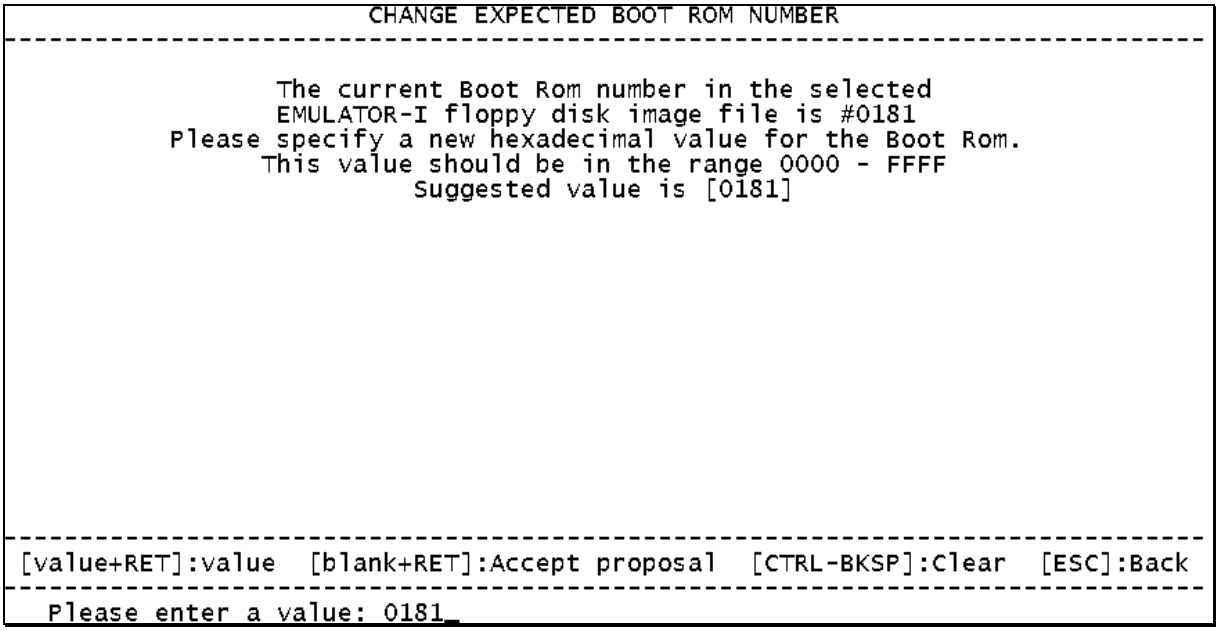
9.14.2 How to change the boot rom

To change the expected boot rom number of Emulator-I floppy disk images files:
"1. Manage EMU Files and Disks" → "3. Manage EMU EMULATOR-I Files" → "3. Manage EMULATOR-I Floppy Disk Images" → [select one or more files] → [press 'Q'] or [select "6. Change Expected Boot Rom Version"]

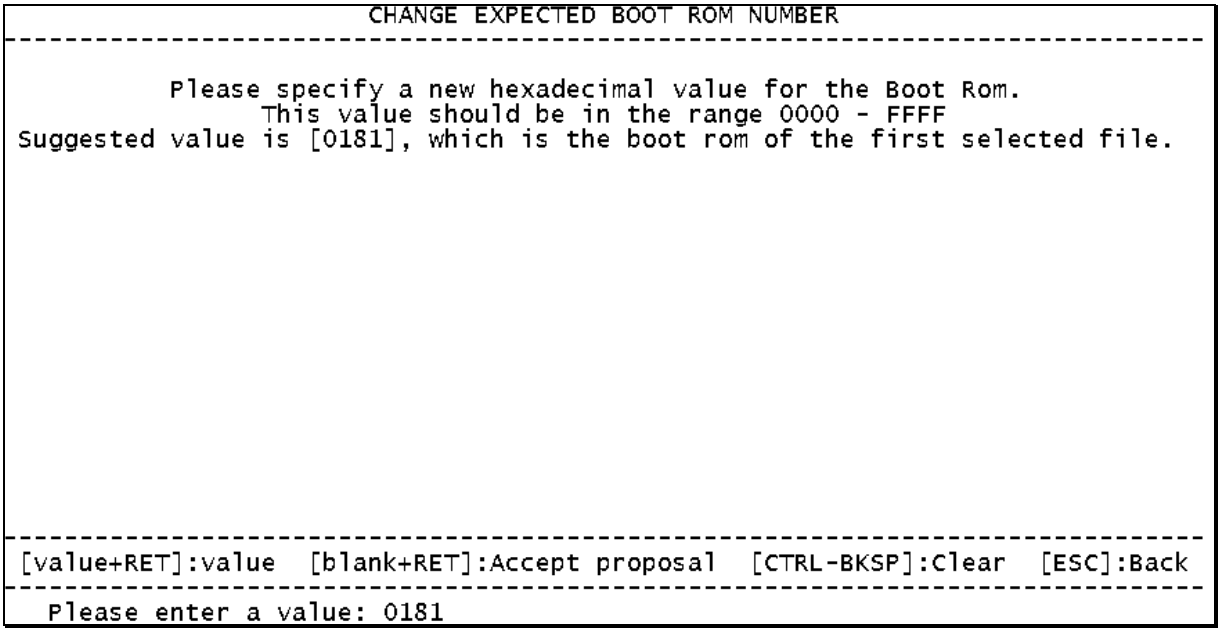
To change the expected boot rom number of Emulator-I HxC floppy disk images files:
"1. Manage EMU Files and Disks" → "3. Manage EMU EMULATOR-I Files" → "4. Manage EMULATOR-I HxC Floppy Disk Images" → [select one or more files] → [press 'Q'] or [select "6. Change Expected Boot Rom Version"]

To change the expected boot rom number of Emulator-I operating system files:
"1. Manage EMU Files and Disks" → "3. Manage EMU EMULATOR-I Files" → "5. Manage EMULATOR-I Operating System Files" → [select one or more files] → [press 'Q'] or [select "6. Change Expected Boot Rom Version"]

You can enter the 4-character boot rom serial number of your Emulator-I in the next screen. The screen looks slightly different depending on the number of files that you have selected for being updated (1 or multiple).



Changing the expected boot rom if one floppy disk image file has been selected



Changing the expected boot rom if multiple files have been selected

9.15 REMOVING SOUND BANKS AND OPERATING SYSTEMS

9.15.1 Introduction

EMXP only supports removing data:

- from EMAX-I, EMAX-II, Emulator-II and EMULATOR-III/IIIX/ESI hard disks (or from SCSI2SD partitions on hard disks)
- from EMAX-I, EMAX-II, Emulator-II and EMULATOR-III/IIIX/ESI hard disk images (or from SCSI2SD partitions on hard disk images)
- from Akai S1000 floppy disks
- from Akai S1000 floppy disk images and HxC floppy disk images

Removing data from the other types of sampler files or sampler disks is not supported, because it wouldn't make a lot of sense. All other sampler files or disks can contain at most one sound bank and/or one operating system at once. To remove data from these files and disks, you can simply replace the contents of the files or disks (by selecting an existing file or disk as a target in a copy or conversion process). For floppy disks, an alternative method is to re-format the disks.

When EMXP removes data from an Emu hard disk (image) or from an Akai S1000 floppy disk (image), it actually only updates the file system index (aka "FAT" table).
There are however two exceptions:

- when removing *operating systems* from Emu hard disks or Emu hard disk images, the actual operating system data is removed as well. The reason for this is that some Emu samplers detect the presence of an operating system even if it the operating system is indicated as "deleted" in the file system index.
- when removing sound banks from Emulator-II hard disks or Emulator-II hard disk images, the actual sound bank is replaced by a "Null Preset" bank consisting of a single NULL PRESET preset without any voice or any sample.

Removing files from your computer's hard disk is *not supported* by EMXP. The file manager of your operating system (e.g. Windows Explorer) should be used for this kind of basic file management operations.

9.15.2 How to remove data from EMU hard disks and hard disk images

EMAX-I

To remove banks from an EMAX-I hard disk image file or an EMAX-I partition in a SCSI2SD hard disk image file:
"1. Manage EMU Files and Disks" → "1. Manage EMU EMAX-I Files and Disks" → "4. Manage EMAX-I Hard Disk Images" → "1. Manage existing EMAX-I Hard Disk Images" → [select one hard disk image file or scan for SCSI2SD and select one partition] → [press 'B'] or [select "1. Manage Banks on EMAX-I Hard Disk Image"] → [select one or more banks] → [press 'E'] or [select "7. Erase Bank(s) from EMAX-I Hard Disk Image"]

To remove banks from an EMAX-I hard disk or an EMAX-I partition on a SCSI2SD hard disk
"1. Manage EMU Files and Disks" → "1. Manage EMU EMAX-I Files and Disks" → "5. Manage EMAX-I Hard Disks" → [select a hard disk or scan for SCSI2SD and select a partition] → [press 'B'] or [select "1. Manage Banks on EMAX-I Hard Disk"] → [select one or more banks] → [press 'E'] or [select "7. Erase Bank(s) from EMAX-I Hard Disk"]

To remove an operating system from an EMAX-I hard disk image file or an EMAX-I partition in a SCSI2SD hard disk image file:
"1. Manage EMU Files and Disks" → "1. Manage EMU EMAX-I Files and Disks" → "4. Manage EMAX-I Hard Disk Images" → "1. Manage existing EMAX-I Hard Disk Images" → [select one hard disk image file or scan for SCSI2SD and select one partition] → [press 'O'] or [select "2. Manage Operating System on EMAX-I Hard Disk Image"] → [select an operating system] → [press 'E'] or [select "9. Erase Operating System"]

To remove an operating system from an EMAX-I hard disk or an EMAX-I partition on a SCSI2SD hard disk
"1. Manage EMU Files and Disks" → "1. Manage EMU EMAX-I Files and Disks" → "5. Manage EMAX-I Hard Disks" → [select a hard disk or scan for SCSI2SD and select a partition] → [press 'O'] or [select "3. Manage Operating System on EMAX-I Hard Disk"] → [select an operating system] → [press 'E'] or [select "9. Erase Operating System"]

EMAX-II

To remove banks from an EMAX-II hard disk image file or an EMAX-II partition in a SCSI2SD hard disk image file:
"1. Manage EMU Files and Disks" → "2. Manage EMU EMAX-II Files and Disks" → "4. Manage EMAX-II Hard Disk Images" → "1. Manage existing EMAX-II Hard Disk Images" → [select one hard disk image file or scan for SCSI2SD and select one partition] → [press 'B'] or [select "1. Manage Banks on EMAX-II Hard Disk Image"] → [select one or more banks] → [press 'E'] or [select "6. Erase Bank(s) from EMAX-II Hard Disk Image"]

To remove banks from an EMAX-II hard disk or an EMAX-II partition on a SCSI2SD hard disk
"1. Manage EMU Files and Disks" → "2. Manage EMU EMAX-II Files and Disks" → "5. Manage EMAX-II Hard Disks" → [select a hard disk or scan for SCSI2SD and select a partition] → [press 'B'] or [select "1. Manage Banks on EMAX-II Hard Disk"] → [select one or more banks] → [press 'E'] or [select "6. Erase Bank(s) from EMAX-II Hard Disk"]

To remove an operating system from an EMAX-II hard disk image file or an EMAX-II partition in a SCSI2SD hard disk image file:
"1. Manage EMU Files and Disks" → "2. Manage EMU EMAX-II Files and Disks" → "4. Manage EMAX-II Hard Disk Images" → "1. Manage existing EMAX-II Hard Disk Images" → [select one hard disk image file or scan for SCSI2SD and select one partition] → [press 'O'] or [select "2. Manage Operating System on EMAX-II Hard Disk Image"] → [select an operating system] → [press 'E'] or [select "9. Erase Operating System"]

To remove an operating system from an EMAX-II hard disk or an EMAX-II partition on a SCSI2SD hard disk
"1. Manage EMU Files and Disks" → "2. Manage EMU EMAX-II Files and Disks" → "5. Manage EMAX-II Hard Disks" → [select a hard disk or scan for SCSI2SD and select a partition] → [press 'O'] or [select "3. Manage Operating System on EMAX-II Hard Disk"] → [select an operating system] → [press 'E'] or [select "9. Remove Operating System"]

Emulator-II

To remove banks from an Emulator-II hard disk image file (e.g. DREM file):
"1. Manage EMU Files and Disks" → "2. Manage EMU EMULATOR-II Files and Disks" → "4. Manage EMULATOR-II Hard Disk Images (e.g. DREM)" → "1. Manage existing EMULATOR-II Hard Disk Images" → [select one hard disk image file] → [press 'B'] or [select "1. Manage Banks on EMULATOR-II Hard Disk Image"] → [select one or more banks] → [press 'E'] or [select "8. Erase Bank(s) from EMULATOR-II Hard Disk Image"]

To remove banks from an Emulator-II hard disk:
"1. Manage EMU Files and Disks" → "2. Manage EMU EMULATOR-II Files and Disks" → "5. Manage EMULATOR-II Hard Disks" → [select a hard disk] → [press 'B'] or [select "1. Manage Banks on EMULATOR-II Hard Disk"] → [select one or more banks] → [press 'E'] or [select "8. Erase Bank(s) from EMULATOR-II Hard Disk"]

To remove an operating system from an Emulator-II hard disk image file (e.g. DREM file):
"1. Manage EMU Files and Disks" → "2. Manage EMU EMULATOR-II Files and Disks" → "4. Manage EMULATOR-II Hard Disk Images (e.g. DREM)" → "1. Manage existing EMULATOR-II Hard Disk Images" → [select one hard disk image file] → [press 'O'] or [select "2. Manage Operating System on EMULATOR-II Hard Disk Image"] → [select an operating system] → [press 'E'] or [select "9. Erase Operating System"]

To remove an operating system from an Emulator-II hard disk:
"1. Manage EMU Files and Disks" → "2. Manage EMU EMULATOR-II Files and Disks" → "5. Manage EMULATOR-II Hard Disks" → [select a hard disk] → [press 'O'] or [select "3. Manage Operating System on EMULATOR-II Hard Disk"] → [select an operating system] → [press 'E'] or [select "9. Remove Operating System"]

Emulator-III, Emulator-IIIX and ESI

To remove banks from an Emulator-III/IIIX/ESI hard disk image file or an Emulator-III/IIIX/ESI partition in a SCSI2SD hard disk image file:
"1. Manage EMU Files and Disks" → "5. Manage EMU EMULATOR-III/X/ESI Files and Disks" → "4. Manage Emulator-III/X/ESI Hard Disk Images" → "1. Manage existing Emulator-III/X/ESI Hard Disk Images" → [select one hard disk image file or scan for SCSI2SD and select one partition] → *to see all banks* [press 'B'] or [select "1. Manage all Banks on Emulator-III/X/ESI Hard Disk Image"]; *to see Emulator-III banks only* [press 'E'] or [select "2. Manage Emulator-III Banks only on Hard Disk Image"]; *to see Emulator-IIIX banks only* [press 'X'] or [select "3. Manage Emulator-IIIX Banks only on Hard Disk Image"]; *to see ESI banks only* [press 'J'] or [select "4. Manage ESI-V3 Banks only on Hard Disk Image"] → [select one or more banks] → [press 'E'] or [select "6. Erase Bank(s) from Emulator-III/X/ESI Hard Disk Image"]

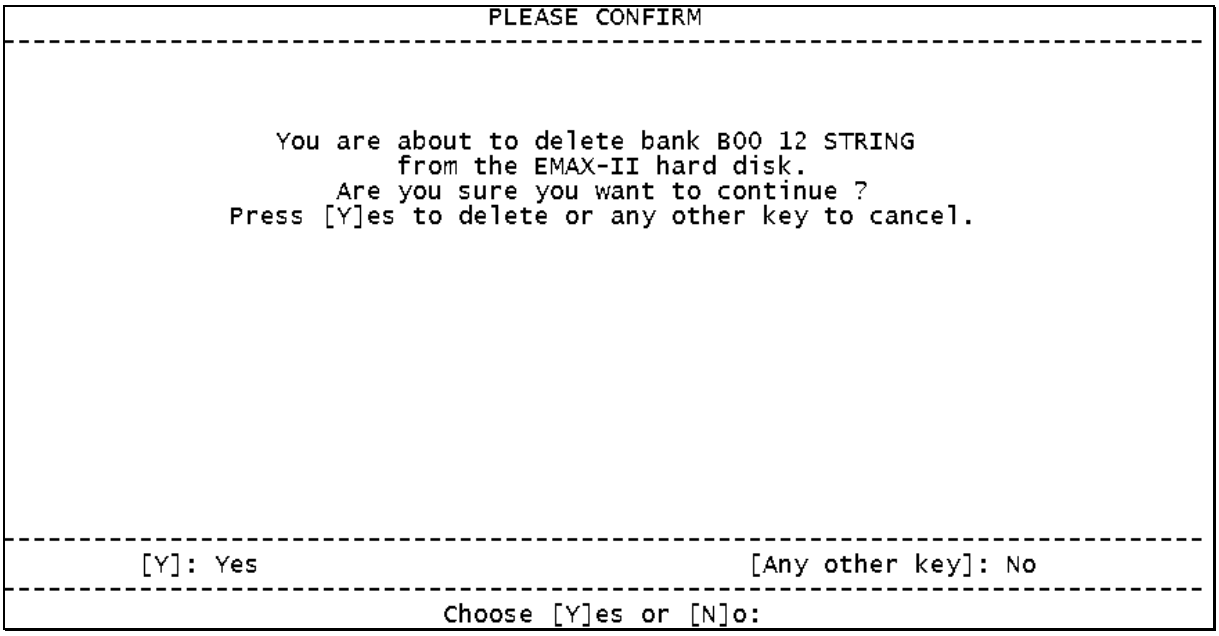
To remove banks from an Emulator-III/IIIX/ESI hard disk or an Emulator-III/IIIX/ESI partition on a SCSI2SD hard disk:
"1. Manage EMU Files and Disks" → "5. Manage EMU EMULATOR-III/X/ESI Files and Disks" → "5. Manage Emulator-III/X/ESI Hard Disks" → [select a hard disk or scan for SCSI2SD and select a partition] → *to see all banks* [press 'B'] or [select "1. Manage all Banks on Emulator-III/X/ESI Hard Disk"]; *to see Emulator-III banks only* [press 'E'] or [select "2. Manage Emulator-III Banks only on Hard Disk"]; *to see Emulator-IIIX banks only* [press 'X'] or [select "3. Manage Emulator-IIIX Banks only on Hard Disk"]; *to see ESI banks only* [press 'J'] or [select "4. Manage ESI-V3 Banks only on Hard Disk"] → [select one or more banks] → [press 'E'] or [select "6. Erase Bank(s) from Emulator-III/X/ESI Hard Disk"]

To remove an operating system from an Emulator-III/IIIX/ESI hard disk image file or an Emulator-III/IIIX/ESI partition in a SCSI2SD hard disk image file:
"1. Manage EMU Files and Disks" → "5. Manage EMU EMULATOR-III/X/ESI Files and Disks" → "4. Manage Emulator-III/X/ESI Hard Disk Images" → "1. Manage existing Emulator-III/X/ESI Hard Disk Images" → [select one hard disk image file or scan for SCSI2SD and select one partition] → [press 'O'] or [select "5. Manage Operating System(s) on Emulator-III/X/ESI Hard Disk Image"] → [select an operating system] → [press 'E'] or [select "7. Erase Operating System"]

To remove an operating system from an Emulator-III/IIIX/ESI hard disk or an Emulator-III/IIIX/ESI partition on a SCSI2SD hard disk:
"1. Manage EMU Files and Disks" → "5. Manage EMU EMULATOR-III/X/ESI Files and Disks" → "5. Manage Emulator-III/X/ESI Hard Disks" → [select a hard disk or scan for SCSI2SD and select a partition] → [press 'O'] or [select "5. Manage Operating System(s) on Emulator-III/X/ESI Hard Disk"] → [select an operating system] → [press 'E'] or [select "7. Erase Operating System"]

Confirming the removal

You will have to confirm the removal of the selected sound banks or operating system. This is illustrated in the picture below (for erasing a sound bank from an EMAX-II hard disk).



9.15.3 How to remove files from Akai S1000 floppy disks or floppy disk images

Removing files from Akai S1000 floppy disks

To remove any Akai S1000 file (program, sample, drums) from a floppy disk
"2. Manage AKAI S1000 Files and Disks" → "8. Manage AKAI S1000 Floppy Disks" → [select a floppy drive] → [press 'D'] or [select "1. Manage AKAI S1000 Files on Floppy Disk"] → [insert a disk if not inserted yet] → [select the volume] → [press 'F'] or [select "1. Show all AKAI S1000 Files on Floppy Disk"] → [select one or more files] → [press 'E'] or [select "2. Erase AKAI S1000 File(s)"]

To remove Akai S1000 programs from a floppy disk
"2. Manage AKAI S1000 Files and Disks" → "8. Manage AKAI S1000 Floppy Disks" → [select a floppy drive] → [press 'D'] or [select "1. Manage AKAI S1000 Files on Floppy Disk"] → [insert a disk if not inserted yet] → [select the volume] → [press 'P'] or [select "2. Show AKAI S1000 Program Files only"] → [select one or more programs] → [press 'E'] or [select "2. Erase AKAI S1000 Program File(s)"]

To remove Akai S1000 samples from a floppy disk
"2. Manage AKAI S1000 Files and Disks" → "8. Manage AKAI S1000 Floppy Disks" → [select a floppy drive] → [press 'D'] or [select "1. Manage AKAI S1000 Files on Floppy Disk"] → [insert a disk if not inserted yet] → [select the volume] → [press 'S'] or [select "3. Show AKAI S1000 Sample Files only"] → [select one or more samples] → [press 'E'] or [select "4. Erase AKAI S1000 Sample File(s)"]

To remove Akai S1000 drums files from a floppy disk
"2. Manage AKAI S1000 Files and Disks" → "8. Manage AKAI S1000 Floppy Disks" → [select a floppy drive] → [press 'D'] or [select "1. Manage AKAI S1000 Files on Floppy Disk"] → [insert a disk if not inserted yet] → [select the volume] → [press 'U'] or [select "4. Show AKAI S1000 Drums Files only"] → [select one or more drums files] → [press 'E'] or [select "2. Erase AKAI S1000 Drums File(s)"]

To remove an Akai S1000 operating system from a floppy disk:
"2. Manage AKAI S1000 Files and Disks" → "8. Manage AKAI S1000 Floppy Disks" → [select a floppy drive] → [press 'D'] or [select "7. Manage AKAI S1000 Files on Floppy Disk"] → [insert a floppy disk if not inserted yet] → [select the disk volume] → [press 'O'] or [select "5. Show AKAI S1000 Operating System Files"] → [select an operating system] → → [press 'E'] or [select "2. Erase AKAI S1000 Operating System"]

Removing files from Akai S1000 floppy disk images

To remove any Akai S1000 file (program, sample, drums) from a floppy disk image
"2. Manage AKAI S1000 Files and Disks" → "6. Manage AKAI S1000 Floppy Disk Images" → "1. Manage existing AKAI S1000 Floppy Disk Images" → [select a floppy disk image file] → [press 'F'] or [select "4. Show all AKAI S1000 Files on Floppy Disk Image"] → [select one or more files] → [press 'E'] or [select "2. Erase AKAI S1000 File(s)"]

To remove Akai S1000 programs from a floppy disk image
"2. Manage AKAI S1000 Files and Disks" → "6. Manage AKAI S1000 Floppy Disk Images" → "1. Manage existing AKAI S1000 Floppy Disk Images"→ [select a floppy disk image file] → [press 'P'] or [select "5. Show AKAI S1000 Program Files only"] → [select one or more programs] → [press 'E'] or [select "2. Erase AKAI S1000 Program File(s)"]

To remove Akai S1000 samples from a floppy disk image
"2. Manage AKAI S1000 Files and Disks" → "6. Manage AKAI S1000 Floppy Disk Images" → "1. Manage existing AKAI S1000 Floppy Disk Images"→ [select a floppy disk image file] → [press 'S'] or [select "6. Show AKAI S1000 Sample Files only"] → [select one or more samples] → [press 'E'] or [select "4. Erase AKAI S1000 Sample File(s)"]

To remove Akai S1000 drums files from a floppy disk image
"2. Manage AKAI S1000 Files and Disks" → "6. Manage AKAI S1000 Floppy Disk Images" → "1. Manage existing AKAI S1000 Floppy Disk Images"→ [select a floppy disk image file] → [press 'U'] or [select "7. Show AKAI S1000 Drums Files only"] → [select one or more drums files] → [press 'E'] or [select "2. Erase AKAI S1000 Drums File(s)"]

To remove an Akai S1000 operating system from a floppy disk image:
"2. Manage AKAI S1000 Files and Disks" → "6. Manage AKAI S1000 Floppy Disk Images" → "1. Manage existing AKAI S1000 Floppy Disk Images"→ [select a floppy disk image file] → [press 'O'] or [select "8. Manage Operating System on AKAI S1000 Floppy Disk Image"] → [select an operating system] → [press 'E'] or [select "2. Erase AKAI S1000 Operating System"

Removing files from Akai S1000 floppy disk images

To remove any Akai S1000 file (program, sample, drums) from an HxC floppy disk image
"2. Manage AKAI S1000 Files and Disks" → "7. Manage AKAI S1000 HxC Floppy Disk Images" → "1. Manage existing AKAI S1000 HxC Floppy Disk Images" → [select a floppy disk image file] → [select 'F'] or [select "4. Show all AKAI S1000 Files on Floppy Disk Image"] → [select one or more files] → [press 'E'] or [select "2. Erase AKAI S1000 File(s)"]

To remove Akai S1000 programs from an HxC floppy disk image
"2. Manage AKAI S1000 Files and Disks" → "7. Manage AKAI S1000 HxC Floppy Disk Images" → "1. Manage existing AKAI S1000 HxC Floppy Disk Images"→ [select a floppy disk image file] → [press 'P'] or [select "5. Show AKAI S1000 Program Files only"] → [select one or more programs] → [press 'E'] or [select "2. Erase AKAI S1000 Program File(s)"]

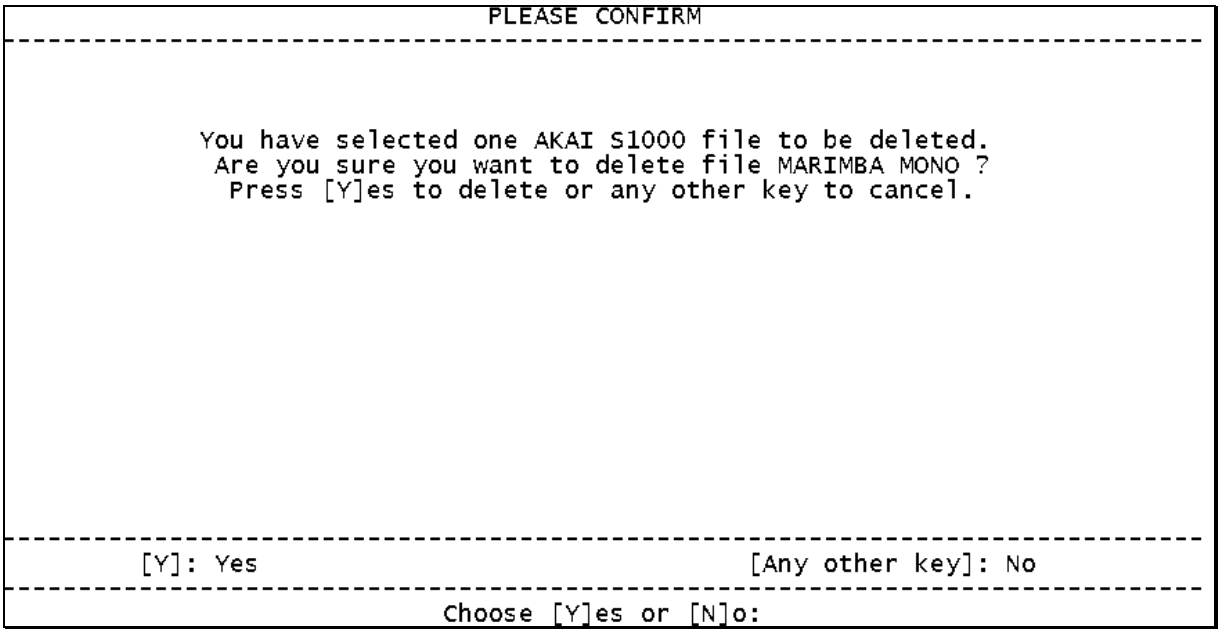
To remove Akai S1000 samples from an HxC floppy disk image
"2. Manage AKAI S1000 Files and Disks" → "7. Manage AKAI S1000 HxC Floppy Disk Images" → "1. Manage existing AKAI S1000 HxC Floppy Disk Images"→ [select a floppy disk image file] → [press 'S'] or [select "6. Show AKAI S1000 Sample Files only"] → [select one or more samples] → [press 'E'] or [select "4. Erase AKAI S1000 Sample File(s)"]

To remove Akai S1000 drums files from an HxC floppy disk image
"2. Manage AKAI S1000 Files and Disks" → "7. Manage AKAI S1000 HxC Floppy Disk Images" → "1. Manage existing AKAI S1000 HxC Floppy Disk Images"→ [select a floppy disk image file] → [press 'U'] or [select "7. Show AKAI S1000 Drums Files only"] → [select one or more drums files] → [press 'E'] or [select "2. Erase AKAI S1000 Drums File(s)"]

To remove an Akai S1000 operating system from an HxC floppy disk image:
"2. Manage AKAI S1000 Files and Disks" → "7. Manage AKAI S1000 HxC Floppy Disk Images" → "1. Manage existing AKAI S1000 HxC Floppy Disk Images"→ [select an HxC floppy disk image file] → [press 'O'] or [select "8. Manage Operating System on AKAI S1000 HxC Floppy Disk Image"] → [select an operating system] → [press 'E'] or [select "2. Erase AKAI S1000 Operating System"

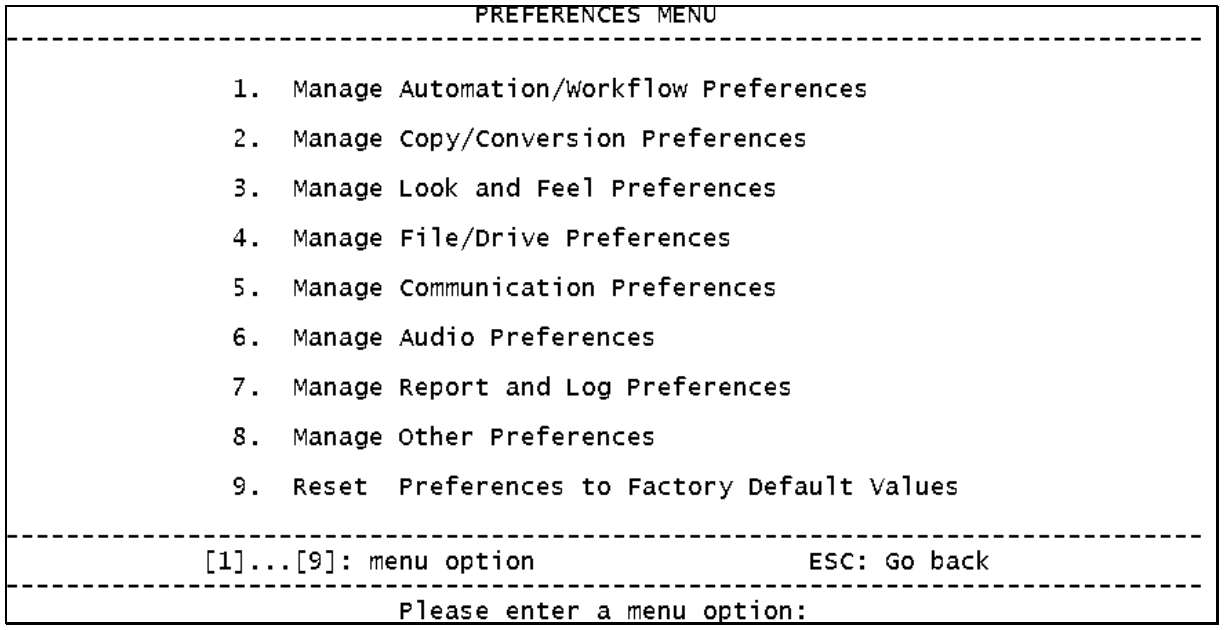
Confirming the removal

You will have to confirm the removal of the selected Akai S1000 files. This is illustrated in the picture below.



10. PREFERENCES

The **"6. Preferences"** option in the main menu gives access to many configuration parameters, as well as many parameters that can also be set during copy or conversion processes (as explained before).



All preferences defined in these screens are stored in a file named EMXPNCFG.BYT, which can be found in the root folder of EMXPN.EXE. See *section "1.8"*.

10.1 RESETTING PREFERENCES TO DEFAULT FACTORY SETTINGS

The preferences used by EMXP can be reset to factory defaults in three ways:

- To reset *all preferences at once* there are two options:
  - Select *"6. Preferences"* → *"9. Reset Preferences to Factory Default Values"*
  - Leave EMXP, delete the EMXPNCFG.BYT file and restart EMXP. A new EMXPNCFG.BYT file containing the default settings will automatically be created by EMXP at start-up.
- To reset *only a subset of the preferences*, each submenu of the Preference menu offers a *"Reset ... Preferences to Factory Defaults"* option. All preferences that can be defined in that submenu will be reset to the factory defaults if you select this option.

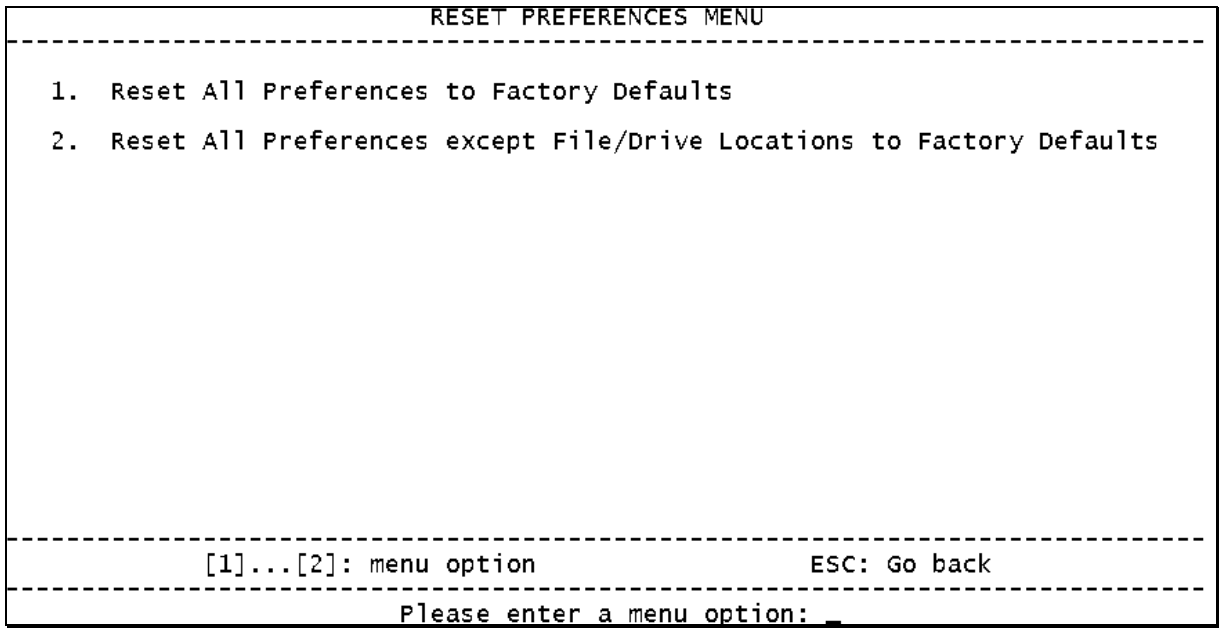
Preventing folders and drives from being reset

Besides all parameters and settings used by EMXP, the preferences file also contains the references to the most recently used or preferred *folders and drives* for any of the objects (files, banks, ...) by EMXP.
When resetting

- *all preferences* by using *"6. Preferences"* → *"9. Reset Preferences to Factory Default Values"*
- *the file and drive related preferences* using *"6. Preferences"* → *"4. Manage File/Drive Preferences"* → *"9. Reset file and drive related preferences"*

you will have the possibility to **exclude** these folders and drives (=file and drive locations) from being reset and to keep their current values.

E.g. if you select option *"6. Preferences"* → *"9. Reset Preferences to Factory Default Values"* following menu options will be offered:

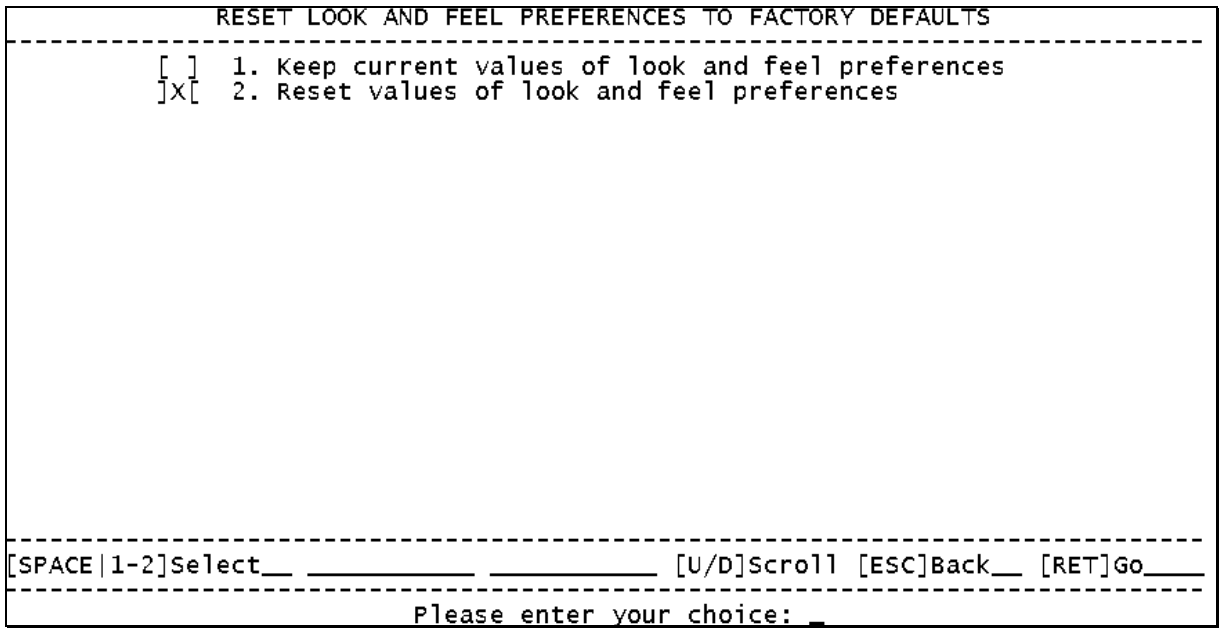


Select option 2 if you want to keep the folder and drive preferences but want to reset all other preferences.
Select option 1 if you want to reset all preferences, including the folders and drives.

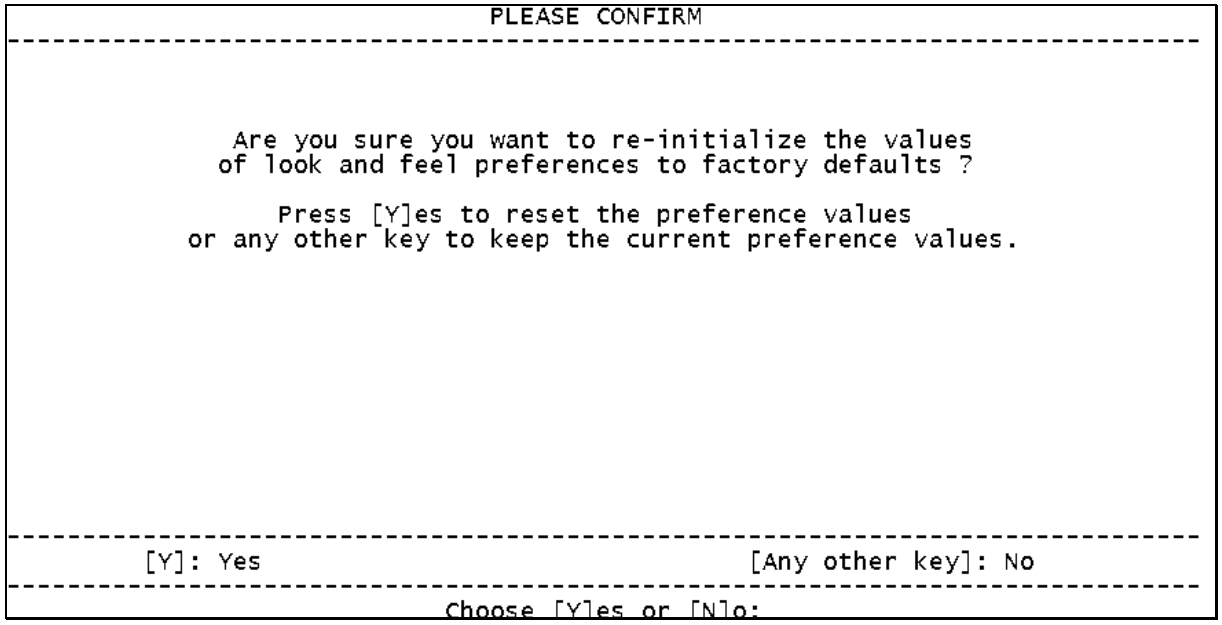
How to use the Reset Preferences to Factory Default functions

No matter in which Preferences menu or submenu you have selected the *"Reset ... Preferences to Factory Defaults"* option, the procedure is always the same.
In the example below we will reset the Look & Feel related preferences (*"6. Preferences"* → *"3. Manage Look and Feel Preferences"* → *"9. Reset Look and Feel Preferences to Factory Defaults")*

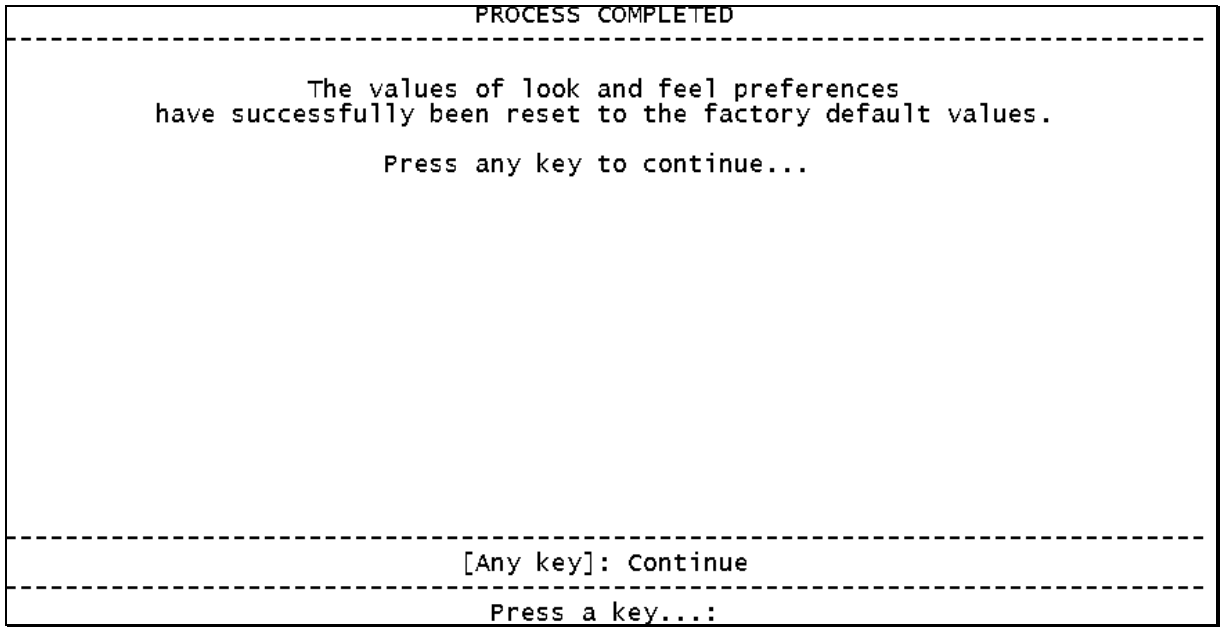
First you have to select option 2 to make sure that the reset process can be started:



Then you have to confirm that you really want to reset the preferences:



Finally the selected preferences will be reset to their factory default values.



10.2 AUTOMATION AND WORKFLOW PREFERENCES

To change the preferences related to automation and workflow in EMXP:
"6. Preferences" → "1. Manage Automation/Workflow Preferences"

Following options are provided:

```
                    AUTOMATION/WORKFLOW PREFERENCES MENU
-------------------------------------------------------------------------------

     1.  Quick Definition of Settings for Automated or Manual Processing

     2.  Advanced Setup of Automated and Manual Processing









-------------------------------------------------------------------------------
            [1]...[2]: menu option                  ESC: Go back
-------------------------------------------------------------------------------
                          Please enter a menu option:
```

10.2.1 Quick definition of settings for automated or manual processing

Most copy, conversion and sample/bank unload processes in EMXP can be performed in one of three modes:

- *in batch mode*, which allows for a fully automated copy/conversion/unload of all items at once
- *in manual mode*, which allows for a fully manually controlled item-per-item copy/conversion/unload process
- *in semi-manual mode*, which allows for a partially automated and partial manually controlled copy/conversion/unload process. The degree of automation can be defined by the user.

```
   DEFINE WHETHER EMXP SHOULD COPY/CONVERT/UNLOAD ITEMS AUTOMATICALLY OR NOT
-------------------------------------------------------------------------------
[ ]  1. Yes, copy/convert/unload items as automated as possible      (BATCH)
]X[  2. No, user should have maximum control                        (MANUAL)
[ ]  3. Use custom automation level                                 (MANUAL)


         BATCH: All selected items will be copied/converted/unloaded
           automatically using the copy/conversion/unload preferences, e.g.
           for sample rates. You only have to specify the folder/disk where
           the copied/converted/unloaded items should be saved.
         MANUAL: You can define all copy/conversion/unload parameters and
           you can specify the destination (e.g. target file names) for each
           copied/converted/unloaded item. Define which parts of
           the copy/conversion/unload process should be manual or automated.
         SEMI-MANUAL: The current copy/conversion/unload settings can be a
           mix of manual and automated processing, as has been configured
           previously in MANUAL or SEMI-MANUAL mode.

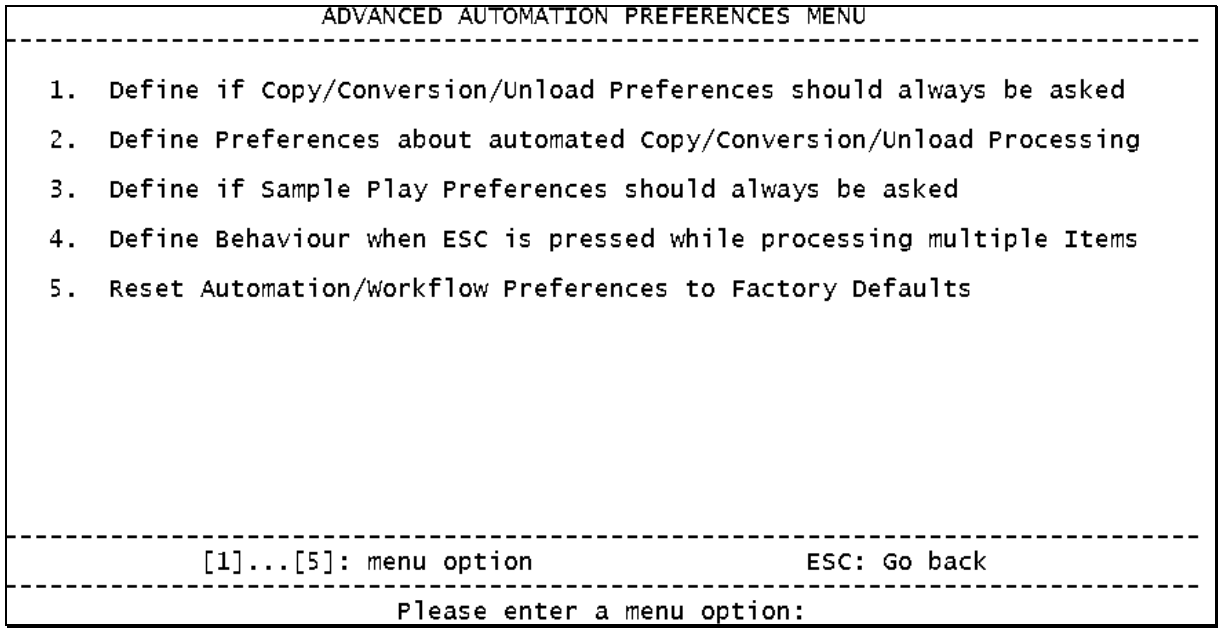

[X]  4. Always show this screen when doing a copy/conversion/unload
-------------------------------------------------------------------------------
[SPACE|1-4]Select__ _____________ _____________ [U/D]Scroll [ESC]Back__ [RET]Go____
-------------------------------------------------------------------------------
                          Please enter your choice:
```

EMXP will *always show this screen* when starting a copy/conversion/unload process (except for some Akai S1000 related processes) unless you explicitly ask EMXP not to do so by disabling "`4. Always show this screen when doing a copy/conversion/unload`".

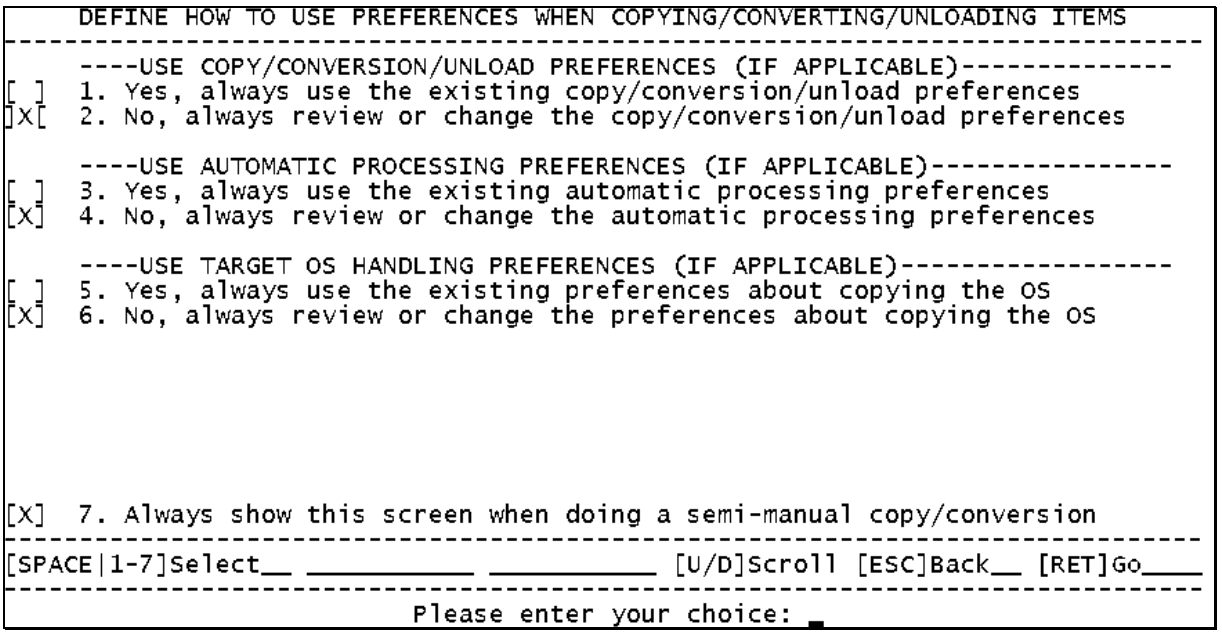
- By selecting 1, the copy/conversion/unload process will be done in a fully automated mode with minimal user intervention. EMXP will use any of the Preferences settings that may be applicable in the copy/conversion/unload process.
- By selecting 2, the copy/conversion/unload process can be done in a fully manual mode. You will have the possibility to intervene in every step of the process, but you will also have the possibility to let EMXP perform some steps in an automated way while keeping manual control over the other steps. If you ask EMXP to perform one or more steps in an automated way, the resulting mode is called SEMI-MANUAL instead of MANUAL and the configured semi-automated process can be re-used later by selecting option 3.
- By selecting 3, you can define the level of automation yourself. In this custom automation level mode, you have the same possibilities as in a fully manual mode, but *you can configure which of the parameter request screens should be displayed and which should be skipped.* E.g. if you never want to be "bothered" with having to define the OS handling parameters or the conversion parameters (like memory size, sample rate, ...), but you always want to be able to choose between the possibility to select target files/banks yourself and the possibility that EMXP determines the target files/banks automatically, you can configure the workflow of EMXP in such way that this expected behaviour is taken into account. Hence the purpose of the custom automation level mode is to make the copy/conversion workflow more comfortable and to tune it to your needs.

10.2.2 Advanced setup of automated and manual processing

You can refine to what extent EMXP should behave in an automated way or rather in a user-controlled way. Following submenus are available:



10.2.2.1 Define if copy/conversion/unload preferences should always be asked



In this menu you can define for each of 3 areas whether EMXP should simply use the preferences related to those areas when copying, converting or unloading items, or whether EMXP should rather ask to review/change these settings whenever you will be copying, converting or unloading items.
The 3 areas are:

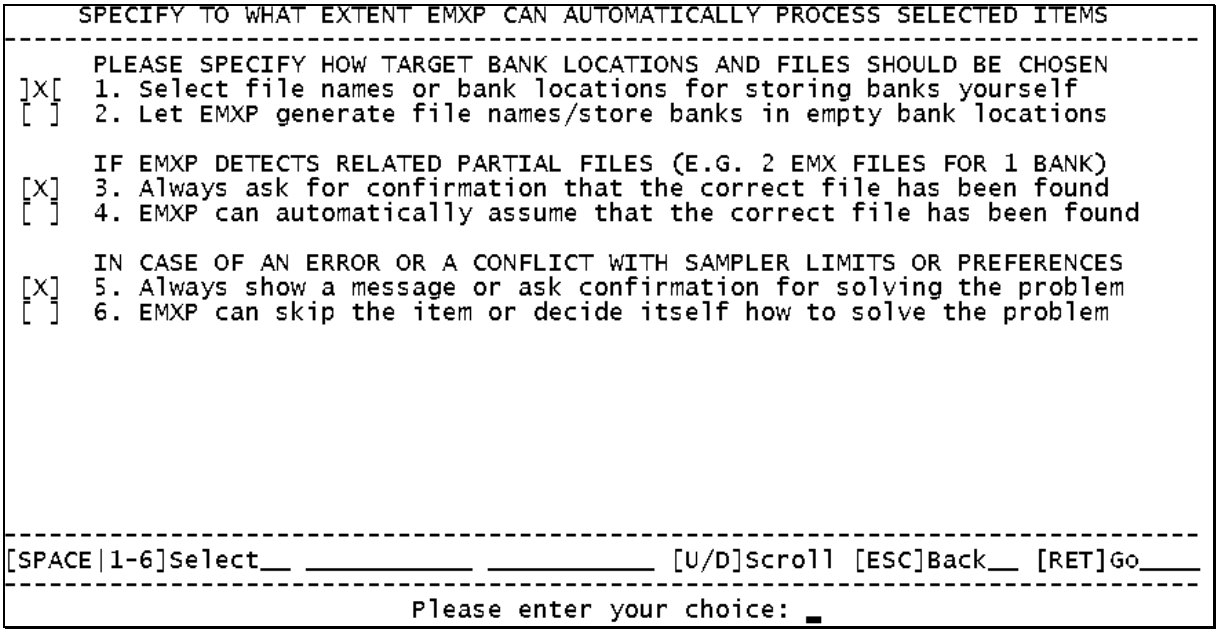
- *Copy/conversion/unload settings*. If "Yes" is chosen, the preferences explained in *section "10.3 COPY/CONVERSION PREFERENCES"* will be used.
- *Automatic processing preferences.* If "Yes" is chosen, the preferences explained in *section "10.2.2.2 Define preferences about automated copy/conversion/unload processing"* will be used.
- *Target OS handling preferences.* If "Yes" is chosen, the preferences explained in *section "10.3.11 Manage preferences about OS handling in copy/conversion processing"* will be used.

E.g. if you have defined (either during a fully manual controlled copy/conversion/unload process or in the Preferences menu) that you want EMXP to select the target file names/banks by itself and

- if you select item 3 in the above screen, then EMXP won't ask anymore for choosing between the automated and manual target file/bank selection (the screen from *section "10.2.2.2 Define preferences about automated copy/conversion/unload processing"* won't be shown anymore*).* Moreover EMXP will assume that it can select the target file names/banks itself because that is the current setting for this parameter.
- if you select item 4 in the above screen, then EMXP will still ask for choosing between the automated and manual target file/bank selection (the screen from *section "10.2.2.2 Define preferences about automated copy/conversion/unload processing"* will still be shown*).* Just like in the MANUAL mode you will be able to make a choice regarding this parameter.

This screen will be displayed whenever you choose the custom automation level mode for copying, converting or unloading items, unless you explicitly ask EMXP not to do so by disabling option "`7. Always show this screen when doing a semi-manual copy/conversion`"

10.2.2.2 Define preferences about automated copy/conversion/unload processing



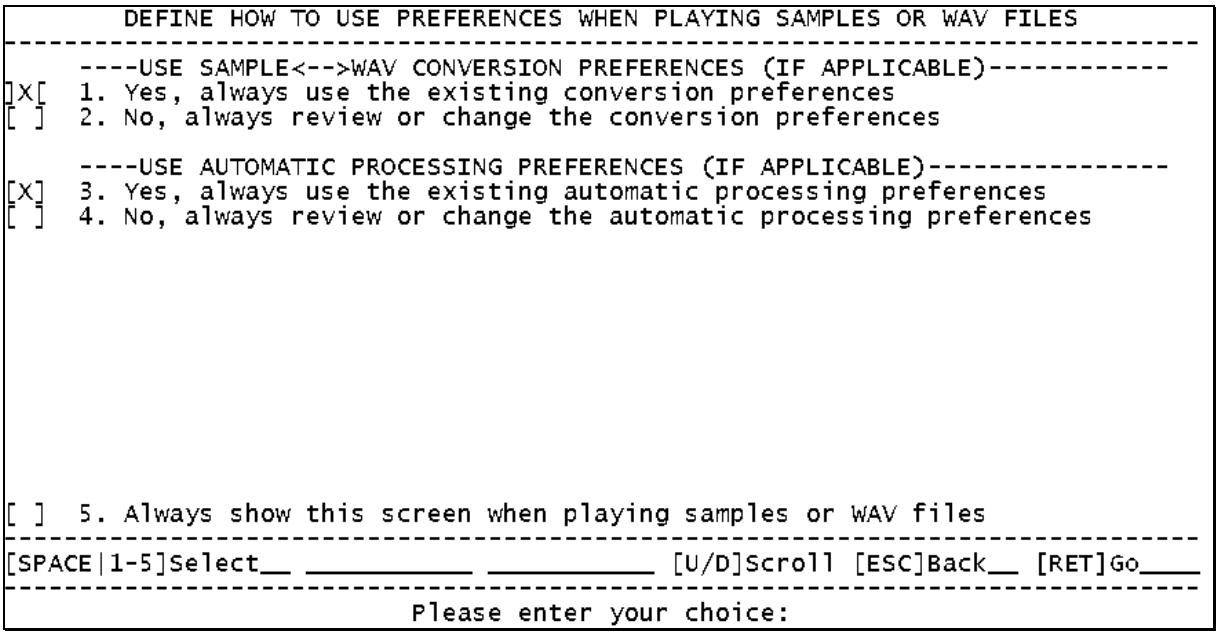
In this submenu you can define to what degree EMXP can autonomously take decisions during copy, conversion or unload processes. This can be specified for 3 areas:

- *Target files and banks:* whenever EMXP is creating files or creating banks on sampler disks, the target file name and folder or the target bank location on a hard disk can either be determined automatically by EMXP or be controlled/chosen for each file/bank yourself.
- *Related source files:* whenever EMXP is dealing with source files like EMAX-II EMX files or EMAX-II floppy disk image files, and it needs their related files, e.g. because the whole sound bank is required (which may be split across 3 EMX files or floppy disk image files), searching for these related files and deciding that the correct related file has been found can either be done automatically by EMXP or be controlled by yourself.
- *Error handling*: whenever an error or conflict occurs during a copy, conversion or unload process, EMXP can either show a message and ask for confirmation, or EMXP can simply log the error and take the decision itself what to do next (which typically means cancelling the step in which the error occurred and going to the next step/item).

10.2.2.3 Define if sample play preferences should always be asked

In this menu you can define for 2 areas whether EMXP should simply use the preferences related to those areas when playing samples or WAV-files, or whether EMXP should rather ask to review/change these settings whenever you will be playing samples or WAV-files.
The 2 areas are:

- *Conversion preferences for between samples/WAV-files and WAV-files playable on the audio device.* If "Yes" is chosen, the preferences explained in *section "10.3 COPY/CONVERSION PREFERENCES"* will be used.
- *Automatic processing preferences.* If "Yes" is chosen, the preferences explained in *section "10.2.2.2 Define preferences about automated copy/conversion/unload processing"* will be used. In practice only the preference related to finding related source files (like EMAX-II EMX files) is applicable.

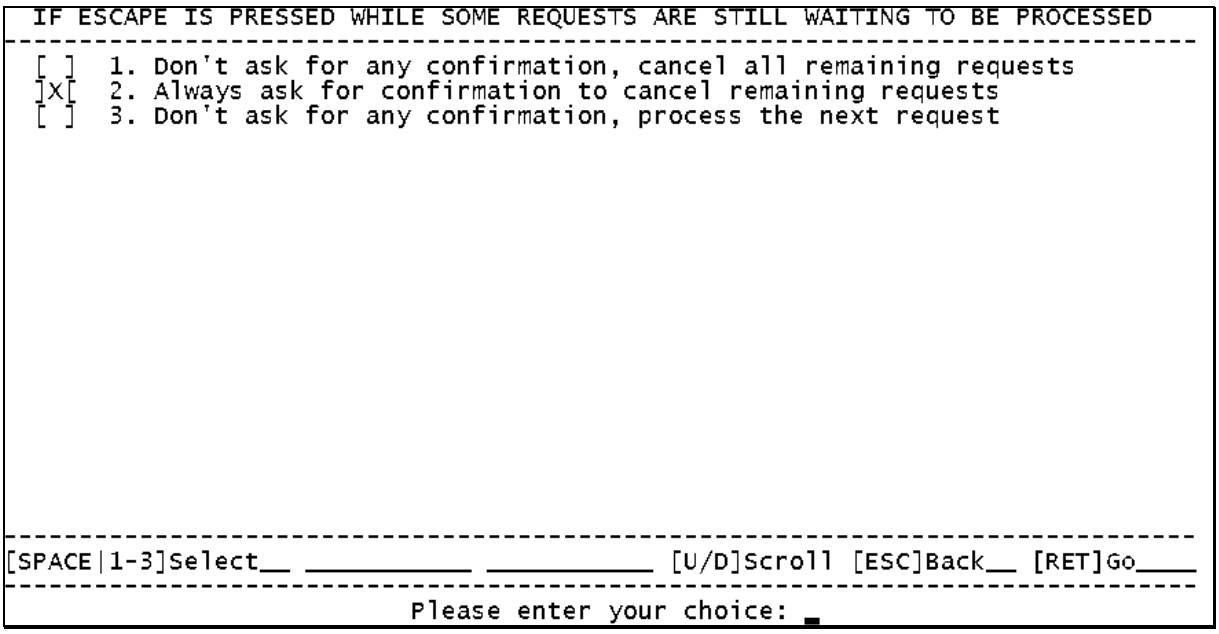


E.g. suppose you want to play samples from an EMAX-II bank that has been stored in 3 EMX files, and you have selected one of these EMX files. The requested sample audio data can be located in any of the 3 EMX files, so EMXP needs to know all EMX files related to the selected one. If you have defined that you want EMXP to find related EMAX-II EMX files by itself and

- if you select item 3 in the above screen, then EMXP won't ask anymore for choosing the EMX files related to the selected EMX file (the screen from *section "10.2.2.2 Define preferences about automated copy/conversion/unload processing"* won't be shown anymore*).* Moreover EMXP will assume that it can select the related EMX files itself because that is the current setting for this parameter.
- if you select item 4 in the above screen, then EMXP will still ask for choosing the related EMX files (the screen from *section "10.2.2.2 Define preferences about automated copy/conversion/unload processing"* will still be shown*).*

This screen will only be displayed when playing samples or WAV-files if you explicitly ask EMXP to do so by enabling option "`5. Always show this screen when playing samples or WAV files`"

10.2.2.4 Define behaviour when ESC is pressed while processing multiple items



If EMXP is processing multiple items, e.g. copying 10 files to a hard disk, and for some reason the user has pressed ESC in the middle of this process (as a response on a request from EMXP), EMXP can :

- either cancel the whole process without asking for any additional confirmation
- or request the user whether the remaining items should still be processed or whether they should be cancelled as well
- or simply jump to the next item and continue the process, without asking for any additional confirmation

10.3 COPY/CONVERSION PREFERENCES

To change the preferences related to copy and conversion parameters:
"6. Preferences" → "2. Manage Copy/Conversion Preferences"

Following options are provided:

```
                    COPY/CONVERSION PREFERENCES MENU
--------------------------------------------------------------------------------

    1.  Manage EMU related Copy/Conversion Preferences

    2.  Manage SOUNDFONT2 related Copy/Conversion Preferences

    3.  Manage EMU and SOUNDFONT2 shared Conversion Preferences

    4.  Manage AKAI S1000 related Copy/Conversion Preferences

    5.  Manage WAV related Copy/Conversion Preferences

    6.  Define Operating System (OS) related Copy/Conversion Preferences

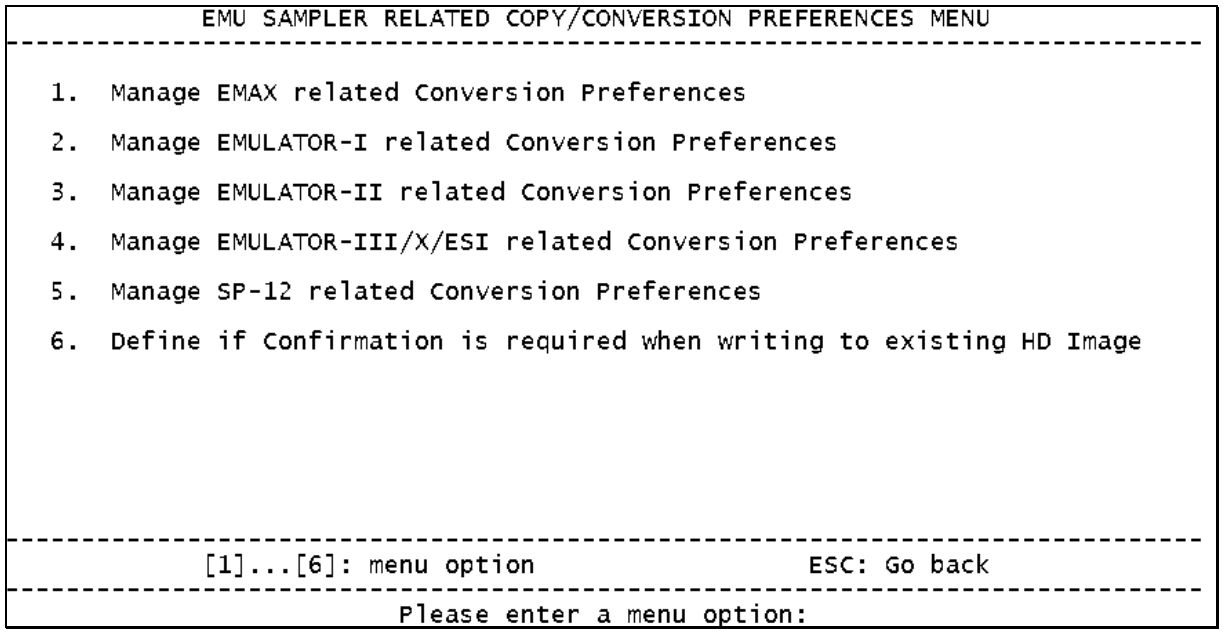
    7.  Define EMULATOR-II HD OS specific Copy/Conversion Preferences

    8.  Reset Copy/Conversion Preferences to Factory Defaults


--------------------------------------------------------------------------------
           [1]...[8]: menu option                 ESC: Go back
--------------------------------------------------------------------------------
                        Please enter a menu option:
```

Some of the preferences defined in this menu are not only applicable for copy/conversion processes, but also for sample load/unload processes and for audio playing of samples or WAV-files. The same settings are shared by these functions. E.g. if you change the Emulator-I normalization preferences, the new settings will be used for conversions as well as for playing Emulator-I samples.

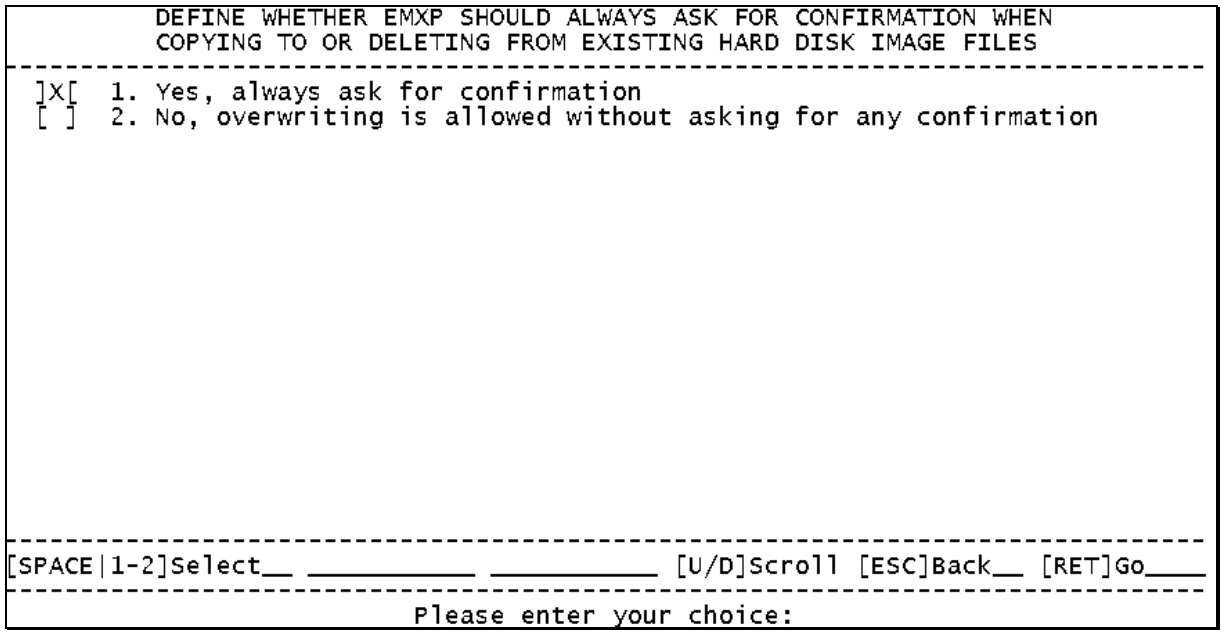
To access the copy/conversion preferences for EMU sampler formats (EMAX-I, EMAX-II, Emulator-I, Emulator-II, Emulator-III/X, ESI-v3, SP-12), option 1 should be selected.
An additional menu for EMU samplers will appear:



10.3.1 Define if confirmation is required when writing to existing HD image

An EMAX-I, EMAX-II, Emulator-III, Emulator-IIIX or ESI hard disk image file can be an important backup file of one of your E-Mu sampler hard disks. In that case you probably want to avoid that its contents would be changed by accident, e.g. by copying sound banks to it or - even worse - removing banks from it.

By default EMXP will also always ask for confirmation whenever you intend *to copy sound banks or operating systems to* or *remove sound banks from* existing E-Mu hard disk images or existing E-Mu partitions in SCSI2SD hard disk images, but that behaviour can be changed in this preference screen.



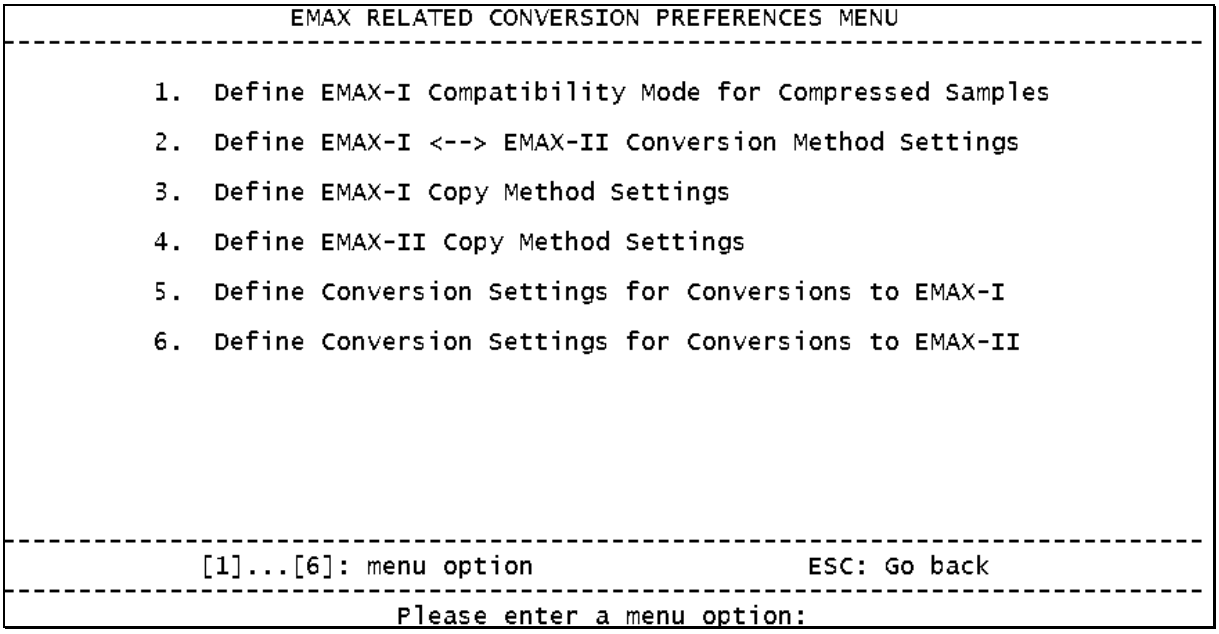
If you select *option 1*, you will always have to confirm that copying data to or removing data from an existing EMAX-I, EMAX-II, Emulator-III, Emulator-IIIX or ESI hard disk image file (or from a partition in a SCSI2SD hard disk image file) is allowed.

If you select *option 2*, EMXP will never ask for confirmation when copying data to or removing data from an existing EMAX-I, EMAX-II, Emulator-III, Emulator-IIIX or ESI hard disk image file (or a partition of a SCSI2SD hard disk image file)

10.3.2 Manage EMAX related conversion preferences

In this section all conversion parameters related to the EMAX-I and EMAX-II sampler format can be managed. Many of these parameters can also be set during a copy/conversion process, if you have chosen the MANUAL or SEMI-MANUAL mode.

Following options are available:



10.3.2.1 Define EMAX-I compatibility mode for compressed samples

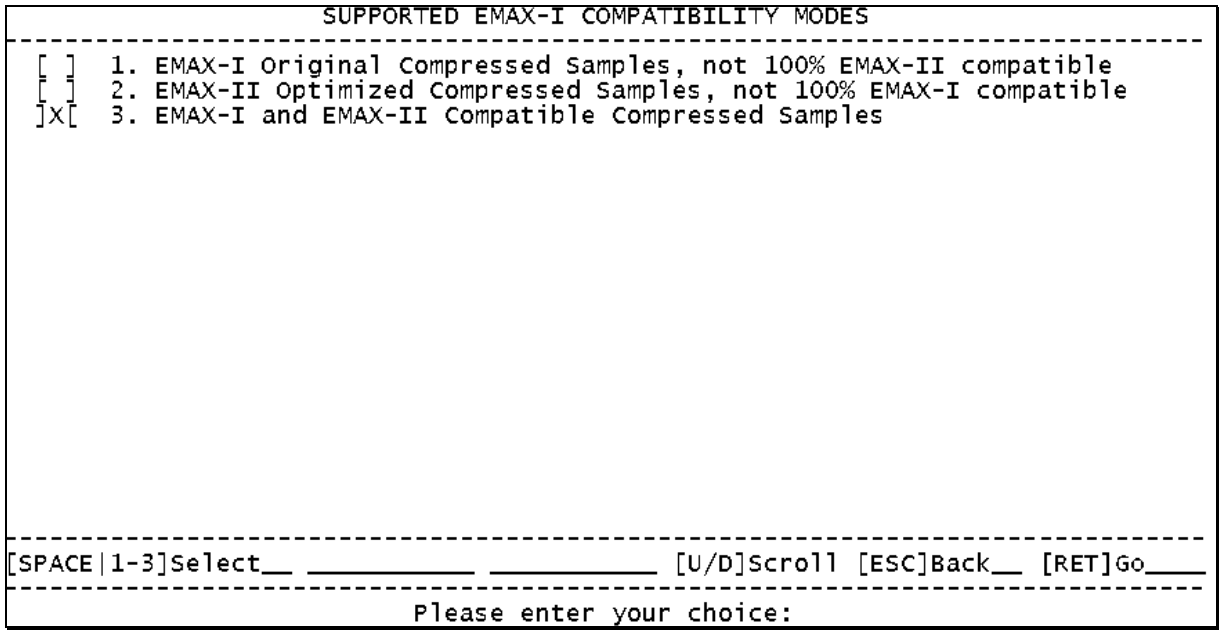
Some of the important differences between the EMAX-I and EMAX-II are:

- The maximum sample memory size on EMAX-I is 512K sample points, while the EMAX-II supports up to 4M sample points.
- The EMAX-I stores its samples as 8-bit compressed data, while the EMAX-II uses 16-bit linear data.
- The EMAX-I does not support the 39063 Hz sample rate
- The EMAX-I typically uses 2 blank sample points at the beginning and 2 blank sample points at the end of each sample, while the EMAX-II typically uses 2 blank sample points at the beginning and 40 blank sample points at the end of each sample.

Despite these differences, EMAX-I compressed banks can be loaded and (if the total sample size fits 512Kb) saved on an EMAX-II.

However:

- When loading EMAX-I banks on an EMAX-II, the EMAX-II will replace the last 40 sample points with blank sample points. This can cause distortion, especially if the original loop points were using this portion of the sample.
- When saving an EMAX-II bank as a compressed bank on an EMAX-II, the 40 native EMAX-II trailing blank bytes will be preserved and saved as part of the compressed bank. These blank bytes will be considered to be normal audio data on an EMAX-I sampler.
- When saving an EMAX-II bank as a compressed bank on an EMAX-II, the 39063 Hz sample rate which may have been used for some samples will be preserved and be saved as part of the compressed bank. Since the EMAX-I doesn't know this sample rate, it will play these samples with a wrong pitch because it thinks the sample rate is 8000 Hz instead of 39063 Hz.



EMXP offers three different compatibility levels that can be used for

- creating compressed banks in EMXP as a result of a conversion between different sampler formats;
- uploading compressed samples via RS422 or MIDI to the EMAX-I;
- reading compressed banks in EMXP as a source of a conversion towards other sample formats;
- unloading compressed samples via RS422 or MIDI from an EMAX-I.

The compatibility mode tells EMXP how to deal with the leading and trailing blank offset sample points, and how to deal with the 39063 Hz sample rate.

The three compatibility modes are:

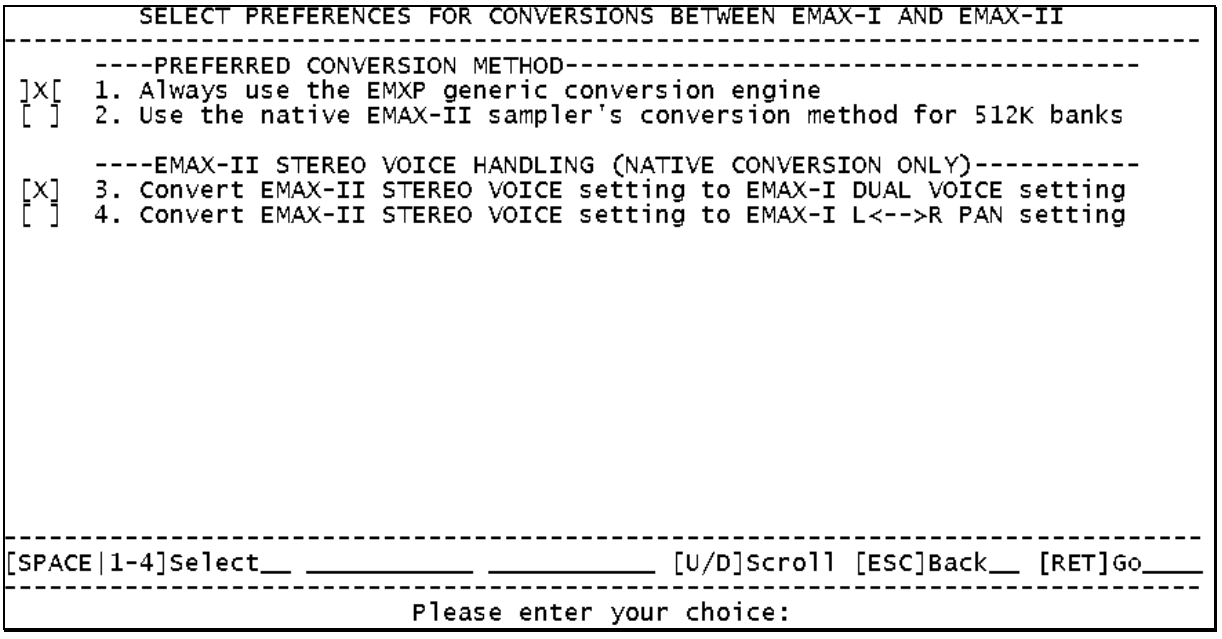
- *EMAX-I original compressed samples*: EMXP will create compressed banks and samples just like an EMAX-I sampler would do. Also, when reading EMAX-I banks or samples, EMXP will assume that they have been created on an EMAX-I sampler. As explained before, this mode can result in some (looping/distortion) problems when loading the bank on an EMAX-II sampler.
- *EMAX-II optimized compressed samples*: EMXP will create compressed banks and samples just like an EMAX-II sampler would do. Also, when reading EMAX-I banks or samples, EMXP will assume that they have been created on an EMAX-II sampler. As explained before, this mode can result in some (pitch) problems when loading the bank on an EMAX-I sampler.
- *EMAX-I and EMAX-II compatible compressed samples*: this mode combines the advantages of both previous modes. EMXP will create compressed banks and samples which can be loaded without any problem on the EMAX-I as well as on the EMAX-II. This is accomplished by always using 2 leading blank sample points and 40 trailing blank sample points per sample, and by avoiding the 39063 Hz sample rate. We consider this the *safest* mode – that's why it is the default in EMXP.

10.3.2.2 Define EMAX-I - EMAX-II conversion method setting

When converting *between* EMAX-I and EMAX-II sound banks, EMXP supports two conversion engines:

- a *native* EMAX conversion engine: this is the same conversion method as the one applied by the EMAX-II sampler when importing EMAX-I sound banks or when saving as a *compressed bank.*
  The main advantage of this engine is that *sequences are converted as well.*
  The main disadvantage of this engine is that *EMAX-II banks larger than 1 MB can not be converted* into EMAX-I banks.
- a *generic* conversion engine: this is the so-called *canonical conversion engine.* It's the same engine as the one that is being used for all other sampler conversion in EMXP.
  The main advantage of this engine is *its flexibility*: target sample rates and memory sizes can be defined, EMAX-II banks of up to 8MB can still be converted to EMAX-I banks because the engine can generate multiple EMAX-I banks from one single EMAX-II bank, each containing a number of presets and samples that fit within 512 KB.
  The main disadvantage of this engine is that it *can not translate sequences*.

Note that EMXP supports only the *generic conversion engine* when converting *non-EMAX* (I or II) sound banks to the EMAX (I or II) format.



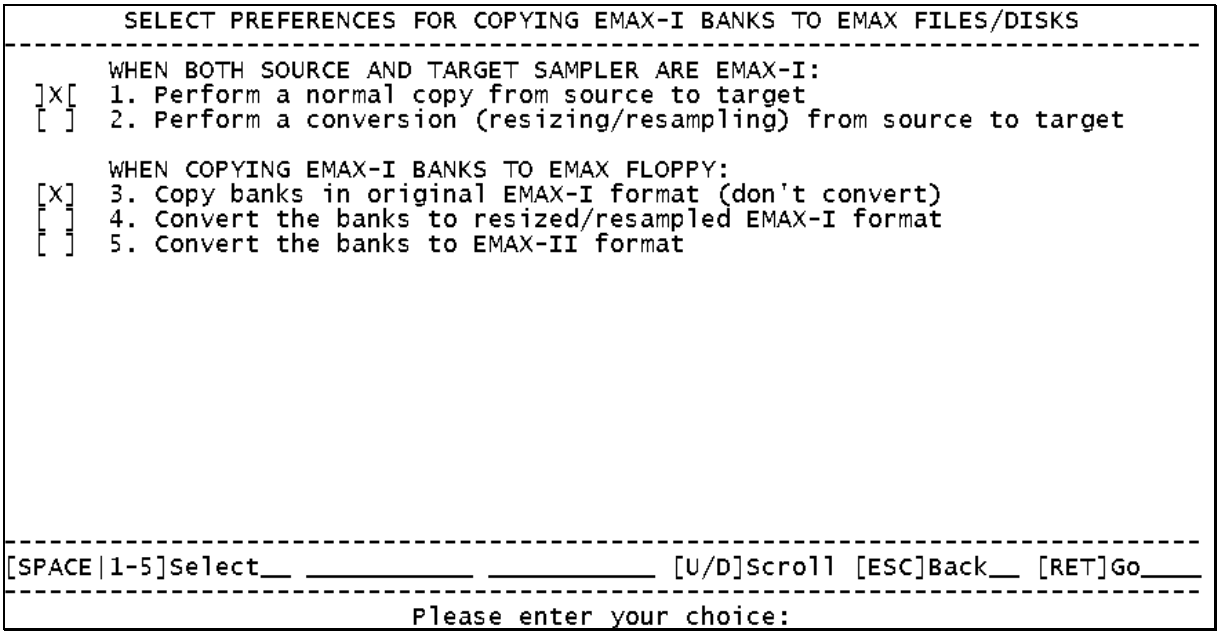
When converting EMAX-II sound banks to EMAX-I sound banks by means of the *native conversion engine*, you can also define how the EMAX-II Stereo Voice parameter in preset key areas should be converted:

- EMAX-II Stereo Voice can be converted into EMAX-I Dual Voice - this is the default approach used by the EMAX-II sampler when *saving as compressed bank* is chosen. The disadvantage is that if the EMAX-II voices are panned to the left or right output channel, they will only sound from one channel on the EMAX-I sampler.
- EMAX-II Stereo Voice can be converted into the PRI voice being panned to the left channel and the SEC voice being panned to the right channel. Dual Voice is set to OFF. The available polyphony is only half of the polyphony available when Dual Voice is ON though.

10.3.2.3 Define EMAX-I copy method settings

If you're *copying* EMAX-I banks or files, you have the possibility to

- either perform a copy without any data or sound conversion (a "true copy")
- or perform a copy in which the sound data will be re-sampled to another sample rate or in which the bank size will be adapted. These options allow you to reduce the size of the resulting bank.



Normally you will select the option to "perform a normal copy from source to target", because re-sampling of an EMAX-I bank can be done by choosing the conversion menu options in EMXP instead of the copy menu options.

Moreover if you're copying EMAX-I banks/files to EMAX floppy disks (which can hold both EMAX-I and EMAX-II data), you have the choice between:

- performing a normal copy of the file to the floppy disk, without any conversion
- performing a re-sampling of the bank before saving it to floppy disk
- performing a conversion to EMAX-II format before copying it to floppy disk

Again, normally you will select the option to "copy banks in original EMAX-I format (don't convert)" because the other two options can be done also by choosing the conversion menu options in EMXP instead of the copy menu options.

10.3.2.4 Define EMAX-II copy method settings

These parameters are identical to the ones explained *in section "10.3.2.3 Define EMAX-I copy method settings"*, but now with the EMAX-II as a source sampler instead of the EMAX-I.

10.3.2.5 Define conversion settings for conversions to EMAX-I

Following conversion parameters can be defined when converting to the EMAX-I sampler format:

- Maximum allowed sample rate of the EMAX-I samples
- Minimum allowed sample rate of the EMAX-I samples
- Conversion of stereo samples to PRI and SEC layer or rather to mono

Note that some additional conversion parameters can be defined in the Emu and SoundFont2 common conversion preferences. See *section "10.3.8 Manage Emu and Soundfont2 shared conversion preferences"*.

Sample rate conversion

EMXP will ask for the sample rate range that should be used during a conversion when using the *EMXP generic conversion engine.*

Although EMXP is capable of keeping the sample rates of the samples as close as possible to the original sample's sample rates, there are two good reasons why you would want EMXP to lower the sample rates during the conversion:

- To keep as many presets as possible into one target EMAX sound bank. Lower sample rates take less memory space, so more samples will fit in memory. Note: if not all presets of the source bank fit into one target sound bank – even with lower sample rates – EMXP will generate multiple banks. But even then keep in mind that only the presets which *completely* fit into a sound bank will be translated by EMXP. If they don't, they will be ignored.
- To keep the original transposition settings. This reason is only applicable for conversions to EMAX-I. Lower sample rates allow for a broader transposition range. See also *section "7.7.1 EMAX-I and EMAX-II"*.

Note that EMXP will *never* upgrade the sample rate, unless the source sample rate is lower than the minimum sample rate supported by the EMAX-I (which will e.g. never happen when converting from Emulator-I or Emulator-II).

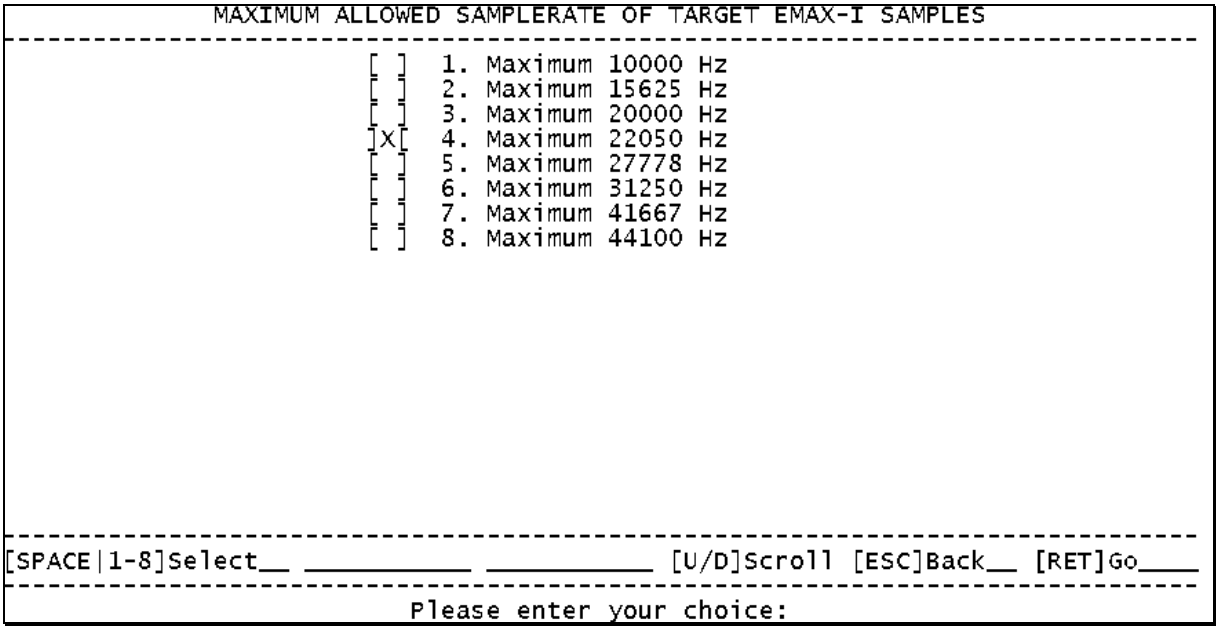
The lower the specified sample rates, the longer the conversion process will take (up to several minutes !!)

- First you have to specify the *maximum allowed sample rate* for the target samples. All converted samples will have a sample rate equal or lower than this setting. This parameter is especially important if you're having problems with preserving correct transposition values when converting to EMAX-I.

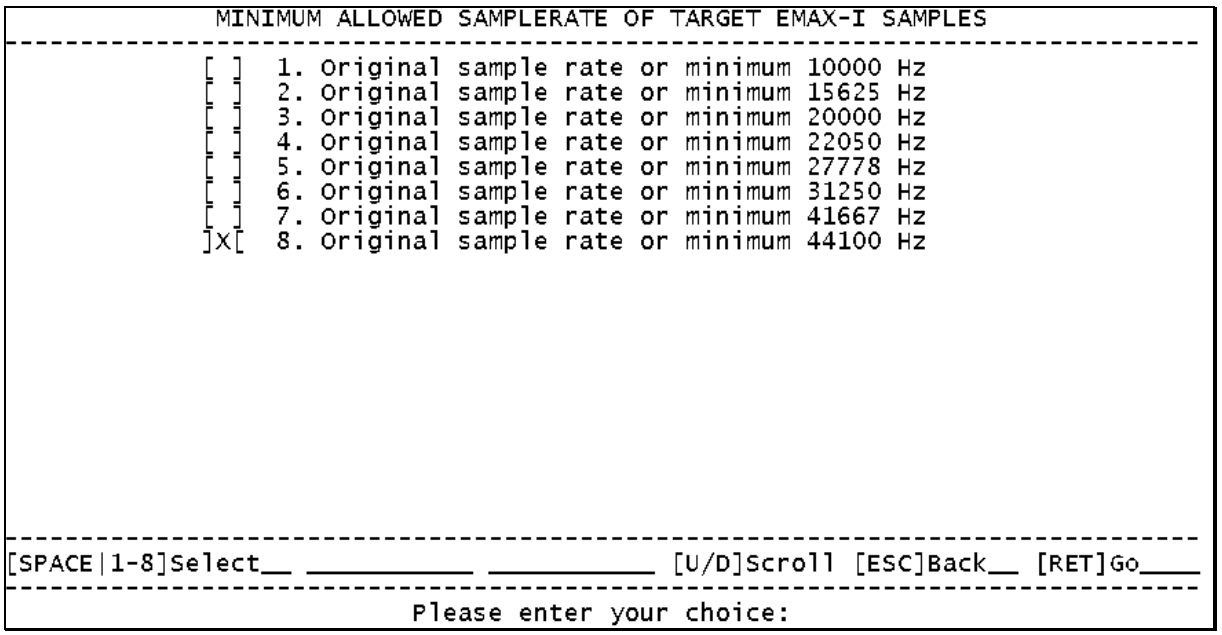
  E.g. if a source preset contains a 27778 Hz sample that has been assigned to 2 octaves (C2→ B3) with C3 as original key, the -12/+12 note transposition can only be retained on EMAX-I if the sample rate is 22050 Hz or lower. In that case, it may be required to set the maximum allowed sample rate to 22050 Hz, although you should only do this after you have tried higher values first. The reason for this is that the maximum allowed sample rate will be applicable *to all samples in the source sound bank*, not only to the samples that really *need* it. By first using a higher maximum sample rate (e.g. 44100 Hz) and allowing EMXP to downgrade sample rates to 22050 Hz by choosing this value for the *minimal allowed sample rate* (see next step), there's a chance that the sample you really want to have downgraded will actually be downgraded, while not impacting the quality of other samples at higher sample rates…

  The *maximum allowed sample rate* can also be used to decrease the target bank size. If the maximum sample rate is set to a lower value than the highest sample rate found in the original bank, the converted samples will decrease in size.
  Note however that EMXP will always try to fit the target bank in the memory size of the target sampler by down-sampling the samples, *no matter what value you have specified for the maximum allowed sample rate.* Even if generating *multiple target banks* from one source bank can be done in such a way that these target banks would fit in the target sampler's memory , EMXP will still try to generate only *one single* target bank if the *minimum allowed sample rate* would allow for further downgrading the sample rate.

In this process EMXP will never use sample rates lower than the value set as *minimum allowed sample rate* though (see next paragraph).
So why would you then lower the *maximum allowed sample rate* as well ?
The only reason why you would decrease the *maximum allowed sample rate* (besides increasing transposition ranges) is to *further decrease* the target bank's size, even if it would already fit in the target sampler's memory. The reason for this may be that you may want to have more free memory available in the bank for adding presets and samples when editing the bank on your sampler.

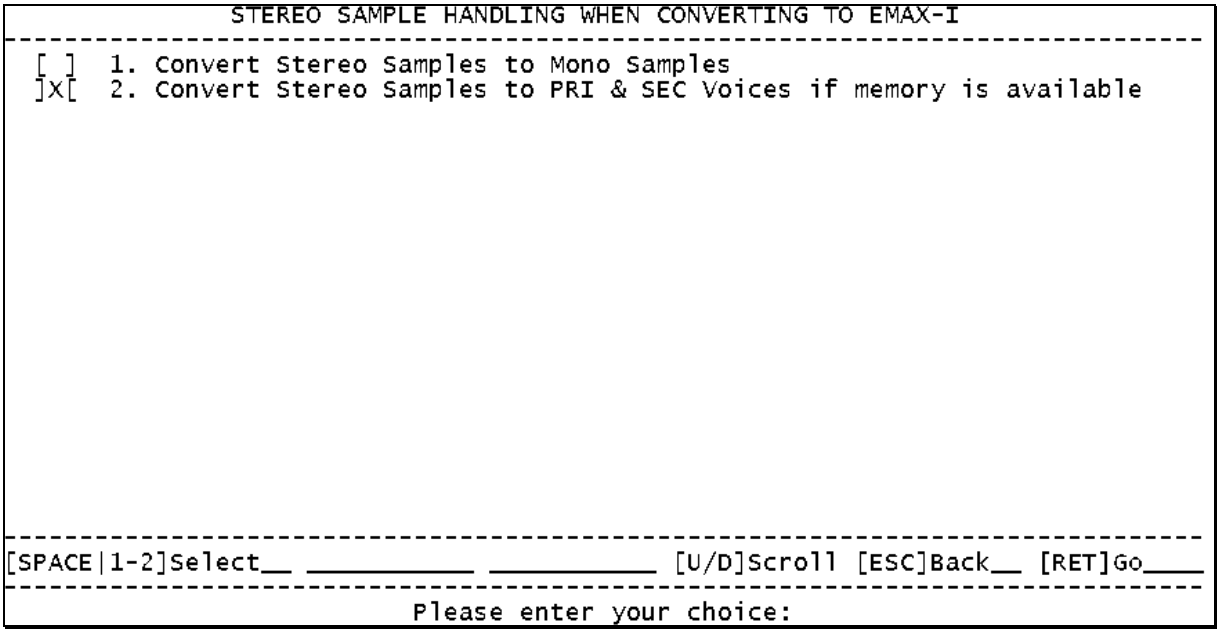


- In a second step you have to specify the *minimum allowed sample rate* for the target samples. This value is very important if you try to compress samples in order to have as many presets and samples as possible in one EMAX-I sound bank. EMXP will never decrease the sample rate below this setting, *unless* the original sample rate is even lower. In that case, the original (even lower) sample rate will be used. If the original sample rate is higher than this parameter, EMXP will first try to keep this higher sample rate. It will only decrease the sample rate (step by step) if the original bank does not fit in one target bank.
  Note: the number of available sample rate values can vary depending on the *maximum allowed sample rate* that you have defined in the previous step.



Stereo sample handling

If the source bank contains one or more STEREO samples, EMXP will give you the opportunity to either keep these stereo characteristics or convert theses samples to mono. Since EMAX-I samplers do not support stereo samples by nature, the only way to preserve the stereo effects is to use primary and secondary voices for each sound channel, and to assign opposite panning settings to each voice. Using PRI/SEC voices is only possible if these voices are still available (i.e. if they are not taken by another sample yet).
EMXP will make sure that each generated preset *either* retains all stereo samples (unless no free SEC/PRI voice was available), *or* only contains mono samples (for both the original mono samples and the original stereo samples). But the retention of stereo samples can *differ across the generated presets*, i.e. the same original stereo sample can result in a PRI+SEC stereo sample in one preset, while resulting in a MONO sample in another preset. As a consequence the total size of all generated samples can be higher than the original total sample size, since each stereo sample can result in 3 mono samples (true mono, left and right). This increases the probability that the sample rate will be downgraded (see previous paragraph "Sample rate conversion") or that multiple EMAX-I banks will have to be generated.



10.3.2.6 Define conversion settings for conversions to EMAX-II

Following conversion parameters can be defined when converting to the EMAX-II sampler format:

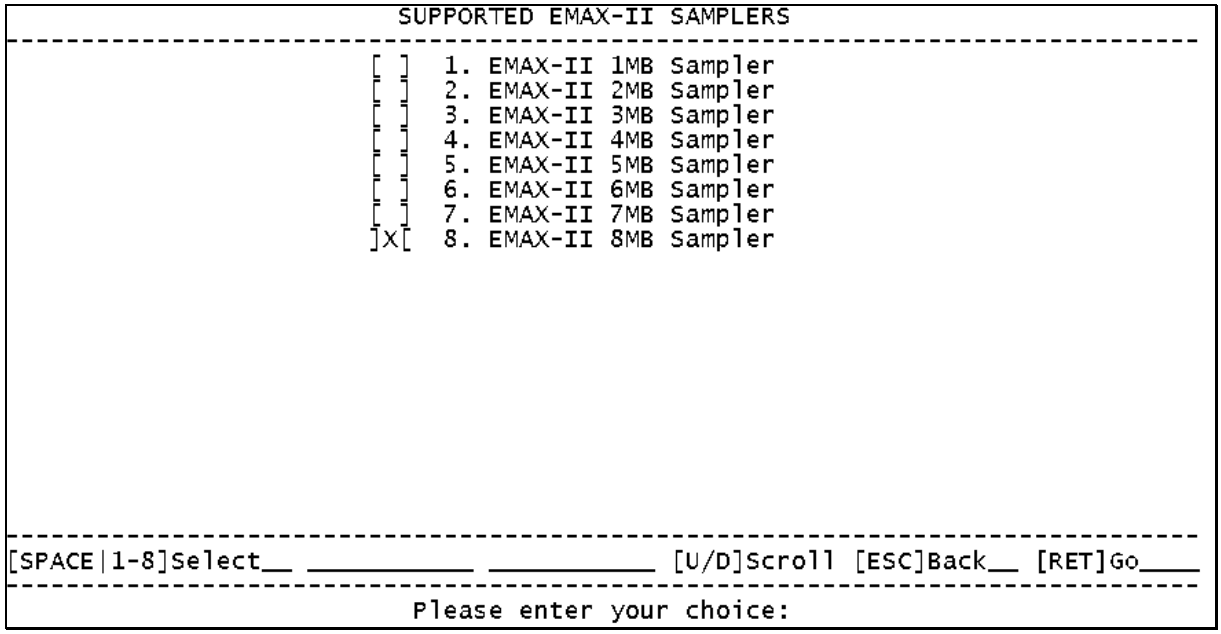
- Size of the memory installed in the target EMAX-II sampler
- Maximum allowed sample rate of the EMAX-II samples
- Minimum allowed sample rate of the EMAX-II samples
- Conversion of stereo samples to PRI and SEC layer or rather to mono
- Whether voice channels (polyphony constraints) should be converted to EMAX-II submix channel assignments or not

Note that some additional conversion parameters can be defined in the Emu and SoundFont2 common conversion preferences.
See *section "10.3.8 Manage Emu and Soundfont2 shared conversion preferences"*.

Memory size

When converting sound banks to the EMAX-II sampler format, EMXP will never create sound banks which will have a total sample size larger than the memory size selected in this screen.

The default memory size is 8MB (i.e. the maximum size of a fully expanded EMAX-II Turbo sampler), but you can scale this down to 1MB. EMXP can try to create (multiple) smaller EMAX-II banks if you have limited memory size on your EMAX-II sampler. Note that even if you select 8 MB as the maximum memory size, many sound banks created by EMXP will still load perfectly in a 4 MB sampler if the *actual total size* of the samples in the generated sound bank does not exceed 4 MB…



Sample rate conversion

The EMAX-II sample rate conversion parameters are similar to the ones for the EMAX-I. See *section "10.3.2.5 Define conversion settings for conversions to EMAX-I"*.

Stereo sample handling

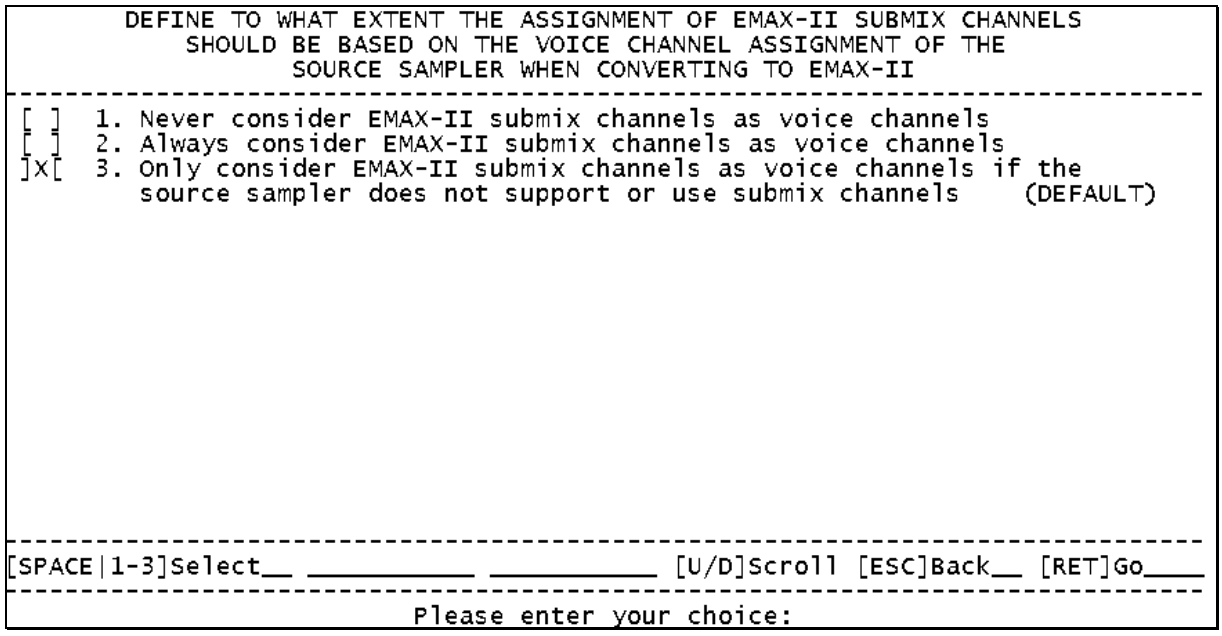
The EMAX-II stereo sample handling parameter is similar to the one for the EMAX-I. See *section "10.3.2.5 Define conversion settings for conversions to EMAX-I"*.

Voice channel conversion to submix channels

As opposed to some other EMU samplers like the EMAX-I and Emulator-III, the EMAX-II does not support the assignment of preset voices to specific ranges of *voice channels* in order to have better control on the polyphonic behaviour of the sampler. Moreover, samplers like the EMAX-I and Emulator-III also offer a separate *output channel* per *voice channel* (e.g. output jacks 1→8 corresponding to voice channels 1→8).

In the EMAX-II, each preset voice "fights" on an equal basis for one of the 16 available voice channels. It's not possible to assign e.g. a bass drum preset voice to a single voice channel 1 in order to make it monophonic within the EMAX-II sampler. But the EMAX-II offers 3 pairs of submix *output channels*, and it is possible to assign preset voices to one of these three submix channels

The conversion engine of EMXP can treat EMAX-II submix channels as separate groups of voice channels. Under which conditions this should be done can be defined in the preference screen below.



The following options are available:

- *Option 1*: the submix channels of the EMAX-II should never be treated as voice (polyphony) channels. Voice channel assignments of the source sampler presets will not be converted. The EMAX-II submix channel assignments will only be set if the source sampler presets have submix channel assignments.
- *Option 2:* the submix channels of the EMAX-II will always be treated as voice (polyphony) channels. Submix channel assignments in the source sampler presets (if any) will be ignored. The assignment of the EMAX-II submix channels will always be based on the voice channel assignments (polyphony) that are defined in the source sampler presets.
- *Option 3:* whether the EMAX-II submix channels will be treated as voice channels depends on whether the source sampler preset has submix channel assignments or not. This is the default setting.
    - If at least one voice in the source preset has been assigned to a submix channel, none of the submix channels in the target EMAX-II preset will be treated as voice channels.
    - But if none of the voices in the source preset has been assigned to a submix channel, the submix channel assignments of all voices in the target EMAX-II preset will be based on source voice channel assignments. This is always true if the source sampler format does not support submix channels. But it's also true if the source sampler *does* support submix channels but if none of them have been assigned in any of the voices of the source sampler preset

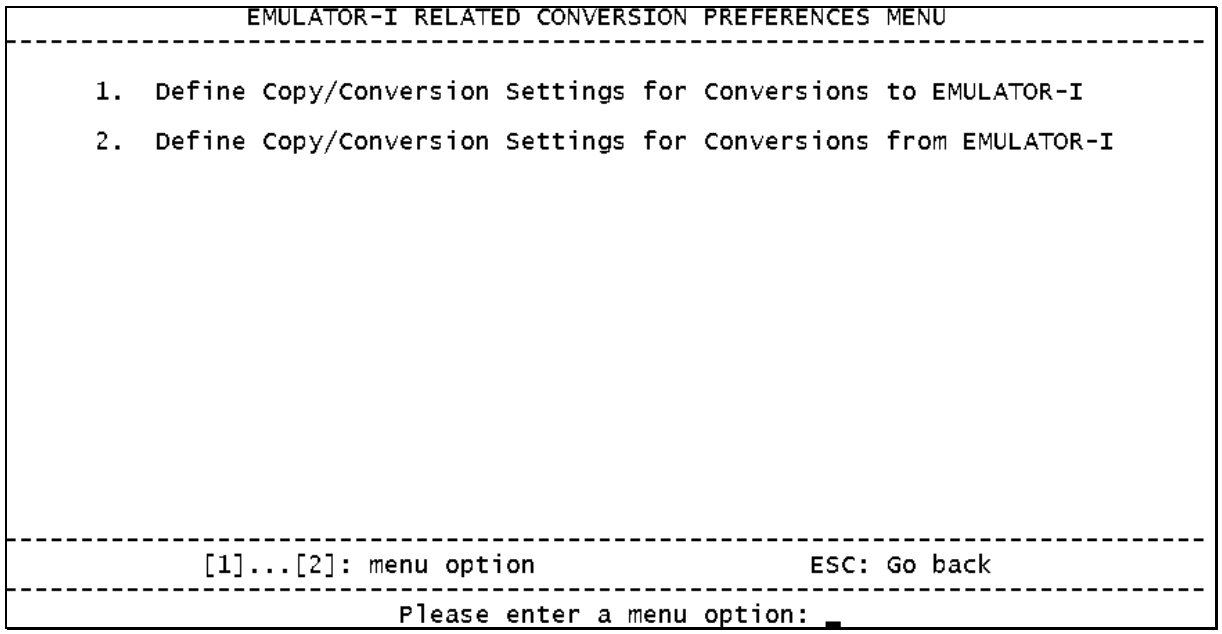
To assign submix channels based on source voice channel assignments, EMXP will first (internally) convert the source voice channels to "virtual" target EMAX-II voice channels. When doing this, EMXP will treat the EMAX-II as an 16-voice polyphonic sampler and the channel assignment conversion will be based on the common EMU preference setting for voice channel conversions (see *section "10.3.8.3 Define how to convert polyphony/voice channel assignments"*).
The final submix channel assignment is then determined as follows:

- if the number of channels in the target "virtual" voice channel group is 5 or more, the voices will be assigned to the Mains output
- if the number of channels in the target "virtual" voice channel group is between 1 and 4, the submix channel is determined as follows
    - if the target "virtual" voice channels are in the range 1 → 4, the voices are assigned to Submix channel A
    - if the target "virtual" voice channels are in the range 5 → 8, the voices are assigned to Submix channel B
    - if the target "virtual" voice channels are in the range 9 → 16, the voices are assigned to Submix channel C

10.3.3 Manage Emulator-I related conversion preferences

In this section all conversion parameters related to the Emulator-I sampler format can be managed. Many of these parameters can also be set during a copy/conversion process, if you have chosen the MANUAL or SEMI-MANUAL mode.

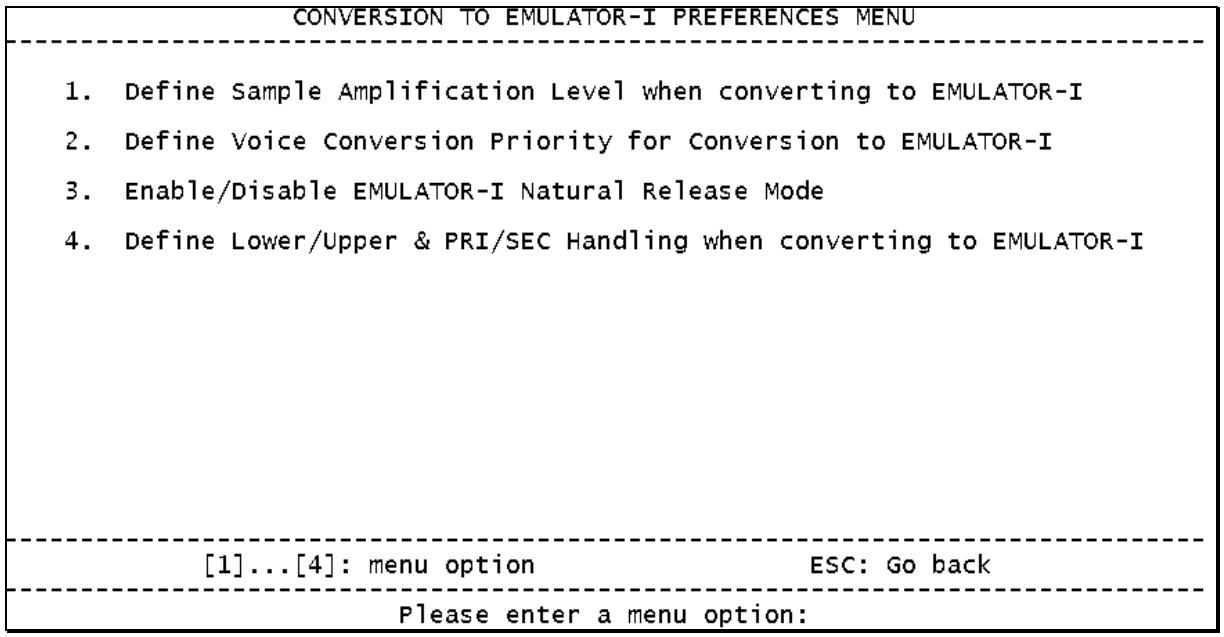
Following options are available:



The available options are split across two submenus:

- options related to copy/conversions *to* the Emulator-I format
- options related to copy/conversions *from* the Emulator-I format (some of thse are also used for *playing* Emulator-I samples)

Following options are available when copying/converting *to* the Emulator-I format:



Following options are available when copying/converting *from* the Emulator-I format:

```
                CONVERSION FROM EMULATOR-I PREFERENCES MENU
--------------------------------------------------------------------------------

1.  Define Sample Attenuation Factor when converting from EMULATOR-I

2.  Enable/Disable EMULATOR-I Natural Release Mode

3.  Define Sound Location when converting from EMULATOR-I Lower/Upper Sounds

4.  Define Sound Location when converting from EMULATOR-I Lower/Upper Files









--------------------------------------------------------------------------------
            [1]...[4]: menu option                  ESC: Go back
--------------------------------------------------------------------------------
                          Please enter a menu option:
```

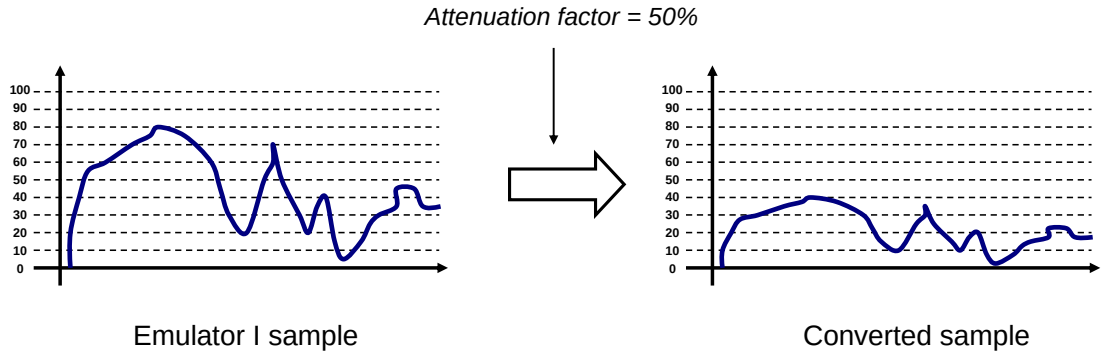
10.3.3.1 Define sample amplification and attenuation

The Emulator-I's output signal level is pretty low.
Therefore the amplitude of the samples loaded into the Emulator-I should be very high in order to have an acceptable output signal level.

When converting sounds from the Emulator-I to other sampler formats (or WAV), or when playing Emulator-I samples in EMXP, this can result in very **loud** sounds.
And when converting sounds from other samplers (or WAV) to the Emulator-I, this typically results in very **silent** sounds on the Emulator-I.

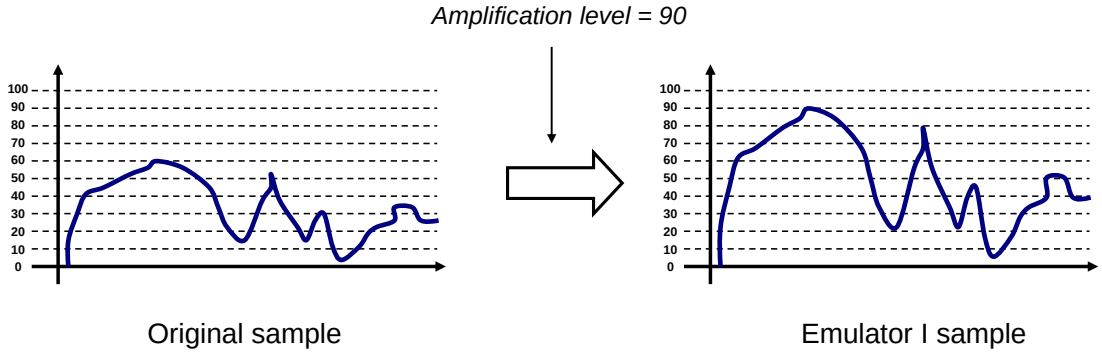
EMXP offers two parameters to compensate this behaviour:

- An **attenuation level** parameter: this parameter determines what percentage of the signal level of the original Emulator-I samples should be used in the converted samples.



The attenuation percentage is a linear value between 0 (=complete silence) and 100 (=original Emulator-I signal level). The default value is 70%.

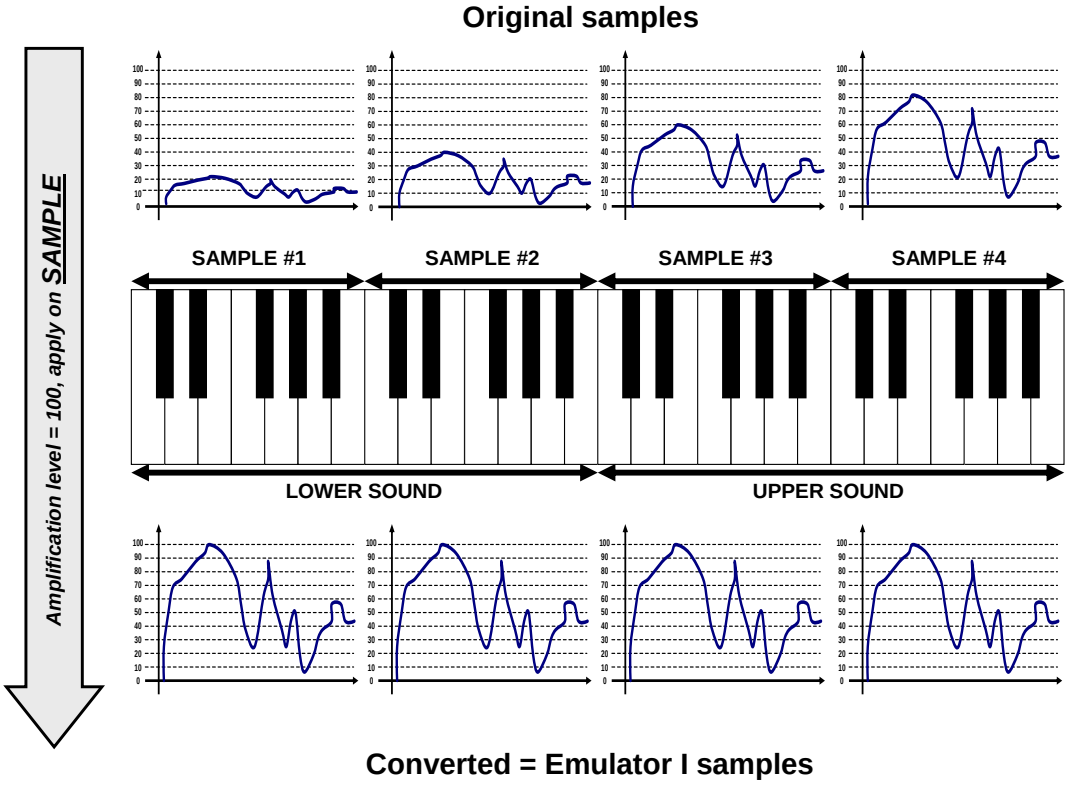
- An **amplification level** parameter: this parameter determines to what level the source samples (or WAV audio) should be amplified when converting them to the Emulator-I format.



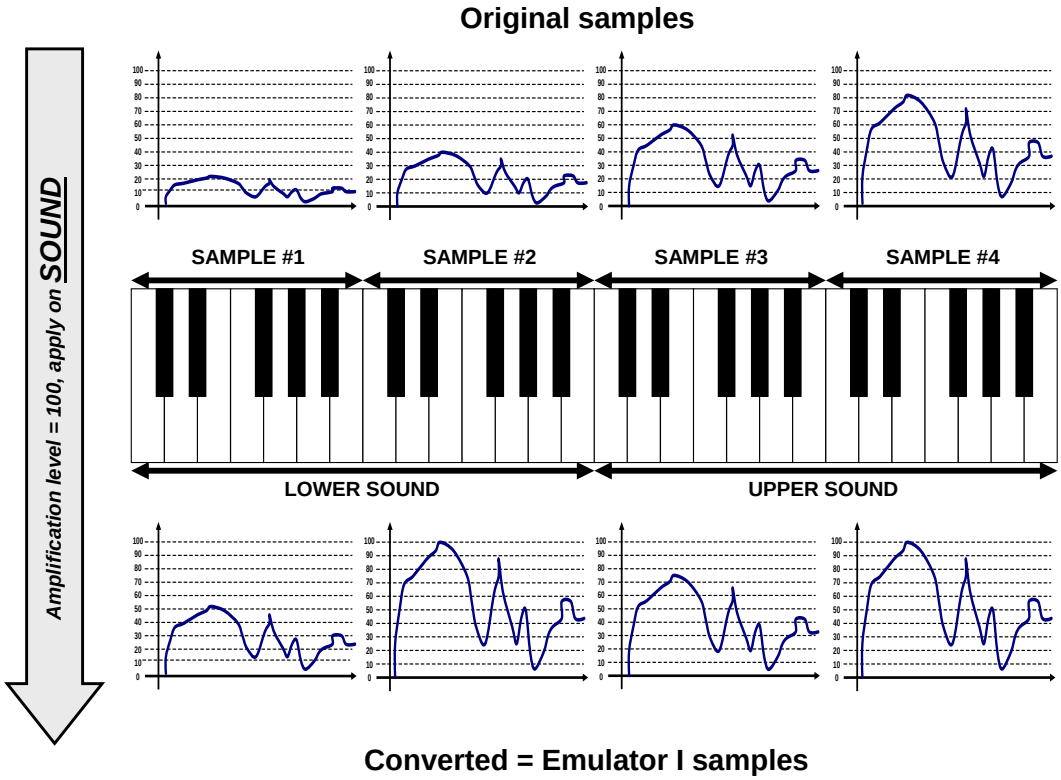
The amplification level is a linear value between 0 (=complete silence) and 100 (=maximum level, just below distortion). The peek amplitude of the original sample will be increased (or decreased) to the defined amplification level; all other sample points of the sample will be increased (or decreased) with the same ratio as the one used for amplifying the peek amplitude. The default value is 90.

When boosting samples, EMXP can take into account **other samples** within a **keyboard half** (= Emulator-I lower sound or Emulator-I upper sound) or within the **whole preset** (= Emulator-I lower and upper sound together).
In that case, the reference peek amplitude used by EMXP is the highest amplitude of all samples within that keyboard half or within that preset. Of course it's also possible to boost **every individual sample** to the specified level.

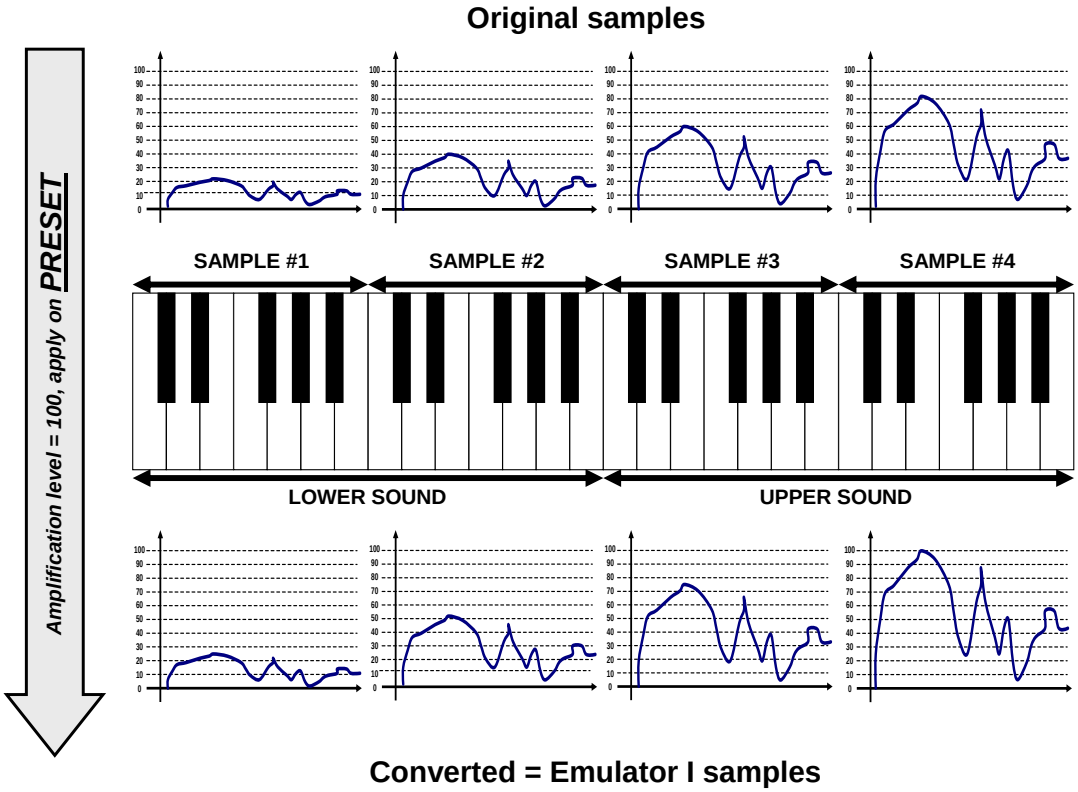
The three possible scenarios are illustrated below.



Amplification to specified level is applied on each individual sample



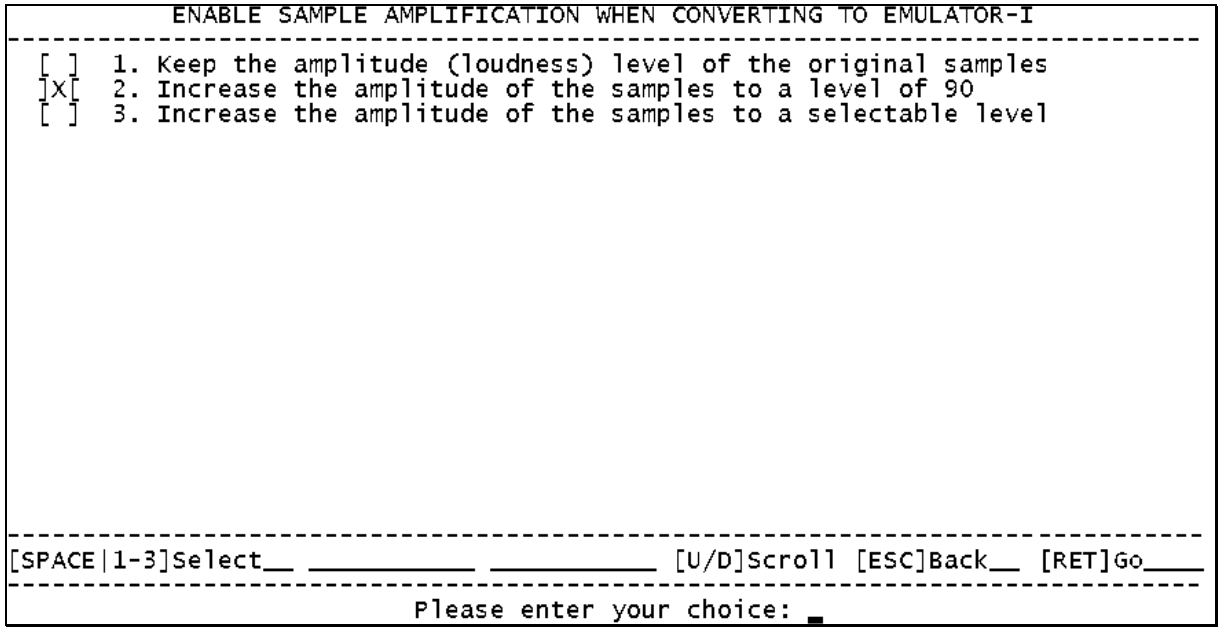
Amplification to specified level is applied on sound level (sample #2 and #4 are peek reference)



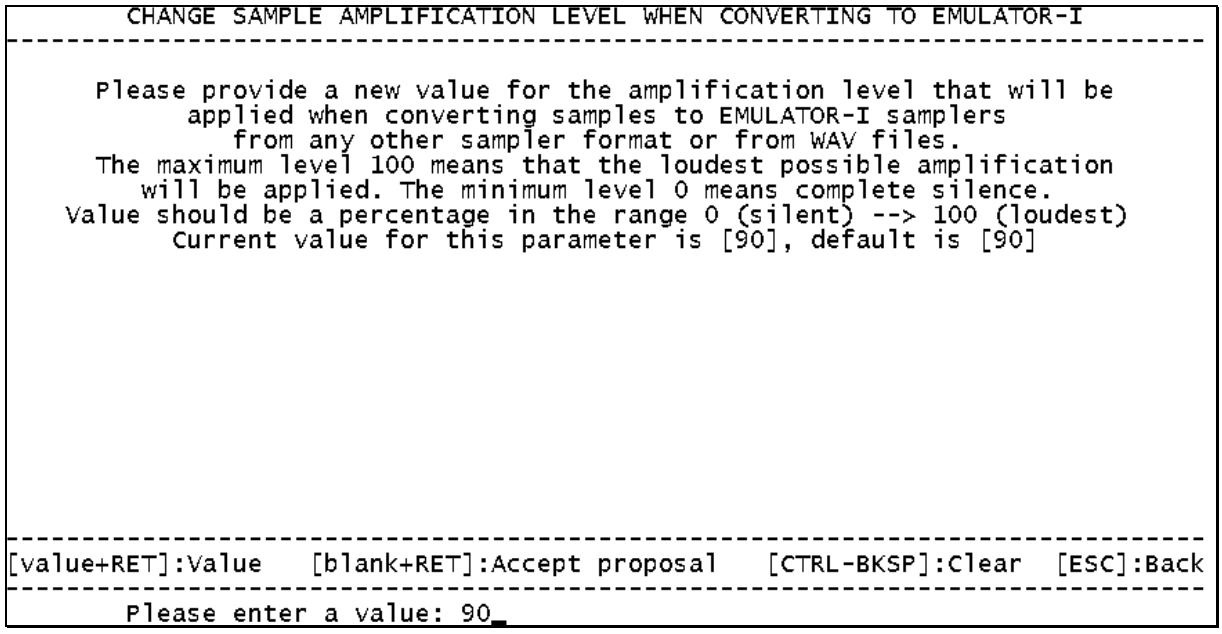
Amplification to specified level is applied on preset level (sample #4 is peek reference)

The next paragraphs explain how to set these parameters in the preferences menu.

Define sample amplification level when converting *to* Emulator-I



When selecting option 1 the loudness of the samples will not be changed (possibly resulting in quite silent Emulator-I sounds).
Option 2 allows to boost the sample amplitude to 90 pct of the maximum volume level supported by the Emulator-I, while option 3 allows for any other amplification level which you will have to define on the next screen (see picture below, which will only appear after selecting option 3).



If you selected option 2 or 3 in order to change the volume of the samples, EMXP can take into account *other samples* within a *keyboard half* (= Emulator-I lower sound or Emulator-I upper sound) or within the *whole preset* (= Emulator-I lower and upper sound together).
In that case, the reference peek amplitude used by EMXP is the highest amplitude of all samples within that keyboard half or within that preset. Of course it's also possible to boost *every individual sample* to the specified level.
This can be defined on the next screen.

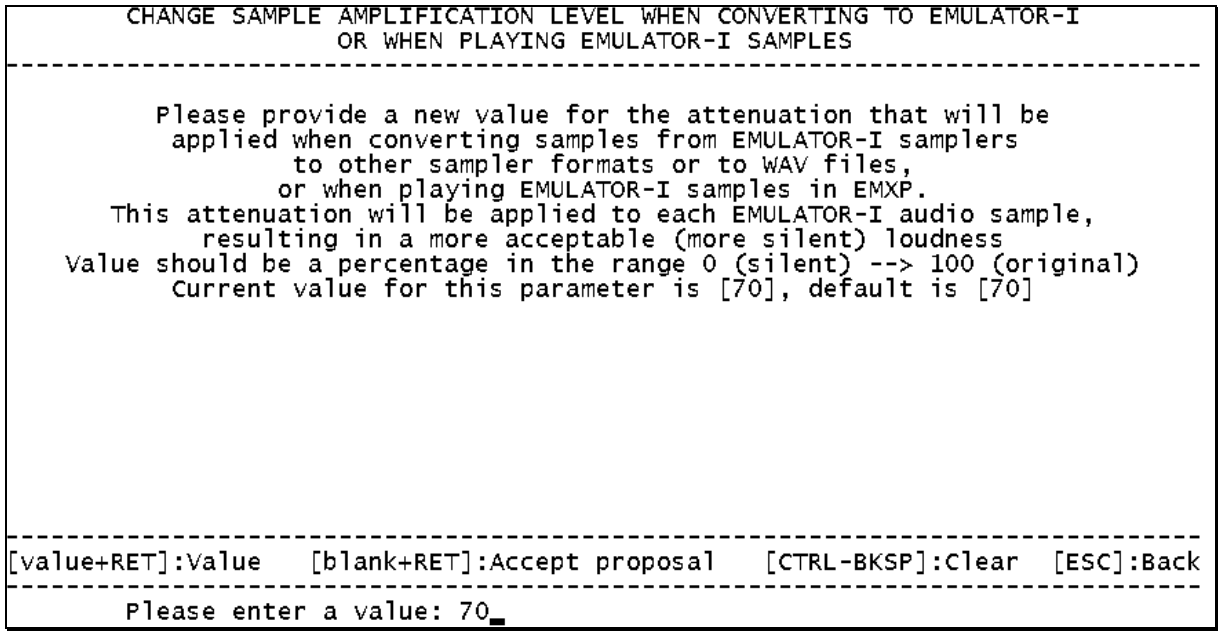
```
            SUPPORTED LEVELS FOR EMULATOR-I SAMPLE AMPLIFICATION
--------------------------------------------------------------------------------
  [ ]  1. Apply amplification independently on each individual sample
  ]X[  2. Apply amplification consistently across all samples of a preset
  [ ]  3. Apply amplification consistently across all samples of a sound
--------------------------------------------------------------------------------
[SPACE|1-3]Select__ ___________ ___________ [U/D]Scroll [ESC]Back__ [RET]Go____
--------------------------------------------------------------------------------
                            Please enter your choice:
```

Define sample attenuation factor when converting *from* Emulator-I

```
          ENABLE SAMPLE AMPLIFICATION WHEN CONVERTING TO EMULATOR-I
                      OR WHEN PLAYING EMULATOR-I SAMPLES
--------------------------------------------------------------------------------
  [ ]  1. Keep the amplitude (loudness) level of the original samples
  ]X[  2. Decrease the amplitude of the samples to a level of 70%
  [ ]  3. Decrease the amplitude of the samples to a selectable level
--------------------------------------------------------------------------------
[SPACE|1-3]Select__ ___________ ___________ [U/D]Scroll [ESC]Back__ [RET]Go____
--------------------------------------------------------------------------------
                            Please enter your choice: _
```

When selecting option 1 the loudness of the samples will not be changed (possibly resulting in loud target samples).

Option 2 allows to lower the sample amplitude to 70 pct of the original level, while option 3 allows for any other attenuation level which you will have to define on the next screen (see picture below, which will only appear after selecting option 3).



10.3.3.2 Define voice conversion priority for conversion to Emulator-I

As explained in *section "7.7 CONVERSION CONSTRAINTS AND CONVERSION QUALITY"*, the possible assignment of samples to keys in the Emulator-I is very limited. The number of key areas in lower and upper sounds must be either 1, 2, 3, 4 or 6 (per sound). Moreover the number of keys per key area and the original key (pitch) are fixed and depend on the number of key areas, e.g. if a sound consists of 2 key areas, they will cover 12 keys each (C1→B1 and C2→B2 in the lower sound), and the original key is fixed to resp. keys G1 and G2. See table below.

No of key areas (=no of samples)	Key area	Original key
1	C – B’	C’
2	C – B C’ – B’	G G’
3	C – G G# - D#’ E’ – B’	E C’ G#’
4	C – F F# - B C’ – F’ F#’ – B’	D# A D#’ A’
6	C – D# E – G G# - B C’ – D#’ E’ – G’ G#’ – B’	D F# A# D’ F#’ A#’

The probability that the presets of the original sound bank have the same key assignment as the ones shown in the table above is almost zero.

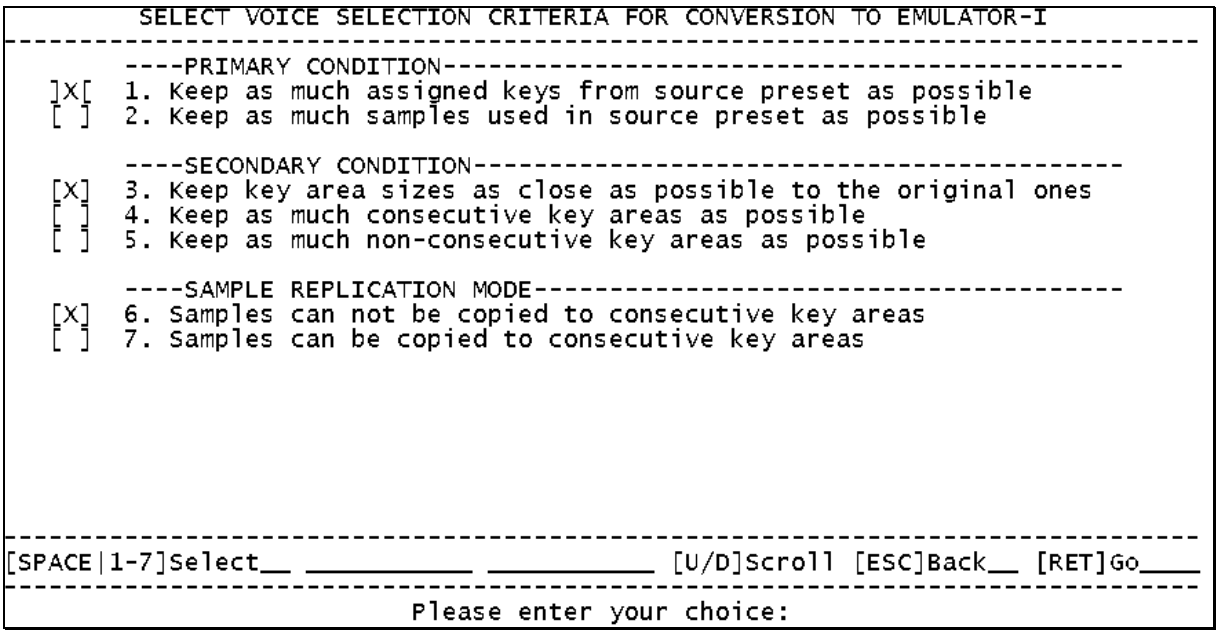
The obvious consequence is that the key assignment of the converted presets will be different and that some samples may not even be present anymore because priority has been given to another one.

E.g. if the original preset is a “Drum kit” containing a different drum sound on each key (=24 different drum sounds on the lower two octaves), the Emulator-I preset will only have 6 of those 24 drum samples and each of them will span 4 keys instead of 1 key. The other 18 samples will not have been translated.

Moreover the pitch will probably be wrong too, and the tuning parameter range supported by the Emulator-I is not wide enough to compensate the difference in original pitch.

E.g. if the original preset contains a “String” sample on the first octave C1→B1 with original key C1, the converted sample will be out of tune because the Emulator-I only supports G1 as original key in this key assignment. EMXP will set the tuning of the sample to the maximum level in order to compensate this big difference, but it can not do better than compensate 1,5 semitones.

While changing the tuning parameter is the only (weak) “weapon” EMXP has for approximating the original pitch setting, there are a few preference options available *to influence the number of key areas in the converted Emulator-I preset*, and to influence *which samples/key areas from the original preset will be converted to the Emulator-I preset*.

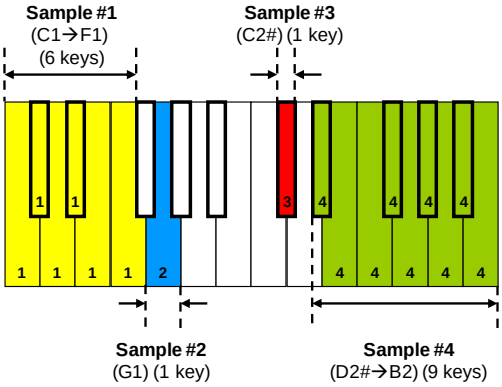


In this screen, three different parameters *must* be set:

- The *primary selection condition* determines whether EMXP should try to preserve as many assigned keys as possible from the original preset (selection ‘1’, default) or rather should try to preserve as many samples as possible (selection ‘2’).
- The *secondary selection condition*, which will be applied by EMXP after the first filtering has been done based on the primary selection condition. The second condition defines whether EMXP should try to:
    - approximate the size of the key areas in the original preset (selection ‘3’, default), or
    - keep as much consecutive key areas as possible (selection ‘4’), i.e. don’t give priority to the preservation of any “white space” or “unassigned keys” in between key areas if any would be present in the original preset, or
    - keep as much non-consecutive key areas as possible (selection ‘5’), i.e. don’t give priority to the preservation of any “white space” or “unassigned keys” in between key areas if any would be present in the original preset
- The *sample replication mode*, which defines whether it is allowed to copy (replicate) samples in order to use two or more Emulator-I key areas for converting one original key area. The Emulator-I does not allow sharing of the same sample by two or more key areas. As a result a sample must be “cloned” if two or more key areas should use the same sample. This copy takes additional memory of course. Selection ‘6’ means that cloning of samples is not allowed while selection ‘7’ means that cloning of samples is allowed (if required). The default is ‘6’. Be aware that cloning samples is often not very

useful (or even unwanted) because the Emulator-I is not capable of adequately transposing the pitch of the sample. As a result, the sample will have the same original pitch in both key areas[17].

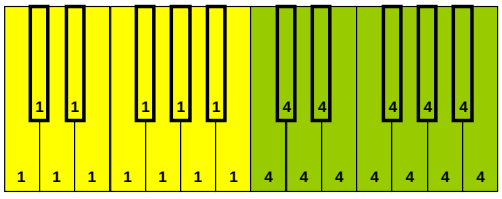
The following example illustrates the effect of these parameters when converting a preset containing 4 different samples in the first two octaves (lower sound). Note that the key areas in the original preset have different sizes, and that "white spaces" (unassigned keys) are present. In this example, each of the samples is assumed to be maximum 9Kb in size. This means that the maximum of 6 key areas can be used, since 6 * 9Kb = 55296 bytes. This is smaller than the 57088KB memory limit of the Emulator-I.



[Keys F1#, G1#→C2 and D2 not assigned]

The key assignments of the source preset – shown in the picture above – can clearly not be retained, because the Emulator-I only supports fixed (size) key areas.

The following pictures show how the Emulator-I's key assignments will look like when using different settings for the Emulator-I Voice Priority preferences during conversion.

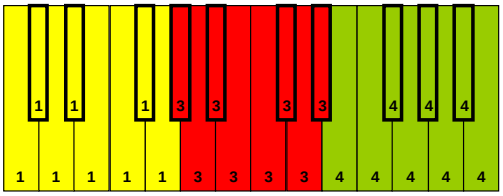


Voice Priority preferences:
1 – 3 - 6

As shown in the picture above, only two samples (#1 and #4) will be converted if the default settings (1 – 3 – 6) have been chosen. Each of these samples will be assigned to a full octave. Setting '1' means that the maximum number of assigned keys should be converted. As can be seen in the first picture,17 keys have been assigned in the original preset. But 16 is the maximum number that can be kept after conversion – due to the fixed key areas of the Emulator-I.
However, this 16 assigned keys can only be reached if replication of samples ("cloning") is allowed, which is not the case here because setting '6' has been chosen. Since no sample replication is allowed, 15 is the maximum number of assigned keys that can be kept. And this number can only be reached by using 2 key areas, each sized 12 keys (one octave).

The following picture shows the conversion result with settings 1 – 4 – 6. EMXP tries now to keep as much consecutive key areas from the original preset as possible (setting '4')… while still keeping at least 15 assigned keys from the original preset (setting '1'). Note however that the original preset *doesn't have* any consecutive key areas. In that case, EMXP still tries to make the converted key areas consecutive.

[17] A future version of EMXP may have the capability to transpose pitch itself as part of the conversion process.



Voice Priority preferences:
1 – 4 – 6
1 – 5 – 6

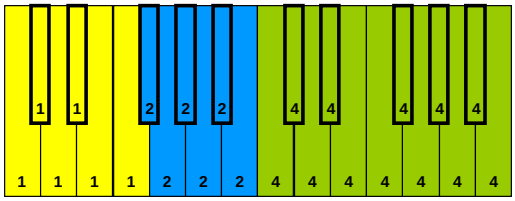
You may wonder why the result is different from the previous one: EMXP has now converted 3 samples (#1, #2 and #4) instead of 2, while the previous result also had consecutive key areas…
The reason is that in the previous conversion setting '3' was selected, which instructs EMXP to keep the size of the key areas as close as possible to the original ones:

- In configuration 1 – 3 – 6, the total of the differences in size of the two converted key areas is 9 (6 keys difference for sample #1, and 3 keys difference for sample #4).
- In configuration 1 – 4 – 6, the total of the differences in size of the three converted key areas is 10, which is more than in the previous one (2 keys difference for sample #1, 7 keys difference for sample #3 and 1 key difference for sample #4)

EMXP preferred to convert three samples instead of two because the more samples can be converted, the better…

Note that the result is the same when choosing 1 – 5 – 6. This looks strange at first sight, because no "white space" can be found in the result while setting '5' explicitly instructs EMXP to preserve as much non-consecutive key areas as possible. The reason is that setting '1' is the *primary condition*, and it instructs EMXP to keep as much assigned keys as possible, which is 15. If "white space" would have been added, it would not have been possible anymore to keep 15 original key assignments.

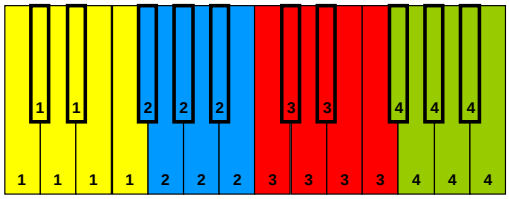
Let's now replace setting '6' by setting '7', which means that sample cloning is allowed. We keep setting '1'. The maximum number of assigned keys that can be retained is 16 now, and it can only reached by converting the key areas of sample #1, sample #2 and sample #4. If sample #3 would (also) be converted, the number of keys for sample #4 would decrease to a maximum of 8 instead of 9. In that case the total maximum of preserved key assignments would only be 15 again.



Voice Priority preferences:
1 – 3 – 7
1 – 4 – 7
1 – 5 – 7

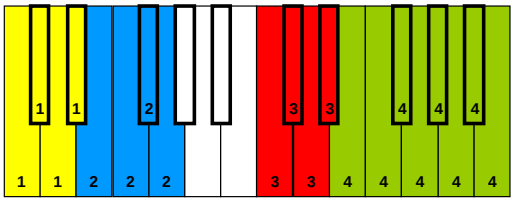
It doesn't matter whether setting '3', '4' or '5' is being selected, the result is always the same (see picture above). The reason is that this combination of key areas and key assignments is the only possible one which preserves 16 original key assignments…

Until now EMXP didn't succeed to generate an Emulator-I sound containing all 4 original samples. To accomplish this, we have to change setting '1' to setting '2' (=convert as many samples as possible). When using settings 2 – 3 – 6, the result looks like this:



Voice Priority preferences:
2 – 3 – 6
2 – 4 – 6
2 – 4 – 6
2 – 3 – 7
2 – 4 – 7

The maximum number of samples that can be converted is 4, which is the same as the number of samples in the original preset. Using 4 different samples in an Emulator-I sound means that at least 4 key areas must be used. Note that the result is the same for setting '3' and setting '4'.
You may wonder why the same preset is generated when setting '5' has been chosen, because there's no "white space" at all in the result. The reason is that EMXP can only define "empty key areas" if at least one key of that key area is empty in the original preset.
In order to have non-consecutive key areas while still preserving 4 samples in our example, a minimum of 6 key areas must be used (which is also the maximum possible in the Emulator-I). The "white space" should then be found in key area 2 (E1 → G1) and key area 5 (E2 → G2). However, all keys of key area 5 (E2, F2, F2#, G2) have sample #4 assigned to them in the original preset. So EMXP will never generate an empty key area for these keys. In key area 2, key F1# is empty in the original preset, so here EMXP is able to generate an empty key area. This can only be done in combination with a replicated sample #4 on key areas 5 and 6. To achieve this, setting '7' must be used instead of setting '6'. See picture below.



Voice Priority preferences:
2 – 5 – 7

10.3.3.3 Enable/disable Emulator-I natural release mode

The Emulator-I doesn't have any configurable envelopes. This means that

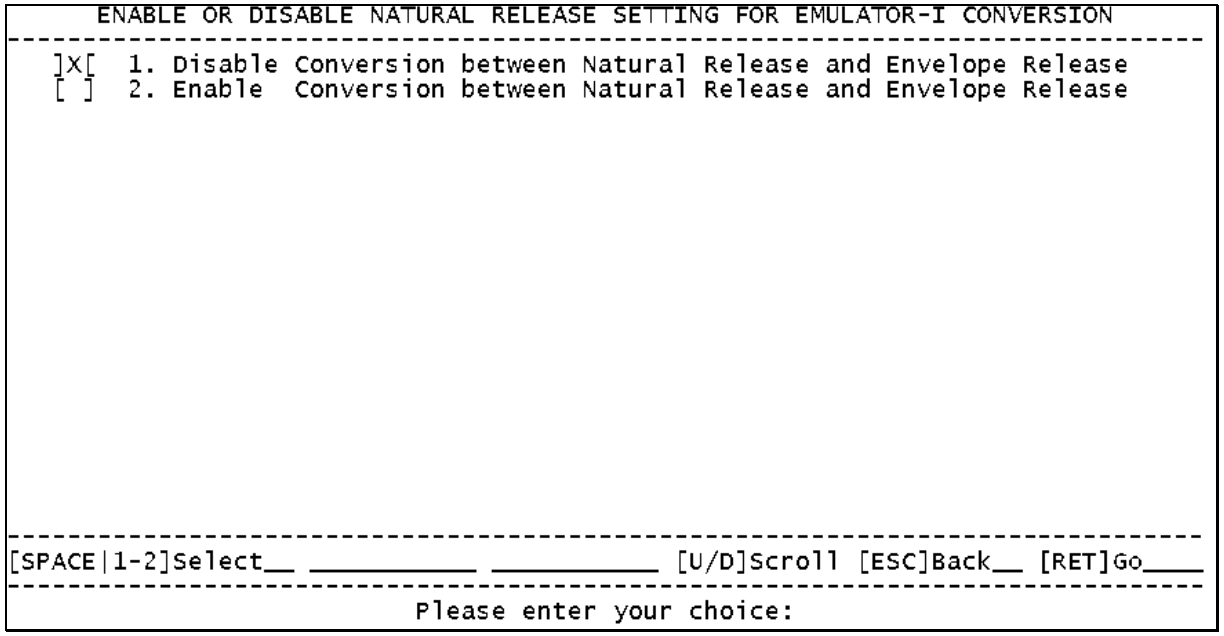
- the VCA envelopes of the source sampler bank's voices will not be translated to Emulator-I
- converting Emulator-I sounds will result in target sampler voices which have their VCA envelope set to default (zero attack, zero decay, maximum sustain, zero release)

However there's a parameter called "Natural Release" available in the Emulator-I, which will let the Emulator-I keep playing all samples in a sound till the end even if you release the key before the sample's end has been reached.

When converting sound banks between Emulator-I format and any other sampler format, EMXP can:

- turn the "Natural Release" parameter ON whenever it detects that more than half of the samples on a keyboard half (i.e. lower or upper sound) in the source sampler's preset have a pretty long VCA envelope release time
- set the VCA envelope release time of the target sampler's voices to a pretty high setting (depending on the sample's length and sample rate) if the "Natural Release" parameter is ON in the Emulator-I source lower or upper sound.

The default setting is that EMXP does not set or interpret the “Natural Release” parameter during conversions.



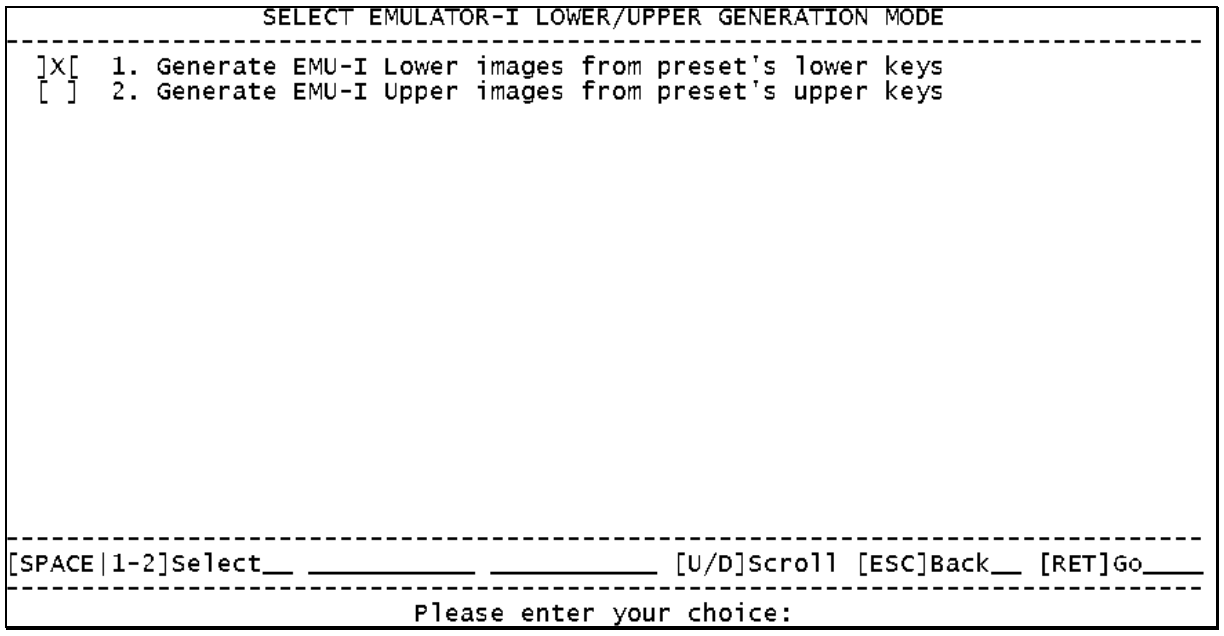
10.3.3.4 Define lower/upper & PRI/SEC handling when converting to Emulator-I

If you are converting to Emulator-I Lower/Upper Sound files, the target files will contain a single Emulator-I sound, which contains 1 to 6 samples that will be assigned to only 2 keyboard octaves. EMXP should know which part of the keyboard of each source preset should be used for conversion to these target sound files.

You have two possibilities:

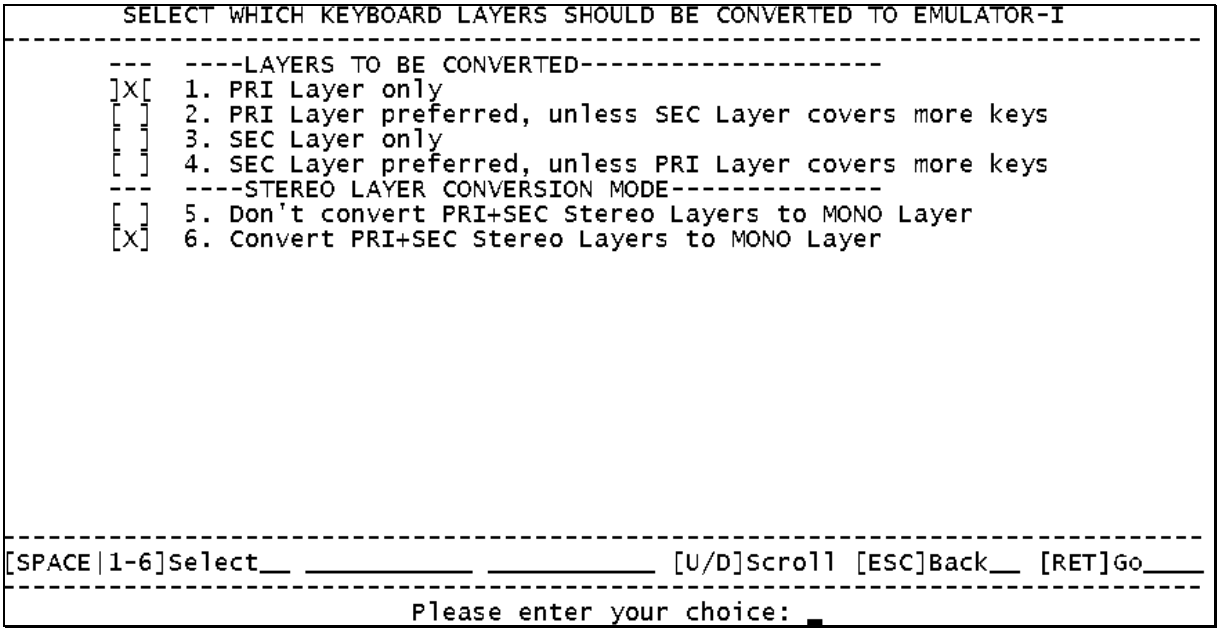
- Option 1: convert keyboard range C1 → B2 of each source preset into lower/upper files (one per preset)
- Option 2: convert keyboard range C3 → B4 of each source preset into lower/upper files (one per preset)

Combining both options at once is *not possible:* if you want to convert keyboard range C1 → B2 of each preset into one lower/upper file, and convert keyboard range C3 → B4 of each preset into another lower/upper file, you will have to run the conversion twice: once with option 1 and once with option 2.



After pressing ENTER, a next screen will appear.

The presets in the source sampler banks may consist of both a primary (PRI) and secondary (SEC) voice layer. Since the Emulator-I only supports one layer, you need to specify which layer should be converted.



With option 1 you instruct EMXP to convert the PRI layer, no matter if there are voices in this layer or not. With option 2 you instruct EMXP to convert the PRI layer by default, but if for a certain target key area more voices are assigned to the SEC layer than to the PRI layer in the source preset, EMXP should switch to the SEC layer. Options 3 and 4 are identical, but from the perspective of the SEC layer as starting point.

It's also possible that the source preset contains key areas in which the PRI and SEC layer behave as the left and right channel of a stereo voice. Since the Emulator-I does not support two layers, nor a stereo mode, you should also specify whether the samples of both source stereo channels should be merged into mono samples, or whether the other channel's sample should simply be ignored. E.g. if you selected option 1 (PRI layer), option 5 will simply convert the sample of the PRI layer and ignore the sample of the SEC layer, while option 6 will combine the PRI and SEC samples and convert them to mono.

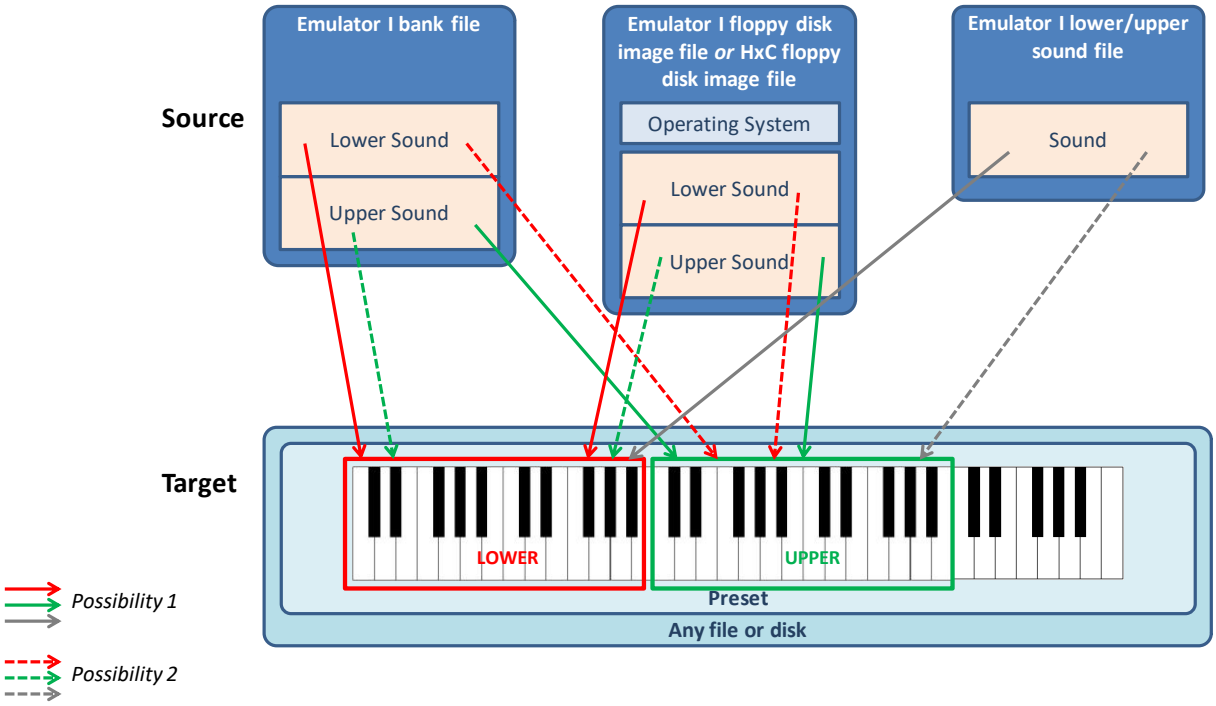
10.3.3.5 Define sound location when converting from Emulator-I lower/upper sounds or files

If the source items of any copy/conversion process are

- either *Emulator-I Lower/Upper sound files (.E1H)*
- or the *Lower and/or Upper sound of an Emulator-I bank*

and you are copying them to any type of file or disk except for Emulator-I Lower/Upper sound files, you should tell EMXP where to put the selected sounds.

Lower/Upper sounds consist of only 2 keyboard octaves, while the target preset consists of at least 4 keyboard octaves. This means that you can save each selected sound to either the lower or the upper half of the target bank's preset.



Define sound locations when converting from Emulator-I lower/upper *sounds*

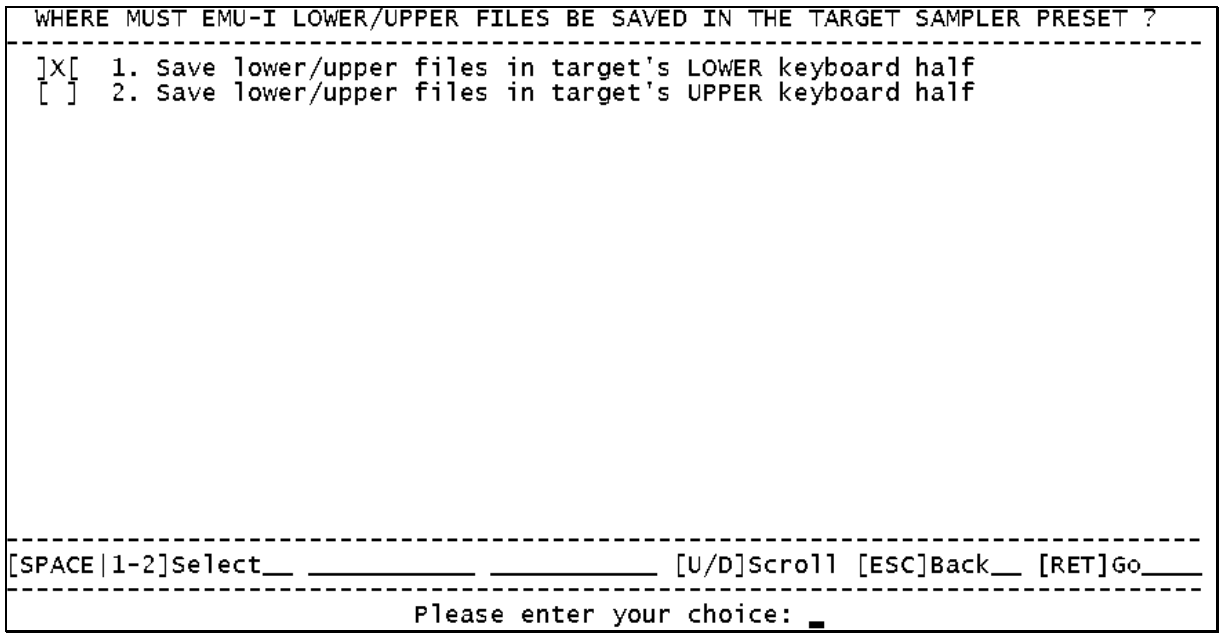
If the source items are Upper or Lower sounds selected in an Emulator-I bank file, floppy disk image file or HxC floppy disk image file, you can set the target sound location preference in the screen below.

```
 WHERE MUST EMU-I LOWER/UPPER SOUNDS BE SAVED IN THE TARGET SAMPLER PRESET ?
--------------------------------------------------------------------------------
 ]X[  1. Save selected EMU-I sounds in target's LOWER keyboard half
 [ ]  2. Save selected EMU-I sounds in target's UPPER keyboard half
 [ ]  3. Save LOWER sounds in LOWER half and UPPER sounds in UPPER half
 [ ]  4. Save LOWER sounds in UPPER half and UPPER sounds in LOWER half
--------------------------------------------------------------------------------
[SPACE|1-4]Select__ _____ _____ [U/D]Scroll [ESC]Back__ [RET]Go____
--------------------------------------------------------------------------------
                        Please enter your choice: _
```

Whatever option (1 → 4) you choose, each target bank will only have one preset which in turn will only have one sound. So if both the lower and upper sound of the source bank have been selected to be copied, the copy process will always result in 2 target files.

Define sound locations when converting from Emulator-I lower/upper *files*

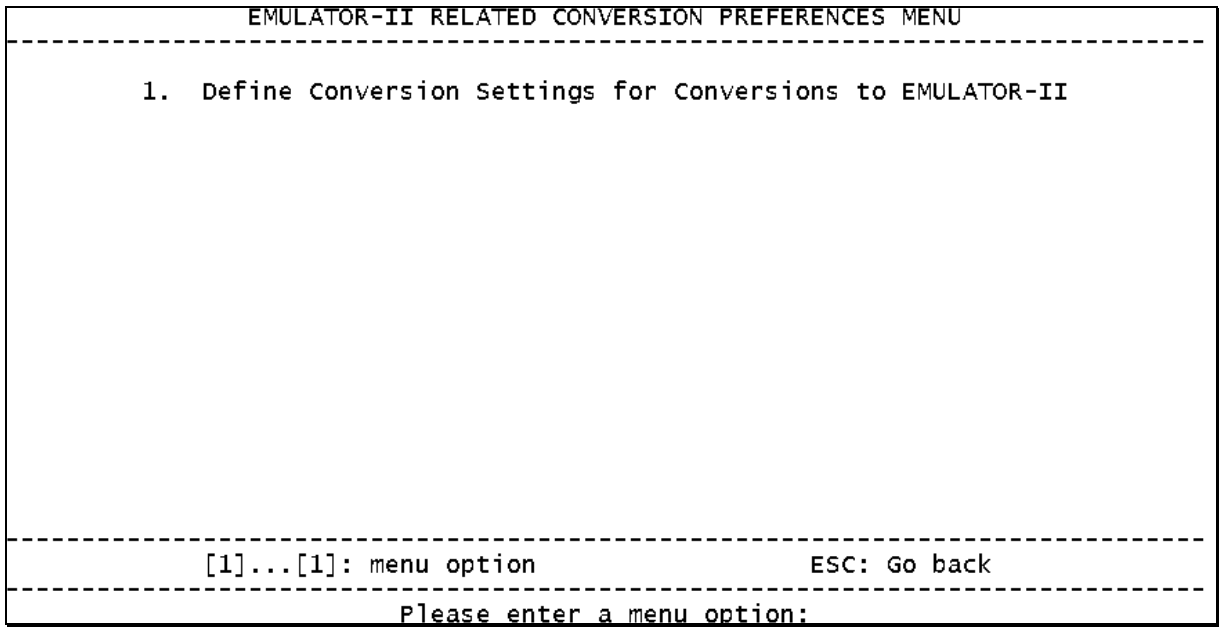
If the source items are Emulator-I Lower/Upper sound *files*, you can set the target sound location preference in the screen below. Each target bank's single preset will always have one side of the keyboard empty and one side filled with the selected source sound.



10.3.4 Manage Emulator-II related conversion preferences

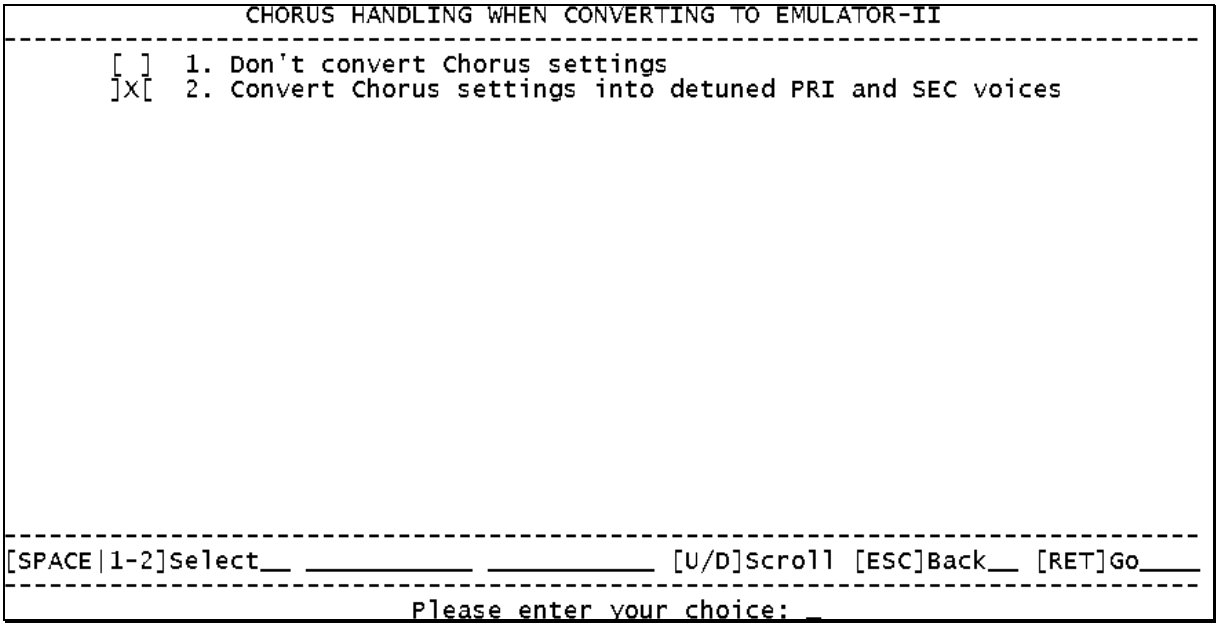
In this section all conversion parameters related to the Emulator-II sampler format can be managed. Currently only one parameter is supported (Chorus effect handling). This parameter can also be set during a copy/conversion process, if you have chosen the MANUAL or SEMI-MANUAL mode.
Note that some additional conversion parameters can be defined in the Emu and SoundFont2 common conversion preferences. See *section "10.3.8 Manage Emu and Soundfont2 shared conversion preferences"*.

The following option is available in this preference menu:



10.3.4.1 Define chorus handling when converting to Emulator-II

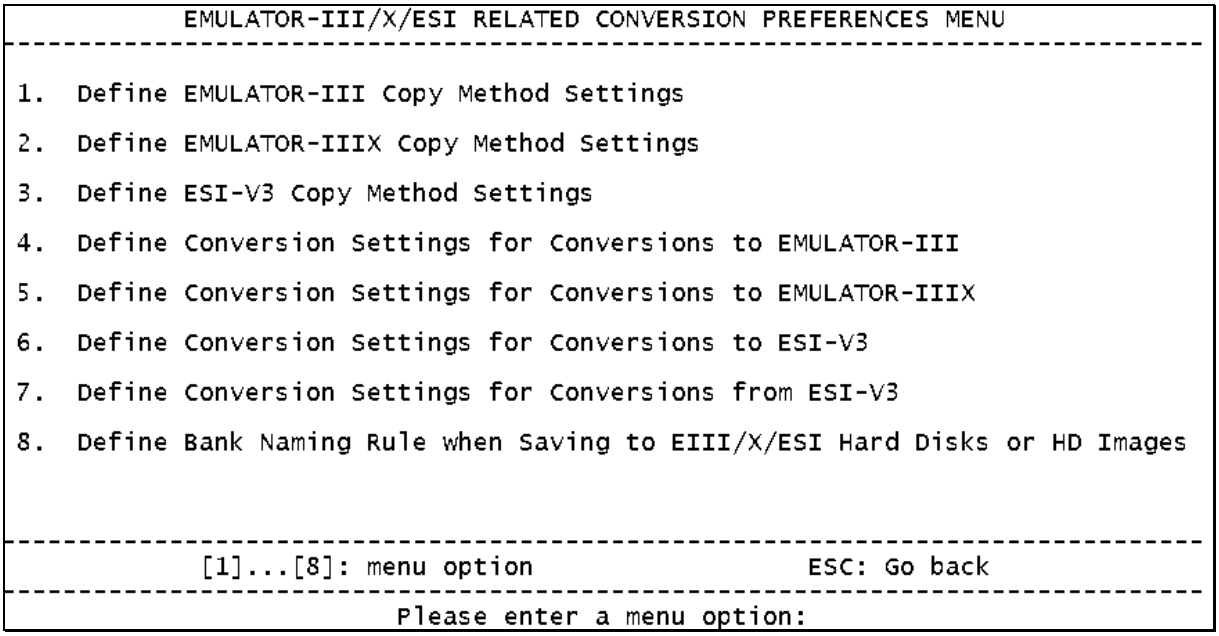
When converting a source bank which contains voices which have the CHORUS setting enabled, EMXP can try to simulate the chorus effect on the Emulator-II by adding some detuned voices (if an empty PRI or SEC voice would be still available). The advantage of this feature is that the target presets will sound more like the original one; the drawback however is that the polyphony will decrease (from 8 to 4 !). For that reason you can choose yourself how EMXP should handle chorus settings:



10.3.5 Manage Emulator-III/X/ESI-v3 related conversion preferences

In this section all conversion parameters related to the Emulator-III/IIIX/ESI-v3 sampler formats can be managed. Many of these parameters can also be set during a copy/conversion process, if you have chosen the MANUAL or SEMI-MANUAL mode.

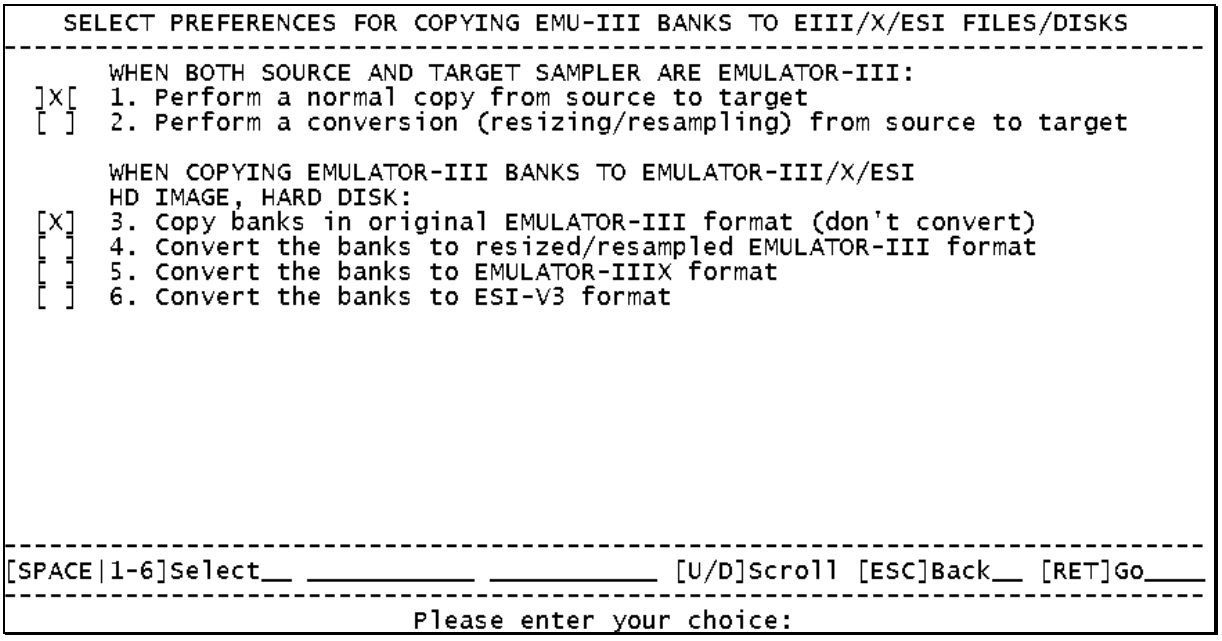
Following options are available:



10.3.5.1 Define Emulator-III copy method settings

If you're *copying* Emulator-III banks or files, you have the possibility to

- either perform a copy without any data or sound conversion (a "true copy")
- or perform a copy in which the sound data will be re-sampled to another sample rate or in which the bank size will be adapted. These options allow you to reduce the size of the resulting bank.



Normally you would select the option to "perform a normal copy from source to target", because re-sampling of an Emulator-III bank can be done by choosing the conversion menu options in EMXP instead of the copy menu options.
Moreover if you're copying Emulator-III banks/files to Emulator-III/IIIX/ESI hard disks or hard disk image files (or to Emulator-III/IIIX/ESI partitions on SCSI2SD hard disks or hard disk image files), you have the choice between:

- performing a normal copy of the file to the (partition on the) hard disk or hard disk image file, without any conversion
- performing a re-sampling of the bank before saving it to the (partition of the) hard disk or hard disk image file
- performing a conversion to Emulator-IIIX format before copying it to the (partition of the) hard disk or hard disk image file
- performing a conversion to ESI-v3 format before copying it to the (partition of the) hard disk or hard disk image file

Again, normally you will select the option to "copy banks in original Emulator-III format (don't convert)" because the other three options can also be done by choosing the conversion menu options in EMXP instead of the copy menu options.

10.3.5.2 Define Emulator-IIIX copy method settings

These parameters are identical to the ones explained in *section "10.3.5.1 Define Emulator-III copy method settings",* but now with Emulator-IIIX as a source sampler format instead of the Emulator-III.

10.3.5.3 Define ESI-v3 copy method settings

These parameters are identical to the ones explained in *section "10.3.5.1 Define Emulator-III copy method settings",* but now with ESI-v3 as a source sampler format instead of the Emulator-III.

10.3.5.4 Define conversion settings for conversions to Emulator-III

Following conversion parameters can be defined when converting to the Emulator-III sampler format:

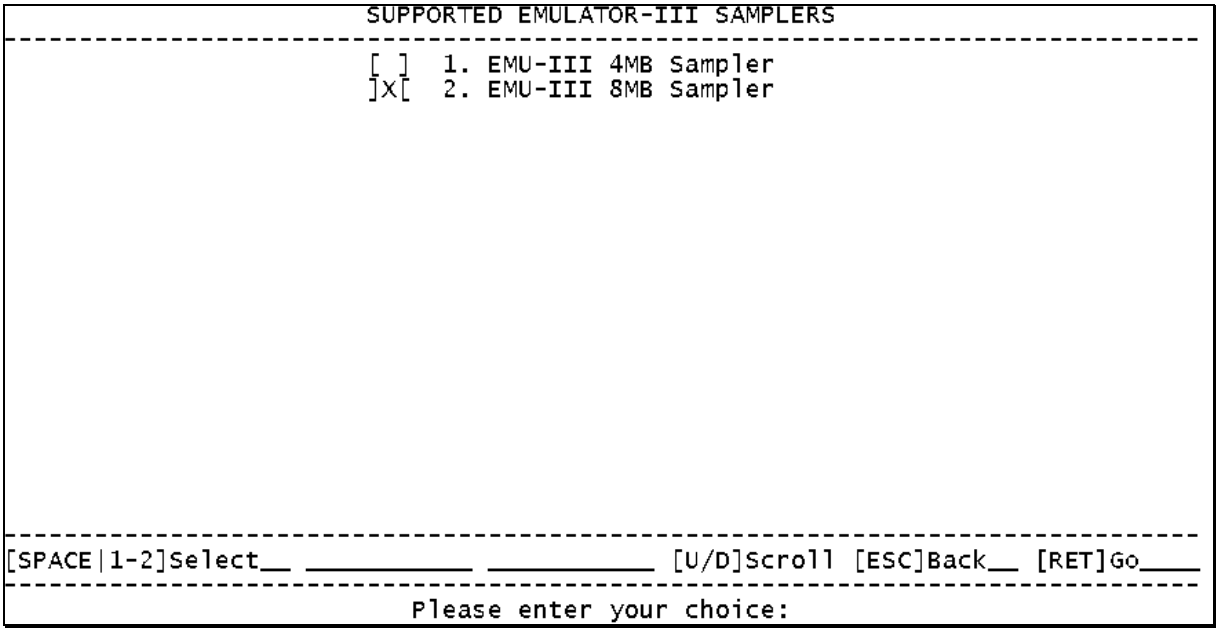
- Size of the memory installed in the target Emulator-III sampler
- Maximum allowed sample rate of the Emulator-III samples
- Minimum allowed sample rate of the Emulator-III samples
- Preserving stereo samples or rather converting them to mono

Note that some additional conversion parameters can be defined in the Emu and SoundFont2 common conversion preferences. See *section "10.3.8 Manage Emu and Soundfont2 shared conversion preferences"*.

Memory size

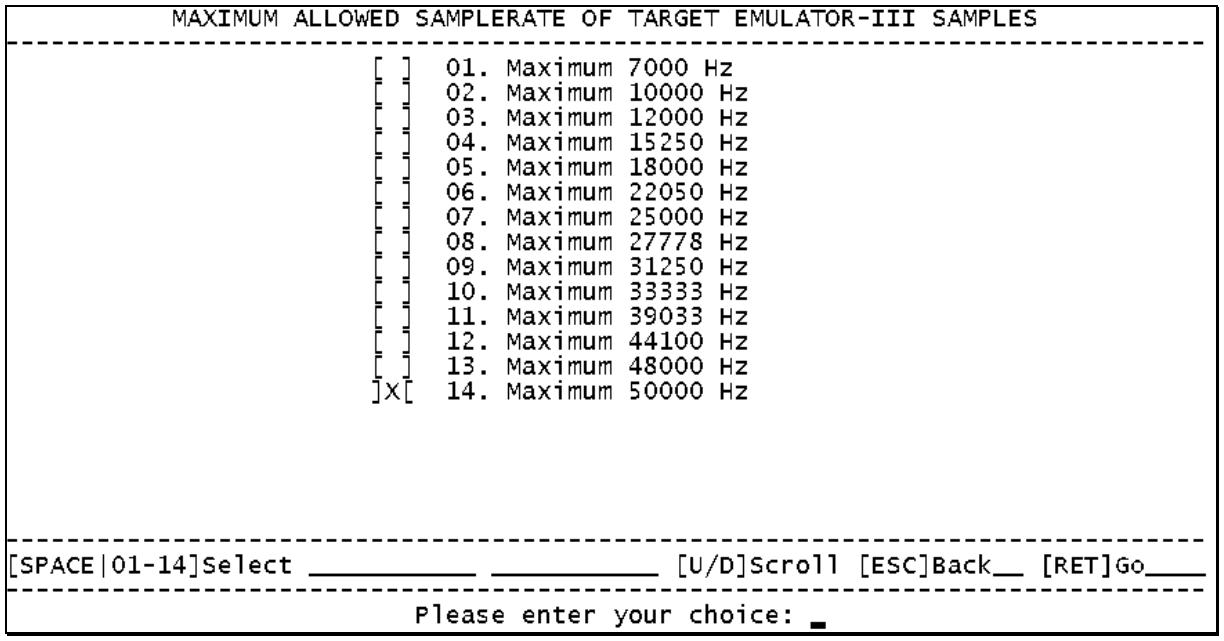
When converting sound banks to the Emulator-III sampler format, EMXP will never create sound banks which will have a total sample size larger than the memory size selected in this screen.

The default memory size is 8MB (i.e. the maximum size of a fully expanded Emulator-III sampler), but you can scale this down to 4MB. EMXP can try to create (multiple) smaller Emulator-III banks if you have limited memory size on your Emulator-III sampler. Note that even if you select 8 MB as the maximum memory size, many sound banks created by EMXP will still load perfectly in an 4 MB sampler if the *actual total size* of the samples in the generated sound bank does not exceed 4 MB…



Sample rate conversion

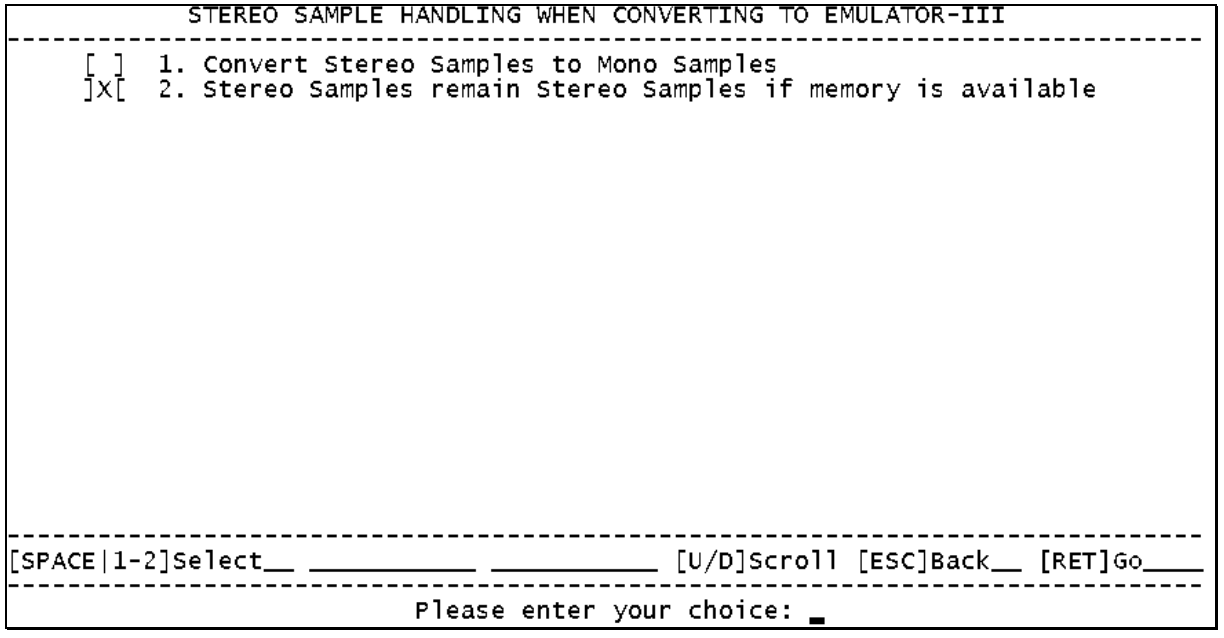
These parameters are similar to the sample rate conversion parameters that have been explained for the EMAX-I and EMAX-II samplers. See *section "10.3.2.5 Define conversion settings for conversions to EMAX-I"* for more details.
Please note that the available sample rates differ between the Emulator-III/IIIX/ESI and the EMAX-family. The picture below illustrates the sample rate range for the Emulator-III, Emulator-IIIX and ESI-v3 format.



Stereo sample handling

If a source bank contains one or more STEREO samples, EMXP gives you the opportunity to either keep these stereo samples or convert them to mono. A good reason to convert stereo samples to mono may be that you would like to decrease the size of the Emulator-III target bank.
EMXP will make sure that each generated preset *either* retains all stereo samples *or* only contains mono samples (for both the original mono samples and the original stereo samples). But the retention of stereo samples can *differ across the generated presets*, i.e. the same original stereo sample can result in a stereo sample in one preset, while resulting in a mono sample in another preset. As a consequence the total size of all generated samples can be higher than the original total sample size, since each stereo sample can result in 2 samples (one mono, one stereo). This increases the probability that the sample rate will be downgraded (see previous paragraph "Sample rate conversion") or that multiple Emulator-III banks will have to be generated.

This preference is not applicable when *playing* Emulator-III samples in EMXP: stereo samples will always be played in stereo (unless the audio device does not support stereo).



10.3.5.5 Define conversion settings for conversions to Emulator-IIIX

Following conversion parameters can be defined when converting to the Emulator-IIIX sampler format:

- Size of the memory installed in the target Emulator-IIIX or ESI sampler
- Maximum allowed sample rate of the Emulator-IIIX samples
- Minimum allowed sample rate of the Emulator-IIIX samples
- Preserving stereo samples or rather converting them to mono

Note that some additional conversion parameters can be defined in the Emu and SoundFont2 common conversion preferences. See *section "10.3.8 Manage Emu and Soundfont2 shared conversion preferences"*.

Memory size

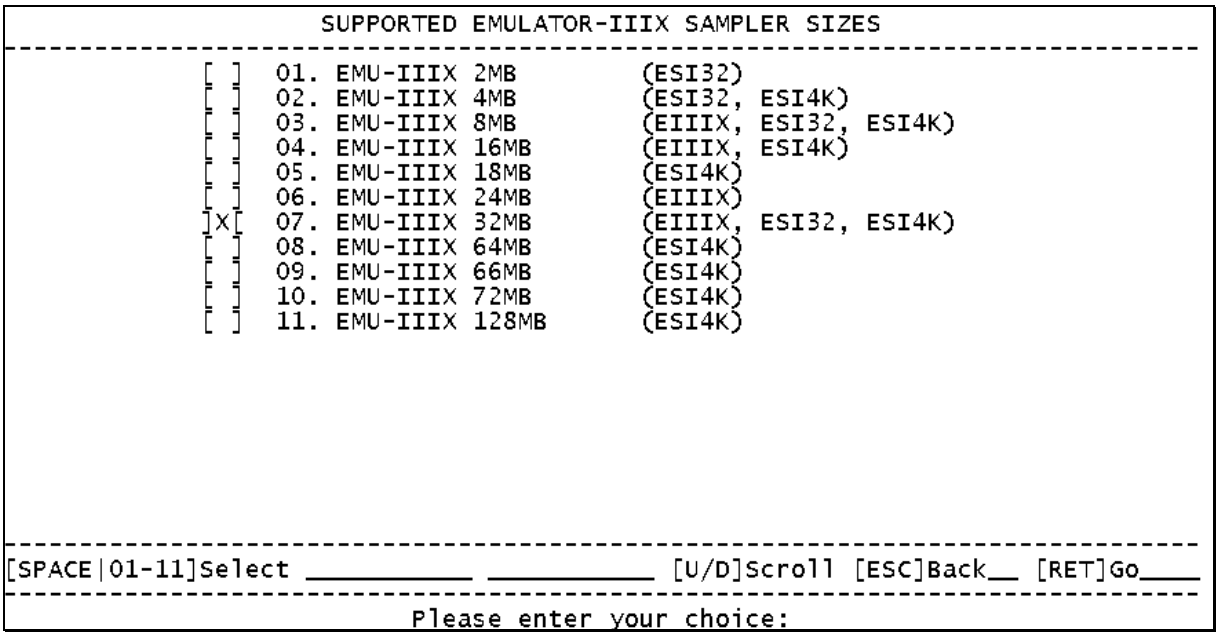
Since the Emulator-IIIX sampler format is the same as the ESIv2 sampler format which can be used in the ESI-32, ESI-2000 and ESI-4000 samplers, the maximum possible sampler size depends on the sampler type in which the Emulator-IIIX sound banks will be used. E.g. the EIIIX and ESI-32 samplers support a maximum sample size of 32MB, while the ESI-2000 and ESI-4000 support a maximum sample size of 128MB. The table below shows the possible memory sizes depending on the RAM SIMM modules installed in the samplers:

Memory Size	EIIIX	ESI-32	ESI-2000	ESI-4000
2 MB		*		
4 MB		*	*	*
8 MB	*	*	*	*
16 MB	*		*	*
18 MB			*	*
24 MB	*			
32 MB	*	*	*	*
64 MB			*	*
66 MB			*	*
72 MB			*	*
128 MB			*	*

On the EMXP selection screen, any of the possible sampler memory sizes can be selected, and the samplers in which this specific amount of memory can be installed with SIMM modules are indicated between brackets. ESI4K refers to both the ESI-2000 and ESI-4000 sampler. Note that any sound bank with a total sample size *lower than* the RAM size of your sampler can be used in your sampler. So even though you can't install 4MB of RAM in an EIIIX sampler (as opposed to the ESI-32, ESI-2000 and ESI-4000 sampler), Emulator-IIIX sound banks with a maximum size of 4MB will still perfectly load on any Emulator-IIIX sampler.

When converting sound banks to the Emulator-IIIX sampler format, EMXP will never create sound banks which will have a total sample size larger than the memory size selected in this screen.

The default memory size is 32 MB, which is the maximum size of a fully expanded Emulator-IIIX and ESI-32 sampler, and a pretty common memory size in the ES-2000 and ESI-4000 samplers. You can scale this down to 2MB or increase the size up to 128MB. By lowering the memory size, EMXP can try to create (multiple) smaller Emulator-IIIX banks if you have limited memory size sampler. Note that even if you select 32 MB as the maximum memory size, many sound banks created by EMXP will still load perfectly in an 8 MB sampler if the *actual total size* of the samples in the generated sound bank does not exceed 8 MB…



Sample rate conversion

The Emulator-IIIX sample rate conversion parameters are identical to the ones for the Emulator-III. See *section "10.3.5.4 Define conversion settings for conversions to Emulator-III"*.

Stereo sample handling

The Emulator-IIIX stereo sample handling parameter is identical to the one for the Emulator-III. See *section "10.3.5.4 Define conversion settings for conversions to Emulator-III"*.

10.3.5.6 Define conversion settings for conversions to ESI-v3

Following conversion parameters can be defined when converting to the ESI-v3 sampler format:

- Size of the memory installed in the target ESI sampler
- Maximum allowed sample rate of the ESI samples
- Minimum allowed sample rate of the ESI samples
- ESI sampler type on which the ESI-v3 sound banks are meant to be used
- Whether the turbo option (FX processors, additional submix channels) is installed in the ESI sampler
- Preserving stereo samples or rather converting them to mono

Note that some additional conversion parameters can be defined in the Emu and SoundFont2 common conversion preferences. See *section "10.3.8 Manage Emu and Soundfont2 shared conversion preferences"*.

Memory size

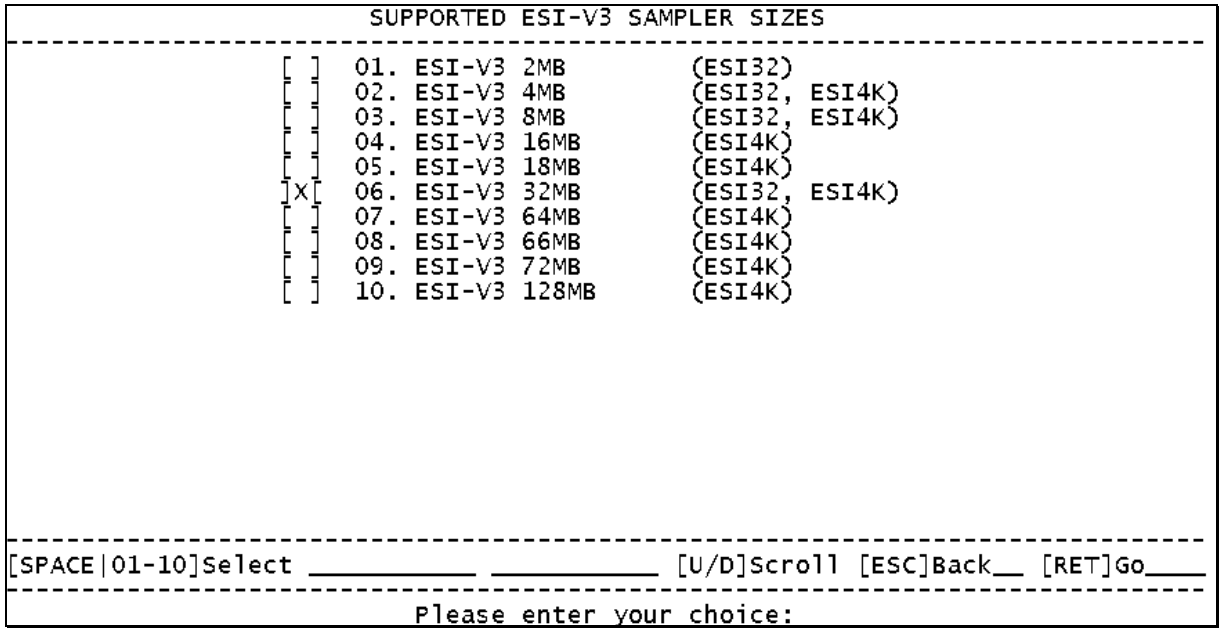
The ESI-v3 sampler format can be used in ESI-32, ESI-2000 and ESI-4000 samplers, so the maximum possible sampler size depends on the sampler type in which the ESI-v3 sound banks will be used. See *section "10.3.5.5 Define conversion settings for conversions to Emulator-IIIX"* for an overview of the maximum supported memory sizes in the ESI sampler family

On the EMXP selection screen, any of the possible sampler memory sizes can be selected, and the samplers in which this specific amount of memory can be installed with SIMM modules are indicated between brackets. ESI4K refers to both the ESI-2000 and ESI-4000 sampler. Note that any sound bank with a total sample size *lower than* the RAM size of your sampler can be used in your sampler. So even though you can't install 16 MB

of RAM in an ESI-32 sampler (as opposed to the ESI-2000 and ESI-4000 sampler), ESI-v3 sound banks with a maximum size of 16MB will still perfectly load on any ESI-32 sampler in which 32 MB of memory has been installed.

When converting sound banks to the ESI-v3 sampler format, EMXP will never create sound banks which will have a total sample size larger than the memory size selected in this screen.

The default memory size is 32 MB, which is the maximum size of a fully expanded ESI-32 sampler, and a pretty common memory size in the ES-2000 and ESI-4000 samplers. You can scale this down to 2MB or increase the size up to 128MB. By lowering the memory size, EMXP can try to create (multiple) smaller ESI-v3 banks if you have limited memory size sampler. Note that even if you select 32 MB as the maximum memory size, many sound banks created by EMXP will still load perfectly in an 8 MB sampler if the *actual total size* of the samples in the generated sound bank does not exceed 8 MB…



Sample rate conversion

The ESI-v3 sample rate conversion parameters are identical to the ones for the Emulator-III. See *section "10.3.5.4 Define conversion settings for conversions to Emulator-III"*.

Target ESI sampler type

When converting to the ESI-v3 sampler format, EMXP needs to know the available polyphony of the ESI sampler if the source sound bank contains voices which have been assigned to specific output channel ranges. For more information about how EMXP deals with polyphony and with output channels, see *section "10.3.8.3 Define how to convert polyphony/voice channel assignments"*.

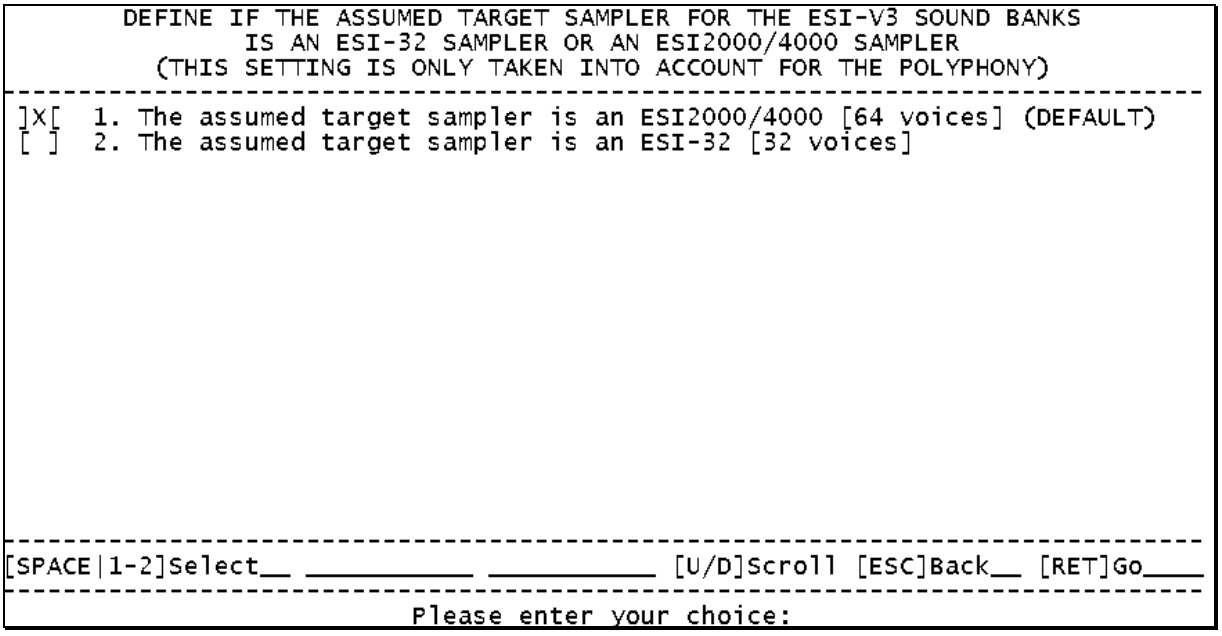
The ESI-v3 sampler format is supported by all ESI samplers running the v3.x operating system, but the polyphony of the sampler depends on the ESI model:

- ESI-32 samplers have 32 (mono) polyphonic voices available
- ESI-2000 and ESI-4000 samplers have 64 (mono) polyphonic voices available

Of course ESI-v3 sound banks generated for ESI-32 samplers can perfectly be used on ESI-2000 and ESI-4000 samplers, and ESI-v3 sound banks generated for ESI-2000/ESI-4000 samplers can perfectly be used on ESI-32 samplers.
Only the conversion of the output/voice channel assignments to ESI-v3 polyphonic channel groups will be different depending on the selected target ESI model. E.g. when converting an Emulator-IIIX sound bank which contains a channel assignment to 4 output channels (of the maximum 32 available channels), this can result in

either a POLY4 or a POLY8 channel group assignment in the ESI-v3 sound bank, depending on the ESI polyphony. In this example we assume that the output channel conversion preference is set option 1 "upscale/downscale" (see *section "10.3.8.3 Define how to convert polyphony/voice channel assignments").*

The default ESI model (and hence polyphony) which will be assumed by EMXP when creating ESI-v3 sound banks can be defined in the preference screen below:



Two options are provided:

- *Option 1*: the generated ESI-v3 sound banks are intended to be used on ESI-2000/ESI-4000 samplers. 64 voices of polyphony will be assumed. This is the default option.
- *Option 2*: the generated ESI-V3 sound banks are intended to be used on ESI-32 samplers. 32 voices of polyphony will be assumed.

Availability of the ESI turbo option with FX processors and submix channels

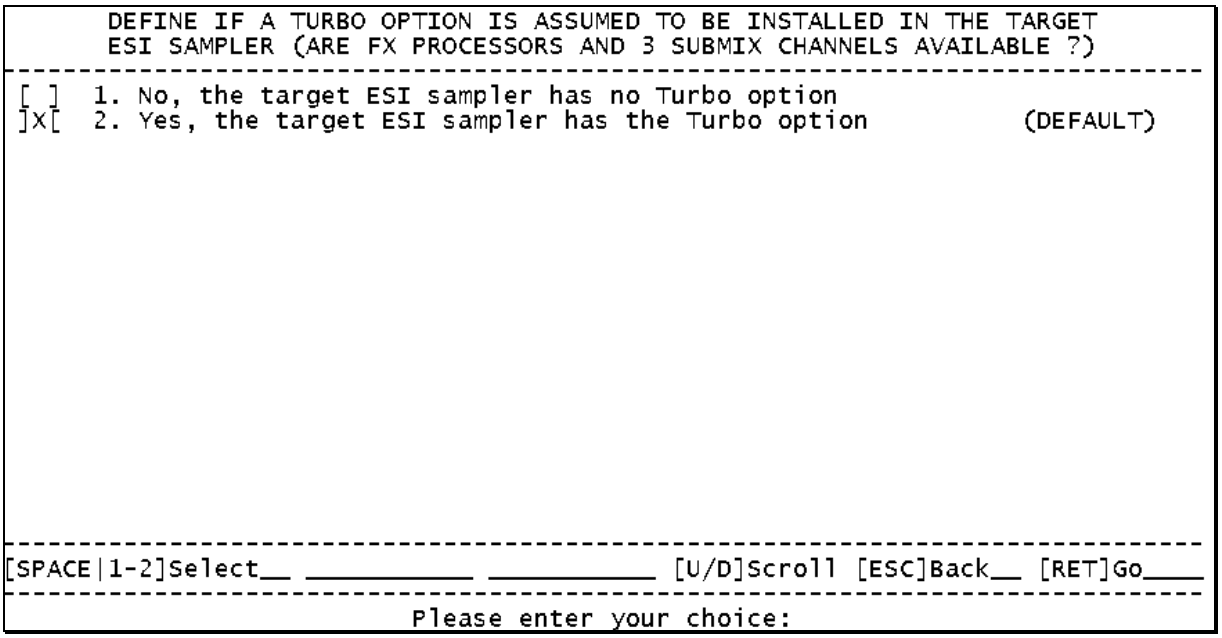
When converting sound banks from sampler types which support

- effects processors, e.g. for reverb, delay, chorus, ... effects
- multiple submix output channels

to the ESI-v3 sampler format, EMXP can convert these settings to ESI FX processor parameters and up to 3 ESI submix output channels. But this only makes sense if the target ESI sampler is equipped with FX processors and 3 submix output channels. These were available as part of the Turbo expansion option.

If no Turbo option is installed in the target ESI sampler, EMXP can try to convert the effects processor settings to normal voice-level ESI-v3 parameters (as described in *section "10.3.8.1 Define how to convert from source sampler FX processor settings"*), and can limit the number of submix channels to 1 instead of 3.

Whether EXMP should assume that the Turbo option is installed or not, can be defined in the following preference screen:



Two options are provided:

- *Option 1*: the target ESI sampler doesn't have the Turbo expansion option installed. No FX processors are available, and only one submix output channel can be used.
- *Option 2*: the target ESI sampler consists of a the Turbo expansion option. Two stereo FX processors are available, as well as 3 submix output channels. This is the default setting, and is the common situation when using ESI-v3 sound banks on ES-32 samplers (since the v3.x upgrade of the ESI-32 was typically done by installing the Turbo option)

Stereo sample handling

The ESI-v3 stereo sample handling parameter is identical to the one for the Emulator-III. See *section "10.3.5.4 Define conversion settings for conversions to Emulator-III"*.

10.3.5.7 Define conversion settings for conversions from ESI-v3

Following conversion parameters can be defined when converting from the ESI-v3 sampler format:

- Conversion method for non-lowpass ESI filters
- Assumed ESI sampler type from which the ESI-v3 sound banks originate

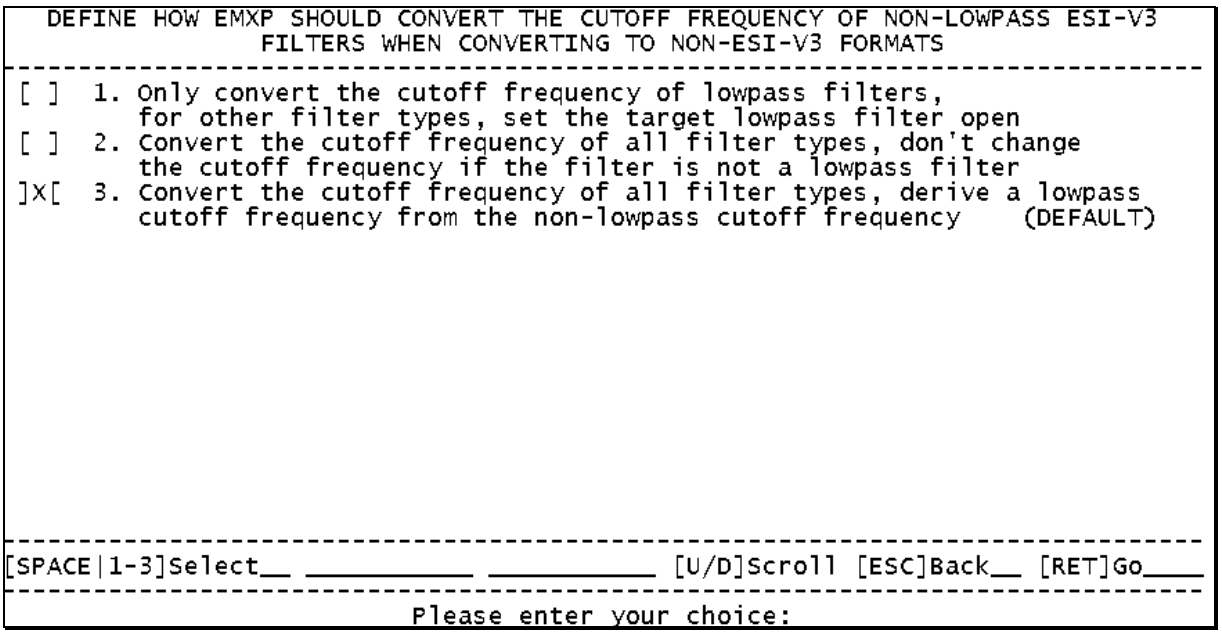
Note that some additional conversion parameters can be defined in the Emu and SoundFont2 common conversion preferences. See *section "10.3.8 Manage Emu and Soundfont2 shared conversion preferences"*.

Conversion method for non-lowpass filters

When converting ESI-v3 sound banks to other sampler formats, it's possible to define how EMXP should deal with filter parameters of ESI-v3 filters which are not low-pass filters.

The ESI-v3 sampler format supports multiple filter types for sound banks used in ESI-2000 and ESI-4000 samplers. Some of those filters are low-pass filters, but the ESI-v3 format also supports band-pass and high-pass filters, as well as some special filters. The other sampler formats supported by EMXP only support low-pass filters.

While it's not possible to convert non-low-pass filters to low-pass filters, EMXP offers a conversion preference which tries to limit the impact of this difference in filter types.
This parameter is only applicable for the *cutoff frequency* of the filter. All other filter related parameters (envelope, resonance, modulation, ...) will be converted independent of the filter type being used and independent of this preference setting.



Three possible options are available:

- *option 1*: if the source ESI-v3 filter is not a low-pass filter, the cutoff frequency of the target low-pass filter will be set to the maximum value ("open")
- *option 2*: EMXP ignores whether the source ESI-v3 filter is a low-pass filter or not; the cutoff frequency will be converted (retained) as if both the source filter and the target filter are low-pass filters
- *option 3*: if the source ESI-v3 filter is not a low-pass filter, EMXP will apply another conversion algorithm than in option 2. This algorithm will try to set the cut-off frequency in such way that the audible impact is smaller than in option 1 or option 2. This is the *default setting*.

Source ESI sampler type

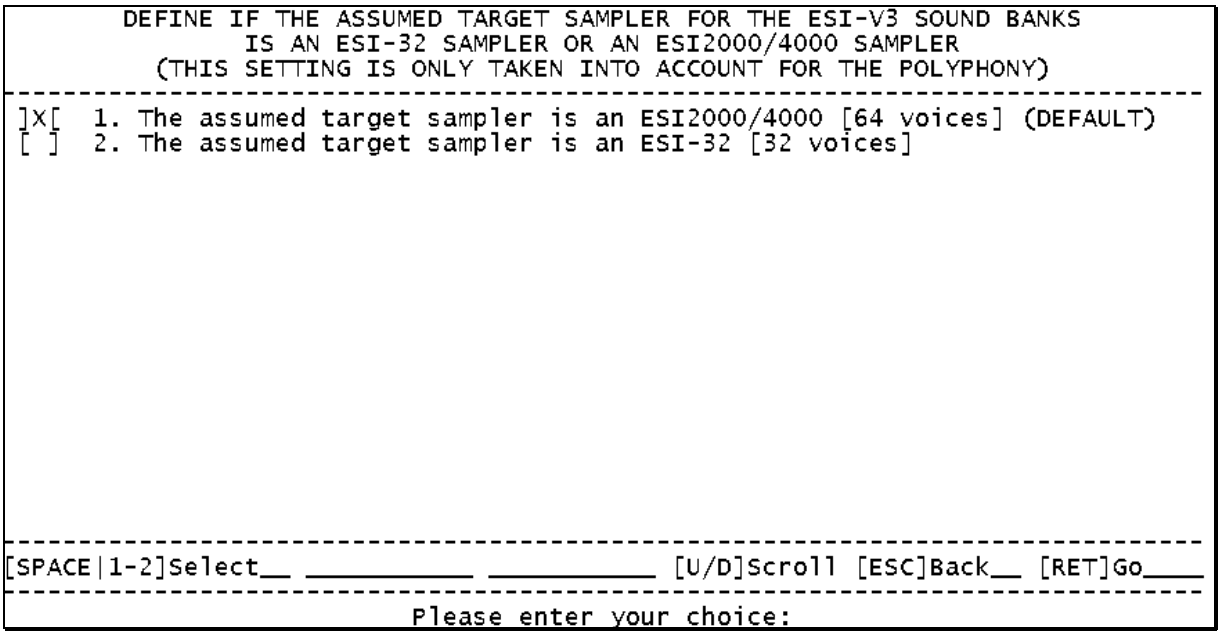
When converting from the ESI-v3 sampler format, EMXP needs to know the available polyphony of the ESI sampler if the ESI-v3 sound bank contains voices which have been assigned to specific output channel ranges. For more information about how EMXP deals with polyphony and with output channels, see *section "10.3.8.3 Define how to convert polyphony/voice channel assignments"*.

The ESI-v3 sampler format is supported by all ESI samplers running the v3.x operating system, but the polyphony of the sampler depends on the ESI model:

- ESI-32 samplers have 32 (mono) polyphonic voices available
- ESI-2000 and ESI-4000 samplers have 64 (mono) polyphonic voices available

Of course any ESI-v3 sound bank can be used on both ESI-32 samplers and ESI-2000/ESI-4000 samplers. But when converting ESI-v3 channel group assignments to target sampler channel assignments, the results can be different depending on the selected source ESI sampler model. E.g. when converting an ESI-v3 POLY8 channel group assignment to the Emulator-IIIX sampler format (with 32 voices of polyphony), the resulting Emulator-IIIX channel range can either consist of 8 output channels (if the source ESI sampler is an ESI-32 sampler) or 4 output channels (if the source ESI sampler is an ESI-2000/ESI-4000 sampler). In this example we assume that the output channel conversion preference is set option 1 "upscale/downscale" (see *section "10.3.8.3 Define how to convert polyphony/voice channel assignments").*

The default ESI model (and hence polyphony) which will be assumed by EMXP when creating ESI-v3 sound banks can be defined in the preference screen below:



Two options are provided:

- *Option 1*: the generated ESI-v3 sound banks are intended to be used on ESI-2000/ESI-4000 samplers. 64 voices of polyphony will be assumed. This is the default option.
- *Option 2*: the generated ESI-V3 sound banks are intended to be used on ESI-32 samplers. 32 voices of polyphony will be assumed.

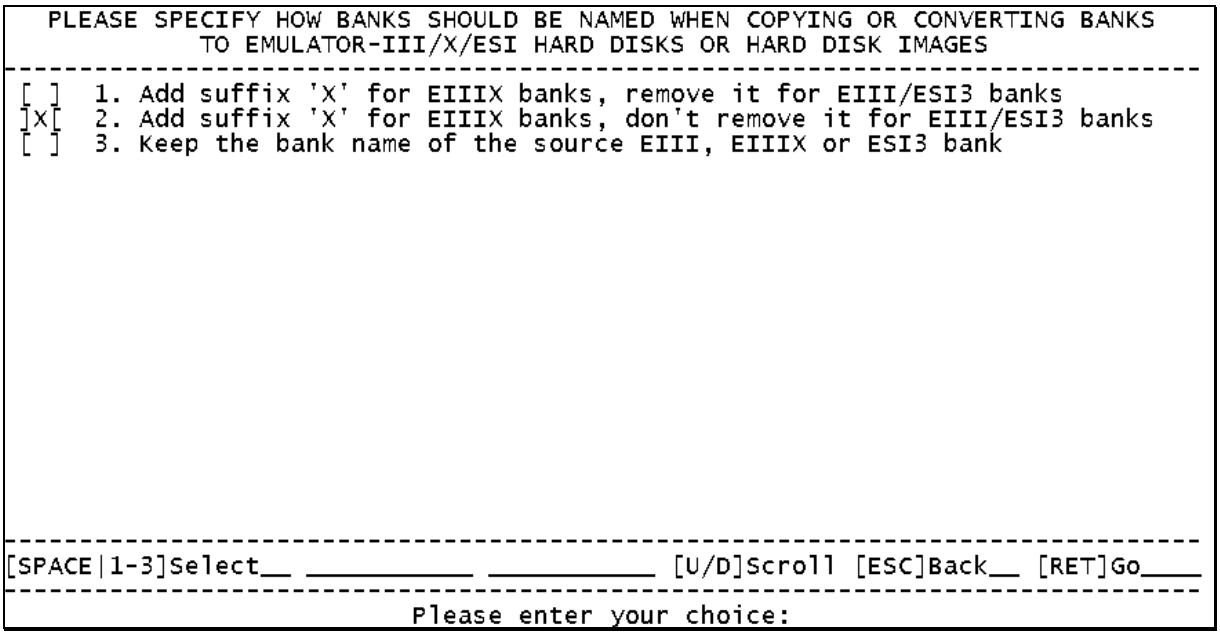
10.3.5.8 Define bank naming rule when saving to EMU-III/X/ESI hard disks or HD images

When copying or converting sound banks to Emulator-III/IIIX/ESI hard disks or hard disk images, the bank names can be adapted depending on whether the bank is an Emulator-III bank or an Emulator-IIIX or ESI-v3 bank.

You can instruct EMXP to apply the same bank naming rule as the one applied by the Emulator-IIIX and ESI samplers when it's saving sound banks to a hard disk:

- Emulator-IIIX bank names by default have an 'X' at position 16
- Emulator-III bank names by default have no 'X' at position 16
- No default rule exists for ESI-v3 banks

The main reason for applying this naming convention, is to be able to immediately see whether a bank is an original Emulator-III bank or an Emulator-IIIX bank when scrolling through the banks on the sampler itself (when loading a bank).
The way bank names are constucted has no consequences whatsoever on the behaviour of the sound bank itself.

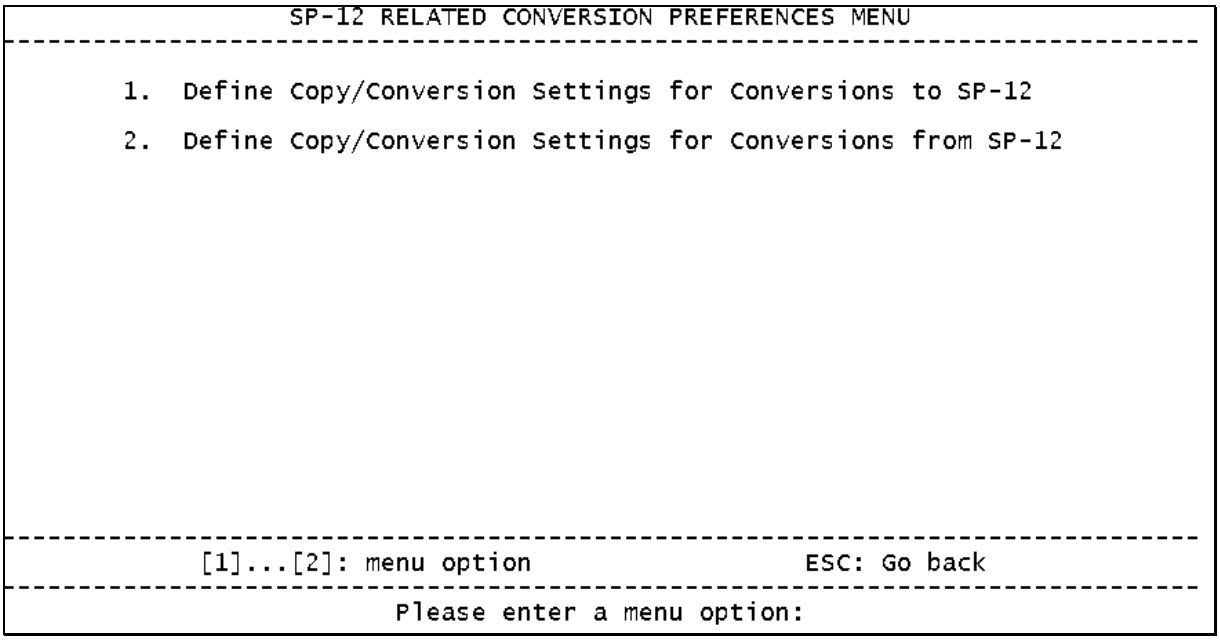


The following options are available:

- Select *option 1* to always add an 'X' on position 16 of the bank name if the bank is an Emulator-IIIX (or ESIv2) bank, and to remove any 'X' which may exist on position 16 of the bank name if the bank is an Emulator-III bank. This is the same rule as applied by the Emulator-IIIX and ESI sampler when it saves banks in Emulator-III or Emulator-IIIX format to hard disks.
- Select *option 2* to always add an 'X' on position 16 of the bank name if the bank is an Emulator-IIIX (or ESIv2) bank. No correction is applied however if the bank is an Emulator-III bank or ESI-v3 bank, meaning that an 'X' on position 16 of an Emulator-III or ESI-v3 bank will be accepted and not removed. This is the same rule as applied by the Emulator-III sampler, and the same rule as applied by the Emulator-IIIX/ESI when it saves Emulator-IIIX banks to hard disks (the Emulator-IIIX and ESI samplers accept and display original Emulator-III banks with an 'X' at position 16 of the bank name - they will only remove the 'X' when saving it as an E3 bank). This is the *default setting*.
- Select *option 3* to not apply any rule at all. Any character is allowed on position 16 of a bank name, no matter it the bank is an Emulator-III, an Emulator-IIIX bank or an ESI-v3 bank.

10.3.6 Manage SP-12 related conversion preferences

In this section all conversion parameters related to the SP-12 sampler format can be managed. Many of these parameters can also be set during a copy/conversion process, if you have chosen the MANUAL or SEMI-MANUAL mode. Following options are available:

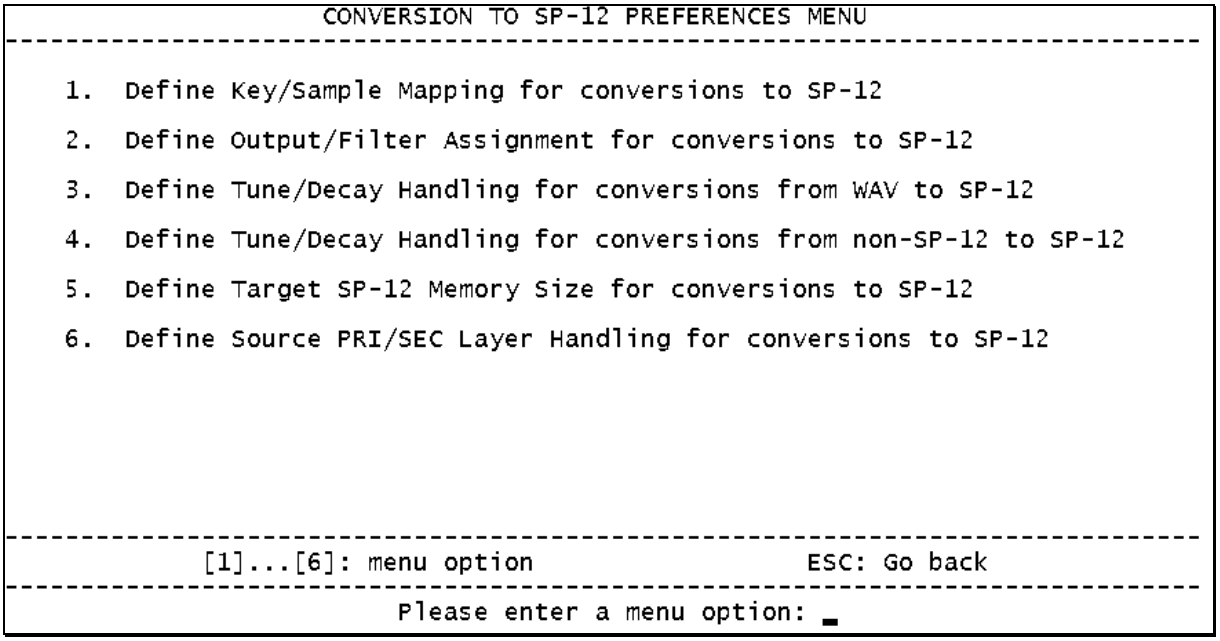


The available options are split across two submenus:

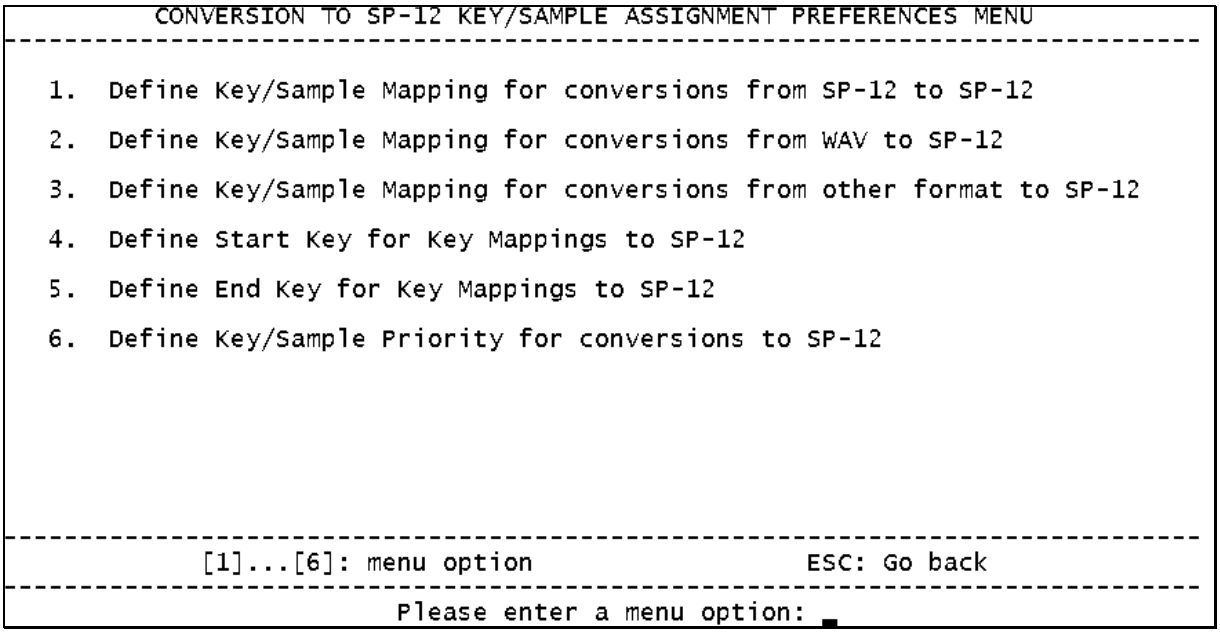
- options related to copy/conversions *to* the SP-12 format
- options related to copy/conversions *from* the SP-12 format

Note that some additional conversion parameters can be defined in the Emu and SoundFont2 common conversion preferences. See *section "10.3.8 Manage Emu and Soundfont2 shared conversion preferences"*.

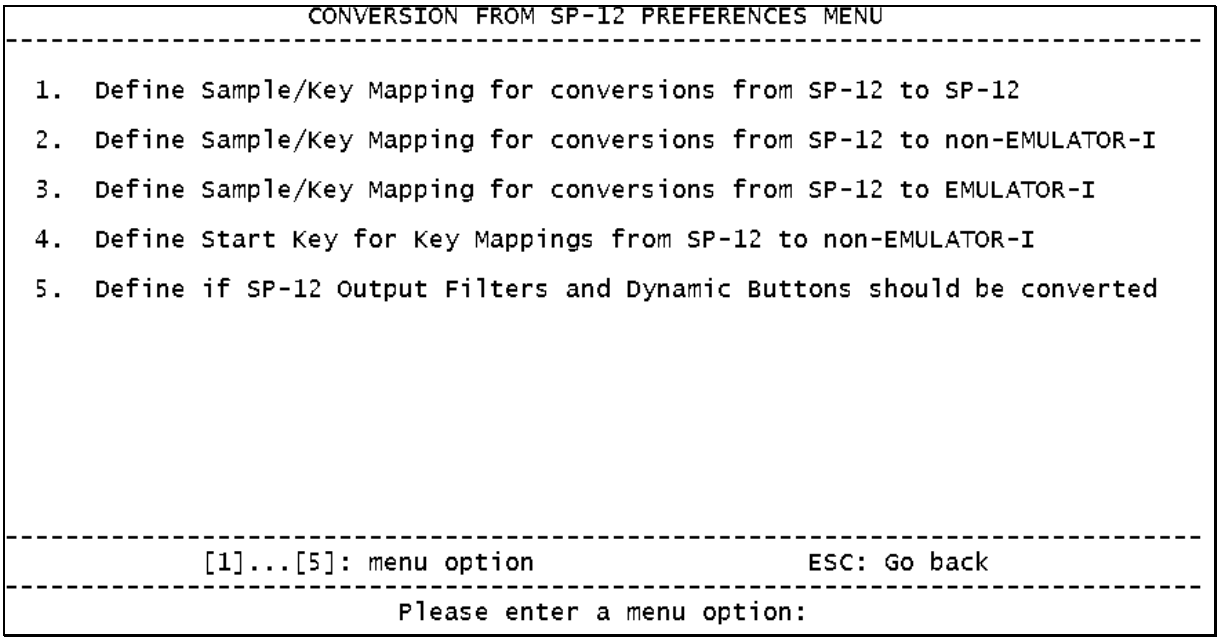
Following options are available when copying/converting *to* the SP-12 format:



When selecting *option 1* an additional menu will appear. This submenu gives access to all preferences related to the key mapping that should be applied when converting to the SP-12 format:



Following options are available when copying/converting *from* the SP-12 format:



10.3.6.1 Define key/sample (sample/key) mapping for conversions from SP-12 to SP-12

When converting sound banks from SP-12 format to SP-12 format, EMXP should know how the sounds of the source SP-12 sound bank should be assigned to sound locations in the target SP-12 sound bank.

An SP-12 to SP-12 conversion is typically requested to

- convert a Turbo SP-12 sound bank into one or more Standard SP-12 sound banks
- change the positions of the sounds in the SP-12 sound bank

You can choose between assigning either *sounds* or *samples* to each target SP-12 sound:

- Options 1 → 3 can be used for mapping samples to sounds
- Options 4 → 10 can be used for mapping individual sounds to sounds

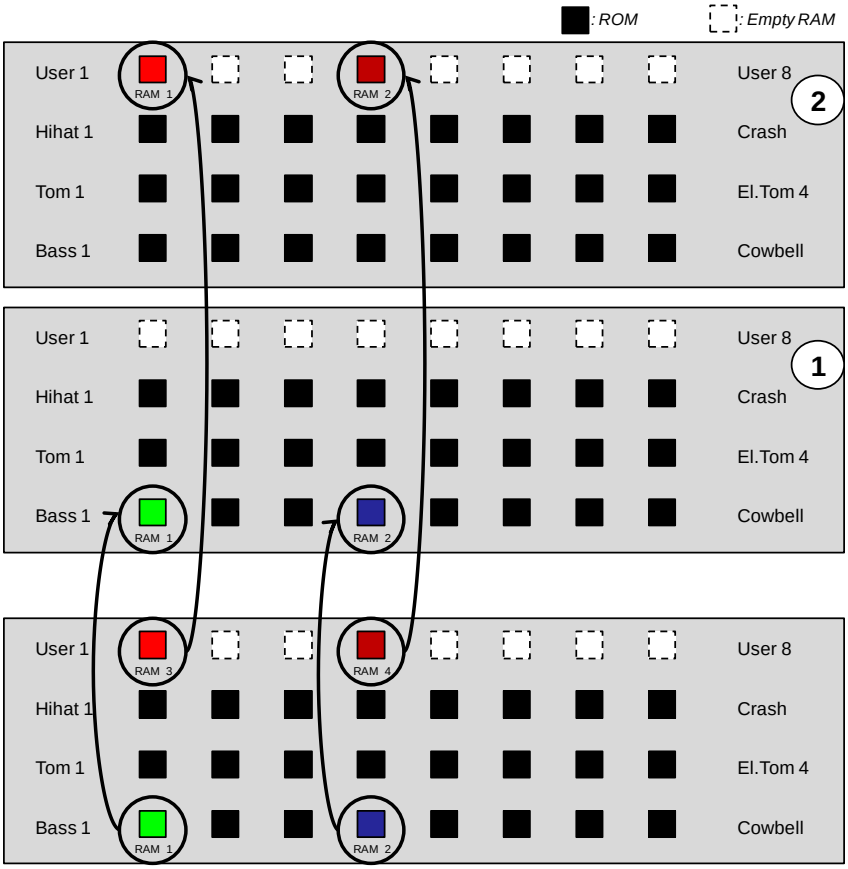
```
          DEFINE HOW SP-12 SOUNDS SHOULD BE ASSIGNED TO SP-12 SOUNDS
--------------------------------------------------------------------------------
          CONVERT ONLY SP-12 SAMPLES TO SP-12 SOUNDS
     [ ]  01. start mapping to sound Bass 1
     [ ]  02. start mapping to sound User 1
     [ ]  03. start mapping to sound User 1, only assign User sounds
          CONVERT SP-12 SOUNDS TO SP-12 SOUNDS
     ]X[  04. preserve the original sound assignment
     [ ]  05. start mapping to sound Bass 1
     [ ]  06. start mapping to sound Bass 1, keep relative key position
     [ ]  07. start mapping to sound User 1
     [ ]  08. start mapping to sound User 1, keep relative key position
     [ ]  09. start mapping to sound User 1, only assign User sounds
     [ ]  10. start mapping to sound User 1, only assign User sounds,
                                             keep relative key position
--------------------------------------------------------------------------------
[SPACE|01-10]Select ___________ ___________ [U/D]Scroll [ESC]Back__ [RET]Go____
--------------------------------------------------------------------------------
                              Please enter your choice:
```

Converting sounds

When converting *individual sounds* EMXP will always start with the conversion of sound Bass 1 in the *source* bank, and continue with Bass 2 until User 8.
However it's possible to define the *first target sound* to which the sound assignments should start (see below).

If the number of candidate source SP-12 sounds exceeds the 32 (or 8) available target SP-12sounds, or if their size exceeds the total target SP-12 memory size, EMXP will create additional SP-12 sound banks. EMXP will cluster the sounds to the SP-12 sound banks in such a way that as much memory as possible in each SP-12 sound bank is actually be used.

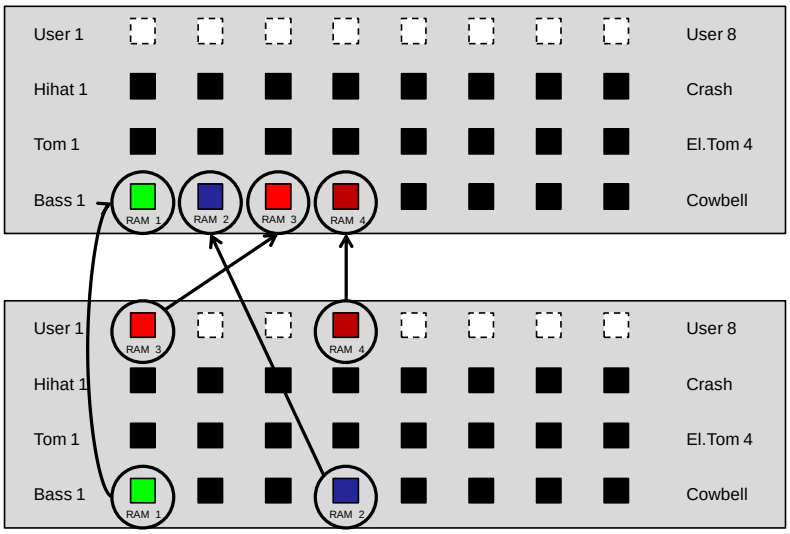
When selecting option 4, each source sound is mapped to exactly the same sound in the target SP-12 sound bank. This is even true if a single (Turbo) bank is converted into multiple (Standard) banks. E.g. if after conversion sound Bass 1 ends up in the first generated SP-12 bank, while sound User 1 ends up in the second generated SP-12 bank, Bass 1 will still be Bass 1 in the first generated bank, while User 1 in the first generated bank will be empty. In the second generated bank however, User 1 will contain the source User 1 sound, while the Bass 1 sound will be empty (or a ROM sound). This is illustrated in the picture below.



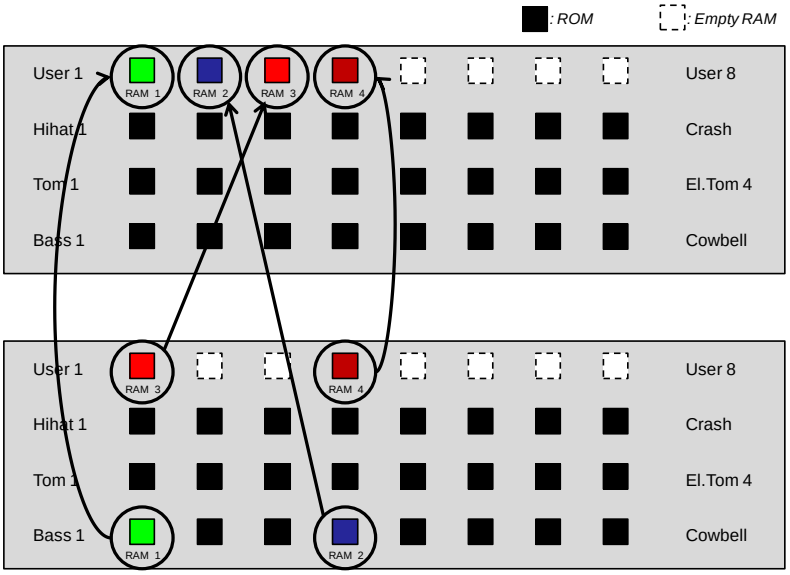
- When selecting options 5 → 6, EMXP will assign the source SP-12 sounds (starting with source Bass 1) to target SP-12 sounds starting with sound Bass 1, followed by sound Bass 2, and so on. If multiple target SP-12 banks are being generated, the assignment process will start again with assigning to Bass 1 in every conversion cycle Since in option 6 the relative key position is retained, this option gives the same result as option 4 !
- When selecting options 7 → 8, EMXP will assign the source SP-12 sounds (starting with source Bass 1) to target SP-12 sounds starting with sound User 1, followed by sounds User 2 → sound User 8. Then EMXP will continue with assigning to the sounds Bass 1 → Crash. If multiple target SP-12 banks are being generated, the assignment process will start again with assigning to User 1 in every conversion cycle.
- When selecting options 9 → 10, EMXP will assign the source SP-12 sounds (starting with source Bass 1) to target SP-12 sounds starting with sound User 1, followed by sounds User 2 → sound User 8.. No assignments will be made to sounds Bass 1 → Crash, e.g. because they should be preserved for the factory SP-12 ROM sounds. If multiple target SP-12 banks are being generated, the assignment process will start again with assigning to User 1 in every conversion cycle.

No matter if the mapping starts with assignments to sound Bass 1 or to sound User 1, there are two mapping modes available:

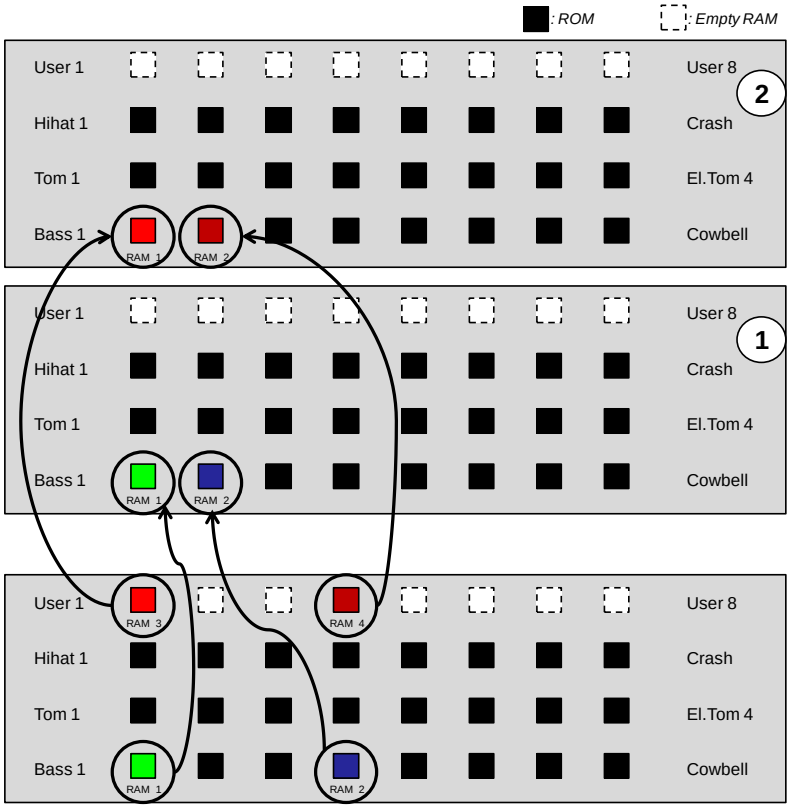
- Options 5, 7 and 9: *Each successive target SP-12 sound in each generated target SP-12 sound bank will be assigned a source sound*, until no more assignable source sounds are available for the current target SP-12 sound bank. If a source sound is empty, if it's a ROM sound, if it contains an invalid sound, if the sound won't be converted to the current target SP-12 sound bank due to the sound clustering algorithm or if the source sound doesn't fit in the target SP-12 memory size, it will be ignored (but unless the sound's size does not fit in the target SP-12 memory size, the sound will be converted to one of the other target SP-12 sound banks !). This is illustrated in the pictures below
  In the first picture the source sounds are mapped to the target sounds starting with Bass 1 (option 5). In this example, all sounds fit in one target SP-12 sound bank.



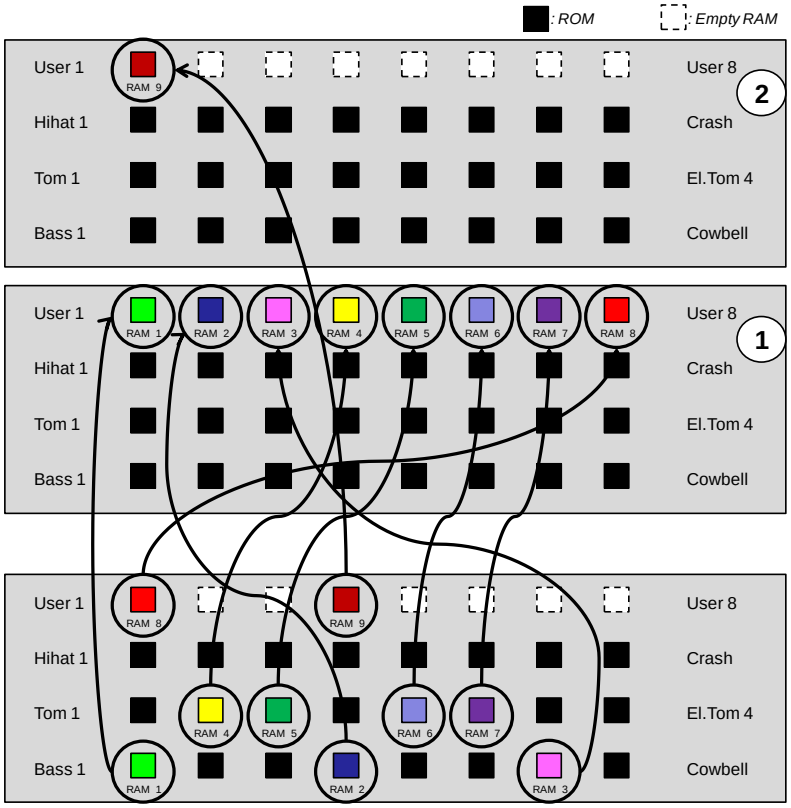
In the second picture the source sounds are mapped to the target sounds starting with User 1 (option 7). In this example, all sounds fit in one target SP-12 sound bank.



In the third picture the source sounds are mapped to the target sounds starting with Bass 1(option 5), but not all sounds fit in one target SP-12 sound bank.



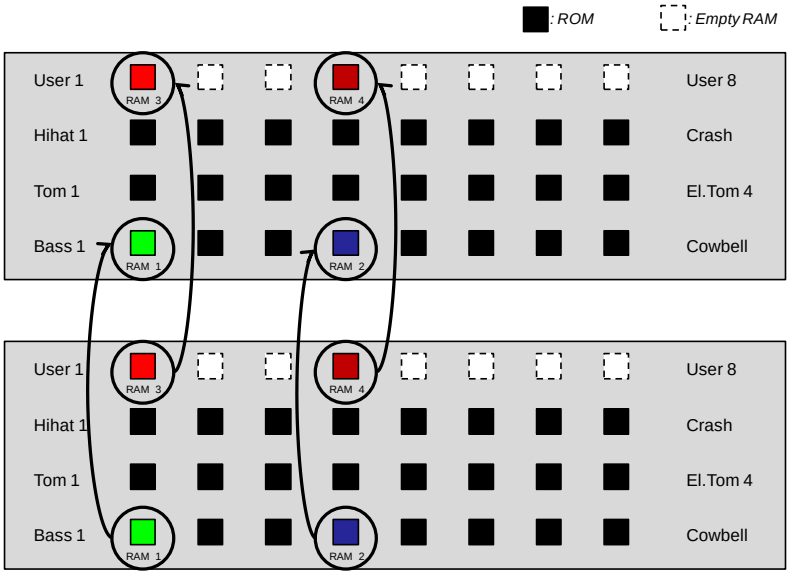
In the last picture the source sounds are mapped to the target sounds starting with User 1 but only the target user sounds can be used (option 9). In this example, all sounds would fit in one target SP-12 sound bank, but since there are 9 sounds to be mapped two target SP-12 banks will be generated.



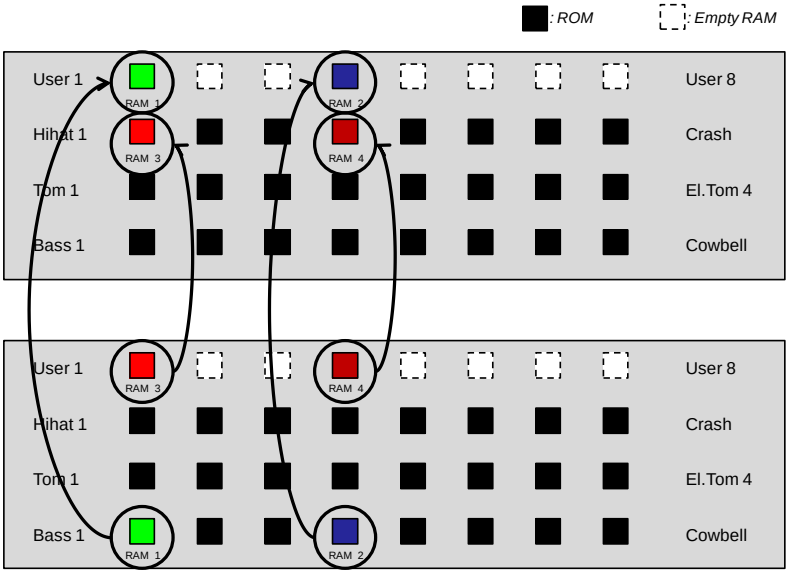
- Options 6, 8 and 10: Each source SP-12 sound will be assigned to a target SP-12 sound until no more assignable source sounds are available for the current target SP-12 sound bank. If the source sound is empty, if it's a ROM sound, if it contains an invalid sound, if the sound won't be converted to the

current target SP-12 sound bank due to the sound clustering algorithm or if the source sound doesn't fit in the target SP-12 memory size, *the target SP-12 sound will remain empty (or preserve its ROM sound)* and - unless the source sound's size does not fit in the target SP-12 memory size - the ignored source sound will be converted to one of the other target SP-12 sound banks !. This is illustrated in the pictures below.

In the first picture the source sounds are mapped to the target sounds starting with Bass 1 (option 6). In this example, all sounds fit in one target SP-12 sound bank.



In the second picture the source sounds are mapped to the target sounds starting with User 1 (option 8). In this example, all sounds fit in one target SP-12 sound bank.



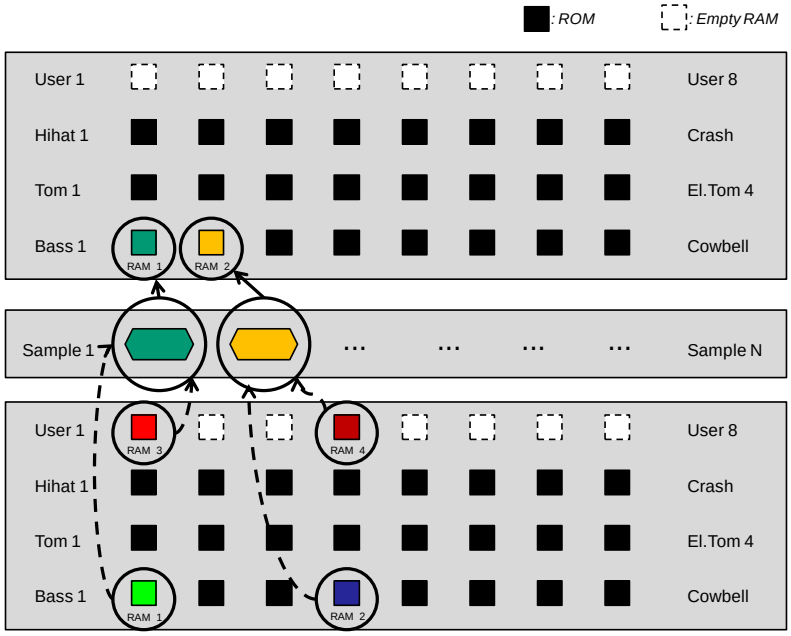
Converting samples

Besides mapping SP-12 sounds to SP-12 sounds it's also possible to map only the basic samples of the source SP-12 sound bank. Multiple SP-12 sounds may share the same basic sample.
When selecting option 1 → 3 each basic sample will be converted only once to a target SP-12 sound. Note however that the *sound parameters* will not be converted, not even the sample loop settings. The target SP-12 sounds will get default sound and sample parameters instead.

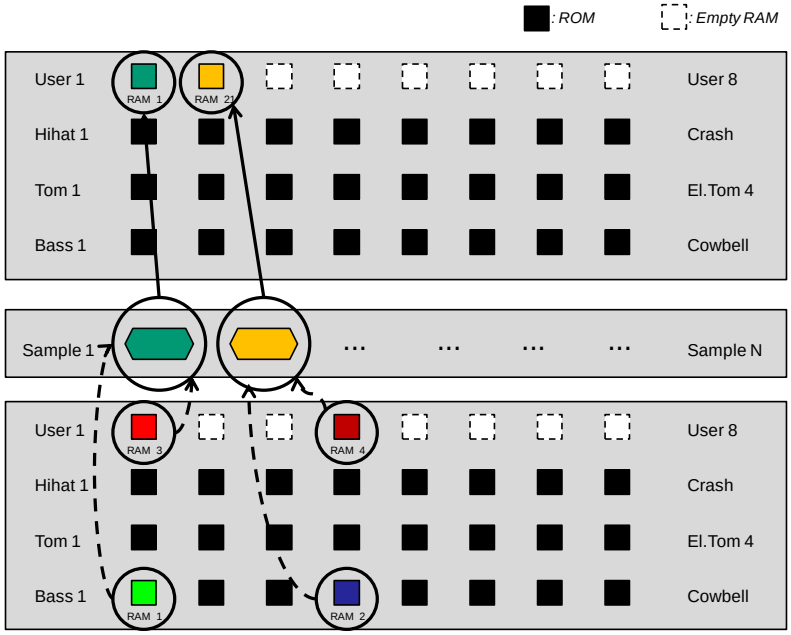
- When selecting option 1, the samples will be assigned to the SP-12 sounds starting with Bass 1, then Bass 2 and so on until User 8
- When selecting option 2, the samples will be assigned to the SP-12 sounds starting with User 1, then User 2 and so on until User 8. The assignments will continue with Bass 1 until Crash.
- When selecting option 3, the samples will be assigned to the SP-12 sounds starting with User 1, then User 2 and so on until User 8. The sounds Bass 1 until Crash will not get any sample assigned, e.g. to preserve their ROM sounds.

If the number of candidate source samples exceeds the 32 (or 8) available SP-12sounds, or if their size exceeds the total SP-12 memory size, EMXP will create additional SP-12 sound banks. EMXP will cluster the samples to SP-12 sound banks in such a way that as much memory as possible in each SP-12 sound bank is actually be used.

The picture below illustrates option 1.

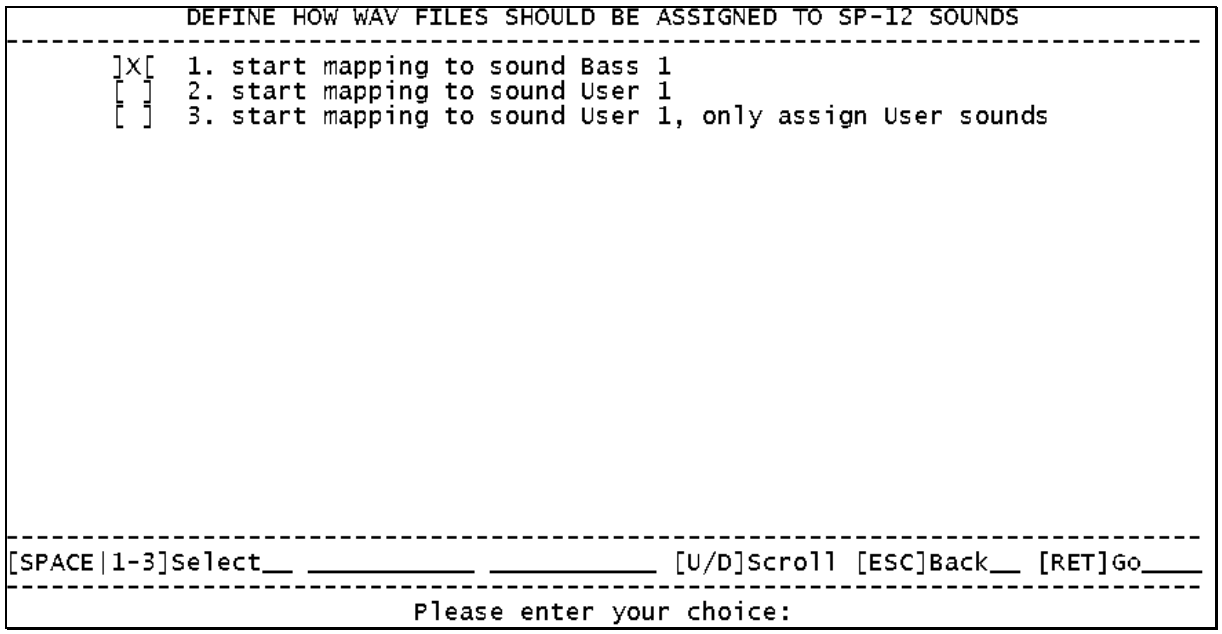


The next picture illustrates option 2.



10.3.6.2 Define key/sample mapping for conversions from WAV to SP-12

When converting WAV-files to the SP-12 format, EMXP should know how the WAV-files should be assigned to sound locations in the target SP-12 sound bank.
Three possibilities are provided. No matter what possibility is selected, the WAV-files will always be assigned to SP-12 sounds in alphabetical order of the WAV-file name.



Each WAV-file will be converted to an SP-12 sound.

- When selecting option 1, the WAV-files will be assigned to the SP-12 sounds starting with Bass 1, then Bass 2 and so on until User 8
- When selecting option 2, the WAV-files will be assigned to the SP-12 sounds starting with User 1, then User 2 and so on until User 8. The assignments will continue with Bass 1 until Crash.
- When selecting option 3, the WAV-files will be assigned to the SP-12 sounds starting with User 1, then User 2 and so on until User 8. The sounds Bass 1 until Crash will not get any WAV-file assigned, e.g. to preserve their ROM sounds.

10.3.6.3 Define key/sample mapping for conversions from other format to SP-12

When converting sound banks from any other sampler format to the SP-12 format, EMXP should know how the voices on each key of the source sampler's keyboard should be assigned to sound locations in the target SP-12 sound bank.

You can choose between assigning either *individual keys*, *complete key areas* or *samples* to each target SP-12 sound:

- Options 1 → 3 can be used for mapping samples to sounds
- Options 4 → 13 can be used for mapping individual keys to sounds
- Options 14 → 16 can be used for mapping key areas to sounds

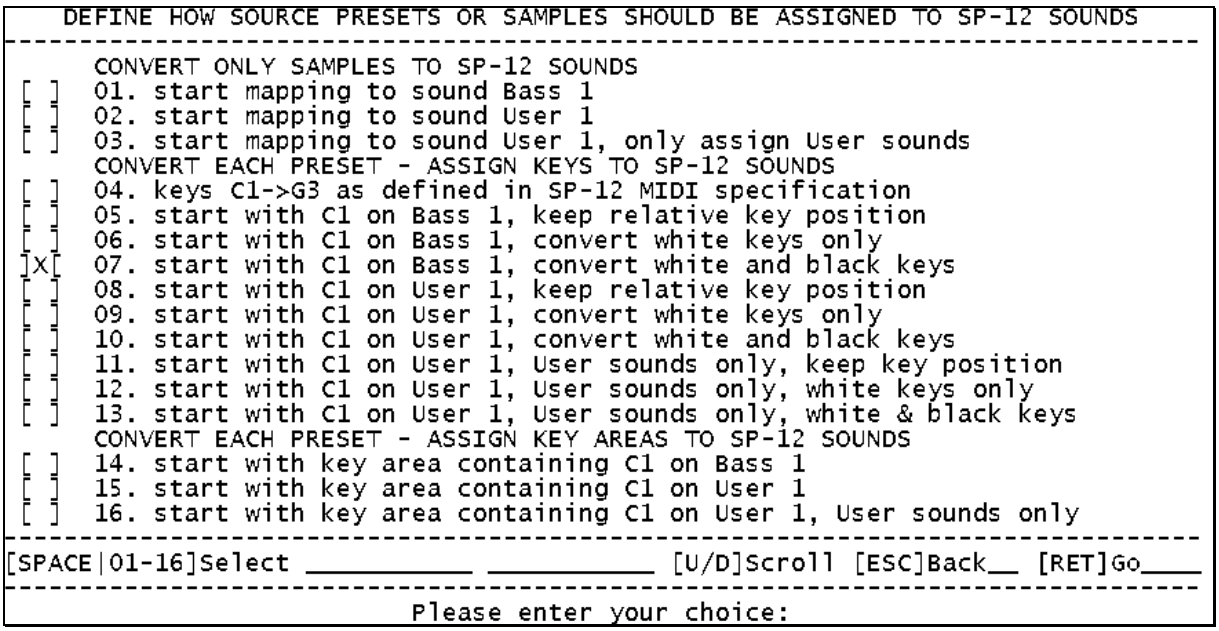
When converting *individual keys* or *complete key areas*:

- EMXP needs to know from what key range on the source keyboard the voices/samples should be converted to SP-12 sounds. This range is determined by a *first key* and a *last key*. By default the first key is set to C1 and the last key is set to C7, but you can change these settings in the Copy/Conversion Preferences (see *sections "10.3.6.4 Define start key for key mappings to SP-12"* and *"10.3.6.5 Define*

end key for key mappings to SP-12"). In the description below, *unless stated otherwise* C1 is assumed to be the first key, and C7 is assumed to be that last key.
Some additional remarks:

- If the source sampler's maximum keyboard range is smaller than the configured *first* and *last key* for conversions to SP-12, EMXP will automatically correct the key range (e.g. for Emulator-I and Emulator-II).
- If individual Lower or Upper Emulator-I sounds have been selected as the source object for conversions, EMXP will ignore the *first and last key* settings. All keys of the selected sound will be subject of conversion to SP-12.

- Each preset in the source sampler sound bank will be converted to a separate SP-12 sound bank (for Emulator-I banks, there is only one preset); if the number of voices or their total (sample) size would not fit in the target SP-12 memory size, only the voices/samples that actually fit will be assigned to SP-12 sounds (the other ones will be skipped). The selection of keys or key areas that should get priority in the conversion can be defined by the user, see *section "10.3.6.6 Define key/sample priority for conversions to SP-12"*.



Converting individual keys

Let's first have a look at options 4 → 13, in which the voice and sample of each individual key of the source preset (within the user-definable key range, here from C1 to max. C7) will be assigned to an individual sound in the target SP-12 sound bank, until there's no more memory available.
In the examples below, we assume that the priority of the keys that should be converted is simply defined by the *key order*. See *section "10.3.6.6 Define key/sample priority for conversions to SP-12"* for more options.

When selecting option 4, each key is mapped to a target SP-12 sound as defined by the SP-12 MIDI specification (but taking into account the user-definable *first key* and *last key*). The key-to-sound mapping table for this option is shown below:

Key	SP-12 Sound
C1	Bass 1
C#1	Cowbell
D1	Bass 2
D#1	Rim
E1	Snare 1
F1	Snare 2
F#1	Hihat 1

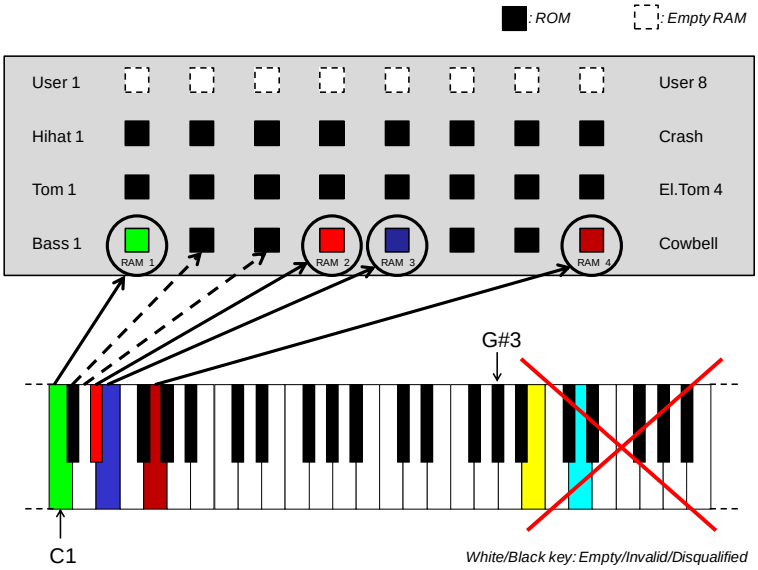
G1	El Snare 1
G#1	Hihat 2
A1	El Snare 2
A#1	Hihat 3
B1	Tom 1
C2	Tom 2
C#2	Claps 1
D2	Tom 3
D#2	Claps 2
E2	Tom 4
F2	El Tom 1
F#2	Ride 1
G2	El Tom 2
G#2	Ride 2
A2	El Tom 3
A#2	Crash
B2	El Tom 4
C3	User 1
C#3	User 2
D3	User 3
D#3	User 4
E3	User 5
F3	User 6
F#3	User 7
G3	User 8

When selecting options 5 → 7, EMXP will assign the keys (in the range *first key - last key)* to SP-12 sounds starting with sound Bass 1, followed by sound Bass 2, and so on.
When selecting options 8 → 10, EMXP will assign the keys (in the range *first key - last key)* to SP-12 sounds starting with sound User 1, followed by sounds User 2 → sound User 8. Then EMXP will continue with assigning to the sounds starting with Bass 1 and ending with Crash.
When selecting options 11 → 13, EMXP will assign the keys (in the range *first key - last key)* to SP-12 sounds starting with sound User 1, followed by sounds User 2 → sound User 8. No assignments will be made to sounds Bass 1 → Crash, e.g. because they should be preserved for the factory SP-12 ROM sounds.

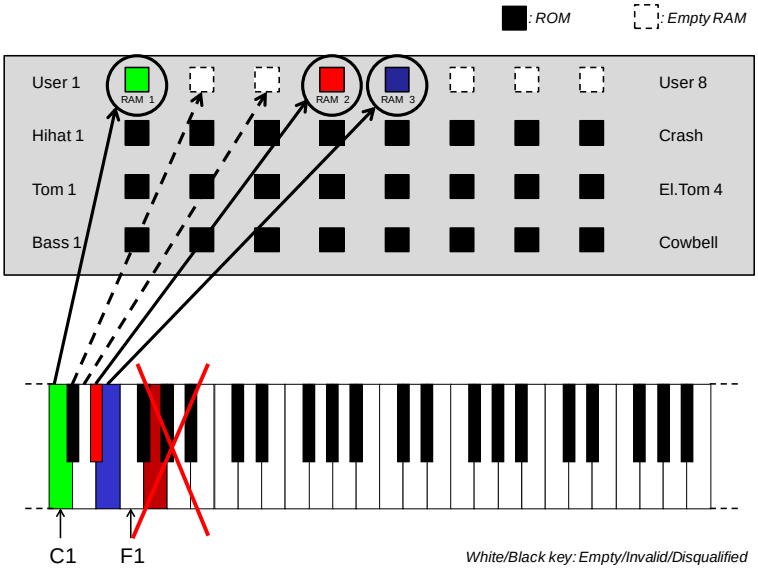
No matter if the mapping starts with assignments to sound Bass 1 or to sound User 1, there are three mapping modes available:

- Options 5, 8 and 11: each key (starting with the *first key*) will be assigned to an individual SP-12 sound, starting with Bass 1 or User 1 depending on the selected option. No more than 32 keys (or 8 keys when option 11 has been selected) will be taken into account, perhaps less if the *last key* restricts the key range even more. If the source key is empty, if it contains an invalid voice, if the key won't be converted due to the prioritization algorithm or if the key 's sample doesn't fit in the SP-12 memory size, the SP-12 sound will remain empty (or will remain containing a ROM sound). This is illustrated in the pictures below.

  In the first picture the keys starting with C1 are mapped to the sounds starting with Bass 1 (option 5). Although the *last key* is set to C7, the keys starting with G#3 will be ignored since only the first 32 keys can be taken into account if the relative key position should be preserved.

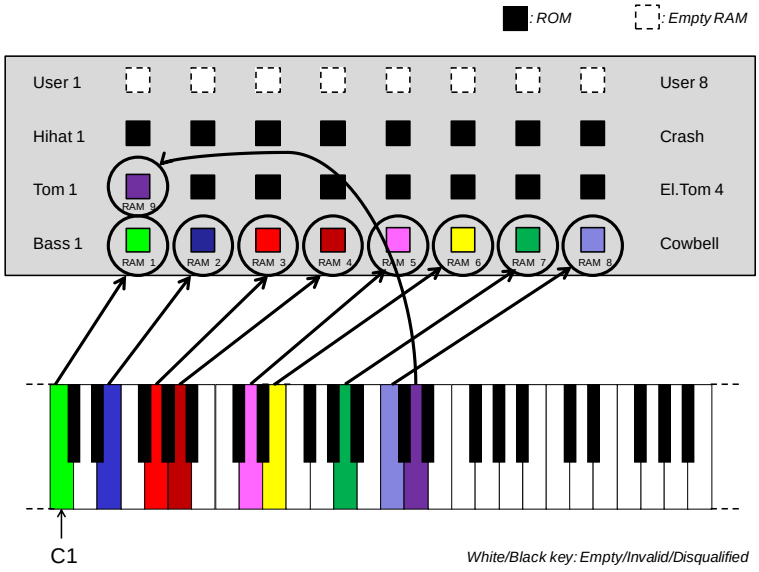


In the second picture the keys starting with C1 are mapped to the sounds starting with User 1 (option 8). In this example the *last key* is set to F1. Although there's room for 32 sounds in the target SP-12 bank, a maximum of 5 can be assigned due this *last key* setting. In this example only three of this 5 keys contain a voice/sample which fits in the SP-12 memory.

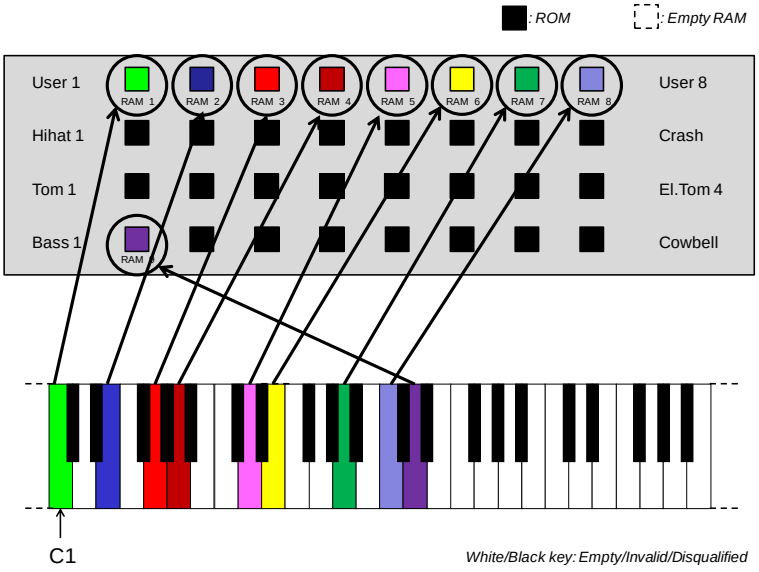


- Options 6, 9 and 12: each *white* key (starting with the *first key*) will be assigned to an individual SP-12 sound, starting with Bass 1 or User 1 depending on the selected option. *Each successive target SP-12 sound will be assigned a white key*, until no more assignable white keys are available within the key range defined by the *first key* and *last key*. If a source white key is empty, if it contains an invalid voice, if the key won't be converted due to the prioritization algorithm or if the key 's sample doesn't fit in the SP-12 memory size, it will be ignored. This is illustrated in the pictures below.

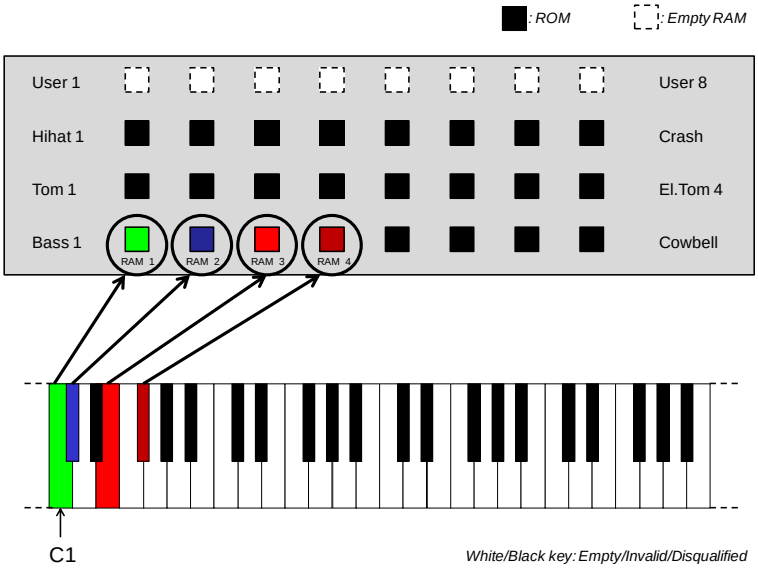
  In the first picture the white keys starting with C1 are mapped to the sounds starting with Bass 1 (option 6).



In the second picture the white keys starting with C1 are mapped to the sounds starting with User 1 (option 9).



- Options 7, 10 and 13: each key (both white and black keys, starting with the *first key*) will be assigned to an individual SP-12 sound, starting with Bass 1 or User 1 depending on the selected option. *Each successive target SP-12 sound will be assigned a key*, until no more assignable keys are available within the key range defined by the *first key* and *last key*. If a source key is empty, if it contains an invalid voice, if the key won't be converted due to the prioritization algorithm or if the key 's sample doesn't fit in the SP-12 memory size, it will be ignored. This is illustrated in the picture below, in which the keys starting with C1 are mapped to the sounds starting with Bass 1 (option 7).



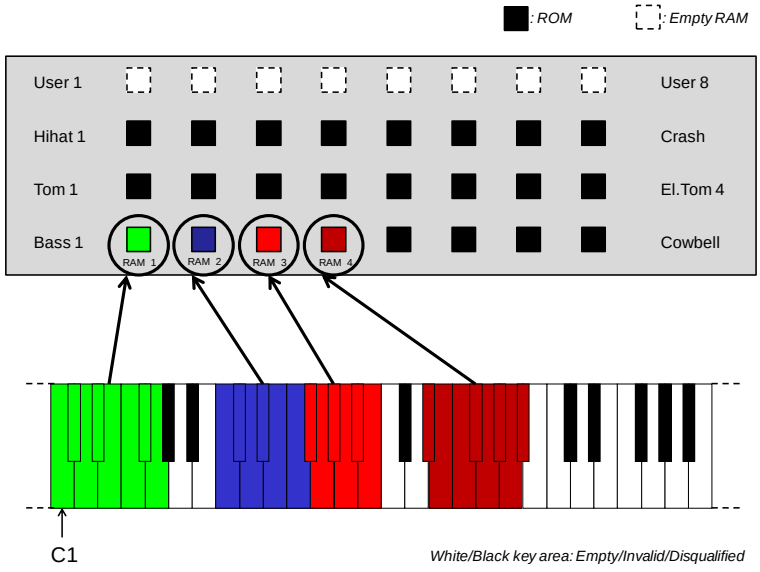
Converting key areas

When selecting options 14 → 16, each voice and sample which is common to all keys of the same key area will be converted and assigned to a single SP-12 sound, starting with assignments to:

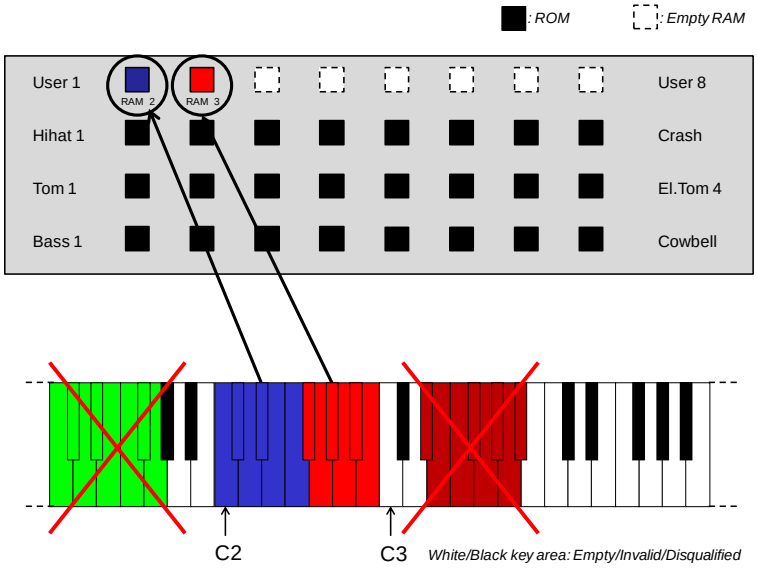
- sound Bass 1, then Bass 2, ... until User 8 if option 14 is selected
- sound User 1, then User 2 until User 8, followed by Bass 1 until Crash if option 15 is selected
- sound User 1, then User 2 until User 8 if option 16 is selected (sounds Bass 1 → Crash will not be assigned any key, e.g. in order to preserve their ROM sounds)

Each successive target SP-12 sound will be assigned a complete key area, until no more assignable key areas are available within the key range defined by the *first key* and *last key*. If a source key area is empty, if it contains an invalid voice, if the key area won't be converted due to the prioritization algorithm or if the key area's sample doesn't fit in the SP-12 memory size, it will be ignored. This is illustrated in the pictures below.

In the first picture the key areas starting with the one containing C1 are mapped to the sounds starting with Bass 1 (option 14).



In the second picture, the *first and last key* settings are different. Only the key range C2 → C3 should be taken into account. The key areas within that range are mapped to the sounds starting with User 1 (option 15).



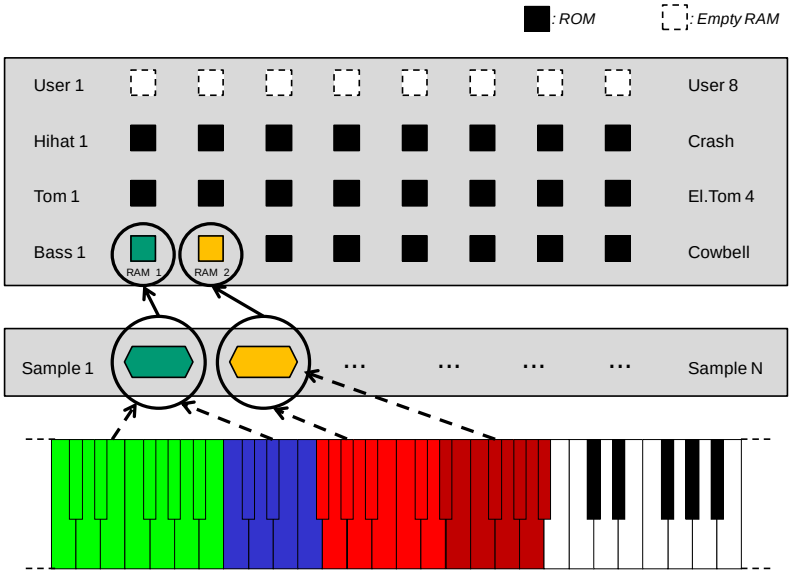
Converting samples

Besides mapping the keys and key areas to individual SP-12 sounds - one preset per target SP-12 sound bank - it's also possible to map only the basic samples. Depending on the source sampler, multiple presets, key areas, keys and voices can share the same basic sample.
When selecting option 1 → 3 each basic sample will be converted only once to a target SP-12 sound. Note however that the *voice parameters* will not be converted, not even the sample loop settings. The target SP-12 sounds will get default sound and sample parameters instead.

- When selecting option 1, the samples will be assigned to the SP-12 sounds starting with Bass 1, then Bass 2 and so on until User 8
- When selecting option 2, the samples will be assigned to the SP-12 sounds starting with User 1, then User 2 and so on until User 8. The assignments will continue with Bass 1 until Crash.
- When selecting option 3, the samples will be assigned to the SP-12 sounds starting with User 1, then User 2 and so on until User 8. The sounds Bass 1 until Crash will not get any sample assigned, e.g. to preserve their ROM sounds.

If the number of candidate source samples exceeds the 32 (or 8) available SP-12sounds, or if their size exceeds the total SP-12 memory size, EMXP will create additional SP-12 sound banks. EMXP will cluster the samples to SP-12 sound banks in such a way that as much memory as possible in each SP-12 sound bank is actually be used.

The picture below illustrates option 1.



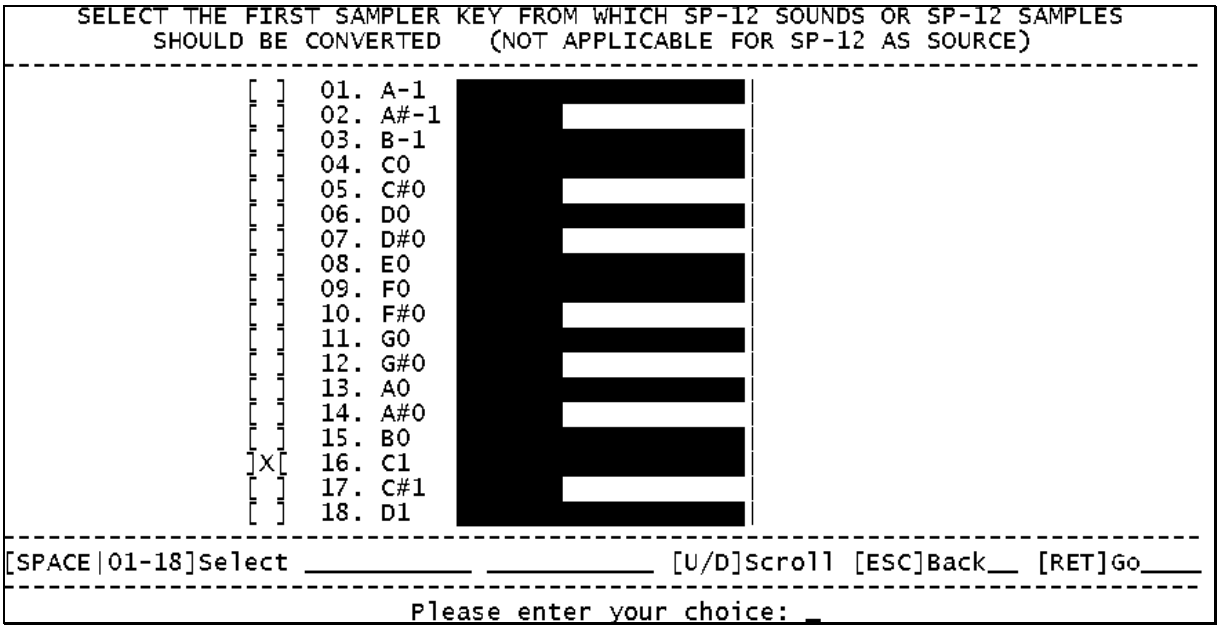
10.3.6.4 Define start key for key mappings to SP-12

When converting *keys* or *key areas* from source sampler presets to SP-12 sounds, it is possible to restrict the key range which should be taken into account.
The SP-12 can only hold 32 sounds. You may even have requested to assign keys or key areas only to the 8 User sounds (see *section "10.3.6.3 Define key/sample mapping for conversions from other format to SP-12"*).
The source presets could have more than 32 (or 8) keys or key areas.

By defining a *start key* and an *end key*, EMXP will ignore all keys which are lower than the start key and higher than the end key.
Note however that when conversions are performed in which the *relative key position* should be preserved in the mapping to SP-12 sounds, no more than 32 (or 8) succeeding keys will be taken into account, even if the distance between the *start and end key* is more than 32 (or 8) keys.
The *end key* is especially interesting when converting *without preserving the relative key position* or when converting *key areas.* During these conversions, EMXP checks which keys or key areas get a higher priority for being converted if not all keys or key areas would fit in the SP-12 memory. The candidate keys and key areas are the ones between the *start and end key*.
Suppose the start key is C1 and the end key is C7 and the source preset contains voices on all keys between C1 and C7. There is a possibility that the keys that get a higher priority by the EMXP clustering algorithm are all located in e.g. the range C4 → C7, meaning that all keys between C1 and C4 would be ignored (not converted). If you don't want this, you should explicitly narrow the candidate key range by lowering the *end key*.

If the key range from *start key* to *end key* exceeds the maximum supported keyboard range of the source sampler, EMXP will automatically apply the sampler limits for either the start key or the end key (or both). E.g. if the start key is C0 and the end key is C7, but a conversion is done from the Emulator-II, EMXP will narrow the key range to C1 → C6.

The *start key* can be defined in this preference screen. For defining the *end key*, we refer to *section "10.3.6.5 Define end key for key mappings to SP-12"*.
These settings will be applicable for *all conversions* to SP-12 and can only be set in the Preferences menu.
The default value for the *start key* is C1.

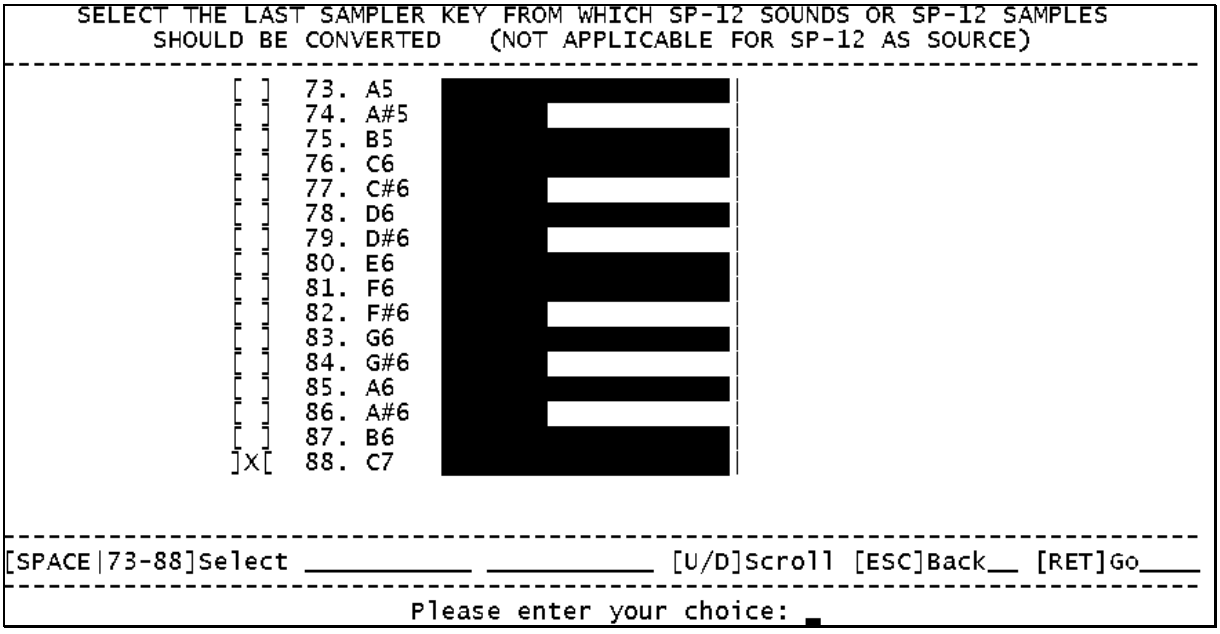


If you select a *start key* which is higher than the current *end key*, the *end key* will automatically be set to the same value as the *start key*.

10.3.6.5 Define end key for key mappings to SP-12

See *section "10.3.6.4 Define start key for key mappings to SP-12"* for an explanation about the *start key* and *end key* parameter.0

The *end key* can be defined in this preference screen. For defining the *start key*, we refer to *section "10.3.6.4 Define start key for key mappings to SP-12"*.
The default value for the *end key* is C7.



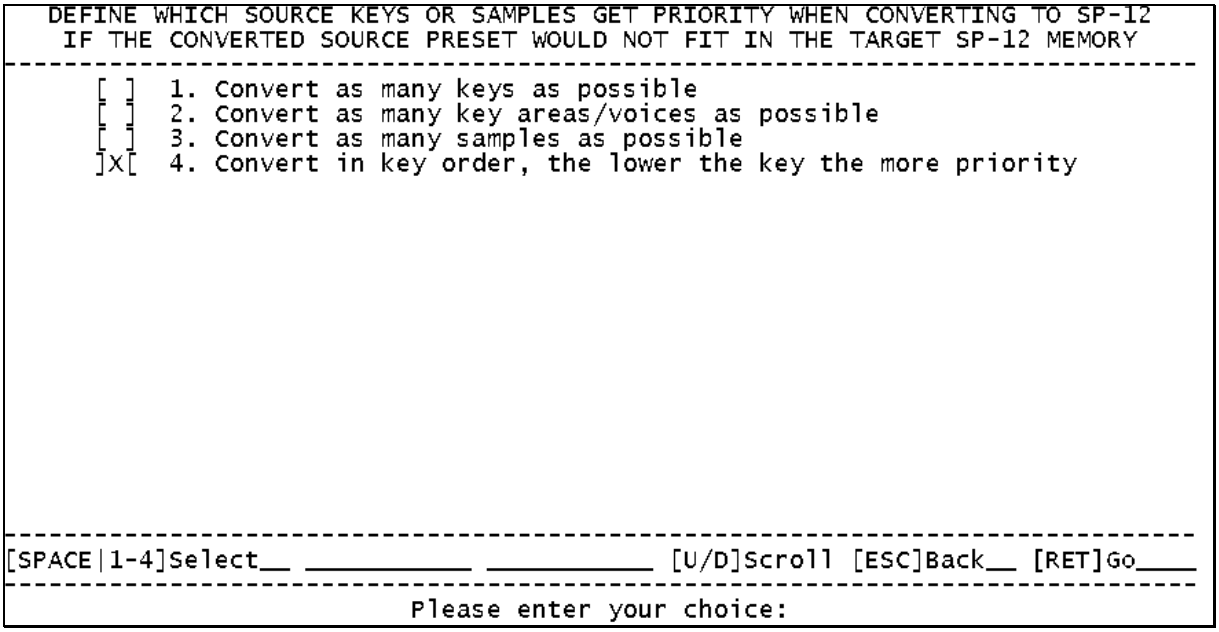
If you select an *end key* which is lower than the current *start key*, the *start key* will automatically be set to the same value as the *end key*.

10.3.6.6 Define key/sample priority for conversions to SP-12

When converting *keys* or *key areas* from source sampler *presets* to SP-12 sounds, there's a big chance that not all of the candidate keys /key areas (within the range defined by the *first* key and *last* key - see *section "10.3.6.4 Define start key for key mappings to SP-12"*) will fit in the SP-12 sampler memory, because the SP-12's total memory size is very limited.
This means that EMXP will have to make a selection of keys or key areas which are considered to be more *important* than other ones. The "less important" ones will not be converted.

EMXP applies a *clustering algorithm* for determining the keys or key areas that will be converted. The main input parameters for this algorithm are the size of each sample and the total available size of each hardware memory segment in the SP-12. When converting to a Turbo SP-12 sampler (which contains 2 isolated memory segments) the algorithm is based on some simplified statistical clustering/partitioning formulas which only *approximate* the best distribution of samples across the memory segments.

You can influence this clustering algorithm by telling EMXP which of four possible scenarios you prefer.



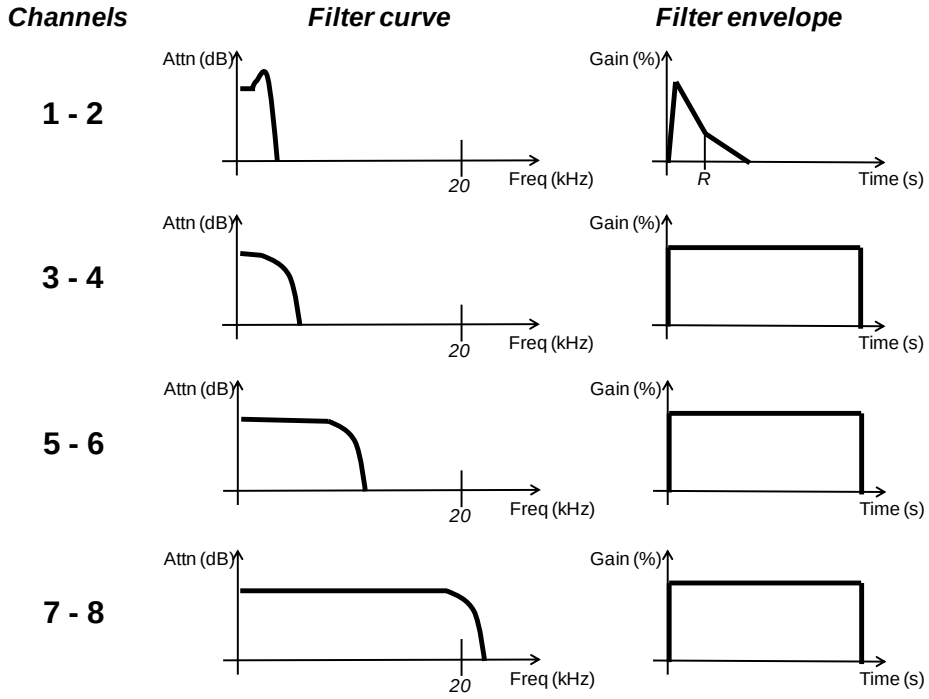
- When selecting option 1, EMXP will try to assign as many keys (within the range *first key - last key)* to SP-12 sounds. The algorithm will take into account:
    - the sample sizes of the samples used by the keys: smaller samples have higher priority;
    - the number of keys using the same sample: if more keys use the same sample, the sample gets a higher priority
- When selecting option 2, EMXP will try to assign as many key areas (within the range *first key - last key)* to SP-12 sounds. The algorithm will take into account:
    - the sample sizes of the samples used by the key areas: smaller samples have higher priority;
    - the number of key areas using the same sample: if more key areas use the same sample, the sample gets a higher priority. The number of keys in the key areas is not relevant.
- When selecting option 3, EMXP will try to assign as many samples (used by the keys within the range *first key - last key)* to SP-12 sounds. The algorithm will only take into account the sample sizes: smaller samples have higher priority.
- When selecting option 4, EMXP will convert key by key or key area by key area (within the range *first key - last key)* in the order of the keyboard. If the sample of the key/key area still fits in the available memory, the key or key area will be converted. If the sample doesn't fit anymore, EMXP will jump to the next key/key area. This is the default setting.

This preference setting is not applicable for conversions of basic samples and for conversions from SP-12 to SP-12.

10.3.6.7 Define output/filter assignment for conversions to SP-12

The SP-12 has no configurable filter settings, although it contains filter ICs. The settings of these filters can not be changed. Four different filter setups have been pre-configured in the SP-12 hardware, and these are hardwired to the 8 output channels. See the picture below for a detailed overview of these four filter setups. Some SP-12 units have been modified (after market) with switches which allow to enable or disable these hard wirings.

A consequence of this design decision by is that there are no filter parameters in the SP-12 sound bank memory. However EMXP can try to convert the source voice's filter settings by assigning the converted voice to the *output channel* whose filter characteristics resemble the source filter settings best.




```
          DEFINE OUTPUT CHANNEL ASSIGNMENT FOR CONVERSIONS TO SP-12
------------------------------------------------------------------------------
[ ]  1. Assign SP-12 Sound to Output Channel based on Source Output Channel
]X[  2. Assign SP-12 Sound to Output Channel based on Source Filter Settings
[ ]  3. Assign SP-12 Sound to Unfiltered Output Channel 7 or 8 only
```

Three options are available:

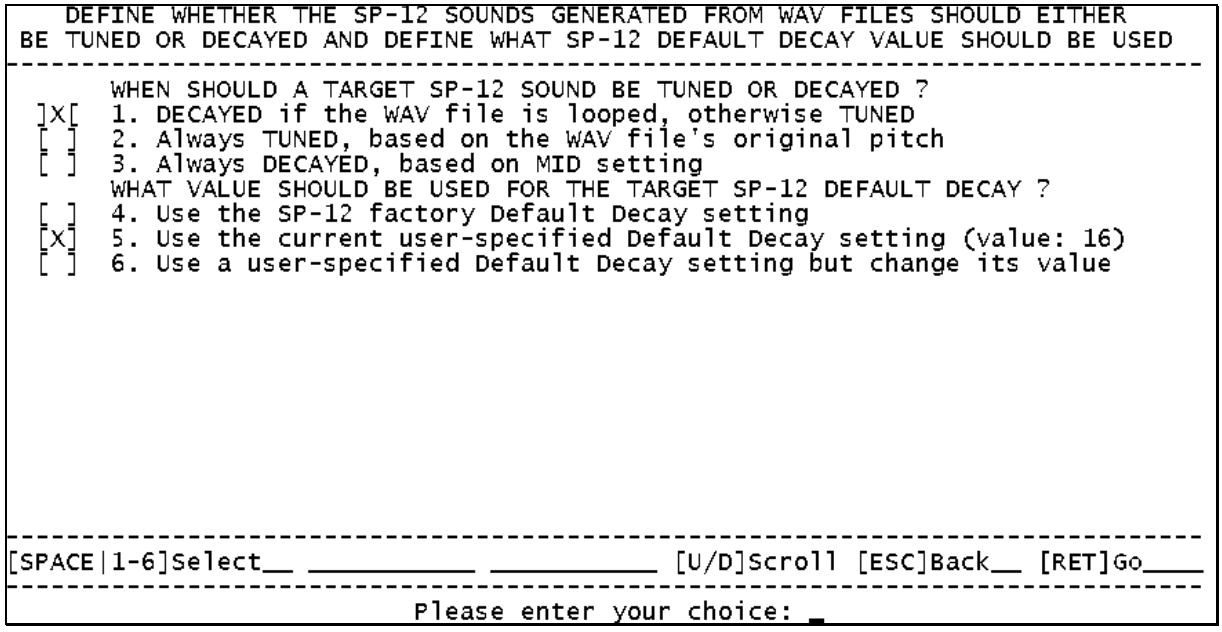
- When selecting option 1, the filter settings of the source voices are ignored. EMXP will assign each SP-12 sound to the output channel which corresponds to the source voice's output channel. As a result, the converted sound may be filtered in completely different way than the source voice.
- When selecting option 2, EMXP will assign each SP-12 sound to the output channel whose filter characteristics resemble the source voice's filter settings best. This is the default setting.
- When selecting option 3, the filter settings of the source voices are ignored. EMXP will assign each SP-12 sound to either output channel 7 or 8 (EMXP tries to assign an equal number of sounds to channel 7 and channel 8). As a result, the converted sound will not be filtered.

This preference is not applicable when converting SP-12 sound banks to SP-12 sound banks - in that case, the original output channel assignments will be retained (=option 1).

10.3.6.8 Define tune/decay handling conversions from WAV to SP-12

(See also *section "10.3.6.9 Define tune/decay handling conversions from non-SP-12 to SP-12"* for more details about how the SP-12 deals with the tune/decay parameters)
The SP-12 has some limitations regarding the tuning and the VCA envelope settings of a sound. One of these constraints is that you have to decide for each sound whether the sound should be tuned/transposed or whether it should be decayed. While it is possible to tune and decay a sound at the same time, it's not possible to have different decay settings for different sounds if the sounds are tuned as well - in that case the decay setting is shared by all SP-12 sounds, and it is defined by the *Default Decay* parameter on the SP-12.

Although WAV-files will always be converted to untransposed SP-12 sounds (i.e. their tuning will always be at original pitch), EMXP still needs to know whether the sounds should be tuned or decayed.

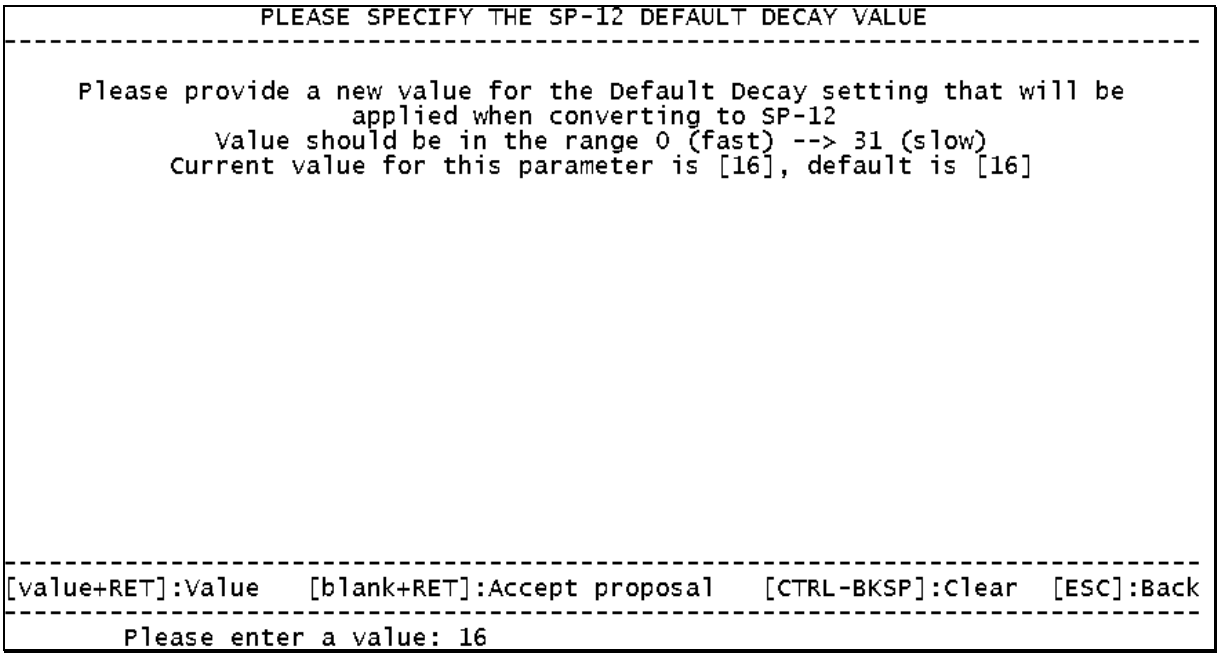


With options 1 → 3 you can define under which conditions a sound should be tuned or decayed.

- *Option 1*: if the WAV-file is looped, EMXP will generate a *decayed* SP-12 sound, if the WAV-file is not looped, a *tuned* SP-12 sound will be generated. The SP-12 tends to "hold" (play) a looped sound for a very long time (multiple loops) if the decay setting is above 16. This is true both for tuned looped sounds which rely on the *default decay* and for decayed looped sounds which rely on the sound's individual *decay* setting. But since the *default decay* is typically set to a high value (e.g. 31), every *tuned* ànd *looped* sound would play too long. To avoid this situation, you can exclude looped sounds from being tuned. This is the default setting.
- *Option 2*: all generated SP-12 sounds will be *tuned*. Their decay is defined by the *default decay* setting.
- *Option 3:* all generated SP-12 sounds will be *decayed.* The decay value will be set to 16 (i.e. the MID value on the SP-12)

With options 4 → 6 you can define how the *default decay* value of the target SP-12 sound bank should be determined by EMXP. This is the decay setting that will be used and shared by all *tuned* SP-12 sounds.

- *Option 1:* the factory setting will be used. This is the maximum possible decay setting (31).
- *Option 2:* the default decay will be set to the current user-defined value (which is mentioned between brackets). Use option 3 to change this value.
- *Option 3:* the default decay will be set to a user-defined value which can be defined in the next screen



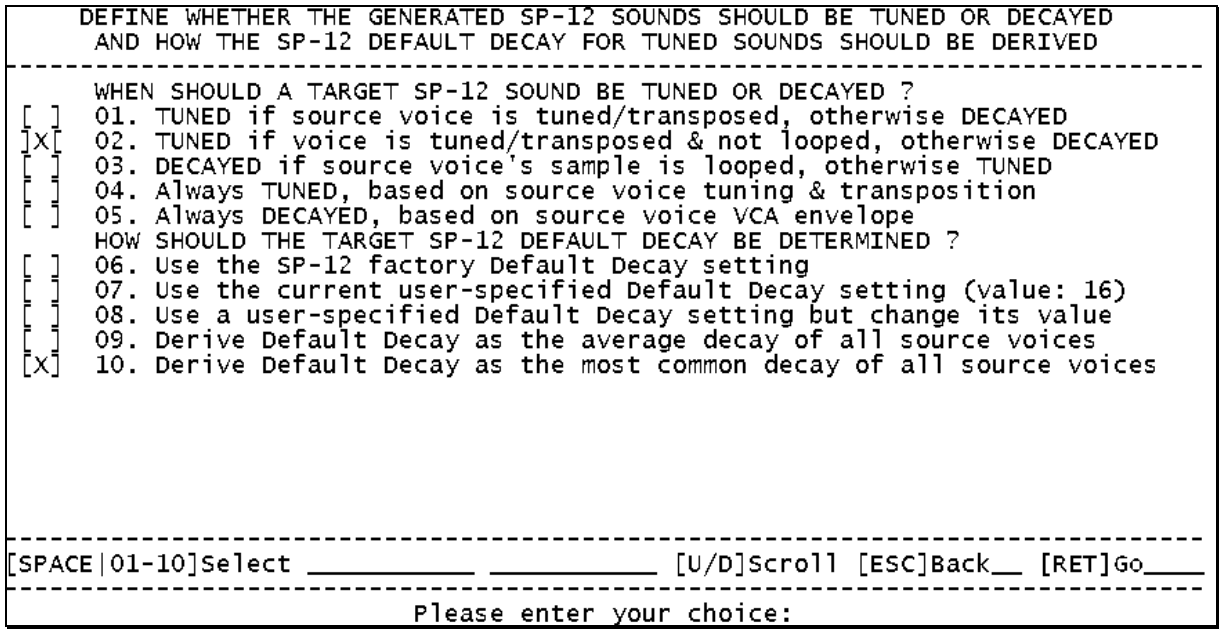
10.3.6.9 Define tune/decay handling conversions from non-SP-12 to SP-12

The SP-12 has quite limited tuning and transposition possibilities, and the flexibility of its volume envelopes is also limited:

- Tuning is limited to transposing 16 semitones down, and transposing 12 semitones up. No fine-tuning in units of cents is possible.
- The volume envelopes are limited to a single *decay* parameter. This parameter influences the VCA envelope's Hold, Decay and Release phase at once.
- Due to a bug in the SP-12 operating system, only a few of the tuning and decay values are written correctly when saving sounds to disk or transferring them via MIDI, or are interpreted correctly when reading sounds from disk or transferring them via MIDI. The SP-12 multi-pitch settings are not saved at all.
- Moreover you basically have to decide for each sound whether the sound should be tuned/transposed or whether it should be decayed. While it is possible to tune and decay a sound at the same time, it's not possible to have different decay settings for different sounds if the sounds are tuned as well - in that case the decay setting is shared by all SP-12 sounds, and it is defined by the *Default Decay* parameter on the SP-12.

Due to these limitations, EMXP allows you to define how the pitch settings (both keyboard pitch and additional fine tuning) and VCA envelopes of the source sampler voices should be converted to SP-12 tune/decay settings.

This preference is not applicable for conversions from SP-12 sound banks to SP-12 sound banks. In that case, the original tune/decay settings will be retained.



With options 1 → 5 you can define under which conditions a sound should be tuned or decayed. But keep in mind that no matter if a sound will be tuned or decayed, the tuning and decay may still deviate from the source voice's pitch and VCA envelope settings, due to the limited tuning and decay capabilities of the SP-12.

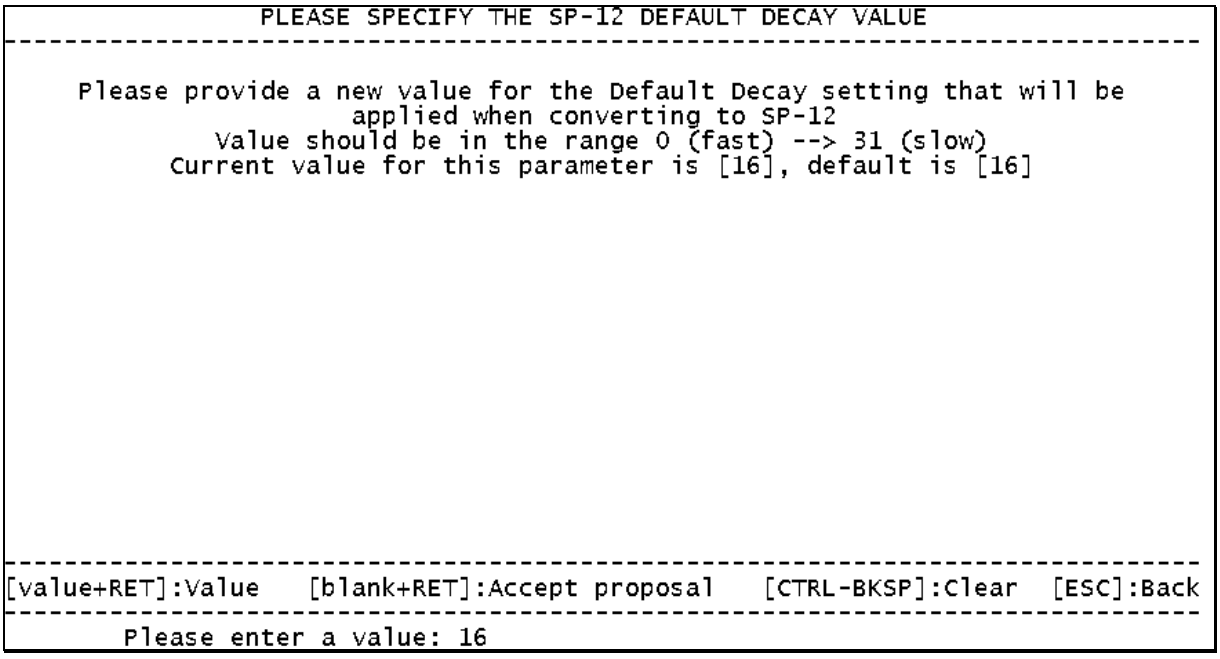
- *Option 1*: if the source voice is either explicitly tuned (e.g. +10 cents) or if the key which is being converted is not at original pitch of the sample (i.e. normal keyboard transposition), EMXP will generate a *tuned* SP-12 sound. If these conditions are not met, EMXP will generate a *decayed* SP-12 sound.
- *Option 2*: this option is similar to option 1, but EMXP will not generate a *tuned* SP-12 sound if the source voice's sample is looped (even if this voice is tuned/transposed). The SP-12 tends to "hold" (play) a looped sound for a very long time (multiple loops) if the decay setting is above 16. This is true both for tuned looped sounds which rely on the *default decay* and for decayed looped sounds which rely on the sound's individual *decay* setting. But since the *default decay* is typically set to a high value (e.g. 31), every *tuned* ànd *looped* sound would play too long. To avoid this situation, you can exclude looped sounds from being tuned. This is the default setting.
- *Option 3*: if the source voice's sample is looped, EMXP will generate a *decayed* SP-12 sound. Under all other conditions, a *tuned* SP-12 sound will be generated. For more information, see option 2.
- *Option 4*: all generated SP-12 sounds will be *tuned*. Their decay is defined by the *default decay* setting.
- *Option 5:* all generated SP-12 sounds will be *decayed* and they will not be transposed.

***Caution when deciding to generate tuned SP-12 sounds*:**
Although EMXP correctly converts the transposition settings of a transposed source voice to an SP-12 tuning value within a range of -16 semitones → +15 semitones of the original pitch, the SP-12 will ignore most of these tuning values. Instead it will round the values to LO, MID and HI settings.
In practice this means that even when converting a transposed key area of 8 keys to 8 *tuned* SP-12 sounds (e.g. User 1 → User 8), it will not be possible to play the 8 sound pads as if they were a normal transposed keyboard.

Caution when deciding to generate decayed SP-12 sounds:
Although EMXP correctly generates SP-12 decay values within a range of 0 → 31, the SP-12 will ignore most of these decay values. Instead it will round the values to LO, MID and HI settings.

With options 6 → 10 you can define how the *default decay* value of the target SP-12 sound bank should be determined by EMXP. This is the decay setting that will be used and shared by all *tuned* SP-12 sounds.

- *Option 1:* the factory setting will be used. This is the maximum possible decay setting (31).
- *Option 2:* the default decay will be set to the current user-defined value (which is mentioned between brackets). Use option 3 to change this value.
- *Option 3:* the default decay will be set to a user-defined value which can be defined in the next screen



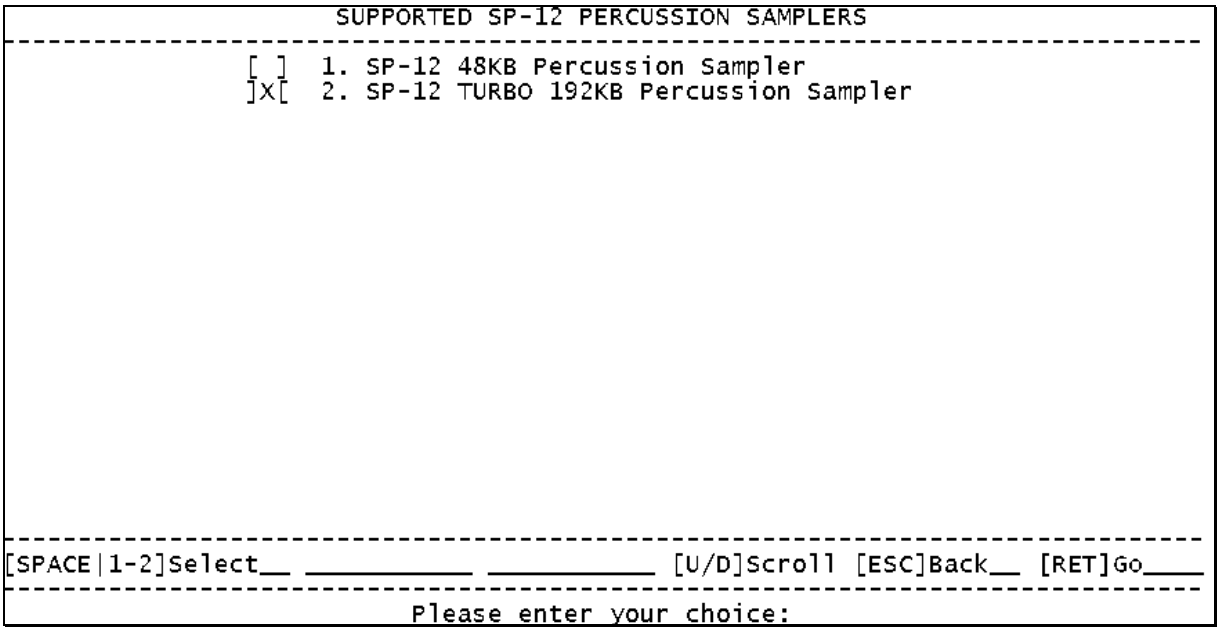
- *Option 4:* to calculate the default decay, the VCA envelopes of all voices (of the source preset) that will be converted to *tuned SP-12 sounds* will be taken into account , especially their Hold, Decay and Release values. An average VCA envelope will be derived. The SP-12 decay value closest to this average VCA envelope will be used as default decay setting.
- *Option 5:* to calculate the default decay, the VCA envelopes of all voices (of the source preset) that will be converted to *tuned SP-12 sounds* will be taken into account , especially their Hold, Decay and Release values. For each of these VCA envelopes, the SP-12 decay value closest to the VCA envelope will be determined. The most common/popular derived decay value will be used as default decay value. This is the default setting.

10.3.6.10 Define target SP-12 memory size for conversions to SP-12

EMXP can adapt the maximum size of an SP-12 sound bank to the available memory in your SP-12. There are two versions of the SP-12:

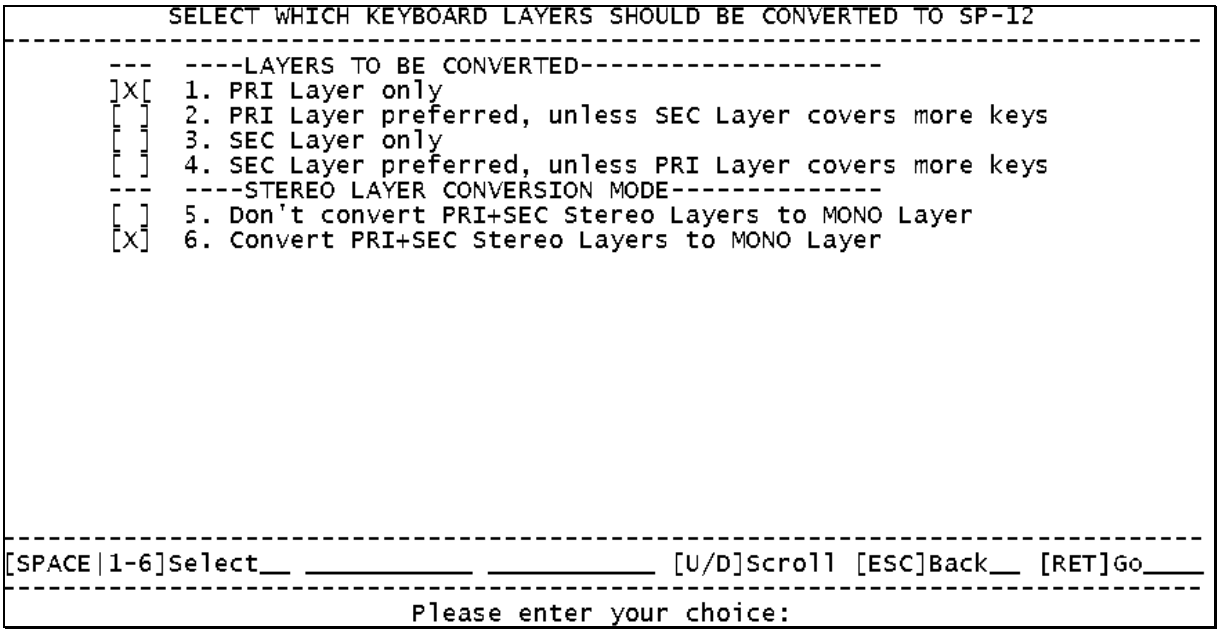
- Standard SP-12, with a memory size of 48 KB for samples (1.25 sec)
- Turbo SP-12, with a memory size of 192 KB for samples (5 sec in total, but a single sample can not exceed 2.5 sec)

The default memory size is 192 KB, i.e. the memory available in a Turbo SP-12, but you can scale this down to 48 KB. Note that even the “192 KB files” may load perfectly in a standard SP-12, as long as the size of the sound bank does not exceed 48 KB...



10.3.6.11 Define source PRI/SEC layer handling for conversions to SP-12

When converting sound banks to the SP-12 format, the presets in the source sampler banks may consist of both a primary (PRI) and secondary (SEC) voice layer. Since the SP-12 only supports one layer, you can define which layer should be converted.



With option 1 you instruct EMXP to convert the PRI layer, no matter if there are voices in this layer or not. With option 2 you instruct EMXP to convert the PRI layer by default, but if for a certain target key area more voices are assigned to the SEC layer than to the PRI layer in the source preset, EMXP should switch to the SEC layer. Options 3 and 4 are identical, but from the perspective of the SEC layer as starting point.

It's also possible that the source preset contains key areas in which the PRI and SEC layer behave as the left and right channel of a stereo voice. Since the SP-12 does not support two layers, nor a stereo mode, you should also specify whether the samples of both source stereo channels should be merged into mono samples, or whether the other channel's sample should simply be ignored. E.g. if you selected option 1 (PRI layer), option 5 will simply

convert the sample of the PRI layer and ignore the sample of the SEC layer, while option 6 will combine the PRI and SEC samples and convert them to mono.

This preference is only applicable for conversions to SP-12 if the source sampler supports more than one voice layer.

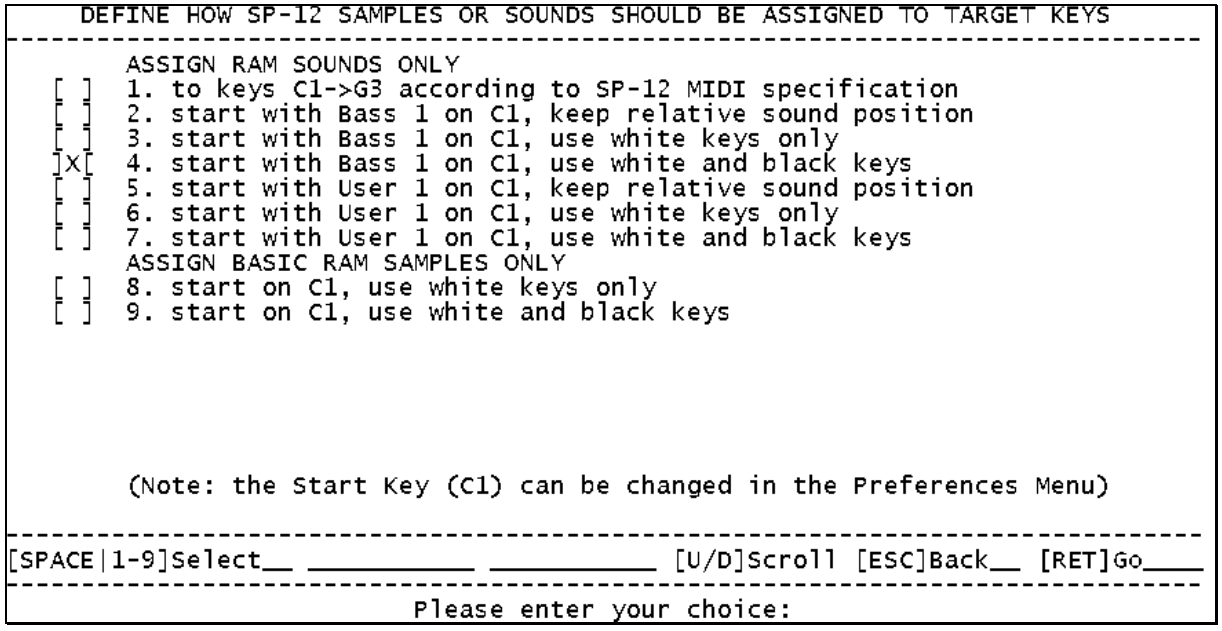
10.3.6.12 Define sample/key mapping for conversions from SP-12 to non-Emulator-I

When converting sound banks from the SP-12 format to any non-SP-12 sampler format, EMXP should know how the different sounds or samples in the SP-12 sound bank should be assigned to keys on the target sampler's keyboard.

No matter which key map option is chosen, EMXP needs to know which key on the target keyboard is the *first key* to which sounds or samples should be assigned. By default this start key is set to C1, but you can change this setting in the Copy/Conversion Preferences (see *section "10.3.6.14 Define start key for key mappings from SP-12 to non-Emulator-I"*). In the description below, C1 is assumed to be the start key.

You can choose between assigning either *sounds* or *samples* to the target keys. Options 1 → 7 can be used for mapping sounds to keys, while options 8 → 9 can be used for mapping samples to keys.
Note that only RAM sounds or samples will be converted and assigned to the target keys. ROM sounds/samples are always ignored and skipped during the conversion.

The SP-12 sounds or samples will always be converted to only *one single preset* in the target sampler.



Converting sounds

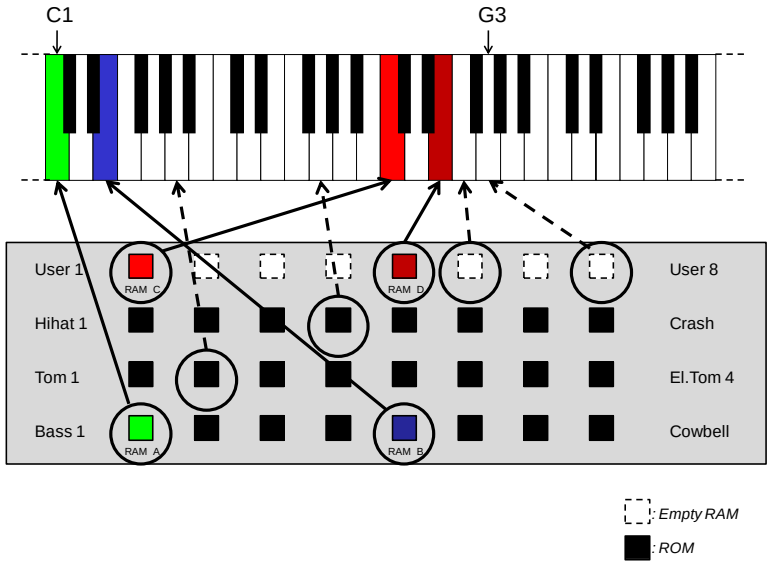
When selecting option 1, each sound is mapped to a target key as defined by the SP-12 MIDI specification (but taking into account the user-definable *start key*). The sound-to-key mapping table for this option can be found in *section "10.3.6.3 Define key/sample mapping for conversions from other format to SP-12"*. If the *start key* is not C1, you should add the difference between the start key and C1 to the key values in the first column of the table. E.g. if the *start key* is set to D1, Bass 1 will be mapped to D1, Cowbell to D#1, and so on. If the *start key* is lower than C1, the difference should be subtracted.

When selecting options 2 → 4, EMXP will assign the SP-12 sounds starting with sound Bass 1, followed by sound Bass 2, and so on.

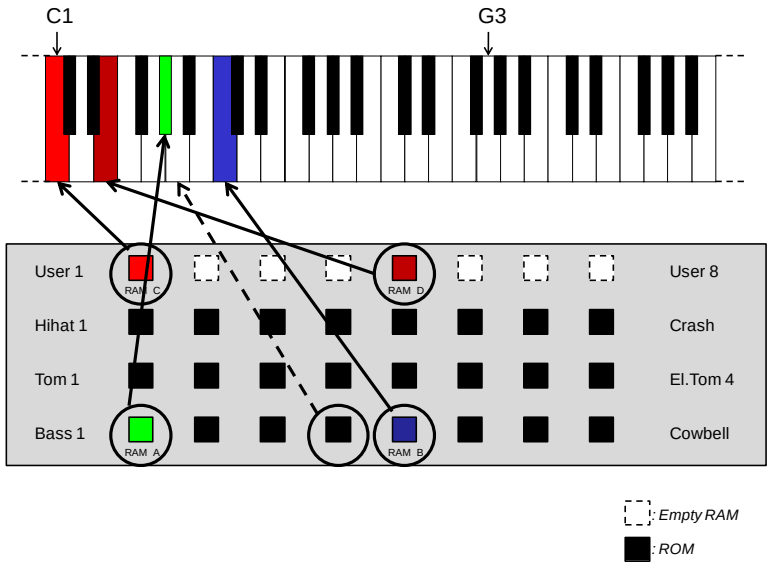
When selecting options 5 → 7, EMXP will assign the SP-12 sounds starting with sound User 1, followed by sounds User 2 → sound User 8. Then EMXP will continue with assigning sounds starting with Bass 1 and ending with Crash.

No matter if the mapping starts with sound Bass 1 or with sound User 1, there are three mapping modes available:

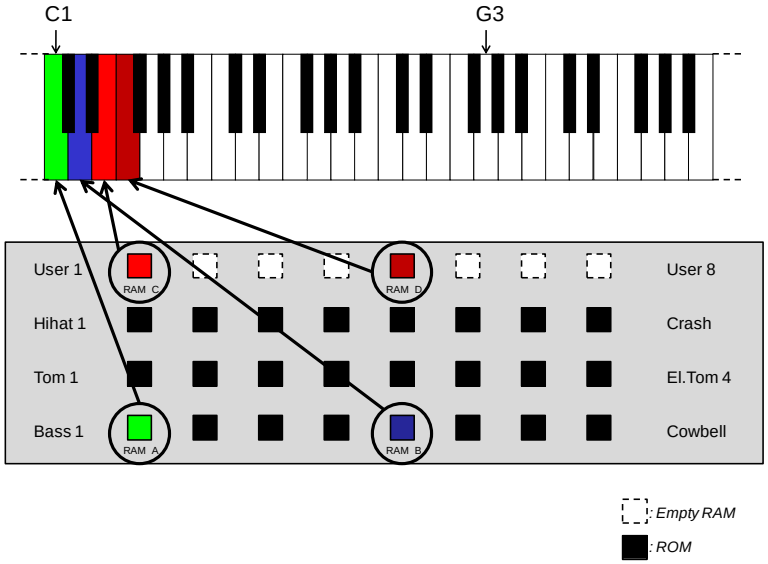
- Options 2 and 5: each of the 32 SP-12 sounds is assigned to a key. If the SP-12 sound contains a RAM sample, the sound parameters and the sample will actually be converted and assigned to that key. If the SP-12 sound is empty or contains a ROM sample, the target key will remain empty, as displayed in the pictures below.
  In the first picture Bass 1 is assumed to be the first sound to be mapped (option 2).



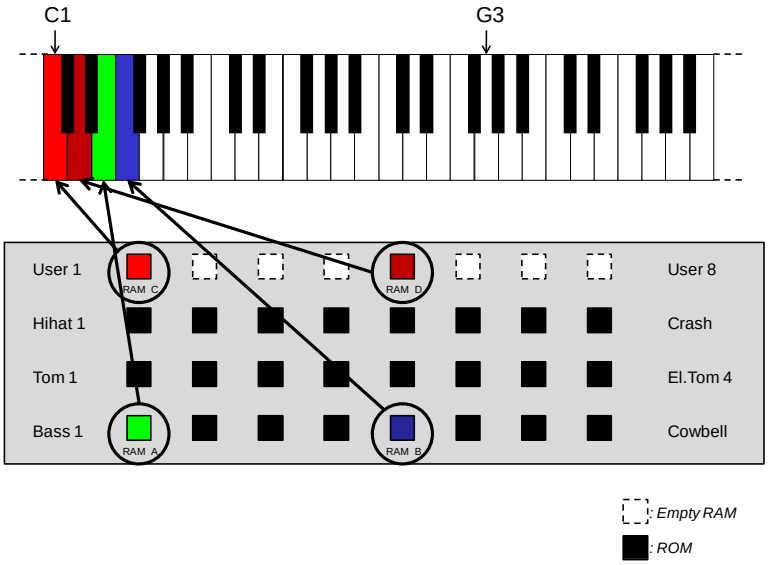
  In the second picture, the first sound that is being mapped is User 1 (option 5).



- Options 3 and 6: each successive *white* key gets a RAM sound assigned, until no more RAM sounds can be found. Black keys are not used and remain empty. Except for the white keys in front of the *start key* (here C1) and the remaining white keys at the end of the keyboard, no white keys will be empty. If all 32 SP-12 sounds are non-empty RAM sounds, 32 successive white keys will be assigned a sound. See pictures below
  In the first picture Bass 1 is assumed to be the first sound to be mapped (option 3).

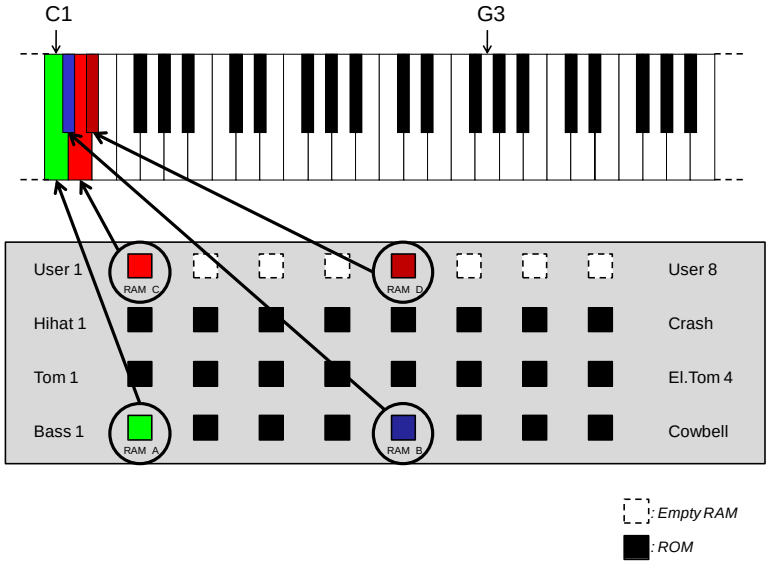


In the second picture, the mapping starts with sound User 1 (option 6).

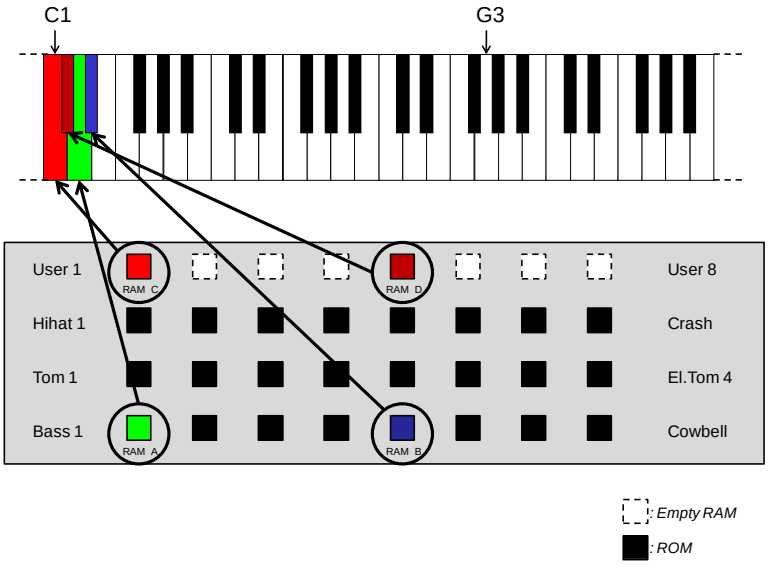


- Options 4 and 7: each successive key gets a RAM sound assigned, until no more RAM sounds can be found. Both white and black keys are used. Except for the keys in front of the *start key* (here C1) and the remaining keys at the end of the keyboard, no keys will be empty. If all 32 SP-12 sounds are non-empty RAM sounds, 32 successive keys will be assigned a sound. See pictures below.

  In the first picture Bass 1 is assumed to be the first sound to be mapped (option 4).



In the second picture, the first sound that is being mapped is User 1 (option 7).

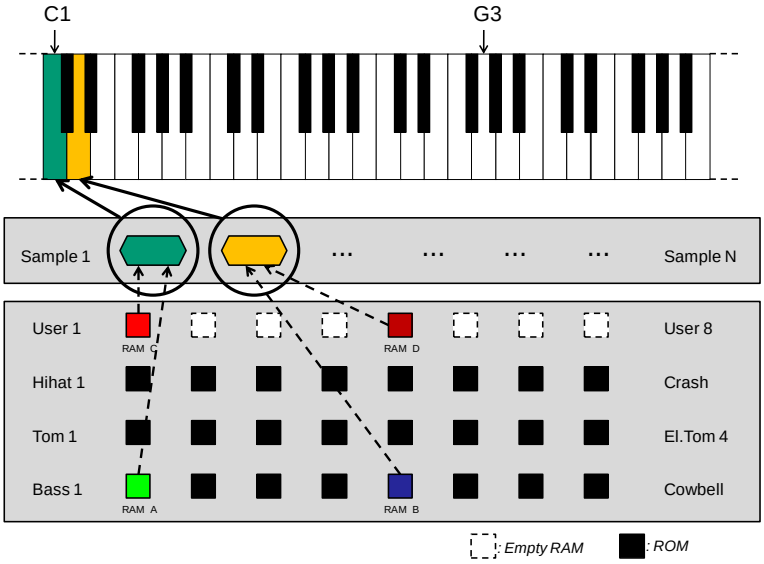


Note that if there are keys that get SP-12 sounds assigned which are out-of-range of the target sampler, the SP-12 sounds assigned to those keys will not be converted. This can typically occur if the *start key* has been set to a high value, e.g. C6.

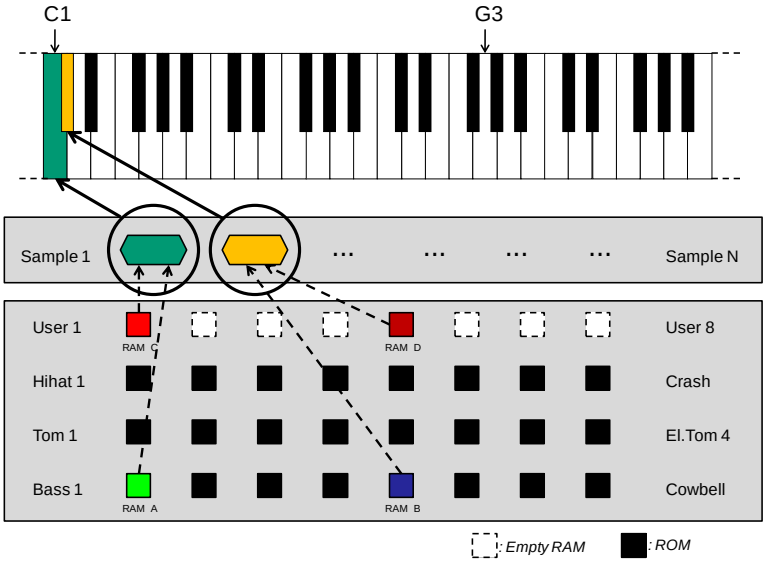
Converting samples

Besides mapping RAM sounds to target keys, it's also possible to map only the basic RAM samples. Multiple SP-12 sounds can share the same basic RAM sample. If that's true in the SP-12 sound bank, the sample will be converted only once (instead of once per sound). Note however that the *sound parameters* will not be converted, not even the sample loop settings. The target keys will get default voice and sample parameters instead.

- Option 8: each successive *white* key gets a RAM sample assigned, until no more RAM samples can be found. Black keys are not used and remain empty. Except for the white keys in front of the *start key* (here C1) and the remaining white keys at the end of the keyboard, no white keys will be empty. If all 32 SP-12 sounds are non-empty RAM sounds and hold different RAM samples, 32 successive white keys will be assigned a sample. See the picture below.



- Option 9: each successive key gets a RAM sample assigned, until no more RAM samples can be found. Both white and black keys are used. Except for the keys in front of the *start key* (here C1) and the remaining keys at the end of the keyboard, no keys will be empty. If all 32 SP-12 sounds are non-empty RAM sounds and hold different RAM samples, 32 successive keys will be assigned a sample. See the picture below.



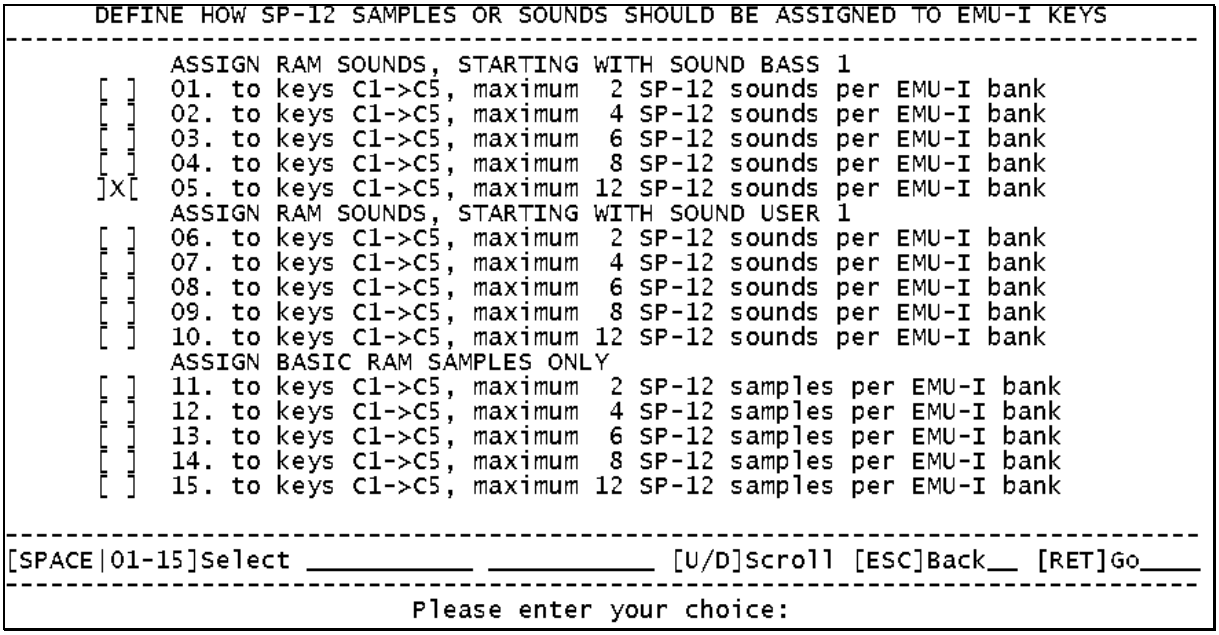
10.3.6.13 Define sample/key mapping for conversions from SP-12 to Emulator-I

The Emulator-I only supports a limited number of fixed key area sizes, resulting in a limited number of available key areas in which all keys share the same sample and the same sound parameters.
As a consequence it's not possible to convert each individual SP-12 RAM sound or RAM sample to an individual Emulator-I key. The SP-12 RAM sounds or samples will rather be assigned to a *key area* consisting of multiple keys at once.

Since the number of SP-12 sounds or samples can be higher than the number of available key areas in the Emulator-I sound bank (max. 12), EMXP is able to convert a single SP-12 sound bank into *multiple Emulator-I sound banks*, each containing a different subset of the SP-12's RAM sounds or samples.

As opposed to conversions to other sampler formats, it's not possible to specify the *start key (or start key area)* when converting to Emulator-I.

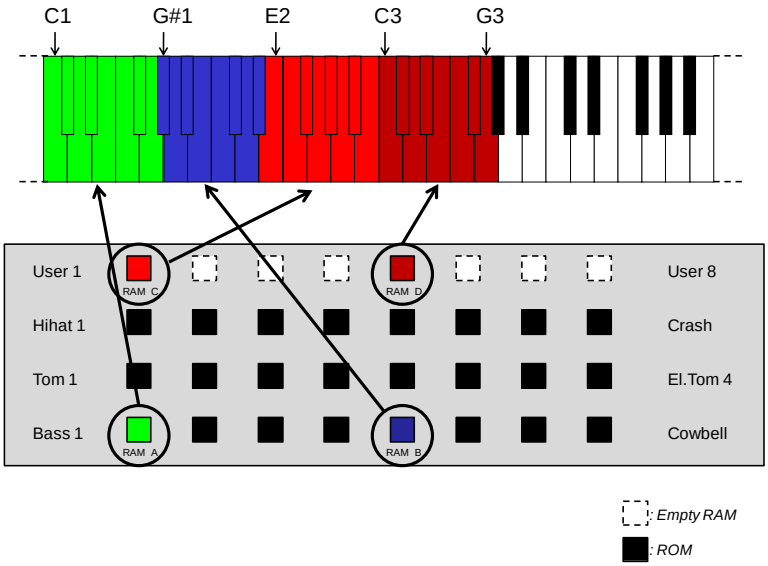
But similar to conversions to other sampler formats, it's possible to choose between assigning either *sounds* or *samples* to Emulator-I target key areas as well. Options 1 → 10 can be used for mapping sounds to key areas, while options 11 → 15 can be used for mapping samples to key areas.
Note that only RAM sounds or samples will be converted and assigned to the target key areas. ROM sounds/samples are always ignored and skipped during the conversion.



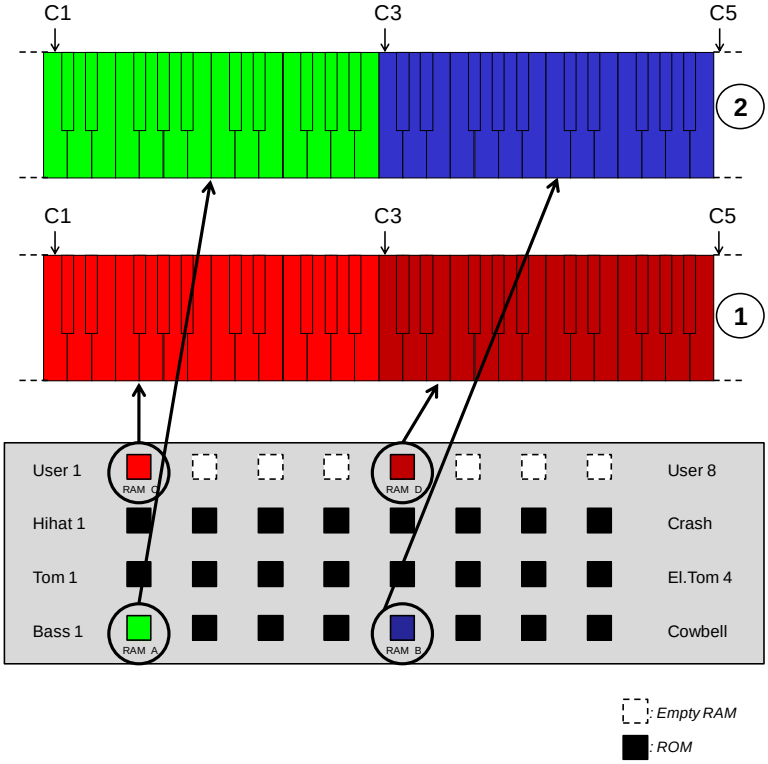
When selecting options 1 → 5, EMXP will assign the SP-12 sounds starting with sound Bass 1, followed by sound Bass 2, and so on.
When selecting options 6 → 10, EMXP will assign the SP-12 sounds starting with sound User 1, followed by sounds User 2 → sound User 8. Then EMXP will continue with assigning sounds starting with Bass 1 and ending with Crash.
When selecting options 11 → 15, EMXP will assign only the SP-12 basic RAM samples (in order of their SP-12 internal sequence number). As explained before, multiple SP-12 sounds can share the same basic RAM sample. If that's true in the SP-12 sound bank, and one of the options 11 → 15 is selected, each sample will be converted only once (instead of once per sound). Note that in this case the *sound parameters* will not be converted, not even the sample loop settings. The target key areas will get default sound and sample parameters instead

No matter if samples are being converted or sounds are being converted (either with the mapping starting with sound Bass 1 or with sound User 1), you have to specify how many key areas should be used on the Emulator-I keyboard.

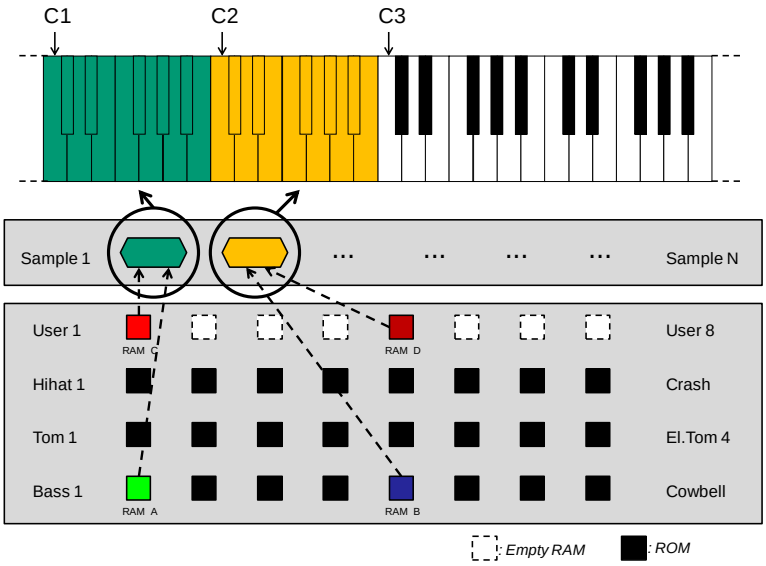
The first picture below illustrates the mapping of *sounds* (starting with Bass 1) to an Emulator-I bank consisting of 6 key areas (option 3).



The second picture below illustrates the mapping of *sounds* (starting with User 1) to Emulator-I banks consisting of 2 key areas (option 6). Since there are 4 sounds to be mapped while the Emulator-I bank can only hold two sounds, EMXP will generate 2 Emulator-I banks.



The last picture illustrates the mapping of *samples* to an Emulator-I bank consisting of 4 key areas (option 12).



Be aware that the SP-12 → Emulator-I conversion always assumes that a complete Emulator-I sound bank will be generated, consisting of both a lower and an upper sound. If you have specified to generate Emulator-I lower/upper image files, only the lower or upper part of the converted key areas will be kept in the final stage. This means that possibly not all SP-12 RAM sounds or samples will end up in the Emulator-I lower/upper images files.

10.3.6.14 Define start key for key mappings from SP-12 to non-Emulator-I

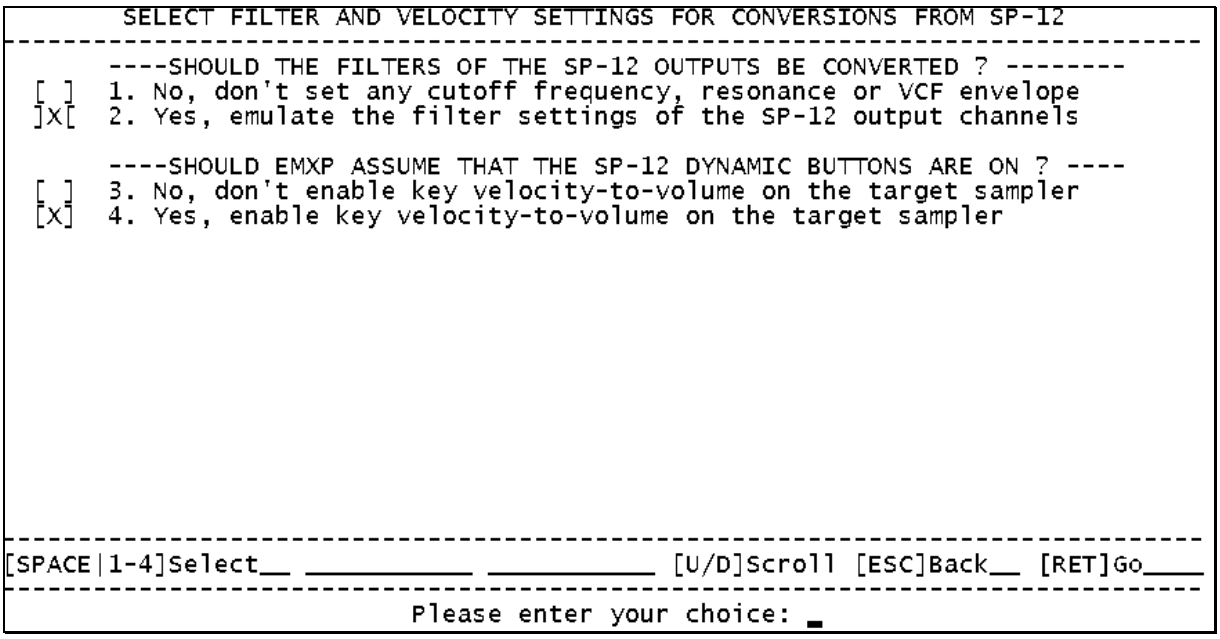
When converting SP-12 sounds or samples to sampler formats which are different from Emulator-I and SP-12, it's possible to define the *first key* on the keyboard that should be used for mapping sounds or samples to.
All keys lower than this *first key* will remain empty.

```
     SELECT THE FIRST SAMPLER KEY TO WHICH SP-12 SOUNDS OR SP-12 SAMPLES
         SHOULD BE CONVERTED   (NOT APPLICABLE FOR SP-12 AS TARGET)
-------------------------------------------------------------------------------
                          [ ]  01. A-1
                          [ ]  02. A#-1
                          [ ]  03. B-1
                          [ ]  04. C0
                          [ ]  05. C#0
                          [ ]  06. D0
                          [ ]  07. D#0
                          [ ]  08. E0
                          [ ]  09. F0
                          [ ]  10. F#0
                          [ ]  11. G0
                          [ ]  12. G#0
                          [ ]  13. A0
                          [ ]  14. A#0
                          [ ]  15. B0
                          ]X[  16. C1
                          [ ]  17. C#1
                          [ ]  18. D1
-------------------------------------------------------------------------------
[SPACE|01-18]Select _____________ _____________ [U/D]Scroll [ESC]Back__ [RET]Go____
-------------------------------------------------------------------------------
                          Please enter your choice:
```

The default value for the *start key* is C1.
If the *start key* is lower than the lowest supported key on the target sampler, EMXP will ignore/skip all keys between the *start key* and the lowest supported key.

E.g. if the start key is set to C0 while the lowest key on the Emulator-II is C1, and the source SP-12 bank contains only sounds on Bass 1 and Bass 2, no sounds will be converted to the Emulator-II if you requested to map Bass 1 to the keys starting with C0.

10.3.6.15 Define if SP-12 output filters and dynamic buttons should be converted.



Filter

The SP-12 has no configurable filter settings, although it contains filter ICs. The settings of these filters can not be changed. Four different filter setups have been pre-configured in the SP-12 hardware, and these are hardwired to the 8 output channels. See *section "10.3.6.7 Define output/filter assignment for conversions to SP-12"* for a detailed overview of these four filter setups. Some SP-12 units have been modified (after market) with switches which allow to enable or disable these hard wirings.

A consequence of this design decision by is that there are no filter parameters in the SP-12 sound bank memory. However EMXP can try to convert these hard wired filter settings to target sampler filter parameters by applying the settings belonging to the *output channel* to which each source SP-12 sound is routed.

When selecting option 1, EMXP will set the target voice's filter parameters to the values corresponding with the hard wired filter of the output channel of the converted SP-12 sounds. If SP-12 samples are being converted instead of SP-12 sounds, the settings corresponding to output channels 7 and 8 will always be applied.

When selecting option 2, EMXP will always set the target voice's filter parameters to the default (filter open) settings, which are the same as the settings corresponding to output channels 7 and 8.

Dynamics / Velocity

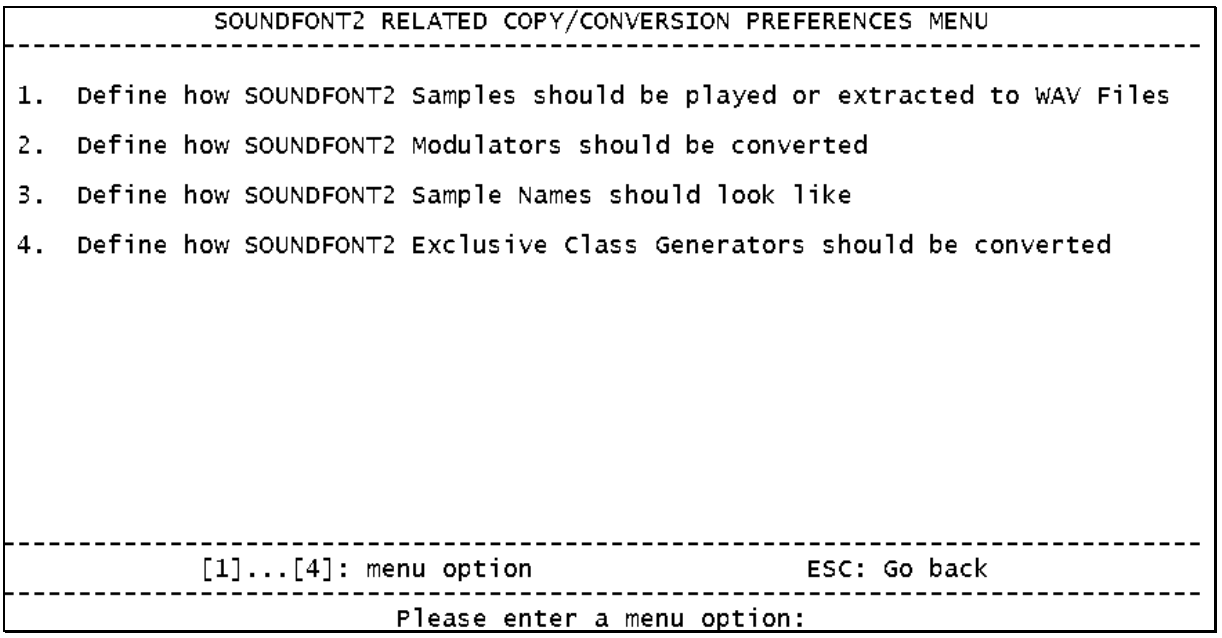
While the SP-12 has a *dynamics* function to enable or disable the volume velocity of the 8 pads, the value of this setting is not saved in the SP-12 sound bank memory.
As a consequence EMXP does not know whether the SP-12 sounds should be converted into voices with velocity (if applicable on the target sampler) or voices without velocity.

When selecting option 3, velocity will not be enabled for any of the converted sounds.
When selecting option 4, velocity will be enabled for all converted sounds, and will be set to a medium level.

10.3.7 Manage SoundFont2 related conversion preferences

In this section all conversion parameters related to the SoundFont2 sampler format can be managed. Four parameters are supported. These parameters can also be set during a conversion process, if you have chosen the MANUAL or SEMI-MANUAL mode.
Note that some additional conversion parameters can be defined in the Emu and SoundFont2 common conversion preferences. See *section "10.3.8 Manage Emu and Soundfont2 shared conversion preferences"*.

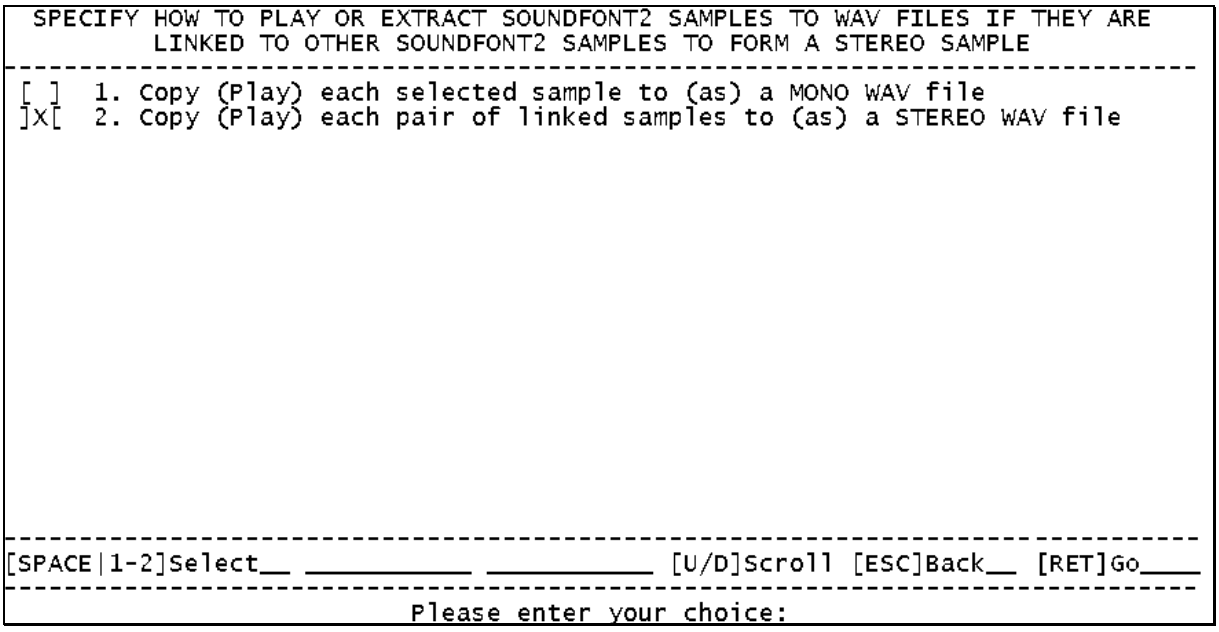
The following options are available:



10.3.7.1 Define how SoundFont2 samples should be played or extracted to WAV files

If you are converting samples from SoundFont2 sound banks to WAV files, or if you will play SoundFont2 samples in EMXP, you have the choice between:

- converting every pair of samples that have been *stereo linked* in the SoundFont2 bank to stereo WAV files (and play them as stereo samples in EMXP)
- or rather extracting each individual sample of a SoundFont2 stereo pair to a mono WAV file (and play them as mono samples in EMXP)



10.3.7.2 Define how SoundFont2 modulators should be converted

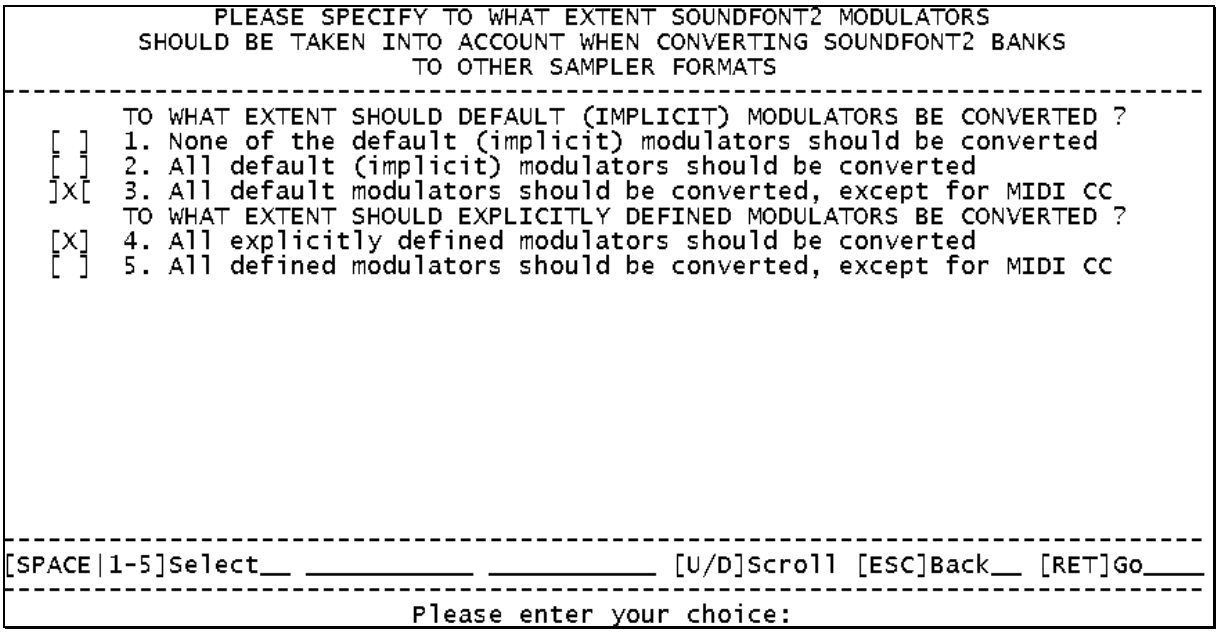
When converting SoundFont2 sound banks, some of the modulators in the sound banks can result in unexpected target sampler settings. This is especially true for some of the MIDI CC modulators that are automatically defined for each SoundFont2 bank.

One of the most common problems in this area is that voices on the Emulator-II can have a very low volume when the Emulator-II sound bank is the results of a conversion of a SoundFont2 sound bank.

The SF2 specification states that some MIDI CC controller assignments should be considered to be implicitly *enabled*. One of these implicit assignments is that MIDI Controller Command 7 (="Main volume coarse") controls the Initial Attenuation. The same is true for MIDI CC 11.
As a consequence, when EMXP is converting SoundFont2 banks into Emu sampler formats, this results in assigning CC #07 to MIDI B and in assigning real time controller 5 (MIDI B) to destination 3 (Level) for each Emu preset.

Normally this should not cause any problem, because as long as no MIDI CC#07 commands are actually sent to the sampler, these MIDI B-to-Level settings should be ignored by the sampler.
While this statement seems to be true for the EMAX-I, EMAX-II and Emulator-III/X, it seems not to be true for the Emulator-II. This is probably a bug in the Emulator-II operating system.

To avoid this kind of problems, EMXP offers the possibility to ignore MIDI CC modulators during conversions. It's even possible to simply ignore all default modulators. The following preferences are available:



The preference can be set differently for *default modulators* (the ones that are automatically generated) and for *defined modulators* (the ones that have explicitly been set by the sound designer/user in a SoundFont2 editor).

For default modulators, select

- *option 1* if all default modulators should be ignored during conversions
- *option 2* if all default modulators should be converted
- option 3 if all default modulators should be converted, except for the MIDI CC ones (the ones that typically cause problems, especially when converting to the Emulator-II format). This is the default setting.

For defined modulators, select

- *option 4* if all defined modulators should be converted. This is the default setting.
- *option 5* if all defined modulators should be converted, except for the MIDI CC ones.

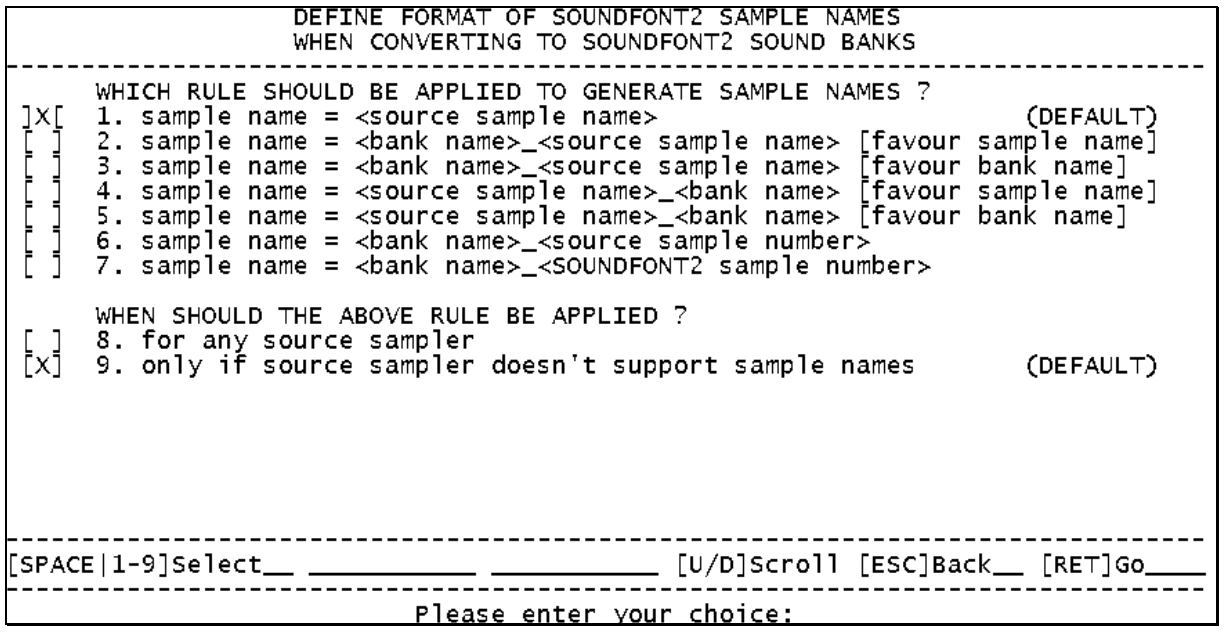
10.3.7.3 Define how SoundFont2 sample names should look like

When converting to SoundFont2 sound banks, it's possible to define how the target sample names should be formatted. By default EMXP simply uses the names of the samples in the source sound bank, but since many Emu samplers don't support sample names, this typically results in sample names like "SAMPLE 1", "SAMPLE 2", ...

Many EMXP users select the SoundFont2 format as an *intermediary format* between EMXP and other sample conversion software applications. E.g. for converting Emulator-II sound banks to the Roland S770 format, the Emulator-II sound banks can first be converted to SoundFont2 in EMXP. In a second step, another conversion application can be used to convert the SoundFont2 sound bank to the Roland S770 format.

EMXP allows for fine tuning the generated sample names by means of a sample naming rule, which will be used when converting to the SoundFont2 format. The reason why this is supported for SoundFont2 is because meaningful sample names may be very important when the generated SoundFont2 sound banks are in turn converted to some other sampler formats by another sample conversion application.

Please note that the sample naming rule will only be used in *conversions from other sampler formats.*
When generating SoundFont2 banks from EMXP construction files or from WAV files, the sample names will be based on the WAV file names.



Options 1→7 can be used to select the sample naming rule.

- Use *option 1* if the SoundFont2 sample names should be the same as the source sample names. This is the default rule.
- Use *option 2* if the SoundFont2 sample names shoudl be a concatenation of the bank name and the source sample name. If the total length exceeds the maximum SoundFont2 sample name length (*), the bank name part will be truncated
- Use *option 3* if the SoundFont2 sample names shoudl be a concatenation of the bank name and the source sample name. If the total length exceeds the maximum SoundFont2 sample name length (*), the sample name part will be truncated
- Use *option 4* if the SoundFont2 sample names shoudl be a concatenation of the source sample name and the bank name. If the total length exceeds the maximum SoundFont2 sample name length (*), the bank name part will be truncated
- Use *option 5* if the SoundFont2 sample names shoudl be a concatenation of the source sample name and the bank name. If the total length exceeds the maximum SoundFont2 sample name length (*), the sample name part will be truncated
- Use *option 6* if the SoundFont2 sample names should be a concatenation of the bank name and the sample number (ID) of the sample in the source sound bank. If the total length exceeds the maximum SoundFont2 sample name length (*), the bank name part will be truncated
- Use *option 7* if the SoundFont2 sample names should be a concatenation of the bank name and the sample number (ID) of the sample in the SoundFont2 sound bank. If the total length exceeds the maximum SoundFont2 sample name length (*), the bank name part will be truncated

(*) The maximum size of a SoundFont2 sample name is 20 characters, but if the sample is part of a stereo sample, a maximum of 16 characters will be used for starting the truncation. The last 4 characters are used to add the "-(L)" or "-(R)" suffix.

Options 8→9 can be used to specify when this sample naming rule should be applied. Some source sampler formats support sample names, so in these cases it may be more appropriate to simply use these (meaningful) source sample names.

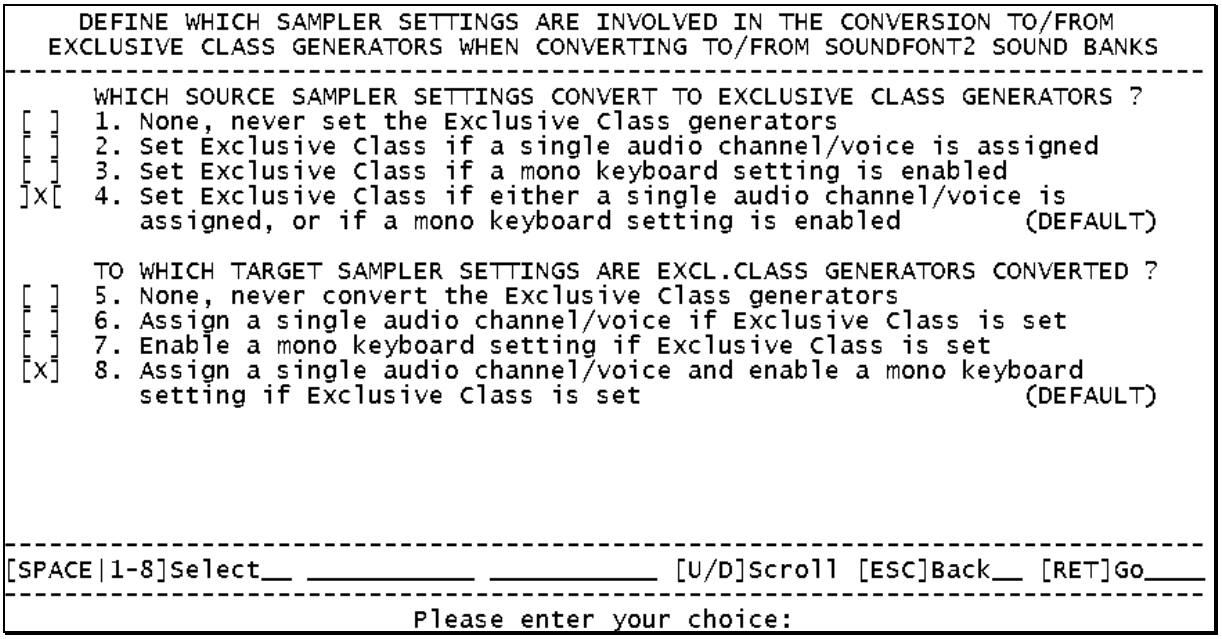
- Use *option8* if the naming rule should be used in conversion from any sampler format.
- Use *option 9* if the naming rule should only be used if the source sampler does not support sample names. This is true for the EMAX-I, EMAX-II, Emulator-I and Emulator-II. If the source sampler supports sample names, either natively or in EMXP (Emulator-III, Emulator-IIIX, SP-12), the default rule will be used (i.e. simply keeping the source sample names)

10.3.7.5 Define how SoundFont2 exclusive class generators should be converted

As opposed to many Emu sampler formats, the SoundFont2 sampler format does not support the concept of *assigning instrument zones to specific voice channels* within the sampler's polyphony boundaries.
As a consequence, the conversion preference related to voice channel conversions (see *section "10.3.8.3 Define how to convert polyphony/voice channel assignments"*) is almost irrelevant for conversions to/from SoundFont2.

The SoundFont2 sampler format however supports a specific type of generator called Exclusive Class: whenever a key is pressed in an instrument zone which shares the same exclusive class with other instrument zones, the voice channel of the previously pressed key in one of these zones is "stolen". In practice this results in a monophonic behaviour across these instrument zones.

The extent to which these Exclusive Class generators are used by EMXP in conversions to and from the SoundFont2 sampler format can be defined with the conversion preference below.



Options 1 → 4 can be used to control the conversion from other sampler formats to SoundFont2 Exclusive Class generators:

- *Option 1*: exclusive class generators are never generated; the voice channel assignments of the source sampler presets (even mono channel assignments) are ignored, full polyphony is assumed at all times.
- *Option 2*: each single (mono) voice channel that has been assigned in the source preset, will result in an exclusive class in the target SoundFont2 preset. Different voice channel numbers result in different exclusive class values. Mono/Solo voice parameter settings in the source sampler presets are ignored.
- *Option 3*: exclusive class generators are only generated for voices which have a mono (solo) parameter enabled. Each solo/mono voice results in a different exclusive class generator value. The voice channel assignments of the source sampler presets (even mono channel assignments) are ignored.
- *Option 4*: this option combines the behaviour of option 2 and option 3. This is the default setting.

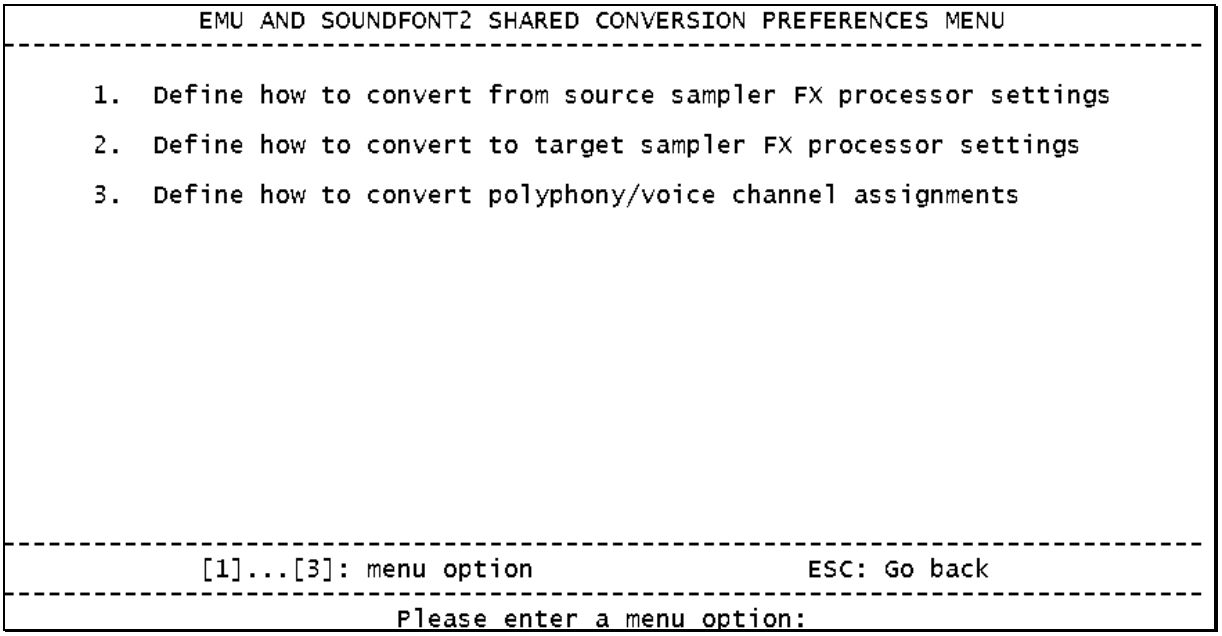
Options 5 → 8 can be used to control the conversion of SoundFont2 Exclusive Class generators to other sampler formats:

- *Option 1*: exclusive class generators are never converted; the monophonic behaviour of instruments with an exclusive class is ignored, full polyphony is assumed at all times
- *Option 2*: each exclusive class in the source preset results in a single/mono voice channel assignment in the target preset (if supported by the target sampler). An attempt is made to convert different exclusive classes to different voice channels, but this is of course limited by the polyphony of the target sampler. Exclusive classes are never converted into mono (solo) voice parameter settings.
- *Option 3*: instrument zones with an exclusive class generator result in voices with the mono (solo) parameter enabled (if supported by the target sampler). Exclusive classes are never converted into single/mono voice channel assignments
- *Option 4*: this option combines the behaviour of option 2 and option 3. This is the default setting.

10.3.8 Manage Emu and Soundfont2 shared conversion preferences

In this section some conversion parameters which are common to all Emu sampler formats and the Soundfont2 sampler format can be managed. Changing these parameters affects conversions between all Emu/Soundfont2 sampler formats. These parameters can also be set during a conversion process.

Following options are available:



10.3.8.1 Define how to convert from source sampler FX processor settings

If both the source sampler and the target sampler support effects (FX) processors, EMXP will simply convert the source sampler FX settings to target sampler FX settings. But EMXP will only do this if the source FX processor is defined on *preset level* or if *the source FX settings are similar for all voices/instruments in a source preset*.

If the target sampler

- does not support FX processors, or
- the parameter settings for the source FX processor differ between the voices/instruments of the same source preset *(*)*

EMXP can convert the FX processor parameters to *normal voice parameters*. Of course EMXP can only do this if the target sampler supports such voice parameters for emulating effects.
This conversion mode is controlled by the preference explained in this section.

The only two candidate FX types that are currently subject of this conversion mode are:

- Chorus
- Dynamic panning (LFO-to-pan)

Delay and Reverb FX types are not subject of this conversion preference because none of the target sampler formats in EMXP support voice parameters that can emulate these FX types.
This conversion mode is only applicable if the source sampler format *natively support FX processors*. These are:

- SoundFont2: only the Chorus FX generator is supported, not the Reverb FX generator.
- ESI-v3: multiple ESI FX types generate Chorus and/or Panning effects. These can easily be identified in the Effects A and Effects B overview that can be found in the ESI user manual. See also the ESI overview table in *section "7.7.7 Sound differences when converting between EMU sampler formats"*.

Moreover, the conversion mode is only applicable for target sampler formats which don't support Chorus FX or Panning FX processors but which support voice parameters for Chorus or LFO-to-panning settings. These are:

- EMAX-I
- EMAX-II
- Emulator-III

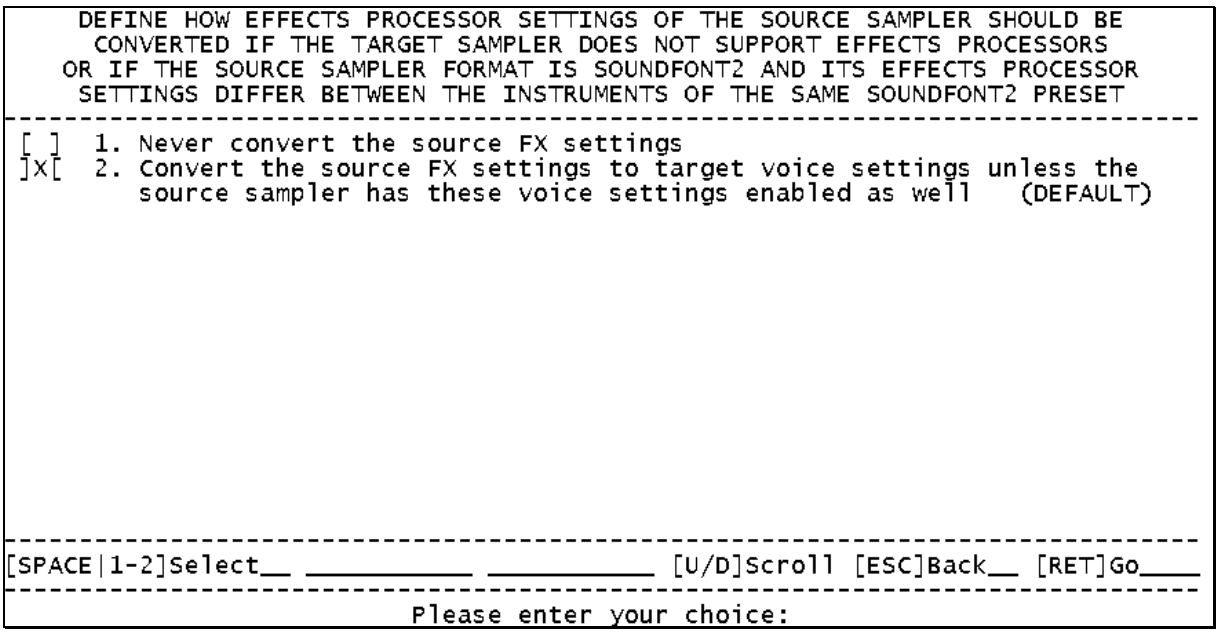
- Emulator-IIIX
- Emulator-II (but only for Chorus and only by means of adding a detuned second voice layer, see *section "10.3.4.1 Define chorus handling when converting to Emulator-II"*)

The SoundFont2 format does not support a Panning FX processor, but it doesn't support an LFO-to-pan generator neither, so the SoundFont2 target sampler format is not subject of this conversion mode.

(*) Different (chorus) effects settings within the same preset is only possible in SoundFont2 sound banks. EMXP considers the source SoundFont2 chorus effects settings to be *different* within a single preset if

- some instruments have the Chorus processor enabled while other instruments of the same preset have the Chorus processor diabled, or
- the deviation between the Chorus amounts of the different instruments within the same preset is higher than 20%

The *FX-to-voice emulation conversion* mode can be enabled or disabled in the preference screen below:



The following options are available:

- Choose *option 1* to disable the FX-to-voice emulation conversion mode.
- Choose *option 2* to enable the FX-to-voice emulation conversion mode. This is the default setting. The emulation will only be done if the voice parameters for Chorus and/or LFO-to-pan in the source bank are *not* set and if the Chorus and/or Panning FX processor of the voice's preset *is enabled.*

  E.g. if both the Chorus FX processor and the Chorus voice parameter are enabled in the source voice/preset, EMXP will simply convert the Chorus voice parameter and ignore the Chorus FX processor. Note that this can not occur in SoundFont2 banks since it only supports chorus by means of a SoundFont2 FX processor, and it doesn't support LFO-to-Panning at all.

10.3.8.2 Define how to convert to target sampler FX processor settings

When converting from a source sampler format which does not support effects (FX) processors or which supports voice parameters to "emulate" effects like Chorus to a target sampler format which only supports FX processors for these effects, EMXP offers a *voice-to-FX emulation conversion mode* which will try to activate an FX processor in the target voice's preset with settings that are derived from the source voice parameters value.

The only candidate FX type that is currently subject of this conversion mode is the Chorus effect.
Other FX types (dynamic panning, delay, reverb, ...) are not subject of this conversion mode because

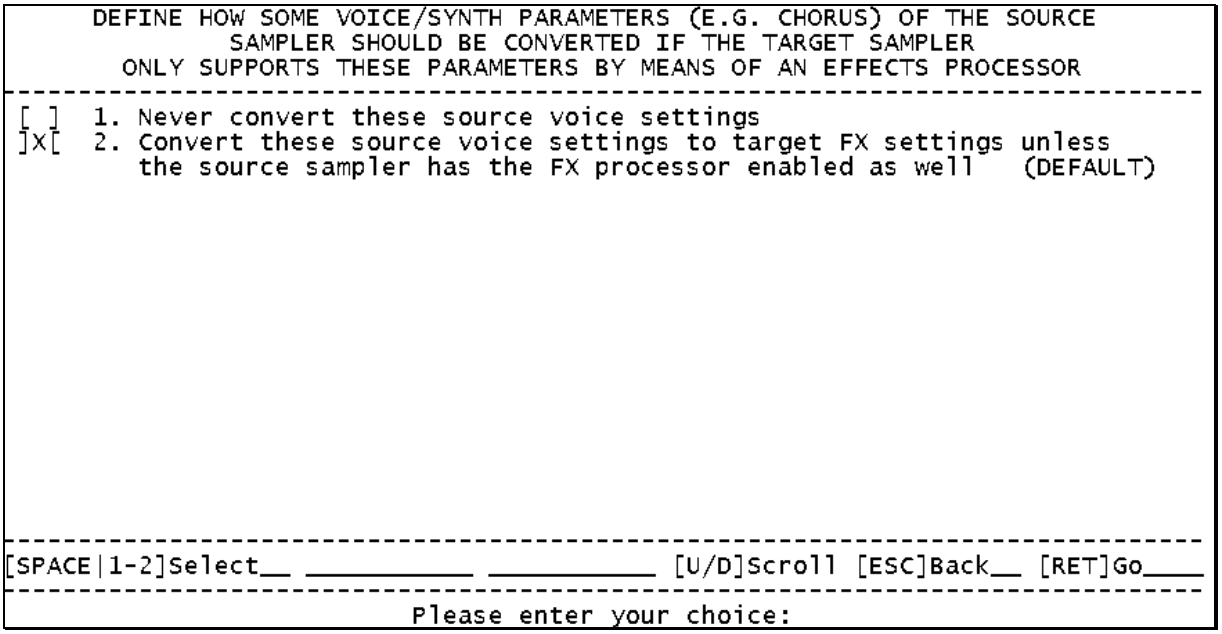
- either the target sampler formats in EMXP which support FX processors for these effects, support voice parameters for these effects as well (e.g. LFO-to-pan in ESI-v3 format)
- or none of the source sampler formats in EMXP support voice parameters for these effects (delay, reverb, ...)

In practice this conversion mode is currenly only applicable for SoundFont2 as a target sampler format.

Moreover, the conversion mode is only applicable for source sampler formats which support Chorus as a voice parameter. These are:

- EMAX-I
- EMAX-II
- Emulator-III
- Emulator-IIIX
- ESI-v3

The *voice-to-FX emulation conversion* mode can be defined in the preference screen below:



The following options are available:

- Choose *option 1* to disable the voice-to-FX emulation conversion mode.
- Choose *option 2* to enable the voice-to-FX emulation conversion mode. This is the default setting. The emulation will only be done if no Chorus effects processor is available or enabled in the preset of the source sampler voice. If the Chorus FX processor is enabled as well, EMXP will simply convert the Chorus FX processor settings.

10.3.8.3 Define how to convert polyphony/voice channel assignments

Many Emu samplers offer the possibility to assign key areas to *voice channels*, sometimes also referred to as *output channels* if the sampler has individual output jacks of which each jack belongs to a single voice channel. The number of voice channels corresponds to the polyphony of the sampler.

For each sampler supported by EMXP, the table below shows

- the number of available voice channels (mono)
- whether the voice channels can be individually assigned in key areas
- whether that can be done with free *ranges* (e.g. channel 1→5) or by means of predefined *groups* (e.g. groups A, B, C and D each having 16-voice polyphony)
- whether the samplers offer individual output channels for each voice channel
- whether the samplers offer submix outputs (either standard or as an option). Please note that the submix capabilities are in principle not related to voice channel assignment and are not subject of the preference parameter explained in this section. For the EMAX-II though, an exception can be made, for more information see *section "10.3.2.6 Define conversion settings for conversions to EMAX-II"*.
- the sampler format for which EMXP will assume these voice channel specifications when generating sound banks for this sampler

Sampler	#mono voice channels	assignable ?	by range or group ?	output channel per voice channel ?	#submix channels	sampler format
Emulator-I	8	NO	-	NO	0	Emulator-I
Emulator-II	8	YES	Range	YES	0	Emulator-II
EMAX-I	8	YES	Range	YES	0	EMAX-I
EMAX-II	16	NO	-	NO	3 x Stereo	EMAX-II
Emulator-III	16 (8 stereo)	YES	Range	YES	0	Emulator-III
Emulator-IIIX	32 (16 stereo)	YES	Range	NO	3 x Stereo	Emulator-IIIX
ESI-32	32	YES	Range	NO	1 or 3 Stereo*	Emulator-IIIX (ESI-v2)
	32	YES	Group	NO	1 or 3 Stereo*	ESI-v3 (***)
ESI-2000/4000	64	YES	Group	NO	1 or 3 Stereo*	ESI- v3 (***)
SP-12	8	YES	Range	YES	0	SP-12
SoundFont2	hardware specific, 128**	NO except for mono/solo	Range	NO	0	SoundFont2

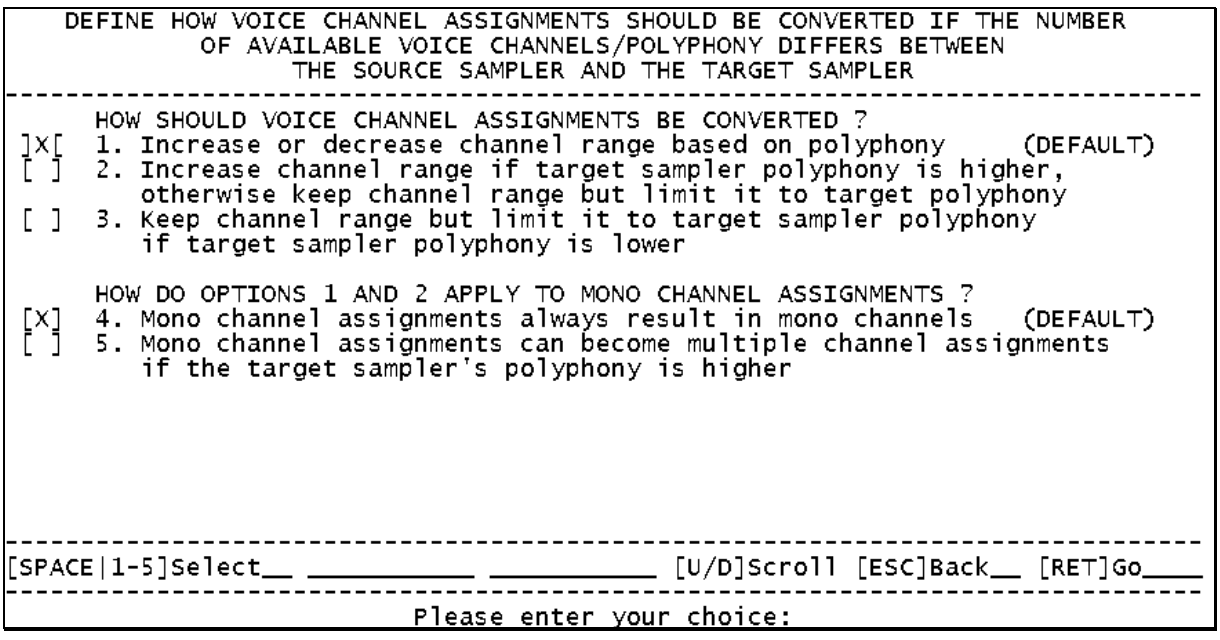
(*) EMXP can assume either 1 or 3 stereo submix channels, depending on whether the Turbo Upgrade is installed or not. By default EMXP assumes that turbo option is installed. See *section "10.3.5.6 Define conversion settings for conversions to ESI-v3"*.
(**) EMXP assumes 128 mono voice polyphony for SoundFont2 samplers, but this is only relevant when assigning key areas to mono channels by means of ExclusiveClass generators (actually in this case only 127 mono channels can be assigned)
(***) When processing/creating ESI-v3 sound banks, EMXP can assume either the hardware characteristics of the ESI-2000/4000 samplers (=default) or the hardware characteristics of the ESI-32 samplers. This assumption can be changed for both ESI-v3 as a source format and ESI-v3 as a target format. See *sections "10.3.5.7 Define conversion settings for conversions from ESI-v3" and "10.3.5.6 Define conversion settings for conversions to ESI-v3"*.

When converting sound banks containing presets with voice channel assignments, and the source sampler polyphony differs from the polyphony of the target sampler, EMXP must know how to deal with this difference.

Suppose an EMAX-I preset contains drum sounds which have been assigned to specific voice channels (bass drum to channel 1, snare to channel 2, and so on). The sound bank will be converted to the Emulator-III format. The EMAX-I is 8-voice polyphonic and offers channels 1→8. But the Emulator-III is 16-voice polyphonic and offers channels 1→16.
Should the drum sound in the Emulator-III still be assigned to channel 1 and the snare to channel 2 ? Or should the polyphony be "scaled up" thanks to the higher polyphony, resulting in the drum sound being assigned to channels 1 and 2, and the snare being assigned to channels 3 and 4 ?
For drum/percussion sounds, keeping the single voice channel assignment may be the preferred scenario, but for pads or strings, the additional polyphony may be welcome.

EMXP offers a few possibilities which can be selected in the preference screen below.
It should be noted though that the preferred scenario may be different for different sound banks or may be different for different presets (or even key arreas) of the same sound bank. Since this is very hard to implement in a generic conversion engine, you may have to correct the voice channel assignments on the target sampler. EMXP applies the same rules for *all* voice channel assignments when converting sound banks.

These rules can be defined in the screen below.



The following options are available for defining the basic rule:

- *option 1:* the voice channel ranges will be adapted according to the polyphony of the target sampler. This is the default setting. If the target sampler's polyphony is lower, the channel range will be scaled down. If the target sampler's polyphony is higher, the channel range will be scaled up (although an exception can be made for mono voice channel assignments, see option 4)
- *option 2:* the original channel ranges will be retained if the target sampler's polyphony is the same as or lower than the source sampler's polyphony, but will be limited (not scaled down though) if they don't fit within the target sampler's available channels. The voice channel ranges will be scaled up if the polyphony of the target sampler is higher (although an exception can be made for mono voice channel assignments, see option 4)
- *option 3*: the voice channel ranges will never be scaled up; they will be retained but will be limited (not scaled down though) if they don't fit within the target sampler's available channels.

If option 1 or 2 has been selected, an exception can be made for converting single (mono) voice channel assignments if the target sampler's polyphony is higher than the source sampler's polyphony:

- *option 4*: mono voice channel assignments remain mono channel assignments. The number of channels is never scaled up (remains mono), but the channel number itself will be scaled up if the target sampler's polyphony is higher than the source sampler's polyphony. This is the default setting. E.g. channel ranges 1→1 and 2→2 in an EMAX-I bank become channel ranges 1→1 and 3→3 in an Emulator-III bank (both ranges are still mono)
- *option 5*: no difference is made between mono and multiple voice channel assignments: the number of channels as well as the start channel number are always scaled up if the target sampler's polyphony is higher than the source sampler's polyphony

Scaling up/down of the channel range is done in a pretty straight-forward way in EMXP, in order to make the conversion results more or less predictable. This may be important for setups in which the voice channel assignments correspond to output channel assignments (to mixers or outboard effects processors):

- in case of channel ranges (e.g. channel 3→4 in EMAX-I), the start and end channel are multiplied by the polyphony ratio (=target polyphony divided by source polyphony) and the result is corrected/rounded in order to fit within the range of available channels in the target sampler (e.g. channel (e.g. converted to channel 5→8 in Emulator-III)
- in case of channel groups (e.g. 4-voice group A in ESI-v3), the group size is multiplied by the polyphony ratio (=target polyphony divided by source polyphony) and the result is corrected/rounded in order to fit within the available channel groups in the target sampler.
- when converting between sampler formats which use *channel ranges* and channel formats which use *channel groups*, EMXP will internally create "virtual" channel ranges for each channel group and perform a channel range-to-channel range conversion. The resulting channel range is then converted to a channel group; if there's no channel group with the exact same number of voices as the channel range, a *round* up is applied (e.g. channel range 1→6 becomes Poly8 in ESI-v3, not Poly4). Due to the conceptual difference between ranges and groups, the predictability of the conversion is less obvious (e.g. the Poly16A ESI-v3 group is not "fixed" to specific virtual start channel numbers and end channel numbers)
- In SoundFont2 sound banks, only a full polyphonic channel group and 127 different mono channel groups exist. The conversion to/from SoundFont2 mono channel groups (by means of ExclusiveClass generators) is driven by specific conversion preferences, see *section "10.3.7.5 Define how SoundFont2 exclusive class generators should be converted"*. EMXP does *not* perform an upscale of downscale of the number of voice channels when converting from/to zones with ExclusiveClass generators. E.g. when converting the EMAX-I channel assignment 1→1 (=mono) to the SoundFont2 format, the mono channel is preserved and results in an ExclusiveClass generator if the ExclusiveClass conversion preference is set to option 2 or 4 (*see section "10.3.7.5 Define how SoundFont2 exclusive class generators should be converted"*). So although the EMAX-I is 8 voice polyphonic and SoundFont2 is assumed to be 128 voice polyphonic, the assignment 1→1 is not internally scaled up to 1→16 before deriving whether an ExclusiveClass generator should be set or not.
- EMXP tries to use *different* target channel groups/ranges in case of *different* source channel groups/ranges with the same polyphony (e.g. SoundFont2 ExclusiveClass 1 and 2 are converted into Mono-A and Mono-B in ESI-v3 format or into Channel 1→1 and Channel 2→2 in EMAX-I)

In the following table, the three options are illustrated for a few conversion scenarios.
To not over-complicate the example, it is assumed in all scenarios that only one voice/key area has been explicitly assigned voice channels in the source sampler preset.

Options 4 and 5 are only relevant in case of single voice channel assignments - they are only taken into account in the last example in the table below.

Source sampler	Source channel assignment	Target sampler	Target channel (and submix) assignment in option 1	Target channel (and submix) assignment in option 2	Target channel (and submix) assignment in option 3
EMAX-I	2 → 3 (#ch=2)	EMAX-II (*)	SubA	SubA	SubA
		Emulator-II	2 → 3 (#ch=2)	2 → 3 (#ch=2)	2 → 3 (#ch=2)
		Emulator-IIIX	5 → 12 (#ch=8), Main	5 → 12 §#ch=8), Main	2 → 3 (#ch=2), Main
		ESI-v3 (****)	Poly16A (#ch=16), Main	Poly16A (#ch=16), Main	Poly2A (#ch=2), Main
		SoundFont2 (**)	none	None	None
EMAX-II	SubA (***)	EMAX-I	1 → 8 (#ch=8)	1 → 8 (#ch=8)	1 → 8 (#ch=8)
		Emulator-II	1 → 8 (#ch=8)	1 → 8 (#ch=8)	1 → 8 (#ch=8)
		Emulator-IIIX	1 → 32 (#ch=32), Sub1	1 → 32 (#ch=32), Sub1	1 → 32 (#ch=32), Sub1
		ESI-v3 (****)	Poly All (#ch=64), Sub1	Poly All (#ch=64), Sub1	Poly All (#ch=64), Sub1
		SoundFont2 (**)	None	None	None
Emulator-IIIX	19 → 24 (#ch=6), Main	EMAX-I	5 → 6 (#ch=2)	3 → 8 (#ch=6)	3 → 8 (#ch=6)
		EMAX-II (*)	SubB	Main	Main
		Emulator-II	5 → 6 (#ch=2)	3 → 8 (#ch=6)	3 → 8 (#ch=6)
		ESI-v3 (****)	Poly16A (#ch=16), Main	Poly16A (#ch=16), Main	Poly8A (#ch=8), Main
		SoundFont2 (**)	None	None	None
Emulator-II	2 → 2 (#ch=1)	*Option 4: mono channel assignments result in mono channel assignments*			
		EMAX-I	2 → 2 (#ch=1)	2 → 2 (#ch=1)	2 → 2 (#ch=1)
		EMAX-II (*)	SubA	SubA	SubA
		Emulator-IIIX	5 → 5 (#ch=1), Main	5 → 5 (#ch=1), Main	2 → 2 (#ch=1), Main
		ESI-v3 (****)	MonoA (#ch=1), Main	MonoA (#ch=1), Main	MonoA (#ch=1), Main
		SoundFont2 (**)	ExclClass 17 (#ch=1)	ExclClass 17 (#ch=1)	ExclClass 2 (#ch=1)
		Option 5: mono channel assignments can become multi-channel assignments			
		EMAX-I	2 → 2 (#ch=1)	2 → 2 (#ch=1)	2 → 2 (#ch=1)
		EMAX-II (*)	SubA	SubA	SubA
		Emulator-IIIX	5 → 8 (#ch=4), Main	5 → 8 (#ch=4), Main	2 → 2 (#ch=1), Main
		ESI-v3 (****)	Poly8A (#ch=8), Main	Poly8A (#ch=8), Main	MonoA (#ch=1), Main
		SoundFont2 (**)	ExclClass 17 (#ch=1)	ExclClass 17 (#ch=1)	ExclClass 2 (#ch=1)
ESI-v3 (****)	Poly8A (#ch=8)	EMAX-I	1 → 1 (#ch=1)	1 → 8 (#ch=8)	1 → 8 (#ch=8)
		EMAX-II (*)	SubA	Main	Main
		Emulator-II	1 → 1 (#ch=1)	1 → 8 (#ch=8)	1 → 8 (#ch=8)
		Emulator-IIIX	1 → 4 (#ch=4), Main	1 → 8 (#ch=8), Main	1 → 8 (#ch=8), Main
		SoundFont2 (**)	None	None	None

(*) assuming that EMAX-II submix channels should be treated as voice channels, see *section "10.3.2.6 Define conversion settings for conversions to EMAX-II"*

(**) assuming that the SoundFont2 Exclusive Class generator is set if a mono channel assignment has been defined in the source sampler, see *section "10.3.7.5 Define how SoundFont2 exclusive class generators should be converted"*. Please note that no upscaling is done in this case, so no matter what polyphony the source sampler has, if a single voice channel has been assigned, it will be retained and will result in an ExclusiveClass generator.

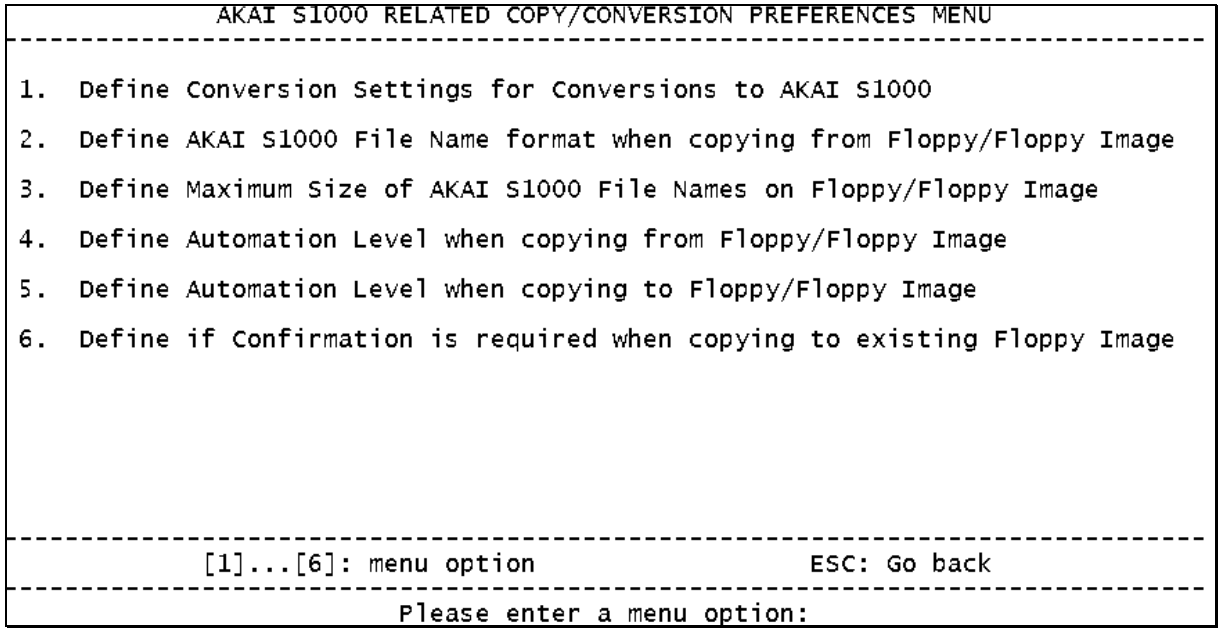
(***) EMAX-II submix channel assignments are never treated as voice channels if EMAX-II is *the source sampler format*; they can only be treated as voice channels if EMAX-II is the target sampler format

(****) The polyphony of ESI-2000/4000 samplers is assumed (64 voices), as well as the presence of the Turbo option (3 submix output channels)

10.3.9 Manage Akai S1000 related conversion preferences

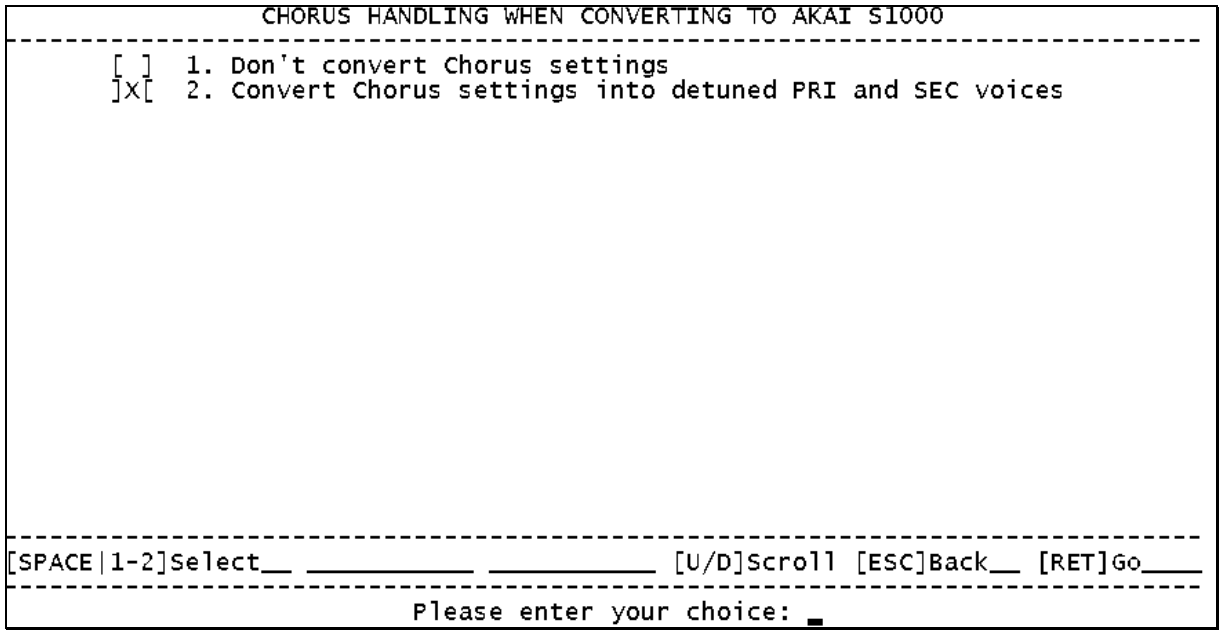
In this section all copy/conversion parameters related to the Akai S1000 sampler format can be managed. These parameters can also be set during a copy/conversion process.

Following options are available:



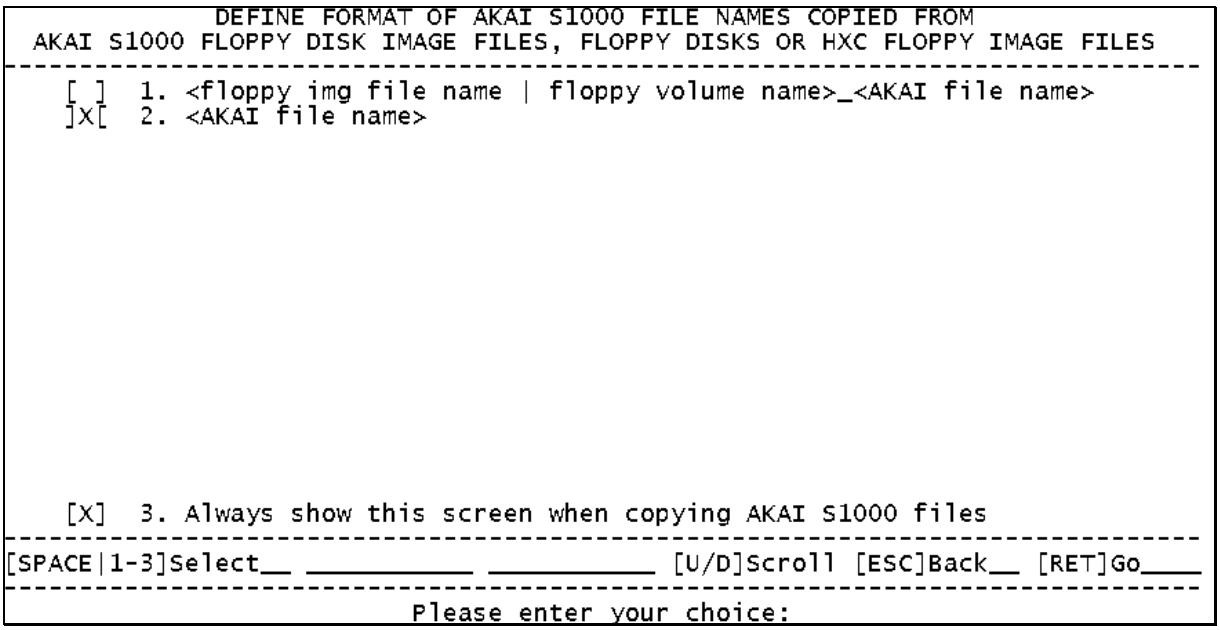
10.3.9.1 Define conversion settings for conversions to Akai S1000

The only parameter that can be defined for conversions to Akai S1000 is related to the CHORUS effect.
When converting a source bank which contains some voices which have the CHORUS setting enabled, EMXP can try to simulate the chorus effect on the Akai S1000 by adding some detuned samples in an additional sample layer. The advantage of this feature is that the target programs will sound more like the original ones; the drawback however is that the polyphony will decrease. For that reason you can choose yourself how EMXP should handle chorus settings:



10.3.9.2 Define Akai S1000 file name format when copying from floppy or floppy image file

When copying files from an Akai S1000 floppy disk, Akai S1000 floppy disk image file or Akai S1000 HxC floppy disk image file, you can specify how the target file names should be derived.



If the source is an Akai floppy disk, you can

- either choose to simply use the file's *original Akai file name* on the disk as the target file name
- or use the file's original Akai file name preceded by the *disk's volume name*

If the source is an Akai floppy disk image file or an Akai HxC floppy disk image file, you can

- either choose to simply use the file's *original Akai file name* on the disk image file as the target file name
- or use the file's original Akai file name preceded by the *floppy disk image file name*

By default, EMXP will always show this screen when you are copying files from Akai S1000 floppy disks or (HxC) floppy disk image files. If you will always use the same method for naming files, you can prevent EMXP from displaying this screen by disabling *option 3*.

10.3.9.3 Define maximum size of Akai S1000 file names on floppy or floppy image

Akai S1000 file names on Akai disks have a maximum length of 12 characters. For stereo samples - consisting of two Akai S1000 sample files (one for each channel) - the last 2 characters contain the "-L" and "-R" suffix while the first 10 characters should be identical. Program names, drum names and mono sample names can consist of the full 12 characters.

The S950 sampler can load Akai S1000 floppy disks and is supposed to support all Akai S1000 programs and samples on these disks. However, file names on the S950 are limited to 10 characters.
This causes problems when the file names of Akai S1000 files only differ from each other in position 11 and 12. E.g. if two Akai S1000 samples are named SLOW VIOLIN1 and SLOW VIOLIN2, and a program refers to these 2 samples in two different keygroups, the S950 will "think" both keygroups refer to the same sample named SLOW VIOLI.

In order to assure compatibility with the S950 sampler, EMXP can limit the size of the file names to 10 characters when generating samples and programs.
This limit is taken into account:

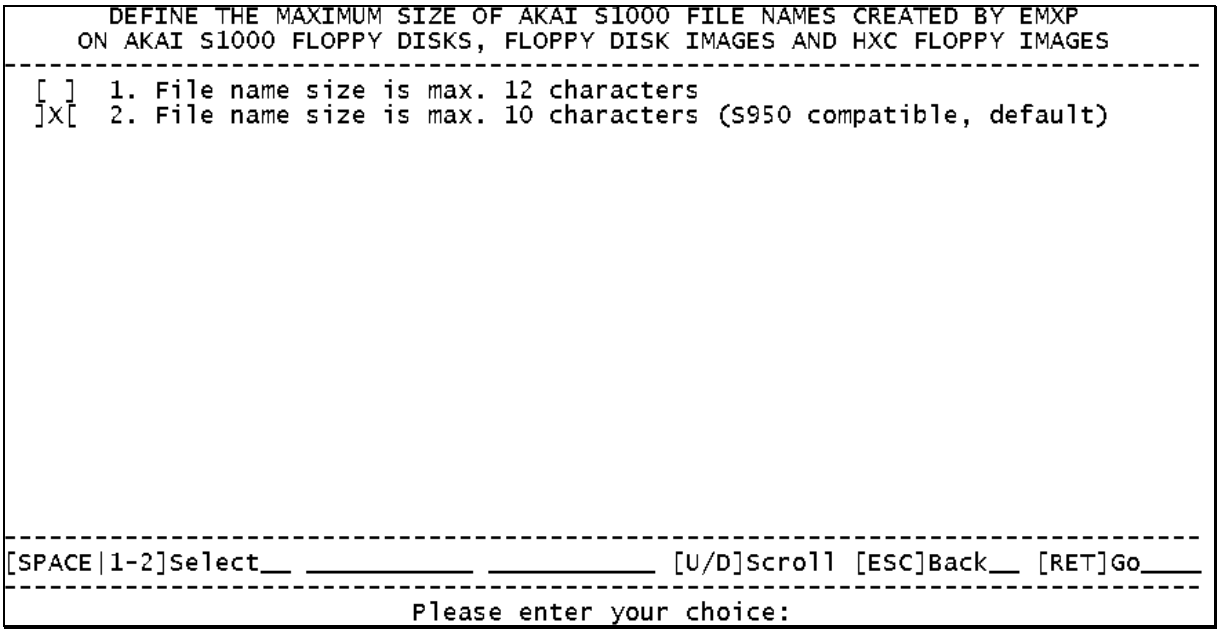
- when converting Emax-I or Emax-II banks to Akai S1000 samples and programs
- when converting WAV files to Akai S1000 samples

- when copying Akai S1000 files to Akai S1000 floppy disks, floppy disk image files or HxC floppy disk image files *unless the source file contains an Akai name of more than 10 characters and there's no file yet on the disk or disk image with a name of which the first 10 characters are identical to the first 10 characters of the source file's Akai name - in that case the 12 character name is preserved.*

The limit is not taken into account

- for *sample files belonging to an Akai S1000 stereo sample.* The sample names for the left and right channel always have 12 characters, ending in a "-L" or "-R" suffix. These samples will load without any problem on the S950, because the S950 is a mono sampler and only uses the left sample channel.
- when reading/copying existing Akai S1000 files from floppy disks, floppy disk image files or HxC floppy disk image files.
- for Akai S1000 operating system file names

The maximum Akai S1000 file name size can be defined in the screen below.



When choosing *option 1*, all Akai S1000 file names generated by EMXP can have a size of up to 12 characters, even mono samples.

When choosing *option 2*, the Akai S1000 file names for programs, drum files and mono samples generated by EMXP will have a size of up to only 10 characters in order to be accessible on the S950 sampler. This is the default setting.

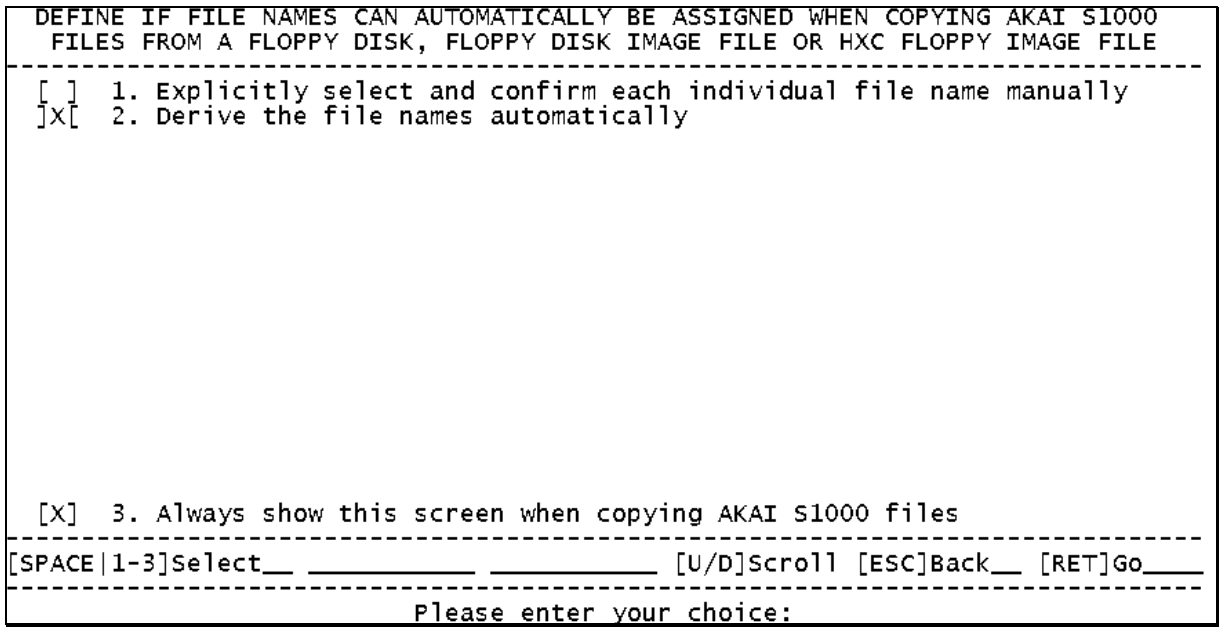
10.3.9.4 Define automation level when copying from floppy or floppy image

When copying files from an Akai S1000 floppy disk, floppy disk image file or HxC floppy disk image file, the target files will have a name based on the pattern defined in *section "10.3.9.2 Define Akai S1000 file name format when copying from floppy or floppy image file."*
You can choose whether EMXP should ask for confirmation of the file name for *every file which is being copied,* or whether EMXP can decide itself without any user intervention.

If you select *option 1*, you will have to confirm every file name. E.g. if you have selected 20 files to be copied to your PC, you will have to go through 20 confirmation screens. In this mode you will be able to overwrite (replace) existing files.

If you select *option 2*, EMXP will generate the target file names itself and make sure that the file names are unique (by adding a suffix) whenever there's a risk of overwriting an existing file.

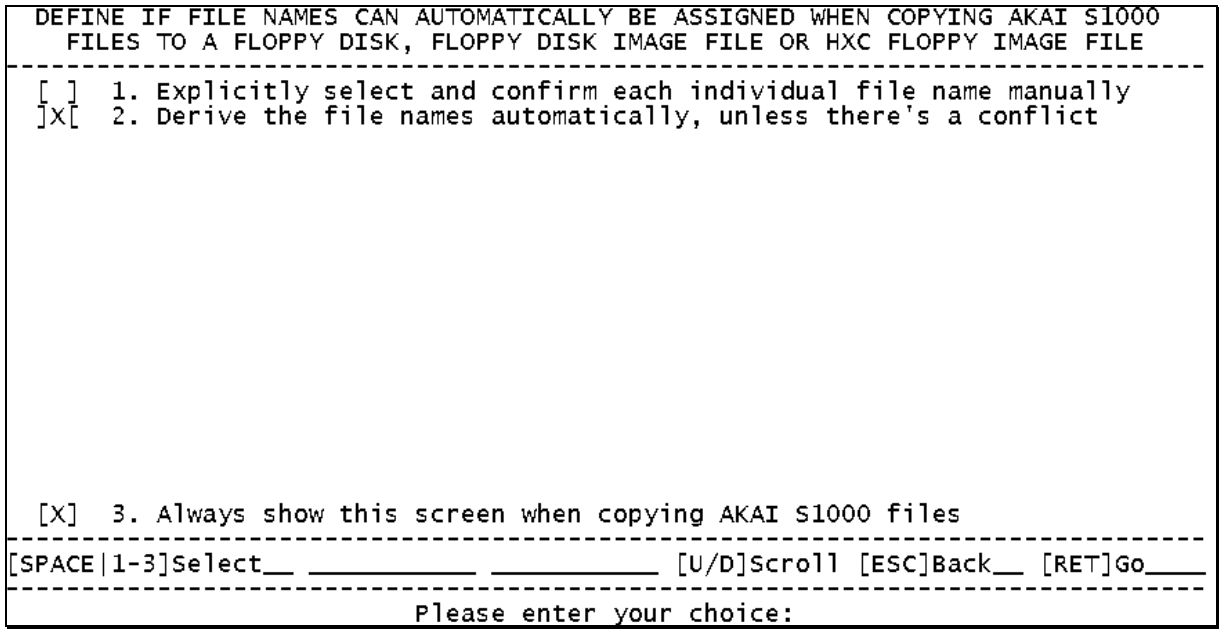
By default, EMXP will always show this screen when you are copying files from Akai S1000 floppy disks, floppy disk image files or HxC floppy disk image files. If you will always use the same level of automation, you can prevent EMXP from displaying this screen by disabling *option 3*.



10.3.9.5 Define automation level when copying to floppy or floppy image

When copying files to an Akai S1000 floppy disk, floppy disk image file or HxC floppy disk image file, the target files on the floppy disk or (HxC) floppy disk image will have the same name as the one defined *in* the Akai S1000 files being copied.
E.g. if the Akai S1000 sample name in sample file "BrassHornTrumpet.s" is "BRASS", EMXP will save the sample as BRASS on the floppy disk, floppy disk image or HxC floppy disk image.
However, the floppy disk or (HxC) floppy disk image may already contain a file with that name. If that's true, another name should be chosen. Take into account that if a program file is depending on a sample file which is being renamed, the program's reference to that sample should be changed as well. EMXP will *not do that*, since EMXP can't know which programs and samples belong together. Changing the sample name in a program file should be done on the Akai S1000 sampler.

You can choose whether EMXP should ask for confirmation of the Akai S1000 file name for *every file which is being copied*, or whether EMXP can decide itself as much as possible without any user intervention.



If you select *option 1*, you will have to confirm every file name. E.g. if you have selected 20 files to be copied to your PC, you will have to go through 20 confirmation screens.

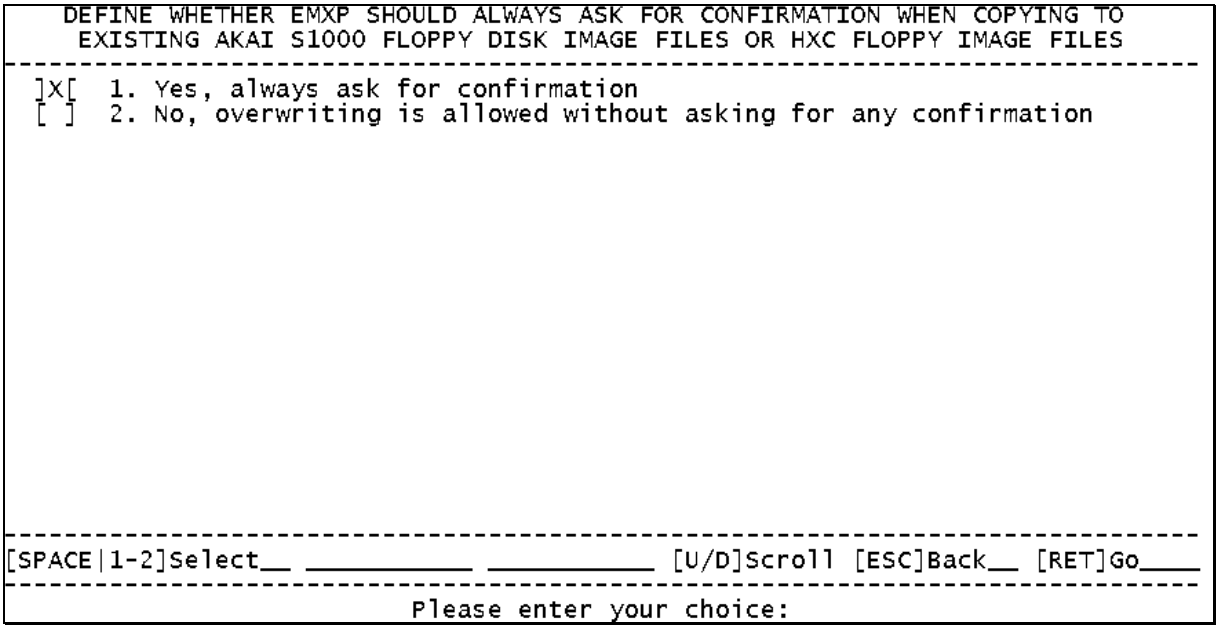
If you select *option 2*, EMXP will assign the file names by itself (based on the name included in the source file) without asking for any confirmation, *unless* the file name would already be in use on the target floppy disk, floppy disk image or HxC floppy disk image. In that case, you will still have to define an alternative name, but this user intervention is limited to the files with duplicate names only.

By default, EMXP will always show this screen when you are copying files to Akai S1000 floppy disks, floppy disk image files or HxC floppy disk image files. If you will always use the same level of automation, you can prevent EMXP from displaying this screen by disabling *option 3*.

10.3.9.6 Define if confirmation is required when copying to existing floppy image

An Akai S1000 floppy disk image file or HxC floppy disk image file can be an important backup file of one of your Akai S1000 floppy disks. In that case you probably want to avoid that its contents would be changed by accident, e.g. by copying samples or programs to it.
EMXP will always ask for confirmation whenever you intend *to remove files* from a floppy disk, a floppy disk image file or an HxC floppy disk image file.

By default EMXP will also always ask for confirmation whenever you intend *to copy files* to an existing Akai S1000 floppy disk image file or HxC floppy disk image file, but that behaviour can be changed in this preference screen.



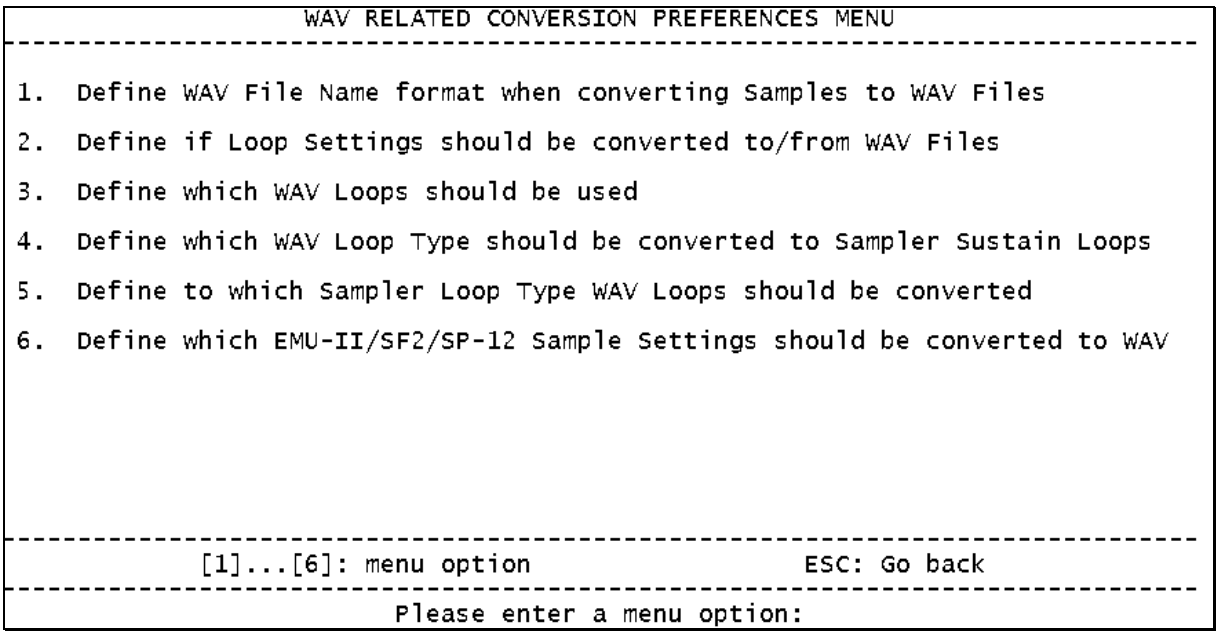
If you select *option 1*, you will always have to confirm that copying files to an existing Akai S1000 floppy disk image file or HxC floppy disk image file is allowed.

If you select *option 2*, EMXP will never ask for confirmation when copying files to an existing Akai S1000 floppy disk image file or HxC floppy disk image file.

10.3.10 Manage WAV related conversion preferences

In this section all copy/conversion parameters related to the WAV format can be managed. These parameters can also be set during a copy/conversion process, if you have chosen the MANUAL or SEMI-MANUAL mode.

Following options are available:



The preferences in menu options 3, 4 and 6 are also applicable when playing WAV-files in EMXP.

10.3.10.1 Define WAV file name format when converting samples to WAV files

When converting samples from any sampler sound bank to WAV files EMXP will by default assign a name to each generated WAV file based on

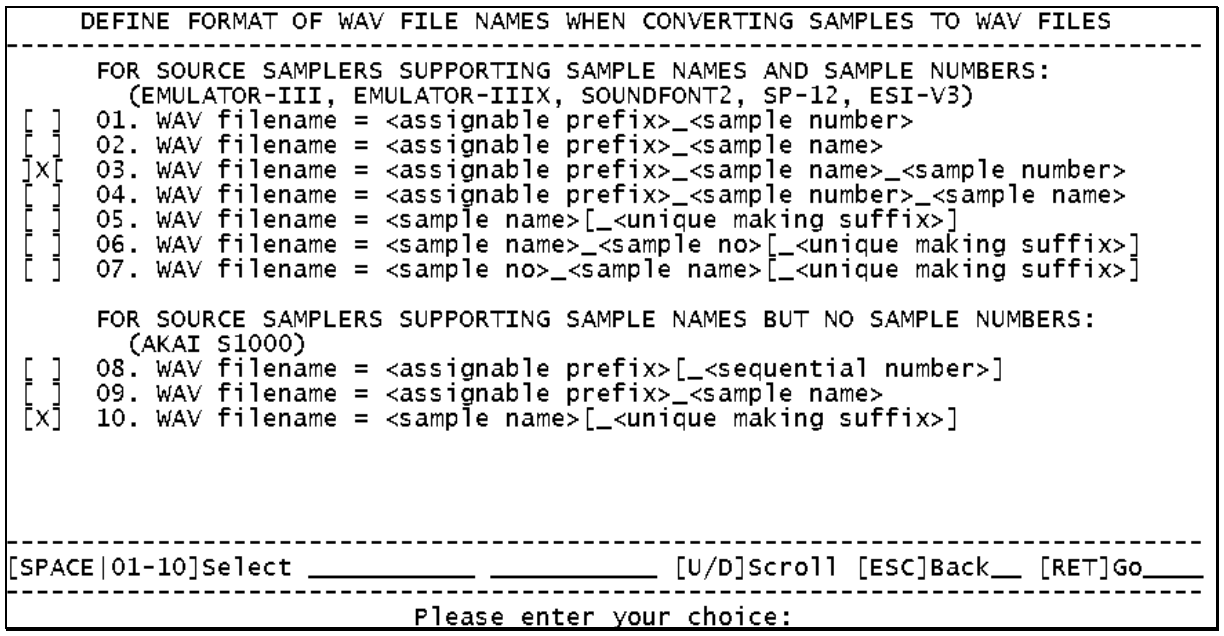
- the prefix that you have entered (or that has been automatically derived from the source item's name)
- a suffix consisting of the sample number

E.g. if the prefix is "Piano" and you have selected samples S03 and S04 to be converted to WAV files, the two WAV files will have following names: "Piano_S3.WAV" and "Piano_S4.WAV".

Samples in Emulator-III, Emulator-IIIX, ESI-v3, Akai S1000 and SoundFont2 format not only have *a sample number* but they also have a *sample name.*
For samples in SP-12 format, EMXP derives the sample name from the sound(s) to which the sample is assigned. From that perspective SP-12 samples have both a *sample number* and a *sample name* as well.

EMXP offers the possibility to customize the way the WAV file names should be generated for these sampler formats.

The picture below shows which possibilities are available:



Let's illustrate these possibilities with an example.

- Suppose that one of the Emulator-III/IIIX samples, ESI-v3 samples, SoundFont2 samples, Akai S1000 samples or SP-12 samples that will be converted to WAV files is called *"Piano C2"* and its sample number is *S03* in the Emulator III/IIIX, ESI-v3, SoundFont2 or SP-12 bank (or the sample is the third selected Akai S1000 sample file)
- Suppose also that you have entered following prefix for the WAV file names: *"GrandPiano"* (when in BATCH or automated target MANUAL mode, EMXP may have derived this prefix from the source item's name).
- Let's also assume that the folder in which the WAV file will be saved does not contain any WAV file yet or at least not any WAV file with a file name which would be identical to the one EMXP would derive for our "Piano" sample. If such file would already exist, EMXP will adapt either the prefix, or add an additional suffix to make sure the file is unique, unless you allow EMXP to replace the existing file.

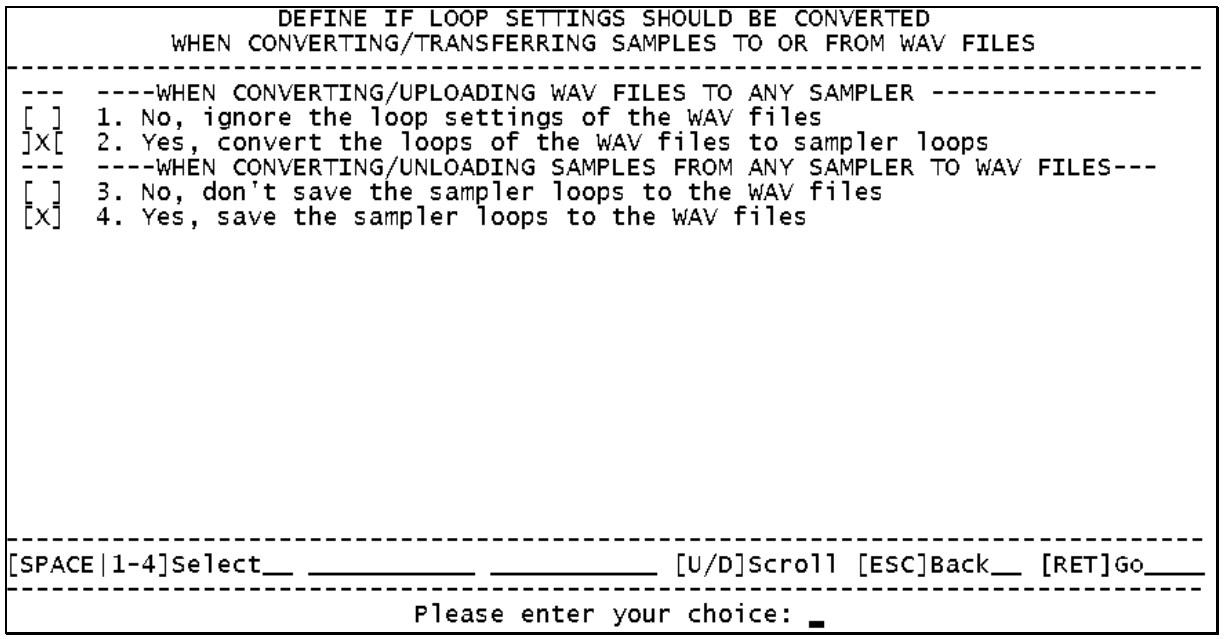
The generated WAV file name would look like this for each of the offered possibilities:

Option No	WAV file name
Emulator-III/X, ESI-v3, SF2, SP-12	
01	GrandPiano_S3
02	GrandPiano_Piano C2
03	GrandPiano_Piano C2_S3
04	GrandPiano_S3_Piano C2
05	Piano C2
06	Piano C2_S3
07	S3_Piano C2
Akai S1000	
08	GrandPiano_3
09	GrandPiano_Piano C2
10	Piano C2

10.3.10.2 Define if loop settings should be converted to/from WAV files

When converting samples from any sampler type to WAV files or when unloading samples from the EMAX-I, EMAX-II or Emulator-II, and if any of the selected samples have one or more loops enabled, EMXP can save these loops in the target WAV file.
Also, when converting WAV files to sampler sound banks, when generating construction files or when uploading WAV files to the EMAX-I, EMAX-II, Emulator-II or SP-12, and if any of the involved WAV files contain one or more loops, EMXP can convert these WAV loops to sampler loops.

Whether the above loop conversions should be performed or not can be defined in the screen below.



Notes:

- Only standard WAV-loops are supported:
    - loop type 00: normal forward loops
    - loop type 01: alternating loops (forward/backward)
    - loop type 02: backward loops

  Other loop types and so-called sampler-specific loop types (types 32 and higher) in a WAV file are not recognized nor generated by EMXP and will be ignored.
- When converting WAV files to sampler sound banks, only one loop per WAV file will be translated, except for conversions to Akai S1000 samples, to which a maximum of 8 loops will be translated. If the WAV files contain more than one loop, you can define which of these loops should be translated. See *sections "10.3.10.3 Define which WAV loops should be used"* and *"10.3.10.4 Define which WAV loop type should be converted to sampler sustain loops"*.
- When converting samples to WAV files, all loops defined on these samples will be translated to WAV loops. However most samplers support only one loop per sample. The Akai S1000 and the EMAX family are exceptions. If the "sustain" loop differs from the "in release" loop in a source EMAX-I or EMAX-II sample, and both loops are enabled, EMXP will convert both loops to the WAV file. However this will only be done if the "sustain" and "in release" loop ranges are not overlapping. If there's an overlap, only the "sustain" loop will be converted.
- These settings are not applicable when playing WAV-files in EMXP. In that case, EMXP will *always* take into account the loops that have been defined in the WAV-files.
- More details can be found in *sections "7.3.8 Conversion to WAV"* and *"7.3.9 Conversion from WAV"*.

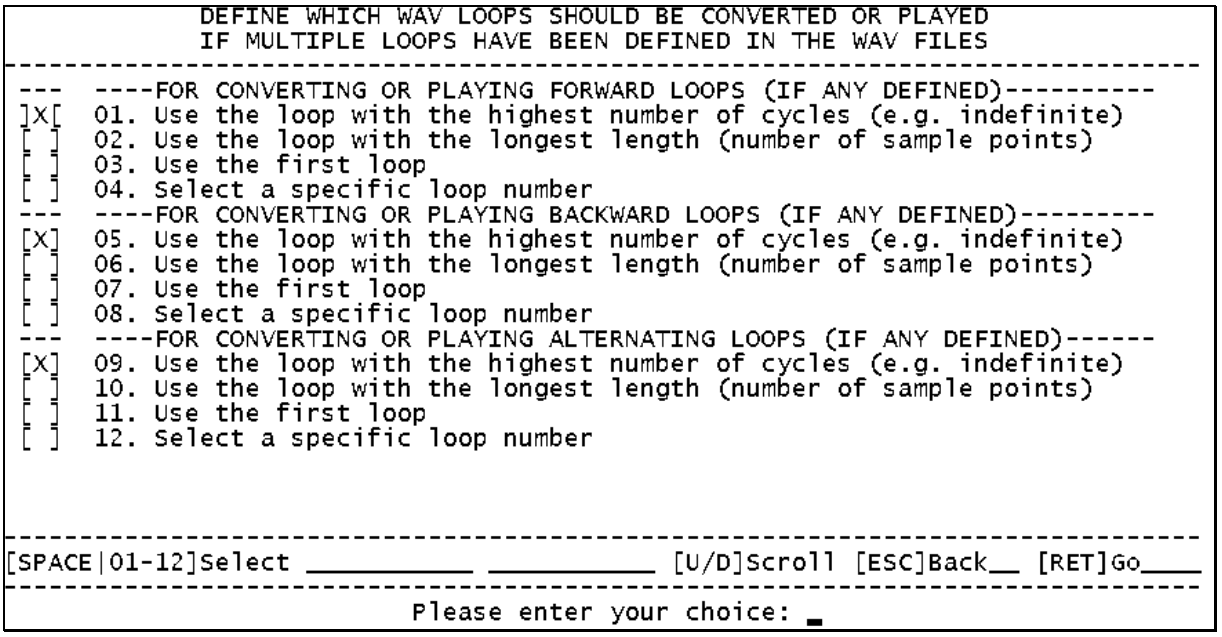
10.3.10.3 Define which WAV loops should be used

When converting WAV loops to sample loops (see *section "10.3.10.2 Define if loop settings should be converted to/from WAV files"*), if at least one of the selected WAV files contains *multiple loops* of the *same type* (e.g. 2 forward loops), EMXP should know which of these loops should be converted to a sample loop.
(In practice, WAV files almost never contain more than one loop. As a consequence, this preference will rarely be used by EMXP). The same is true if EMXP is playing WAV-files with multiple loops of the same type.

As explained in *section "10.3.10.2 Define if loop settings should be converted to/from WAV files"*, EMXP will convert

- *maximum 1 loop* per WAV file to a sample loop for all target sampler formats except Akai S1000
- *maximum 8 loops* per WAV file to sample loops for Akai S1000

If a WAV file contains more than one loop, EMXP should know which of the loop(s) should be converted to sampler loops. This selection can be done in the screen shown below.



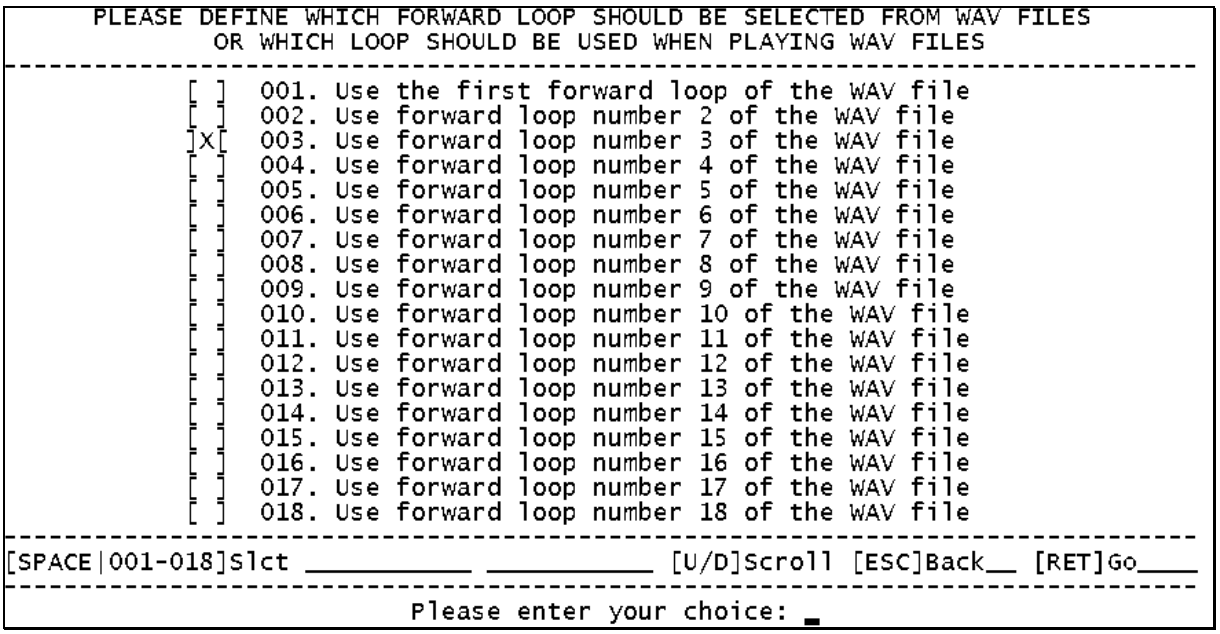
> Although the above screen assumes the selection of a singular loop ("Use the loop..." instead of "Use the loops...") , the loop selected in this screen will be interpreted as the *start of a range of loops* when converting WAV files to Akai S1000 samples (which support multiple loops).

The selection can be done for each of the three supported WAV loop types (forward, alternating, backward). If one or more of these loop types are not used by any of the selected WAV files, the selected options for these loop types will simply be ignored.

For each loop type, following options are available:

- *Options 1, 5, 9:* convert/play the loop with the longest duration, e.g. the one which is defined as being indefinite/endless.
  If multiple loops have the same duration, the one with the lowest loop start sample point will be used.
  When converting to Akai S1000 samples, multiple loops will be converted: the one with the longest duration, the one with the second longest duration, and so on (with a maximum of 8 loops).
- *Options 2, 6, 10:* convert/play the loop with the longest loop length, i.e. the one with the highest number of sample points between the loop start and the loop end.
  If multiple loops have the same length, the one with the lowest loop start sample point will be used.
  When converting to Akai S1000 samples, multiple loops will be converted: the one with the longest length, the one with the second longest length, and so on (with a maximum of 8 loops).

- *Options 4, 8, 12:* convert/play a specific loop, depending on the loop start sample point. One of the first 240 loops can be selected, as well as the last loop. If you select this option, a second screen will be displayed, in which you can select which loop you would like to be converted. See screens shown below.
  When converting to Akai S1000 samples, up to 8 loops will be converted, starting chronologically with the loop you have selected in this option. E.g. if you select forward loop 3, and 7 forward loops are defined in the WAV file, loops 3 → 7 will be converted.
- *Options 3, 7, 11:* this option is automatically selected immediately after you have chosen a specific loop in option 4, 8 or 12. It indicates which loop number you have chosen in option 4, 8 or 12.



When converting WAV file to Akai S1000 samples, the options mentioned in the above screen should be read as follows: "Use forward loops starting at loop number X of the WAV file".

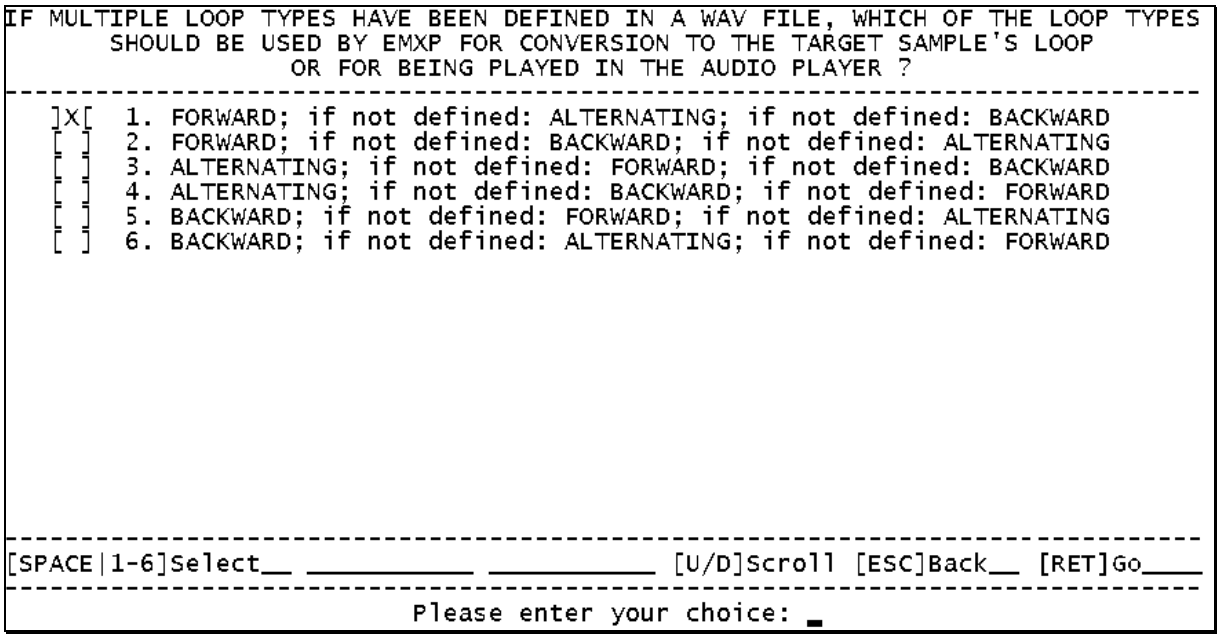
10.3.10.4 Define which WAV loop type should be converted to sampler sustain loops

When converting WAV loops to sample loops (see *section "10.3.10.2 Define if loop settings should be converted to/from WAV files"*), if at least one of the selected WAV files contains loops of *different types*, EMXP should know from which loop type the WAV loop should be converted to a sample loop. The same is true if EMXP is playing WAV-files with loops of different types.
(In practice, WAV files almost never contain more than one loop. As a consequence, this preference will rarely be used by EMXP)

As explained in *section "10.3.10.2 Define if loop settings should be converted to/from WAV files"*, EMXP will convert

- *maximum 1 loop* per WAV file to a sample loop for all target sampler formats except Akai S1000
- *maximum 8 loops* per WAV file to sample loops for Akai S1000

If a WAV file contains more than one loop type, EMXP should know which of the loop types should be used for playing WAV loops or for converting WAV loops to sampler loops. This selection can be done in the screen shown below.



Following options are available:

- *Option 1:* use the forward loop of the WAV file if a forward loop is available. If not, use the alternating loop if an alternating loop is available. If not, use the backward loop if a backward loop is available.
- *Option 2:* use the forward loop of the WAV file if a forward loop is available. If not, use the backward loop if a backward loop is available. If not, use the alternating loop if an alternating loop is available.
- *Option 3:* use the alternating loop of the WAV file if an alternating loop is available. If not, use the forward loop if a forward loop is available. If not, use the backward loop if a backward loop is available.
- *Option 4:* use the alternating loop of the WAV file if an alternating loop is available. If not, use the backward loop if a backward loop is available. If not, use the alternating loop if an alternating loop is available.
- *Option 5:* use the backward loop of the WAV file if a backward loop is available. If not, use the forward loop if a forward loop is available. If not, use the alternating loop if an alternating loop is available.
- *Option 6:* use the backward loop of the WAV file if a backward loop is available. If not, use the alternating loop if an alternating loop is available. If not, use the forward loop if a forward loop is available.

EMXP will use the *first detected* loop type according to the search order defined by the selected option above.
If a WAV file contains more than one loop of *the same loop type* (e.g. 2 forward loops), you can define which of the loops within that loop type should be used: see *section "10.3.10.3 Define which WAV loops should be used"*.

When converting to Akai S1000 samples, EMXP will continue looking for loops according to the selected search order, until the maximum amount of 8 loops have been converted or until no more loops are available in the WAV file.
If a WAV file contains multiple loops with an indefinite (endless) duration, multiple "HOLD" loops will be created in the Akai S1000 sample file. When playing this sample on an Akai S1000 sampler, only the first of these "HOLD" loops will actually play as a continuous loop !

Example:
Suppose one of the WAV files contains both a *forward loop* and an *alternating loop,* another WAV file contains a *forward loop* and a *backward loop,* some WAV files have only a *forward loop* defined and the remaining WAV files have *no loops* defined.
Suppose also that we are converting the WAV files to a non-Akai S1000 sampler format.

- If option 3 is selected:
  - The *alternating* loop of the first WAV file is converted
  - The *forward* loop of the second WAV file is converted

    - The *forward* loops of all other loop-enabled WAV files are converted
- If option 6 is selected:
    - The *alternating* loop of the first WAV file is converted
    - The *backward* loop of the second WAV file is converted
    - The *forward* loops of all other loop-enabled WAV files are converted
- If option 1 is selected, the *forward* loops of all loop-enabled WAV files are converted

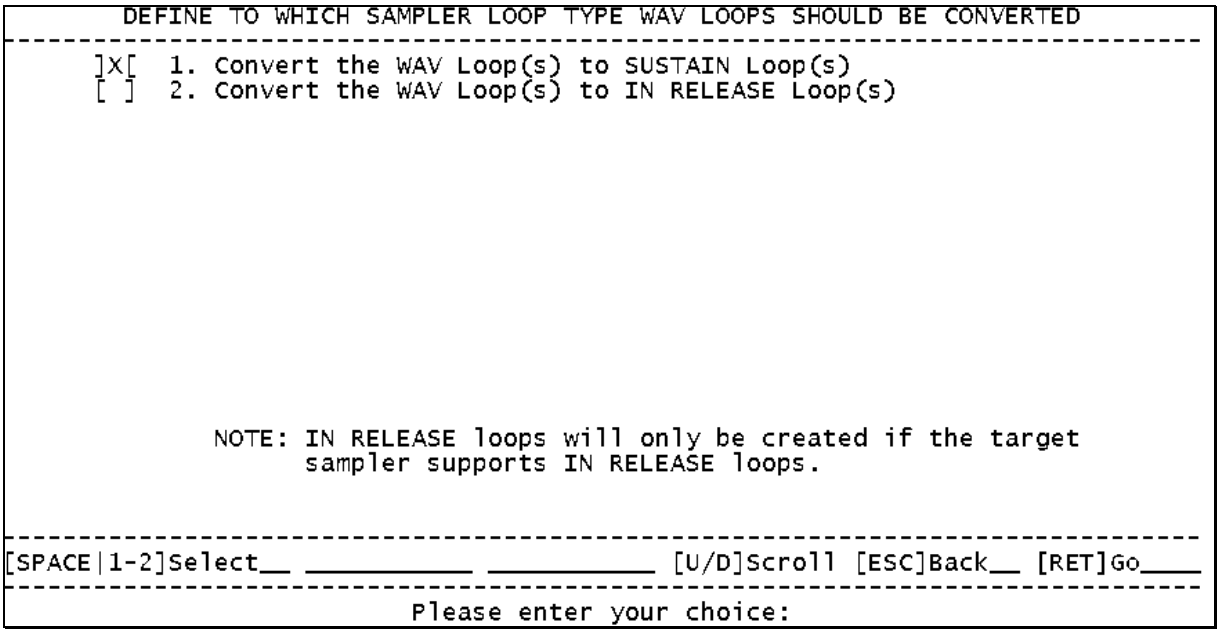
If we are converting the WAV files to the Akai S1000 sampler format, *all* loops of *all loop-enabled* WAV files will be converted. The option selected in the above screen defines which loop will become Akai loop number 1, which one will become Akai loop number 2, and so on.

10.3.10.5 Define to which sampler loop type WAV loops should be converted

When converting WAV loops to sample loops (see *section "10.3.10.2 Define if loop settings should be converted to/from WAV files"*), you should define to which loop type the WAV loops should be converted: the *sustain* loop type or the *in release* loop type.

This preference is only applicable to target samplers which support both *sustain* and *in release* loops. The Emulator-I and SP-12 do not support *in release* loops - they only support *sustain loops.*

The selection can be done in the screen shown below.



The terms *sustain loop* and *in release loop* are typically used in EMU samplers.
On Akai S1000 samplers, they should be interpreted as follows:

- Sustain means *until release* on Akai S1000 samplers
- In release means *in release* on Akai S1000 samplers

In SoundFont2 files, they should be interpreted as follows:

- Sustain means *sustain* in SoundFont2 files

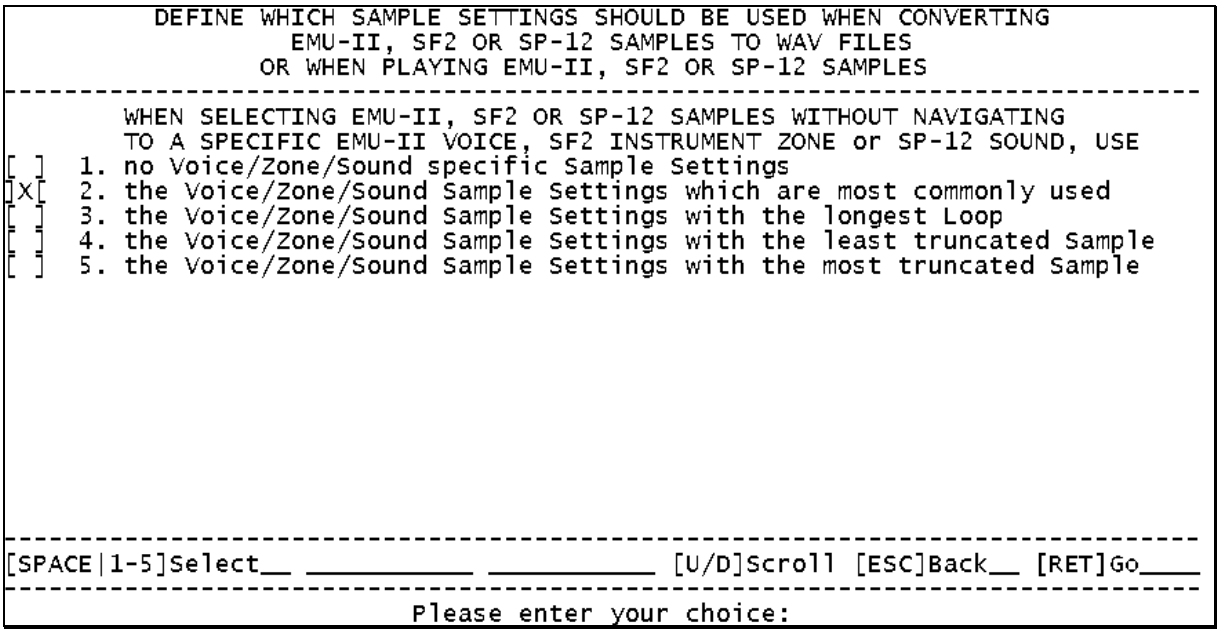
In release means *continuous* in SoundFont2 files

10.3.10.6 Define which EMU-II/SF2/SP-12 sample settings should be converted to WAV

In **Emulator-II** sound banks, the same sample can be used in (shared by) multiple voices. Sample parameters like *sample start and sample length (truncation), loop start and loop length,* and *loop type (forward or forward/backward; sustain or in release)* can have different values for the same sample, depending on the voice on which they have been defined.
The same is true for **SoundFont2** sound banks, in which the same sample can be shared by different instruments/instrument zones. While a sample has a sample start and sample length, and can have an overall loop start and loop length, it's perfectly possible to define zone-specific offsets for these parameters which can be different per instrument/instrument zone. Moreover a loop is always enabled/disabled on instrument zone level, and the type of loop is zone-specific as well.
In **SP-12** sound banks, the same sample can also be used in (shared by) multiple sounds. They can't be truncated in a different way across multiple sounds however. And while in theory the same sample can have different loop settings in different sounds, in practice you won't be able to define this different loops on the SP-12. As a consequence the same sample will normally have the same parameters in all SP-12 sounds that are based on that sample. Nevertheless EMXP assumes that the "theoretical" situation may occur from time to time, so it deals with SP-12-to-WAV conversions in the same way as it does for the Emulator-II and SoundFont2 files.

If the Emulator-II, SoundFont2 or SP-12 samples that should be played in EMXP or that should be converted to WAV-files have been selected

- from a **specific Emulator-II voice , SoundFont2 instrument zone or SP-12 sound** (by navigating first to a specific voice, instrument zone or sound and selecting the sample belonging to that voice, zone or sound), EMXP will *always use the voice/zone/sound specific settings* for that sample.
  E.g. if an Emulator-II sample X has been truncated and has a short forward loop defined on voice Y, and you select that sample by navigating to the sample of voice Y, EMXP will extract the truncated version of the sample and will save the short forward loop to the WAV file.
- from a **voice / zone / sound-independent sample overview** in EMXP, or simply by selecting one of the **"Extract all samples..."** menu functions, you can choose which sample parameters should be used for the conversion to WAV files. This can be done in the screen shown below:



Following options are available:

1. *Don't use any voice/zone/sound specific sample settings*
   When using this option, no sample truncation will be applied and no loops will be played or converted to the WAV-files.
2. *Use the sample settings which are used by most voices/zones/sounds*
   This is the factory default setting. EMXP will look for the sample settings which are used by most Emulator-II voices, SoundFont2 instrument zones or SP-12 sounds in the sound bank. These settings will be used for playing the sample or for conversion to the WAV file. If different sample

settings are equally common, EMXP will use the most common settings belonging to the sample with the longest loop; if there are multiple of these as well, the one with the least truncation will be used.

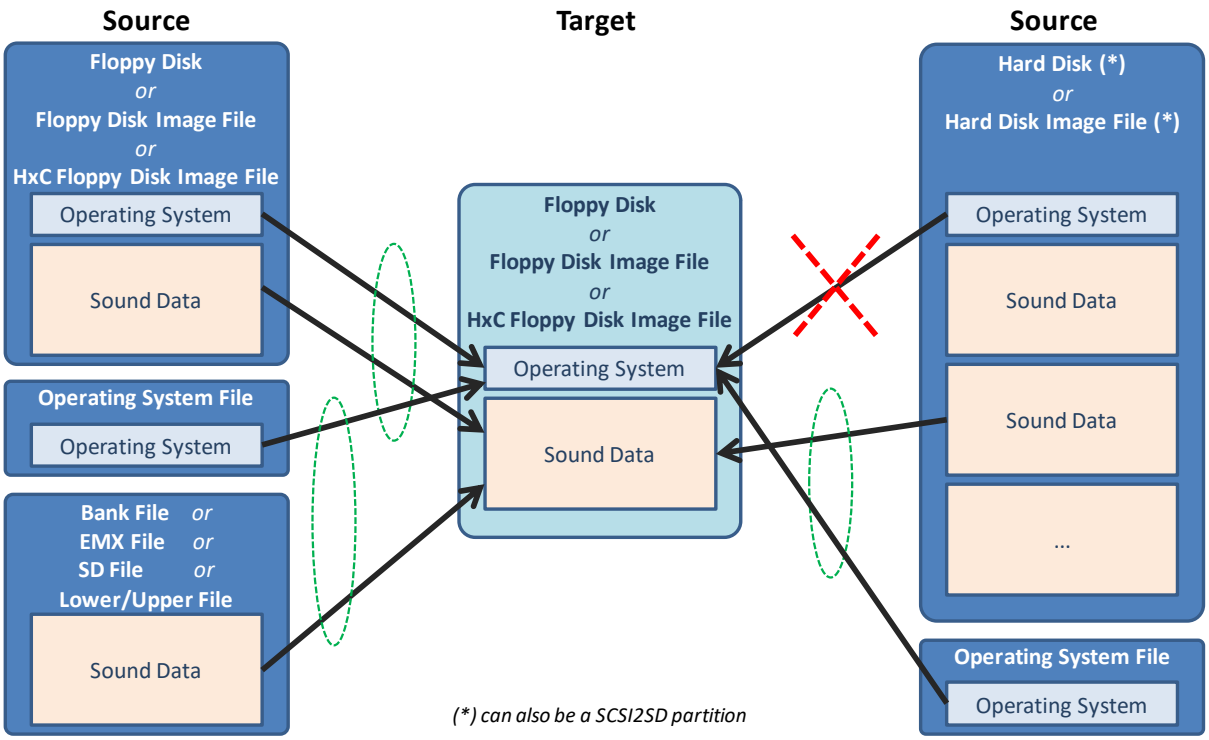
3. *Use the sample settings of the voice/zone/sound for which the sample loop length is the longest (number of sample points)*
   When this option is selected, EMXP will look for the voice/zone/sound specific sample with the longest (enabled) loop. The settings of this sample will be used for playing the sample or for conversion to the WAV file. If different voice/zone/sound specific samples have the same loop length, EMXP will use the sample with the longest loop which is most commonly used by the voices/zones/sounds; if there are multiple of these as well, the one with the least truncation will be used.
4. *Use the sample settings of the voice/zone/sound in which the sample has not been truncated or - if all voices/zones/sounds use truncated samples - use the settings of the voice/zone/sound in which the truncation is the smallest of all truncations (i.e. the remaining sample is the longest)*
   When this option is selected, EMXP will look for the voice/zone/sound specific sample with the longest sample length (i.e. the least truncated one). The settings of this sample will be used for playing the sample or for conversion to the WAV file. If different voice/zone/sound specific samples have the same longest sample length, EMXP will use the sample with the longest sample length which is most commonly used by the voices/zones/sounds; if there are multiple of these as well, the one with the longest loop will be used.
5. *Use the sample settings of the voice/zone/sound in which the truncation of the sample is the longest of all truncations (i.e. the remaining sample is the shortest)*
   When this option is selected, EMXP will look for the voice/zone/sound specific sample with the shortest sample length (i.e. the most truncated one). The settings of this sample will be used for playing the sample or for conversion to the WAV file. If different voice/zone/sound specific samples have the same shortest sample length, EMXP will use the sample with the shortest sample length which is most commonly used by the voices/zones/sounds; if there are multiple of these as well, the one with the longest loop will be used.

10.3.11 Manage preferences about OS handling in copy/conversion processing

If the target of any copy or conversion process is a *floppy disk* (EMAX only) or *a floppy disk image file or HxC floppy disk image file* (Emulator-I, Emulator-II, EMAX-I and EMAX-II only), EMXP can copy an operating system besides the sound banks which will be copied or converted anyway. The operating system to be copied can

- either originate from a source floppy disk, floppy disk image file, HxC floppy disk image file, hard disk or hard disk image file if they are holding a compatible operating system
- or be selected by the user from a folder containing compatible operating system files.

This feature is not supported when copying or converting sound banks to *hard disks* or *hard disk images.* Please read *section "6.4 COPYING OPERATING SYSTEMS"* how to copy an operating system to a sampler hard disk or hard disk image.



The preferences related to copying operating systems while copying/converting sound banks can be set separately for the mode in which the target files are automatically generated by EMXP ("automatic mode") and for the mode in which the user selects each target file/disk ("manual mode"). The automatic mode is not available when copying/converting to floppy disks.

See options 3 → 4 for the automatic mode and options 7 → 10 in the picture below.

```
DEFINE IF/HOW AN OS SHOULD BE ADDED/REPLACED DURING COPY/CONVERSION PROCESSES
--------------------------------------------------------------------------------
     IF THE SELECTED SOURCE ITEM CONTAINS A COMPATIBLE OPERATING SYSTEM:
[ ]  1. Don't use it, always select a specific OS from a folder
]X[  2. Reuse it, otherwise use an OS to be selected from a folder

     WHAT MUST BE DONE WITH THE OS ON TARGET FILE(S)[AUTOMATIC MODE]:
[X]  3. Add operating system on the file(s)
[ ]  4. Don't add operating system on the file(s)

     WHAT MUST BE DONE WITH THE OS ON TARGET FILE(S)[MANUAL MODE] OR DISK(S):
[ ]  5. Add or replace operating system on the floppy disk(s)/file(s)
[ ]  6. Don't add or replace OS on the floppy disk(s)/file(s)
[X]  7. Add OS only if no OS exists yet on the floppy disk(s)/file(s)
[ ]  8. Add OS only if no OS exists yet or if the OS is unverified




--------------------------------------------------------------------------------
[SPACE|1-8]Select__ ____________ ____________ [U/D]Scroll [ESC]Back__ [RET]Go____
--------------------------------------------------------------------------------
                          Please enter your choice:
```

Options 1 and 2 are used to define whether the operating system that will be copied to each target file/disk should be a specifically selected one, of rather the operating system of the source file/disk that is being copied/converted to the target file/disk.
No matter which option you choose, you will always be asked to select a specific operating system file before starting any copy or conversion process. This is even true for option 2, because some of the selected source files or disks may perhaps not contain an operating system or not a valid/compatible one.

Options 3 → 4 are applicable for any copy/conversion process in which EMXP will select the target (floppy disk image or HxC floppy disk image) files itself, i.e. without any user intervention (= automated target mode or BATCH mode).

- Select 3 if you want EMXP to always add an operating system to the (newly generated) target floppy disk image file(s) or HxC floppy disk image file(s).
- Select 4 if you don't want EMXP to copy an operating system to the (newly generated) target floppy disk image file(s) or HxC floppy disk image file(s).

The default setting is 3, because in automated target mode EMXP is always generating *new files*. There's no risk of overwriting existing files which may already contain an operating system. If option 4 is selected, the generated files will not have an operating system, so it won't be possible to use these image files for *booting* the sampler or for loading operating system sub modules (on EMAX-I, EMAX-II and Emulator-II).

Options 5 → 8 are applicable for any copy/conversion process in which you select the target files yourself in a *manual way* and for any copy/conversion process *to floppy disks*.

- Select 5 if you want to add an operating system (if a new file will be created or if the selected existing target file or disk does not contain an operating system yet), or if you want to replace the operating system of the selected existing target file/disk if it would already contain an operating system
- Select 6 if you won't copy an operating system to the target file or disk, no matter if this target file or disk is new or existing, and no matter if an existing target file/disk would contain an operating system already or not.
- Select 7 if you only want to copy an operating system if the target file or disk does not contain an operating system yet (this is always true if you are creating a new file/disk)
- Option 8 is the same as option 7, but it will also copy an operating system if an existing target file or disk would already contain an operating system which is invalid (corrupt) or unknown by EMXP.

The above described parameters can also be set whenever you start a copy or conversion process, if you have chosen the MANUAL or SEMI-MANUAL mode.

10.4 LOOK AND FEEL PREFERENCES

To change the preferences related to the look and feel of EMXP:
"6. Preferences" → "3. Manage Look and Feel Preferences"

Following options are provided:

```
                    LOOK AND FEEL PREFERENCES MENU
-------------------------------------------------------------------------------

1.  Define Size of EMXP Screens
2.  Define Cursor Symbol in Overview Screens
3.  Define which Available Keys should be displayed in Overview Screens
4.  Define Shortcut Key and Item Selection Ranges in Overview Screens
5.  Define Appearance of File and Folder Overview Screens
6.  Define if User Response Area should be pre-filled with Suggested Response
7.  Define some Display Formats and Notations
8.  Define Alternative Bank List Screen View for some Samplers
9.  Reset Look and Feel Preferences to Factory Defaults

-------------------------------------------------------------------------------
            [1]...[9]: menu option                  ESC: Go back
-------------------------------------------------------------------------------
                        Please enter a menu option:
```

10.4.1 Define size of EMXP screens

In this section all parameters related to setting the size of the EMXP screen and the way the command prompt window size is aligned to the EMXP screen size can be managed.

Following options are available:

```
               SCREEN SIZE AND CONSOLE MODE PREFERENCES MENU
-------------------------------------------------------------------------------

  1.  Define Size of EMXP Screens
  2.  Define if Command Prompt Window Size should automatically be adjusted
  3.  Define how EMXP Screens should be updated and refreshed
  4.  Define Command Prompt Window Size Detection Mode
  5.  Define Retrial Limit for Command Prompt Window Resizing









-------------------------------------------------------------------------------
            [1]...[5]: menu option                  ESC: Go back
-------------------------------------------------------------------------------
                        Please enter a menu option:
```

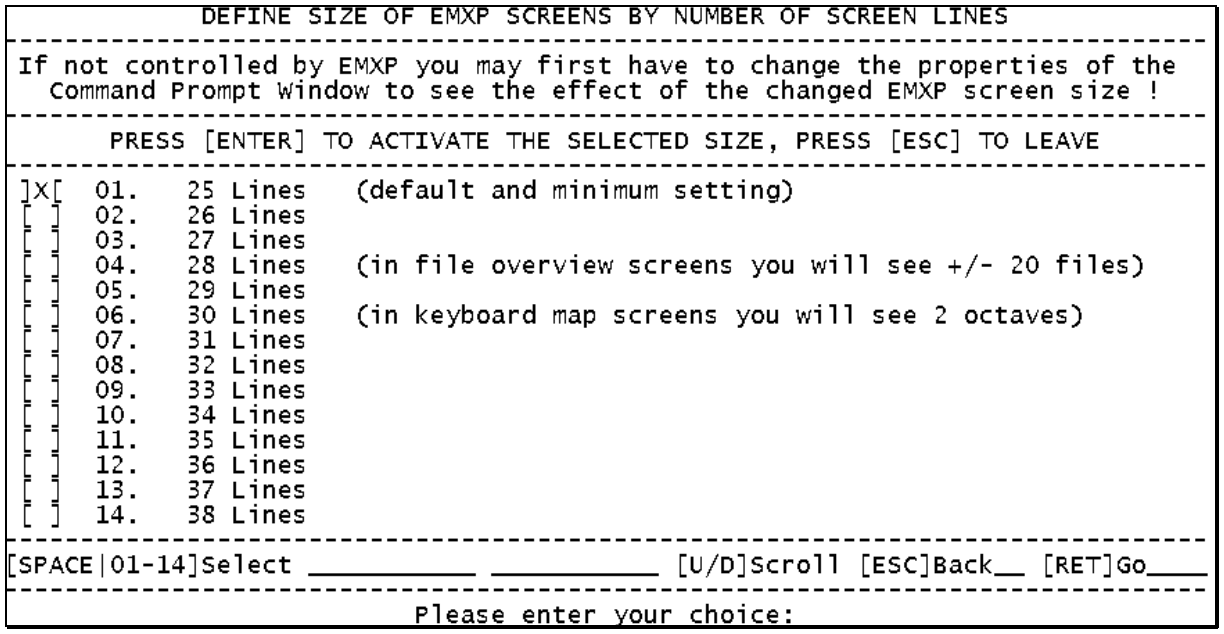
10.4.1.1 Define size of EMXP screens

By default EMXP uses a screen size of 25 lines and 80 characters. This is the old CUI standard used on character based MS-DOS computers in the eighties.

On large high resolution monitors however it's perfectly possible to use DOS command windows which are much larger than 25 lines.
The advantage of using more lines on EMXP screens is - of course - that you will see:

- much more items in any overview on one single screen
- much more preset, sample or voice details on one screen without having to scroll
- more keyboard octaves on one screen when using the EMXP construction mode or when you are transferring samples to/from the EMAX-I, EMAX-II or Emulator-II via RS422/MIDI.
- ...

In this preference screen, you can select any screen size between 25 lines and 96 lines.
For your convenience, EMXP is showing the amount of items or keyboard octaves that will be available on one screen for some of the screen sizes (see picture below).

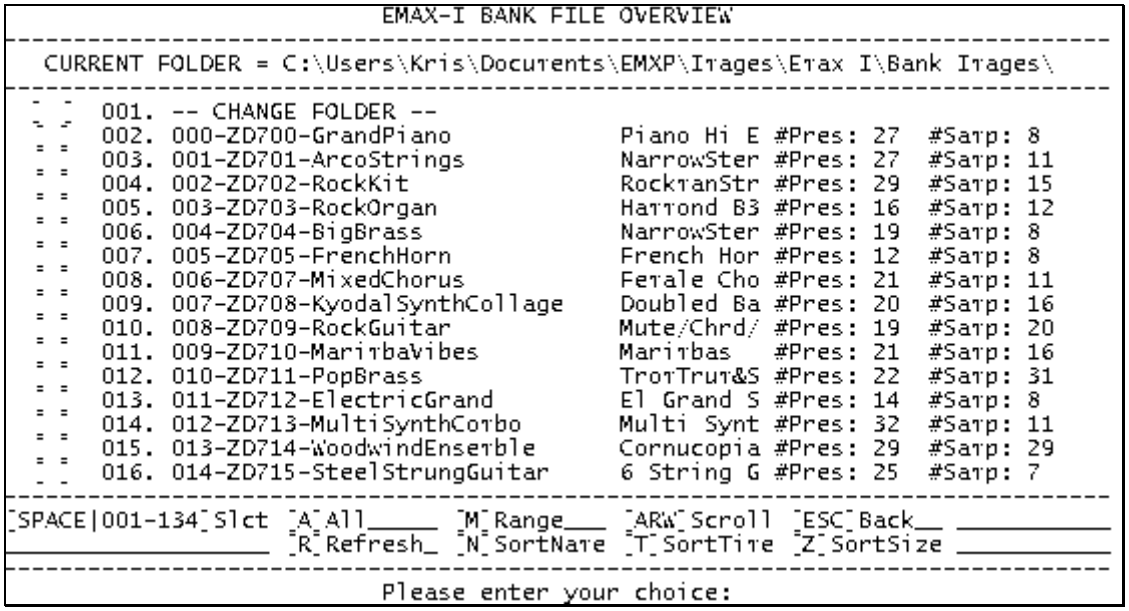


When you select another screen size, the new size will immediately be enabled. Press ESC to leave this preference menu.

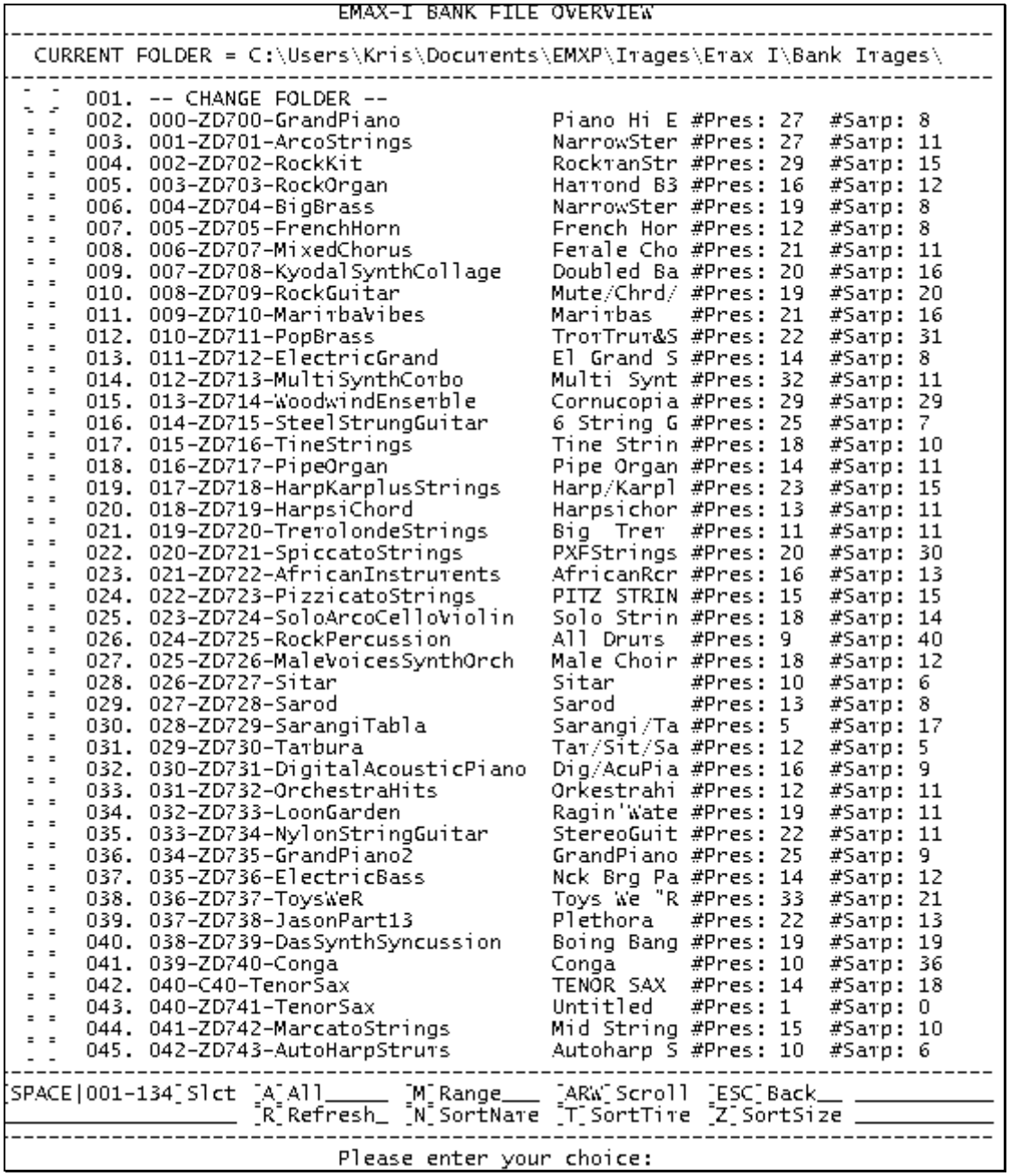
Important remark: make sure that the size of Command Prompt Window is compatible with the EMXP screen size. See *section "10.4.1.2 Define if command prompt window size should automatically be adjusted"*.

The two pictures below illustrate the difference in EMXP screen size when displaying the EMAX-I bank files overview.

EMXP screen of 25 lines:



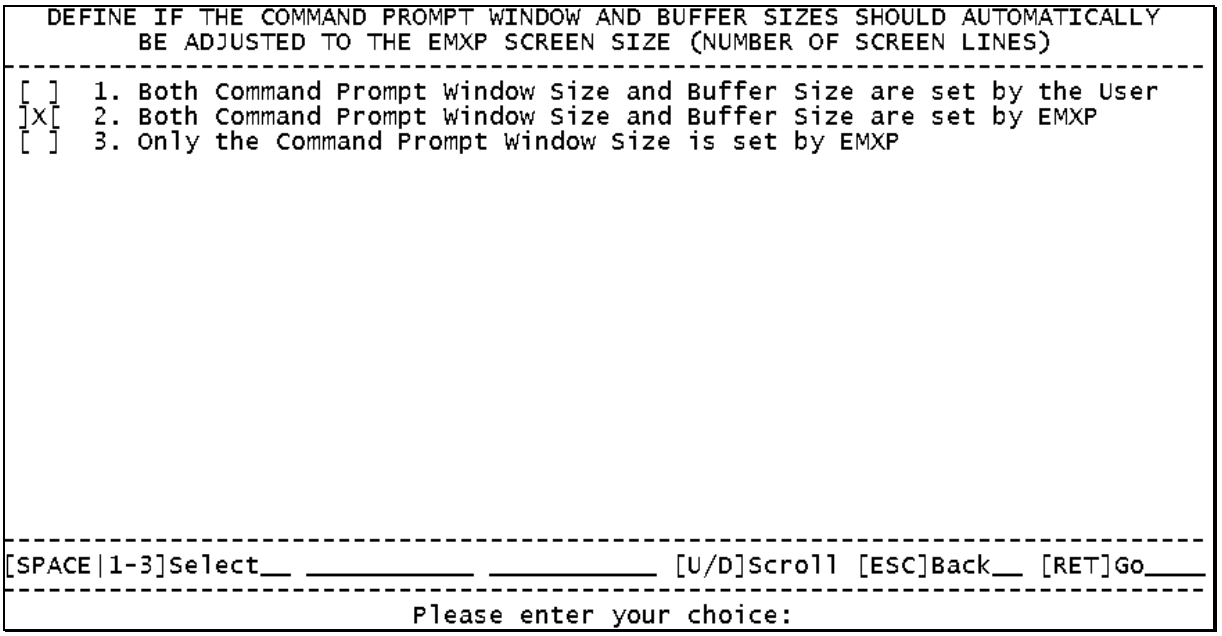
EMXP screen of 54 lines:



10.4.1.2 Define if command prompt window size should automatically be adjusted

EMXP is running in a Command Prompt Window. If the number of screen lines in EMXP is being increased (see *section "10.4.1 Define size of EMXP screens")*, the size of the Command Prompt Window may be too small to display the full EMXP screen.

By default, EMXP will adjust the size of the Command Prompt Window to the EMXP screen size, but this behaviour can be changed in the screen below.



When selecting *option 1*, EMXP will never adjust the properties of the Command Prompt Window in which EMXP is running. It's the responsibility of the user to make sure that these properties are compatible with the EMXP screen size. The procedure for changing these properties manually is explained later in this section.

When selecting *option 2*, EMXP will automatically set the size of both the Command Prompt Window and the Screen Buffer to the same values as the EMXP screen size. Since EMXP does not need a screen buffer larger than the actual window size, this option is the default setting in EMXP. In practice this means that after double-clicking on EMXPN.EXE in Windows Explorer, EMXP will be launched in a window whose size is exactly the same as the EMXP screen size, and there's no possibility to scroll (there's no scroll bar at the right side of the window)

Option 3 is the same as option 2, but EMXP will only adjust the actual window size. The screen buffer size should be set by the user, and the user should make sure its size is at least the size of the actual window. Larger sizes are allowed as well.

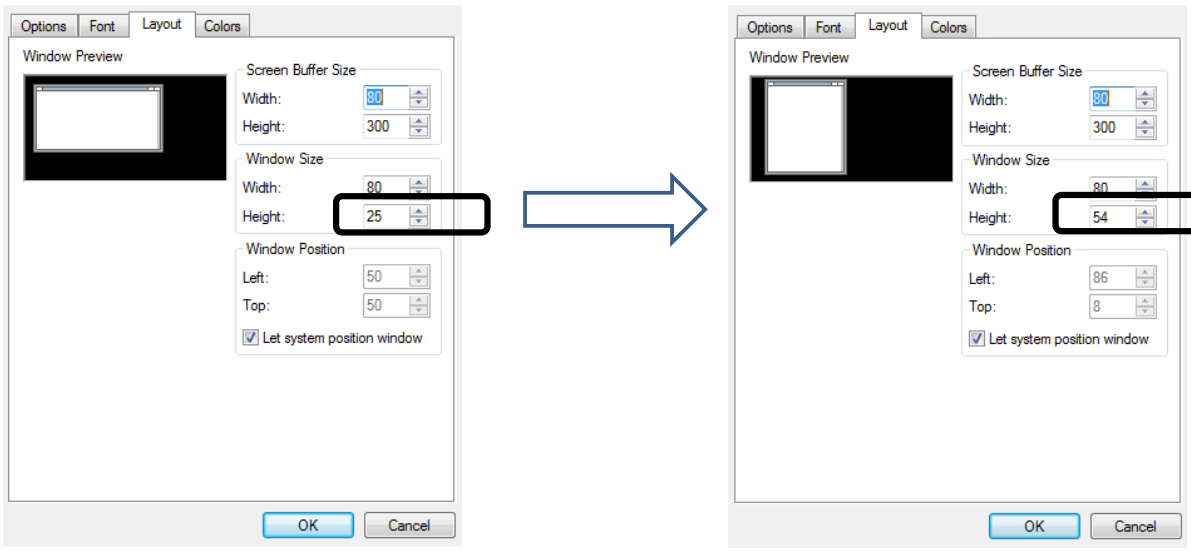
If option 2 or 3 is enabled, and for some reason this would cause problems when starting EMXP (e.g. not being able to see the full EMXP menu anymore), option 1 should be selected instead. If changing the preference is not possible because you can't see the full main menu, you should re-start EMXP in a special mode:

- Open a Command Prompt Window
- Adjust the size of that window by right-clicking the title bar and selecting "Properties" (see below)
- Type EMXPN -NOSIZING and press Enter
- EMXP starts without automatically adjusting the window size
- Disable the preference related to automatically adjusting the command prompt window size
- Leave EMXP
- Restart EMXP in normal mode

If option 1 has been selected, you should make sure yourself that the size of the Command Prompt Window can deal with the selected EMXP screen size.
E.g. in Windows 7 the size of a DOS window can be set by:

- right clicking on the title bar of the window
- selecting "Properties"
- clicking the "Layout" tab
- setting the "Height" parameter to the same value as the EMXP screen size
- you might have to select a smaller font size in the "Font" tab to make sure the window fits on your monitor size.

The example below shows the Windows 7 settings for the EMXP window if we want to increase the size from 25 lines to 54 lines.



Please read also *section "10.4.1.4 Define command prompt window size detection mode"* if you are using EMXP in Wine on macOS.

10.4.1.3 Define how EMXP screens should be updated and refreshed

Until version 3.03 of EMXP, whenever at least one character or symbol on the screen changed (e.g. because of moving the cursor in a selection list), EMXP always cleared the full screen and re-printed it. This method is called the *"basic console mode"* and can cause some "flickering" on the screen. This flickering becomes more visible on slower computers or when a lot of screen updates occur in a very short period of time (e.g. when keeping scrolling through a list of items or when using the audio player).
Starting with version 3.04, EMXP also supports an *"advanced console mode"* which only updates the characters or symbols on the screen that *actually have changed*. This method causes less flickering and is the default screen update mode now.

You can change the screen update mode in this preference menu.

```
          DEFINE HOW EMXP SCREENS SHOULD BE UPDATED AND REFRESHED
--------------------------------------------------------------------------------
 [ ]  1. Always update and refresh the full screen (basic console mode)
 ]X[  2. Perform a positional update and refresh only (less flickering)
--------------------------------------------------------------------------------
[SPACE|1-2]Select__ _____________ _____________ [U/D]Scroll [ESC]Back__ [RET]Go____
--------------------------------------------------------------------------------
                          Please enter your choice:
```

When selecting *option 1*, the "old" basic console mode can be activated again.
When selecting *option 2*, the "new" advanced console mode can be activated.

If option 2 is enabled, and for some reason this would cause problems when starting EMXP, option 1 should be selected instead. This may be required when running EMXP in a virtual machine or with software like WINE on non-Windows platforms (although other solutions exist as well for these types of set-up). If changing the preference is not possible because you can't see the full main menu, you should re-start EMXP in a special mode:

- Open a Command Prompt Window
- Type EMXPN -SCREENREFRESH and press Enter
- EMXP starts in the basic console mode
- Disable the preference related to the positional (advanced) console mode
- Leave EMXP
- Restart EMXP in normal mode

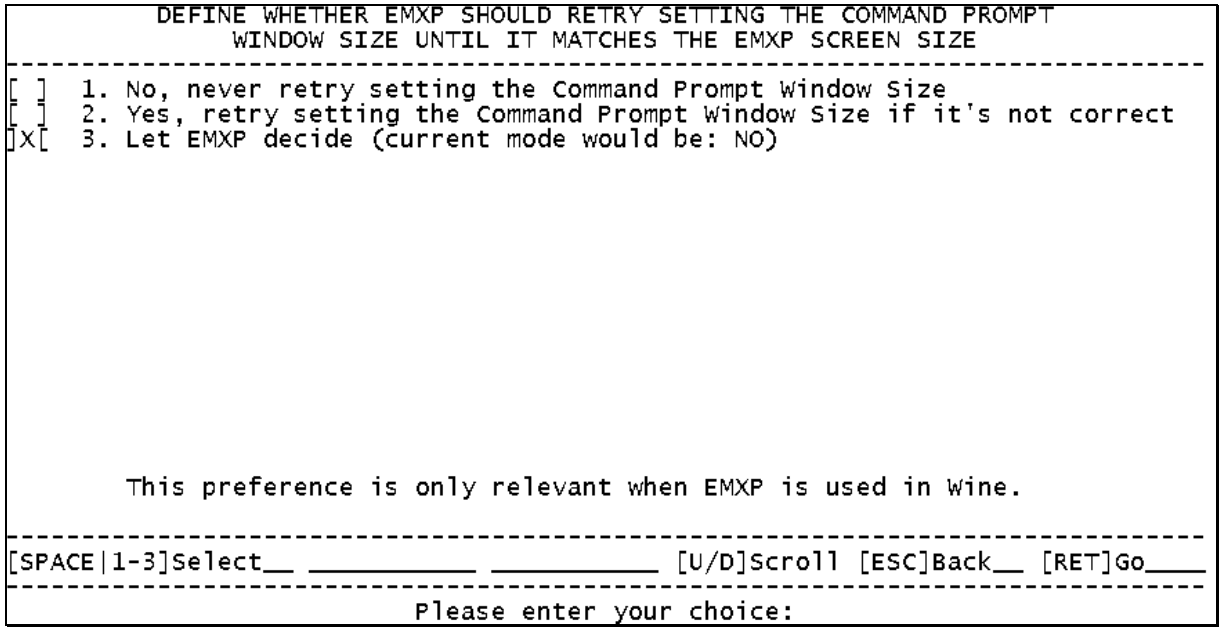
10.4.1.4 Define command prompt window size detection mode

If EMXP should automatically adjust the command prompt window (console) size to the EMXP screen size (see *section "10.4.1.2 Define if command prompt window size should automatically be adjusted"*), two methods are available:

- EMXP simply instructs the operating system to set the size of the command prompt window identical to the size of the EMXP screen, and *trusts that the operating system will apply this resizing successfully*
  See *option 1* in the picture below.
- EMXP instructs the operating system to set the size of the command prompt window identical to the size of the EMXP screen, but assumes that the operating system may fail in doing so. As a consequence EMXP will check if the command prompt window size has indeed been adjusted to the EMXP screen size. If not, EMXP will send the instruction again and will keep doing this until
  - either the window size finally matches the EMXP screen size
  - or the maximum retrial limit has been reached. See *section "10.4.1.5 Define retrial limit for command prompt window resizing"*.

  See *option 2* in the picture below.

Next to selecting the window size detection mode yourself (*options 1 and 2)* it's also possible to let EMXP decide (see *option3*).



EMXP's decision depends on the operating system on which EMXP is running, as explained below.

When EMXP is running on the Windows operating system, the first method is the default and should work fine.

However when EMXP is running on the macOS operating system in Wine, the second method is the default. Wine seems to have problems with changing the command prompt window size to non-default sizes (different from 25 lines by 80 characters) when instructed to do so by software running in Wine *(this observation is true for version 1.8-rc4).* This results in a "flickering" effect during which Wine tries to instruct macOS to resize the window. During these attempts, the command prompt window size constantly changes and may even become smaller and smaller…

Even when the second method is selected, the success ratio of obtaining a correct command prompt window size could be small. In that case it may be better to

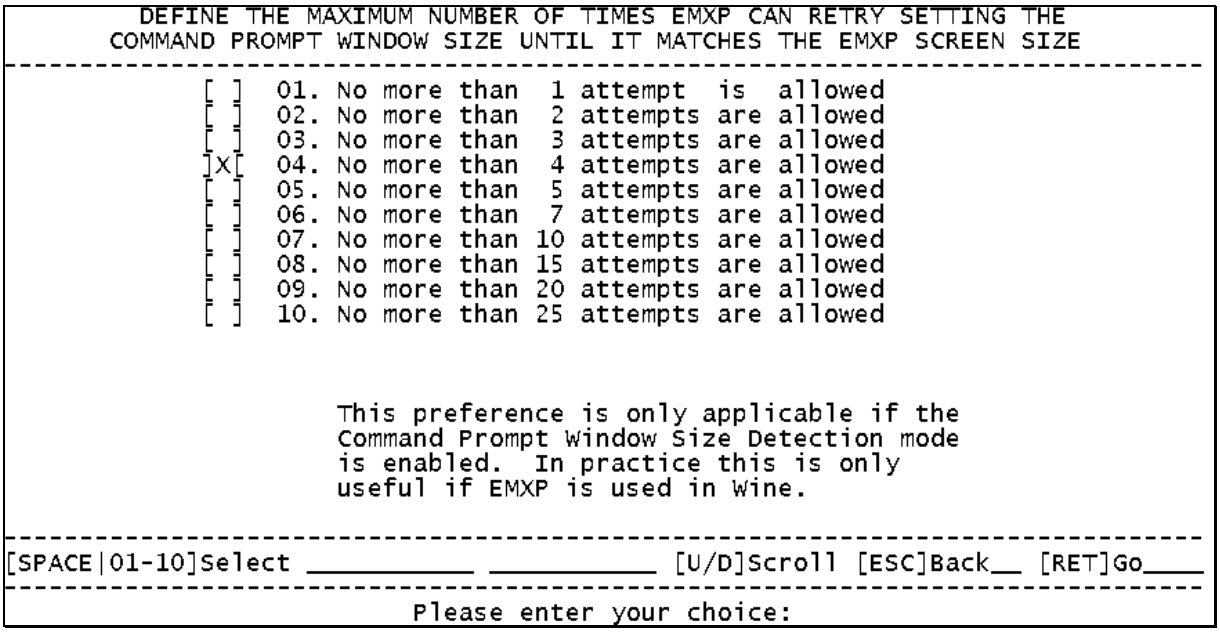
- switch the detection mode off *(option 1)* and resize the command prompt window size *by hand* every time you start EMXP in Wine on macOS
- or use the default EMXP screen size of 25 lines (see *section "10.4.1.1 Define size of EMXP screens"*).

10.4.1.5 Define retrial limit for command prompt window resizing

If the command prompt window size detection mode is enabled (see *section "10.4.1.4 Define command prompt window size detection mode"*), EMXP will keep instructing the operating system to change the window size until:

- either the window size finally matches the EMXP screen size
- or a maximum retrial limit has been reached.

The retrial limit can be set in the screen below.



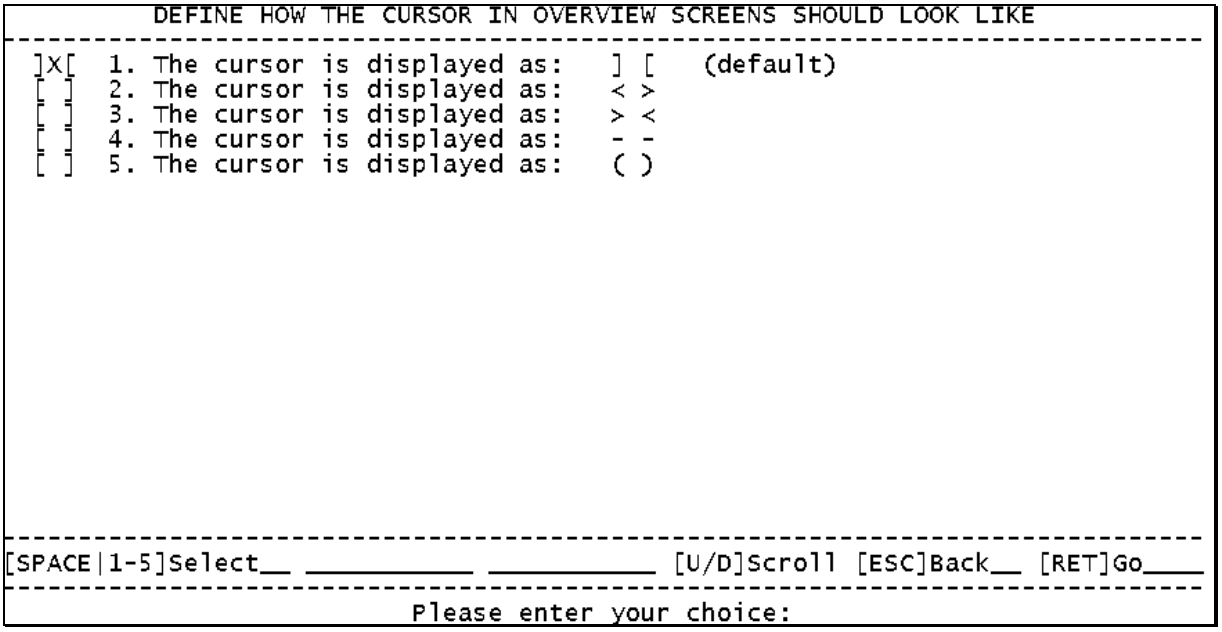
The higher the selected value, the longer it may take for the main EMXP window to appear when you start EMXP, but the higher the chance that the command prompt window size will automatically be adjusted to the EMXP screen size.

10.4.2 Define cursor symbol in overview screens

The appearance of the cursor in any overview screen can be configured in this preference screen.

The default cursor depends on the operating system EMXP is running on:

- On Windows, the default EMXP cursor appearance is "] [" (see *option 1*)
- On macOS in Wine, the default EMXP cursor appearance is "< >" (see *option 3)*. The default is different from Windows due to the standard font which is used by Wine. The visual difference between the "[ ]" item prefixes and the "] [" cursor in Wine is too small.



10.4.3 Define which available keys should be displayed in list screens

Since version 3.03 of EMXP, the way the available control and shortcut keys are displayed on each item overview screen (list screen) has been changed. If shortcut keys are available, they are always shown on a second line at the bottom of a list screen. The first line only contains the default control keys.
The reason for displaying the shortcut keys on a second line is because 6 shortcut keys are supported since version 3.03 and even up to 30 short cut keys are supported since version 3.08 (as opposed to 2 shortcut keys in previous versions).

As a consequence, the number of available lines for actual items is decreased with 1.
If you don't want to waste an additional line for showing available keys, you can choose not to display the default control keys anymore if any shortcut key is available as well.

```
          DEFINE WHAT TYPE OF AVAILABLE KEYS SHOULD BE DISPLAYED
                AT THE BOTTOM OF ITEM LIST SCREENS IN EMXP
------------------------------------------------------------------------------
 ]X[  1. Always show control keys, show shortcut keys as well if available
 [ ]  2. Only show shortcut keys (unless no shortcut keys are available)









------------------------------------------------------------------------------
[SPACE|1-2]Select__ _____________ _____________ [U/D]Scroll [ESC]Back__ [RET]Go____
------------------------------------------------------------------------------
                           Please enter your choice: _
```

Option 1 is the default setting.

By selection *option 2*, only one line will be used to display available keys:

- if no shortcut keys are defined for a particular list screen, the line will show the default control keys. For an example, see the screen above.
- if at least one shortcut key has been defined for a particular list screen, the line will show the available shortcut keys only. Since shortcut keys may only be available if at least one item has actually been selected, the line may be empty if no items have been selected yet. In that case a "please make a selection" or a "press ENTER..." message will be shown instead.

The screens below illustrate the difference between the available options for a bank overview screen of an Emulator-III hard disk image file.

When option 1 is selected, and one of the bank items has been selected, the screen looks like:

```
              EMULATOR-III/X/ESI HARD DISK IMAGE BANK OVERVIEW
------------------------------------------------------------------------------
 ]X[  01. B00 TrmptGrowlsMutes   EMU-III   #Pres: 53  #Samp: 35  3463 Kb
 [ ]  02. B01 Beautiful World    EMU-III   #Pres: 51  #Samp: 68  4029 Kb
 [ ]  03. B02 Indian Ensemble    EMU-III   #Pres: 37  #Samp: 41  3996 Kb
 [ ]  04. B03 Pop Composer #1    EMU-III   #Pres: 55  #Samp: 98  3799 Kb
 [ ]  05. B04 Rock Party Cats    EMU-III   #Pres: 41  #Samp: 78  4097 Kb
 [ ]  06. B05 Berimbau & Surdo   EMU-III   #Pres: 23  #Samp: 38  3793 Kb
 [ ]  07. B06 Bronze Gamelan 4   EMU-III   #Pres: 44  #Samp: 33  3856 Kb
 [ ]  08. B07 Bronze Gamelan 8   EMU-III   #Pres: 44  #Samp: 33  7655 Kb
 [ ]  09. B08 Garage Implemenz   EMU-III   #Pres: 33  #Samp: 59  4034 Kb
 [ ]  10. B09 SymphoPercussion   EMU-III   #Pres: 18  #Samp: 18  3783 Kb
 [ ]  11. B10 Timbale Battery    EMU-III   #Pres: 13  #Samp: 66  4102 Kb
 [ ]  12. B11 Vibraphone         EMU-III   #Pres: 23  #Samp: 14  2562 Kb
 [ ]  13. B12 Combined Oohs      EMU-III   #Pres: 20  #Samp: 11  3127 Kb
 [ ]  14. B13 Nylon Str Guitar   EMU-III   #Pres: 17  #Samp: 26  3771 Kb
 [ ]  15. B14 Urban Traffic      EMU-III   #Pres: 10  #Samp: 4   3518 Kb
 [ ]  16. B15 Vintage Synth II   EMU-III   #Pres: 63  #Samp: 99  3907 Kb
 [ ]  17. B16 World O'Synth II   EMU-III   #Pres: 30  #Samp: 23  4038 Kb
 [ ]  18. B17 C3 Grand Piano     EMU-III   #Pres: 21  #Samp: 13  4074 Kb
------------------------------------------------------------------------------
[SPACE|01-25]Select [A]All_____ [M]Range___ [U/D]Scroll [ESC]Back__ [RET]Go____
[+]More [P]Presets_ [S]Samples_ [Y]Copy____ [C]Convert_ [W]ToWav___ [L]Play____
------------------------------------------------------------------------------
                           Please enter your choice:
```

Two lines are used to display all available control keys and short cut keys. More than 6 short cut keys are available.

When option 2 is selected, and one of the bank items has been selected, the screen looks like:

```
                EMULATOR-III/X/ESI HARD DISK IMAGE BANK OVERVIEW
--------------------------------------------------------------------------------
  ]X[  01. B00 TrmptGrowlsMutes   EMU-III   #Pres: 53  #Samp: 35  3463 Kb
  [ ]  02. B01 Beautiful World    EMU-III   #Pres: 51  #Samp: 68  4029 Kb
  [ ]  03. B02 Indian Ensemble    EMU-III   #Pres: 37  #Samp: 41  3996 Kb
  [ ]  04. B03 Pop Composer #1    EMU-III   #Pres: 55  #Samp: 98  3799 Kb
  [ ]  05. B04 Rock Party Cats    EMU-III   #Pres: 41  #Samp: 78  4097 Kb
  [ ]  06. B05 Berimbau & Surdo   EMU-III   #Pres: 23  #Samp: 38  3793 Kb
  [ ]  07. B06 Bronze Gamelan 4   EMU-III   #Pres: 44  #Samp: 33  3856 Kb
  [ ]  08. B07 Bronze Gamelan 8   EMU-III   #Pres: 44  #Samp: 33  7655 Kb
  [ ]  09. B08 Garage Implemenz   EMU-III   #Pres: 33  #Samp: 59  4034 Kb
  [ ]  10. B09 SymphoPercussion   EMU-III   #Pres: 18  #Samp: 18  3783 Kb
  [ ]  11. B10 Timbale Battery    EMU-III   #Pres: 13  #Samp: 66  4102 Kb
  [ ]  12. B11 Vibraphone         EMU-III   #Pres: 23  #Samp: 14  2562 Kb
  [ ]  13. B12 Combined Oohs      EMU-III   #Pres: 20  #Samp: 11  3127 Kb
  [ ]  14. B13 Nylon Str Guitar   EMU-III   #Pres: 17  #Samp: 26  3771 Kb
  [ ]  15. B14 Urban Traffic      EMU-III   #Pres: 10  #Samp: 4   3518 Kb
  [ ]  16. B15 Vintage Synth II   EMU-III   #Pres: 63  #Samp: 99  3907 Kb
  [ ]  17. B16 World O'Synth II   EMU-III   #Pres: 30  #Samp: 23  4038 Kb
  [ ]  18. B17 C3 Grand Piano     EMU-III   #Pres: 21  #Samp: 13  4074 Kb
  [ ]  19. B18 Pipe Organ 8Meg    EMU-III   #Pres: 36  #Samp: 21  7786 Kb
--------------------------------------------------------------------------------
[+]More [P]Presets_ [S]Samples_ [Y]Copy____ [C]Convert_ [W]ToWav___ [L]Play____
--------------------------------------------------------------------------------
                           Please enter your choice:
```

Only one line is used to display the available keys. The control keys are not shown, only the available shortcut keys are shown.

When option 2 is selected, but none of the bank items have been selected, the screen looks like:

```
                EMULATOR-III/X/ESI HARD DISK IMAGE BANK OVERVIEW
--------------------------------------------------------------------------------
  ] [  01. B00 TrmptGrowlsMutes   EMU-III   #Pres: 53  #Samp: 35  3463 Kb
  [ ]  02. B01 Beautiful World    EMU-III   #Pres: 51  #Samp: 68  4029 Kb
  [ ]  03. B02 Indian Ensemble    EMU-III   #Pres: 37  #Samp: 41  3996 Kb
  [ ]  04. B03 Pop Composer #1    EMU-III   #Pres: 55  #Samp: 98  3799 Kb
  [ ]  05. B04 Rock Party Cats    EMU-III   #Pres: 41  #Samp: 78  4097 Kb
  [ ]  06. B05 Berimbau & Surdo   EMU-III   #Pres: 23  #Samp: 38  3793 Kb
  [ ]  07. B06 Bronze Gamelan 4   EMU-III   #Pres: 44  #Samp: 33  3856 Kb
  [ ]  08. B07 Bronze Gamelan 8   EMU-III   #Pres: 44  #Samp: 33  7655 Kb
  [ ]  09. B08 Garage Implemenz   EMU-III   #Pres: 33  #Samp: 59  4034 Kb
  [ ]  10. B09 SymphoPercussion   EMU-III   #Pres: 18  #Samp: 18  3783 Kb
  [ ]  11. B10 Timbale Battery    EMU-III   #Pres: 13  #Samp: 66  4102 Kb
  [ ]  12. B11 Vibraphone         EMU-III   #Pres: 23  #Samp: 14  2562 Kb
  [ ]  13. B12 Combined Oohs      EMU-III   #Pres: 20  #Samp: 11  3127 Kb
  [ ]  14. B13 Nylon Str Guitar   EMU-III   #Pres: 17  #Samp: 26  3771 Kb
  [ ]  15. B14 Urban Traffic      EMU-III   #Pres: 10  #Samp: 4   3518 Kb
  [ ]  16. B15 Vintage Synth II   EMU-III   #Pres: 63  #Samp: 99  3907 Kb
  [ ]  17. B16 World O'Synth II   EMU-III   #Pres: 30  #Samp: 23  4038 Kb
  [ ]  18. B17 C3 Grand Piano     EMU-III   #Pres: 21  #Samp: 13  4074 Kb
  [ ]  19. B18 Pipe Organ 8Meg    EMU-III   #Pres: 36  #Samp: 21  7786 Kb
--------------------------------------------------------------------------------
                           (please make a selection)
--------------------------------------------------------------------------------
                           Please enter your choice:
```

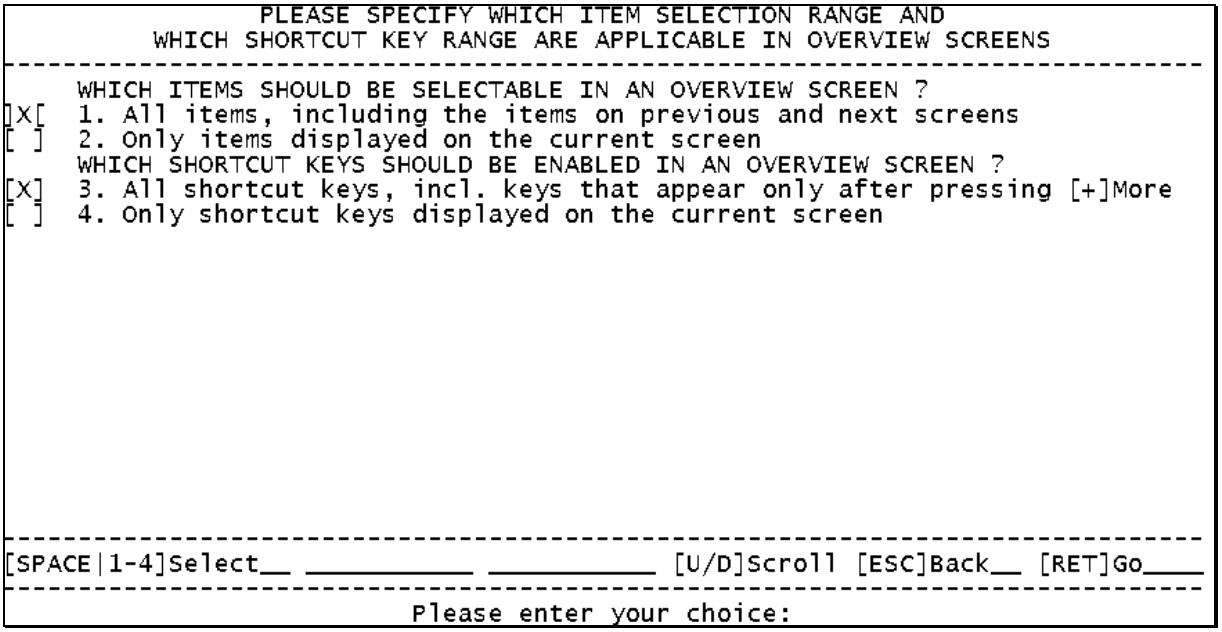
A single line is used to display the available keys. The default control keys are not shown, and since no bank item has been selected, no shortcut keys are available yet. A default message ("please make a selection") is shown instead.

10.4.4 Define short cut key and item selection ranges in overview screens

The number of items in an overview screen will often exceed the available screen size. E.g. there may be 100 EMAX-I Bank Files available, but the EMXP screen can only display 18 files at once.
If you want to select an item by entering its item number, but that item is not displayed on the current screen, you can either allow EMXP to select that item anyway, or you can prevent EMXP to select that item, meaning that you first have to scroll explicitly through the list until the item is shown on the screen.

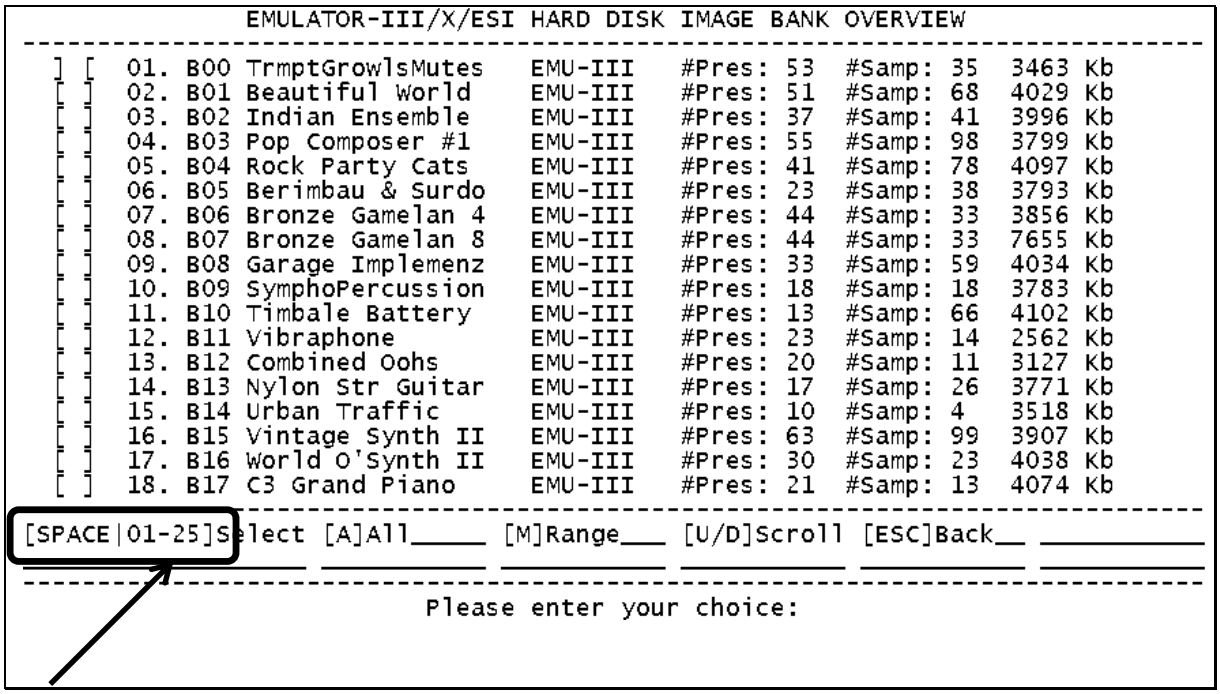
Similarly, the number of short cut keys available in an overview screen can exceed the maximum of 6 short cut keys that can be displayed at once on the bottom line of the overview screen. E.g. there may be 9 available short cut keys.
If you want to use a short cut key not mentioned on the bottom line of the current overview screen, you can either allow EMXP to perform the action belonging to that short cut key anyway, or you can prevent EMXP to perform that action, meaning that you first have to press the '[+] More' key until the short cut key is displayed on the bottom line of the screen.

To define the above behaviour, two preferences are available. The main reason why you would like to prevent EMXP to select items or execute short cut keys actions that are not displayed on the current screen is to avoid unexpected behaviour if you would enter unintended item numbers or short cut key characters by mistake.

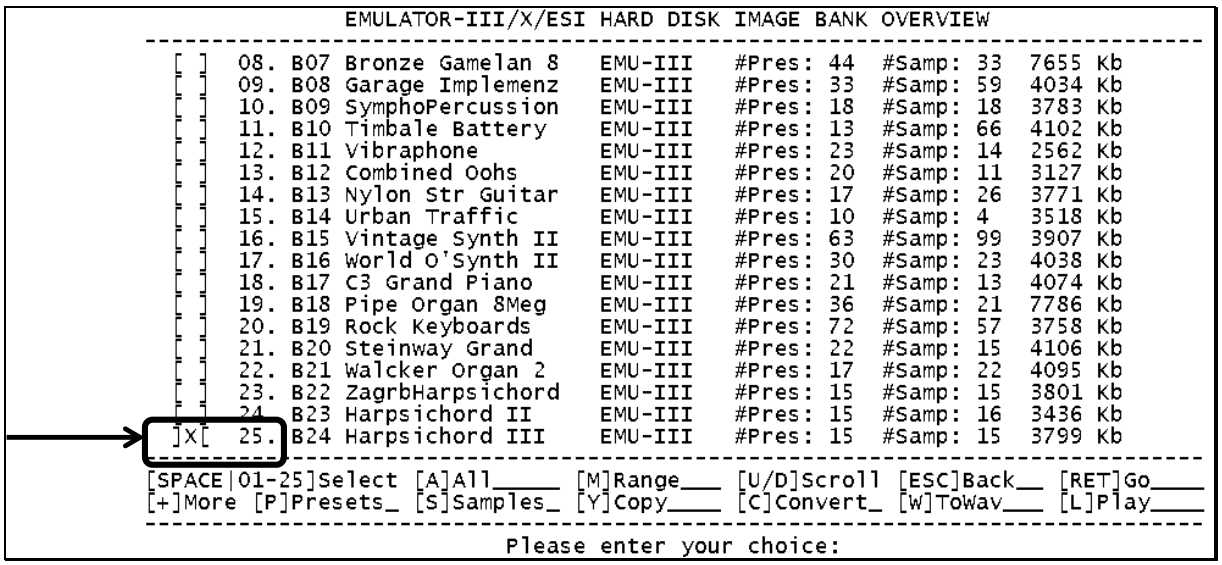


To define the range of items that are selectable by entering their item number, the following options are available:

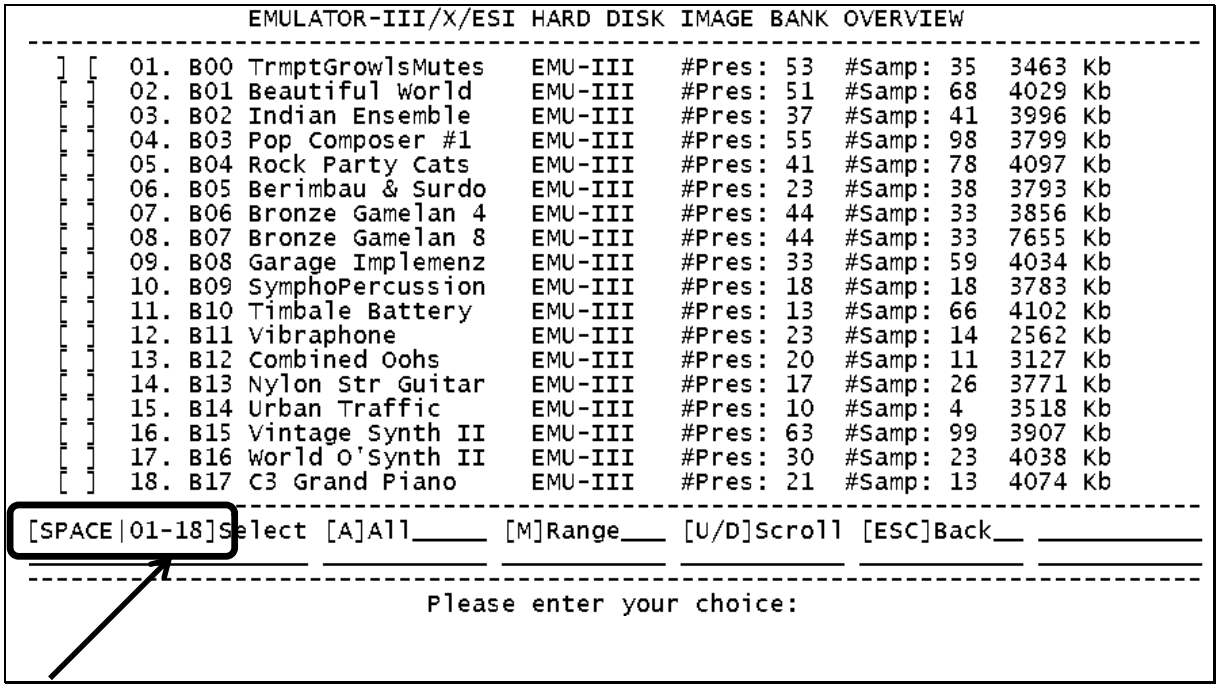
- *Option 1:* all items can be selected by entering their item number, no matter whether they are displayed on the current screen or not. This is the default setting. E.g. in the example below, 25 bank items are available in the Emulator-III hard disk image, but only the first 18 are shown on the first screen. If you want to be able to select the last bank item by entering its item number 25 without having to scroll to that bank item first, option 1 should be selected. Note that the item range mentioned at the bottom of the overview screen is 01-25 and not 01-18.



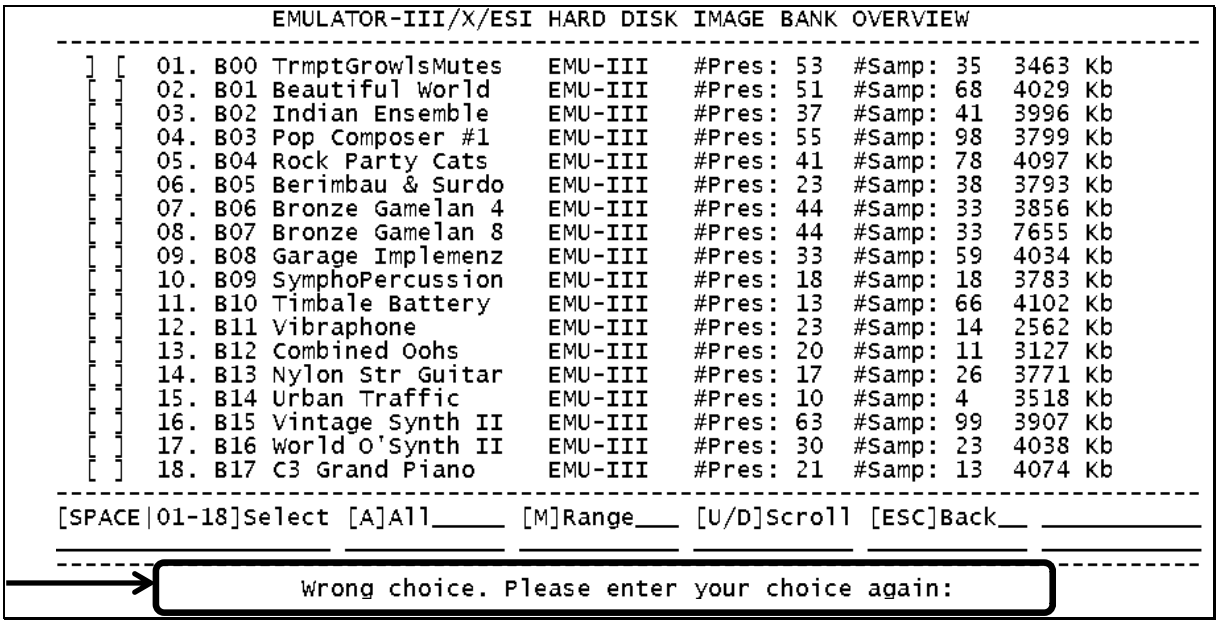
If you enter 25, EMXP will automatically scroll through the items until item 25 appears on the current screen.



- *Option 2*: only the items displayed on the current screen can be selected by entering their item number. If you want to select the last bank item by entering its item number 25, you first have to scroll though the item list until item 25 is displayed on the current screen. Note that the item range mentioned at the bottom of the overview screen is 01-18 and not 01-25.

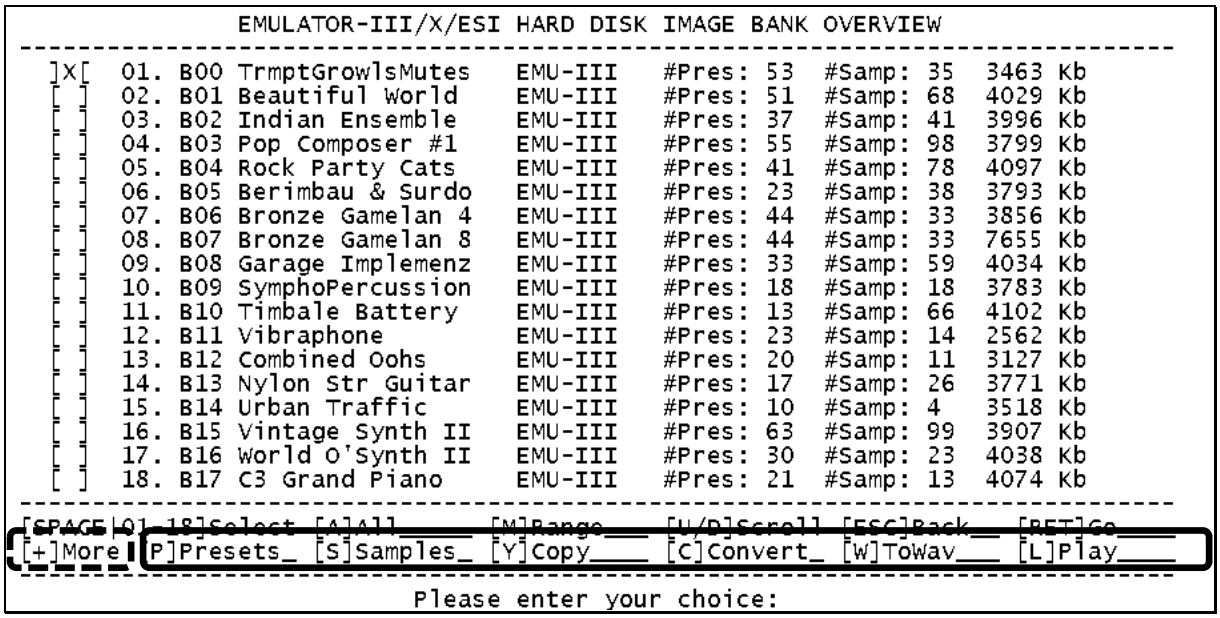


If item number 25 is entered while that item is not mentioned on the current screen, a message "Wrong choice. Please enter your choice again" will be shown.



To enable or disable short cut keys that are not displayed on the bottom line of the current overview screen, the following options are available:

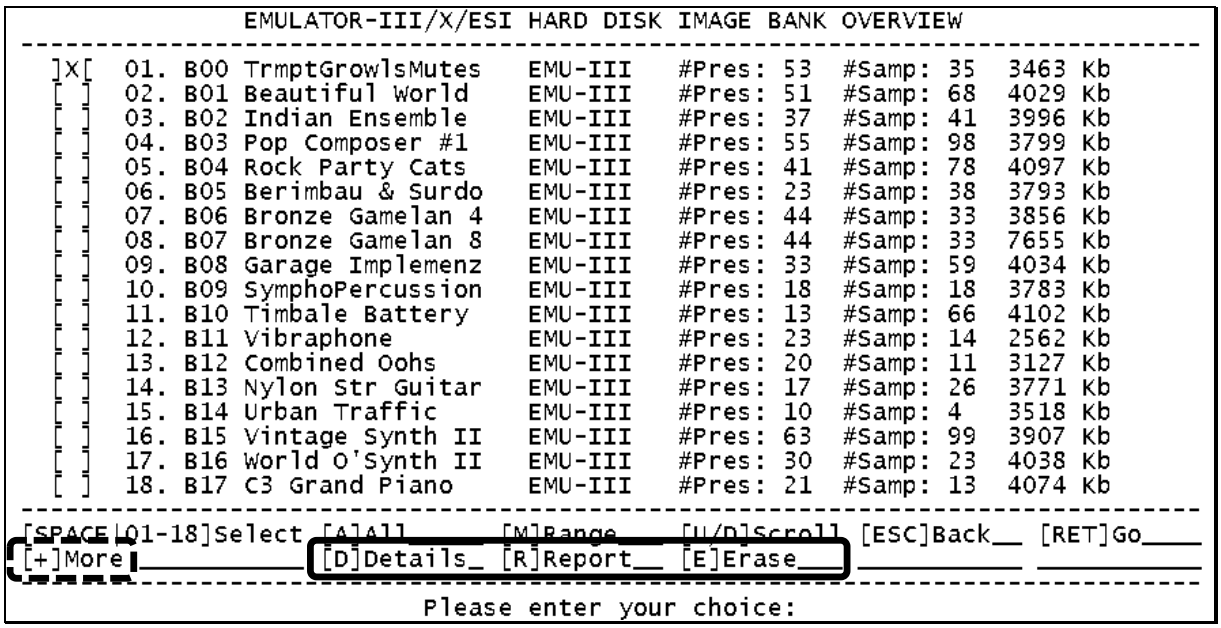
- *Option 3*: all short cut keys are enabled, even the ones that are not mentioned on the current screen and that would only appear after pressing the '[+] More' key. E.g. in the example below, next to the 6 short cut keys mentioned on the bottom line, 3 more short cut keys are available (and as a consequece, the '[+] More' key is mentioned on the bottom line as well).



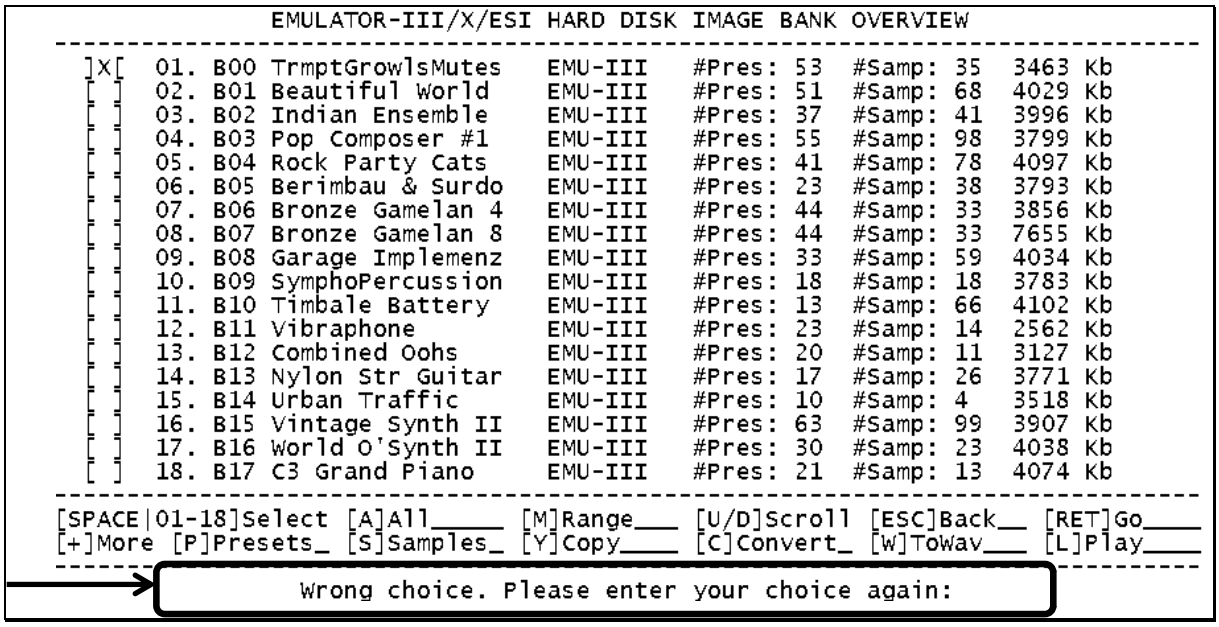
These additional short cut keys are '[D] Details', '[R] Report' and '[E] Erase'.

If you press the '[D] Details' short cut key in the above screen, the details of the selected bank will be shown, even while that short cut key is not actually displayed on the bottom line.

You can of course also press the '[+] More' key first to see which additional short cut keys are available...



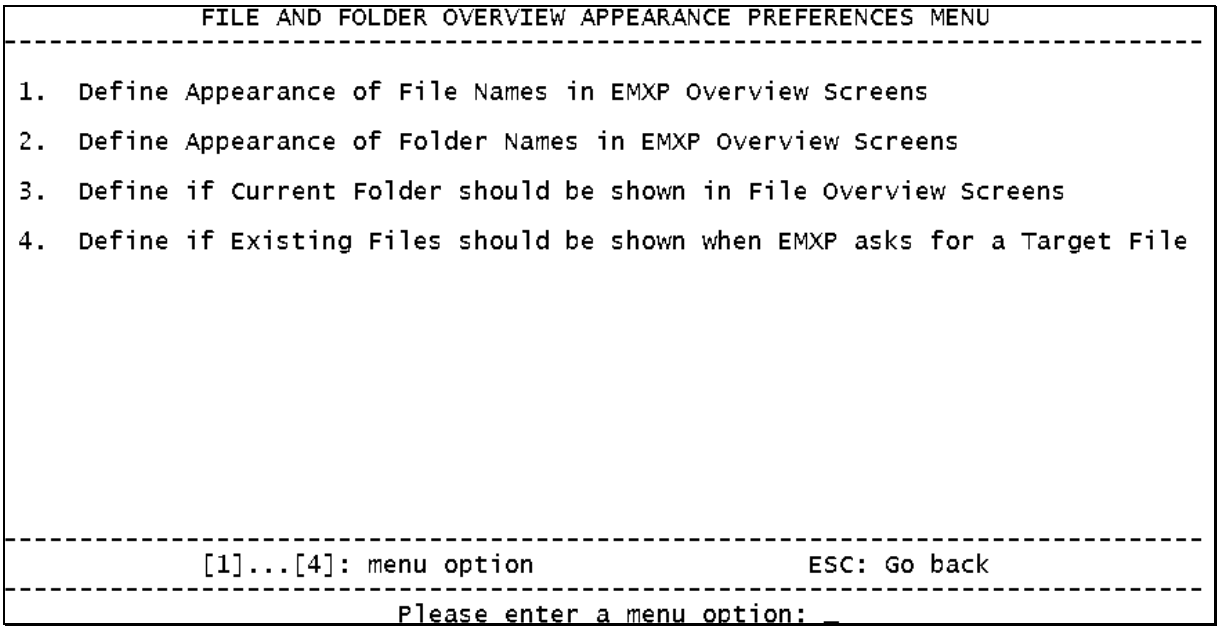
- *Option 4*: only the short cut keys that are displayed on the bottom line of the current screen are enabled. If you would press the '[D] Details' key in the screen below, a "Wrong choice. Please enter your choice again" message will be shown.



If you want use the '[D] Details' short cut key, you first have to explicitly press the '[+] More' key until the '[D] Details' short cut key appears on the bottom line of the screen.

10.4.5 Define appearance of file and folder overview screens

The appearance of any file or folder overview screen in EMXP can be slightly adapted with following functions:



10.4.5.1 Define appearance of file names in EMXP overview screens

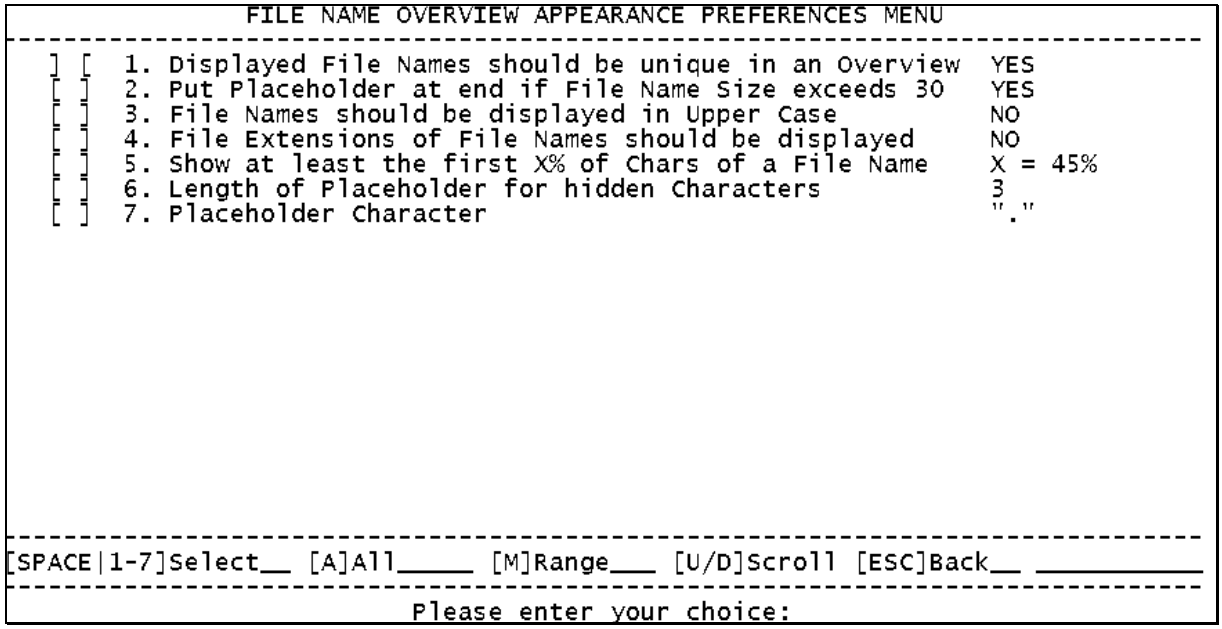
The way file names are displayed in any file overview screen can be changed to a certain degree.
A drawback of EMXP's *character based user interface* is that a single line on the screen can only hold 80 characters.

File overview screens not only contain the *file names* of the files being displayed, but also some key characteristics of these files like the number of presets and samples in a bank file and the bank name of the bank stored in that file.

As a result, only 30 characters are available for displaying file names.

Especially with long file names, 30 characters may be pretty low: if multiple files have similar names and the first 30 characters are even identical, then you wouldn't see any difference between these file names on an EMXP file overview screen.

Therefore EMXP offers the possibility to display the file names in another way - but still within the boundary of 30 characters.



Following parameters can be set:

- *Option 1*: whether EMXP should display each file name in such a way that they are unique within the file overview.
  If this option is set to 'NO', EMXP will always show the first 30 characters of the file name.
  If this option is set to 'YES', EMXP will compare all file names in the overview and will show any file name of which the first 30 characters are identical to another filename in the overview in a different way.
  This is achieved by hiding some characters and displaying those characters which make the file name unique within the overview, while also finding a balance in displaying characters from both the beginning, the middle and the end of the filename. When determining the final displayed file name, the other parameters in this preference menu are taken into account as.

  Example 1: suppose a file overview contains (amongst others) two files having following names:
  - "TheIncrediblyFantasticSoundingBlackSteinbergGrandPiano.EB1"
  - "TheIncrediblyFantasticSoundingWhiteSteinbergGrandPiano.EB1"
  Both filenames are longer than 30 characters and they only differ from each other at position 31 (Black versus White).

EMXP will show these filenames as follows:
- "TheIncredibly...BlackSteinb..."
- "TheIncredibly...WhiteSteinb..."

Example 2: suppose a file overview contains (amongst others) two files having following names:
- "TheIncredibleSoundingBlackSteinbergGrandPiano.EB1"
- "TheIncredibleSoundingWhiteSteinbergGrandPiano.EB1"
Both filenames are again longer than 30 characters, but they already differ from each other at position 22 (Black versus White). While simply showing the names as "TheIncredibleSoundingBlackS..." and "TheIncredibleSoundingWhiteS...", EMXP uses a more intelligent algorithm and will display the names as follows:
- "TheIncredible...BlackSteinb..."
- "TheIncredible...WhiteSteinb..."
in order to show as many useful characters from all parts of each file name.

- *Option 2:* EMXP can put a placeholder at the end of the file name if the file name exceeds 30 characters. Of course the placeholder itself will take some room as well, so the actual displayed portion of the file name will be 29 or less. This depends on the length of the placeholder, which can be defined with option 6.

  In the examples shown before, a placeholder of 3 dots has been displayed at the end of the file names. But even if there would not be any issues with uniqueness, EMXP would still have displayed the file name with dots at the end if option 2 is enabled.
  E.g. "TheIncredibleSoundingBlackS..." for example 2.

- *Option 3:* If you prefer all filenames to be displayed in upper case, you can enable this option here.

- *Option 4:* By default EMXP is not displaying any file extensions (like .EB1 or .EZ2) because almost all file overviews only contain files of the same type having the same extension. E.g. the EMAX-I bank file overview only contains .EB1 files, so EMXP is not spoiling 4 of the 30 available characters to show this extension. If you want EMXP to *always* display file extensions, you should enable this option here.

  Note: some file overviews can contain a mixture of file extensions, e.g. Emulator-III bank files having both the .EB3 and .E3B extension, or Akai S1000 file overviews containing a mixture of programs, samples and drum files. If this is true, EMXP will *always* show the extensions and ignore this setting.

- *Option 5:* If a file name is longer than 30 characters, EMXP will have to hide some characters. If option 1 is enabled, you can define with option 5 how many of the first characters of a file name should be shown at least before EMXP can start hiding characters.

  The default setting is 45%. With 30 characters available in a typical file overview screen, this means that at least the first 13 characters of a file name will be displayed.
  This is illustrated in the examples explained under option 1.

- *Option 6:* If EMXP is shortening file names by hiding characters either at the end of the file name or in the middle of the file name (or both), the hidden parts of the file name will be replaced by a placeholder. The length of this placeholder can be defined in option 6. The placeholder character can be defined in option 7.

- *Option 7:* If EMXP is shortening file names by hiding characters either at the end of the file name or in the middle of the file name (or both), the hidden parts of the file name will be replaced by a placeholder. The length of this placeholder can be defined in option 6. The placeholder character can be defined in option 7.

10.4.5.2 Define appearance of folder names in EMXP overview screens

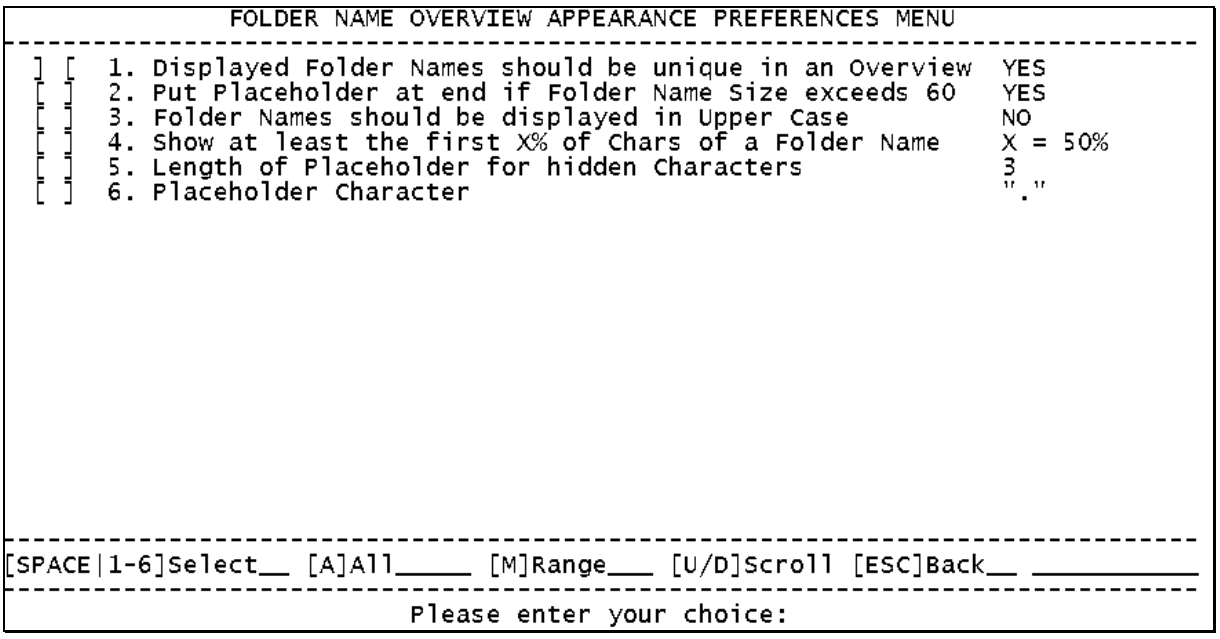
The problem explained in *section "10.4.5.1 Define appearance of file names in EMXP overview screens"* is also applicable for folder overview screens.

Fortunately a folder overview screen typically only contains *folder names*, as opposed to file overview screens which also contain some file attributes. As a result 60 characters are typically available for showing folder names, as opposed to only 30 characters for file names.

The drawback is that folder names are quite long, because they contain the *full path* of a folder, including even the drive letter.

You can define how to display folder names in a similar way as you can do for file names.

The only difference is that no option is available for showing file extensions.

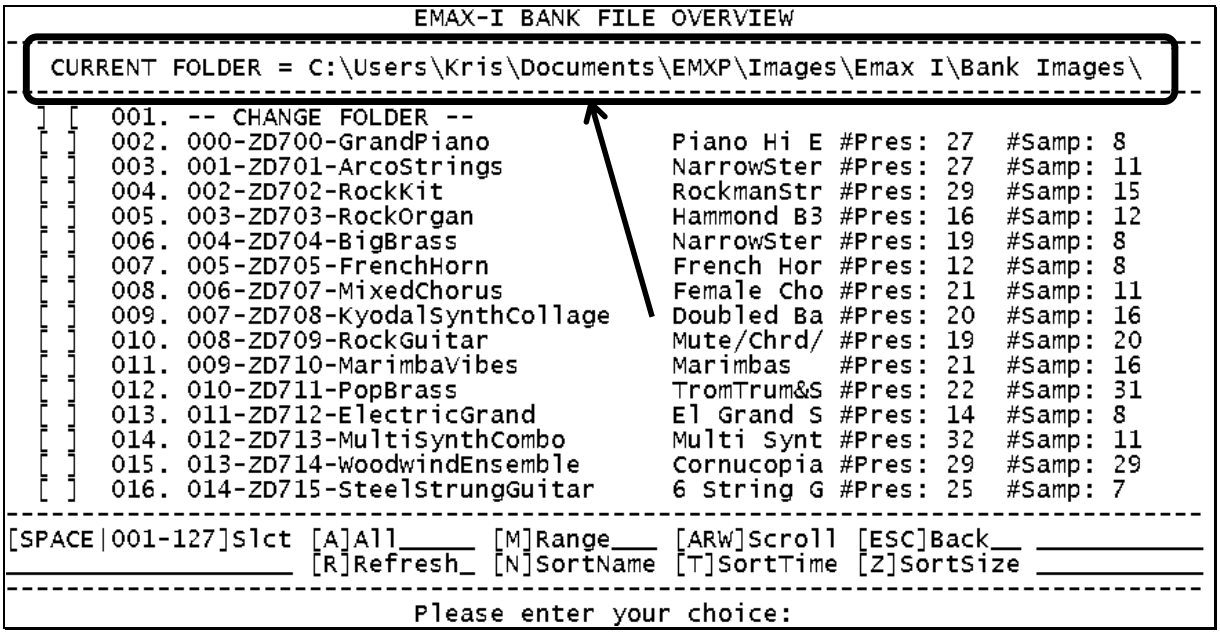


See *section "10.4.5.1 Define appearance of file names in EMXP overview screens"* for more information about the available options.

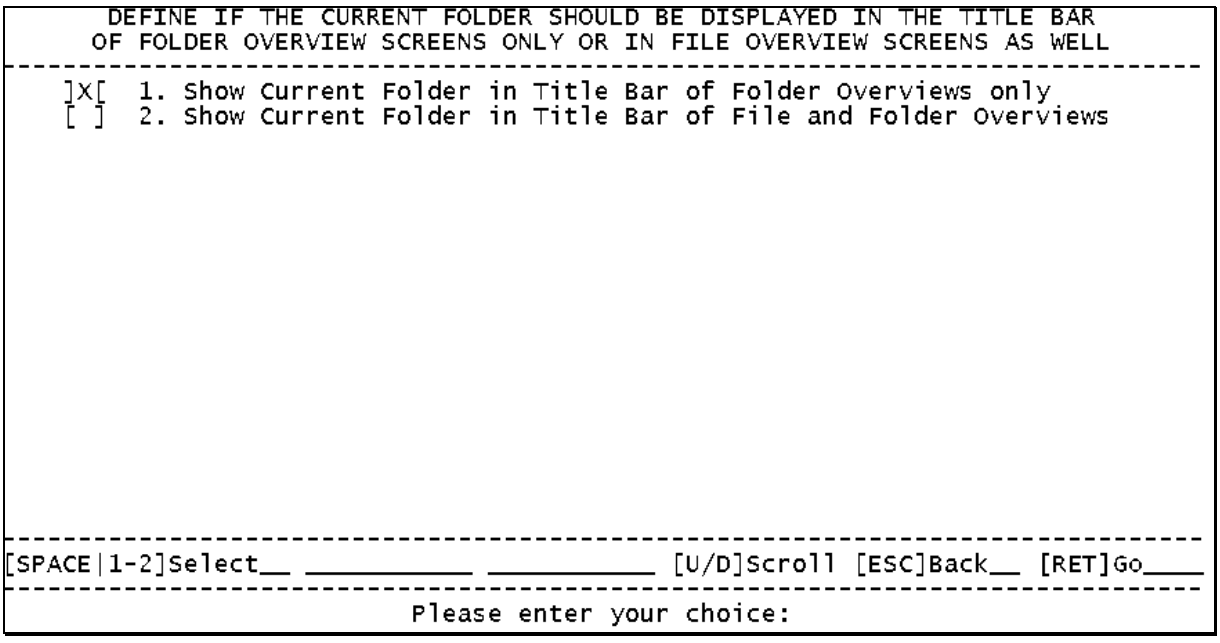
10.4.5.3 Define if current folder should be shown in file overview screens

File overviews only contain the file names of a file, not their folder.

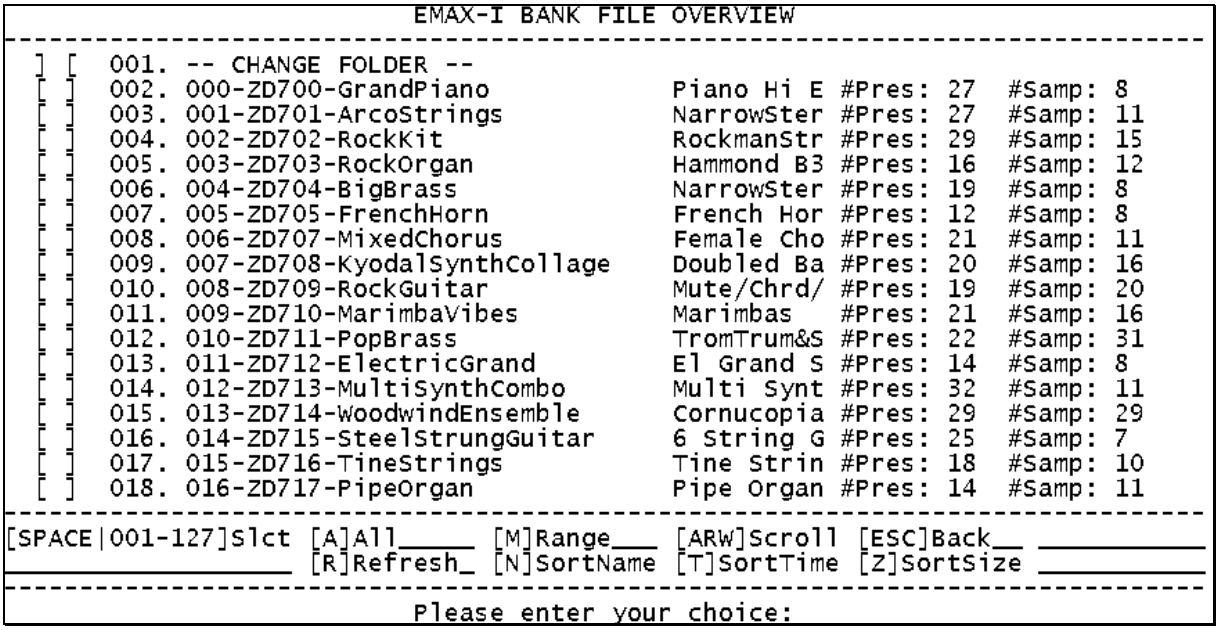
To be able to derive in which folder the currently displayed files are stored, EMXP by default displays the current folder's name at the top of the file overview screens and the folder overview screens, as depicted in the picture below.



You can change this behaviour for file overview screens, e.g. to make more room on the screen available for showing files.
Simply set the preference on the next screen to *"Show current folder in title bar of folder overview screens only"*

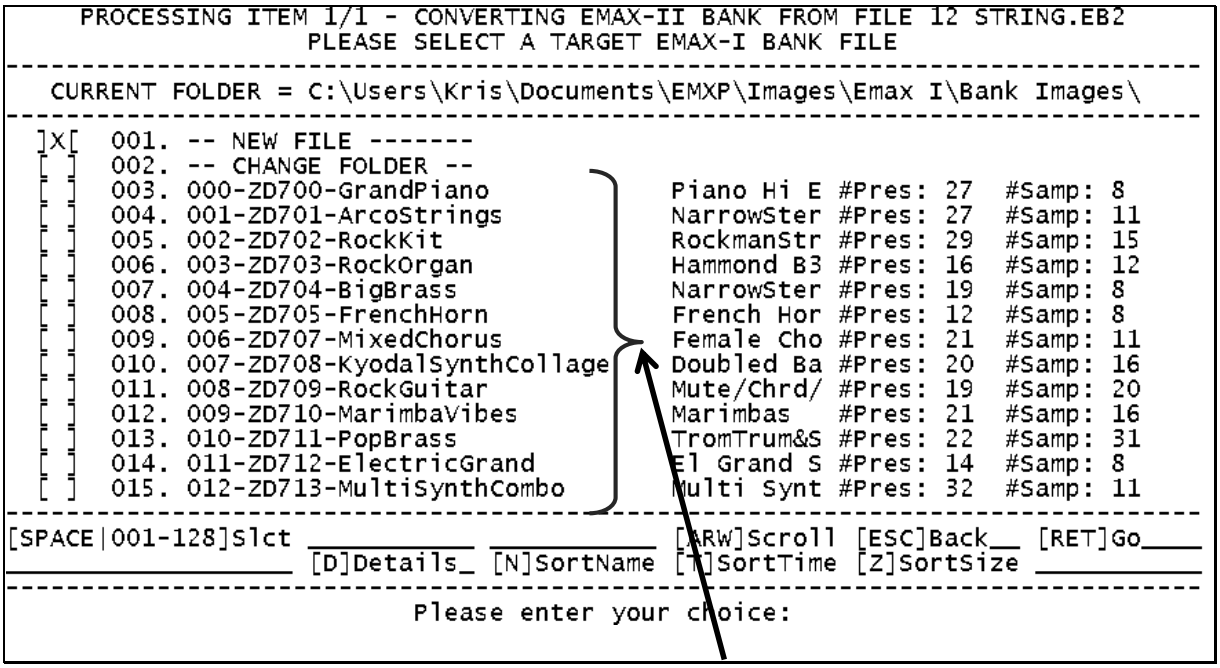


The picture below shows the result of changing this setting:



10.4.5.4 Define if existing files should be shown when EMXP asks for a target file

Whenever EMXP is requesting for a target file, the File Manager is launched and all available files in the current folder are displayed, as shown in the picture below.

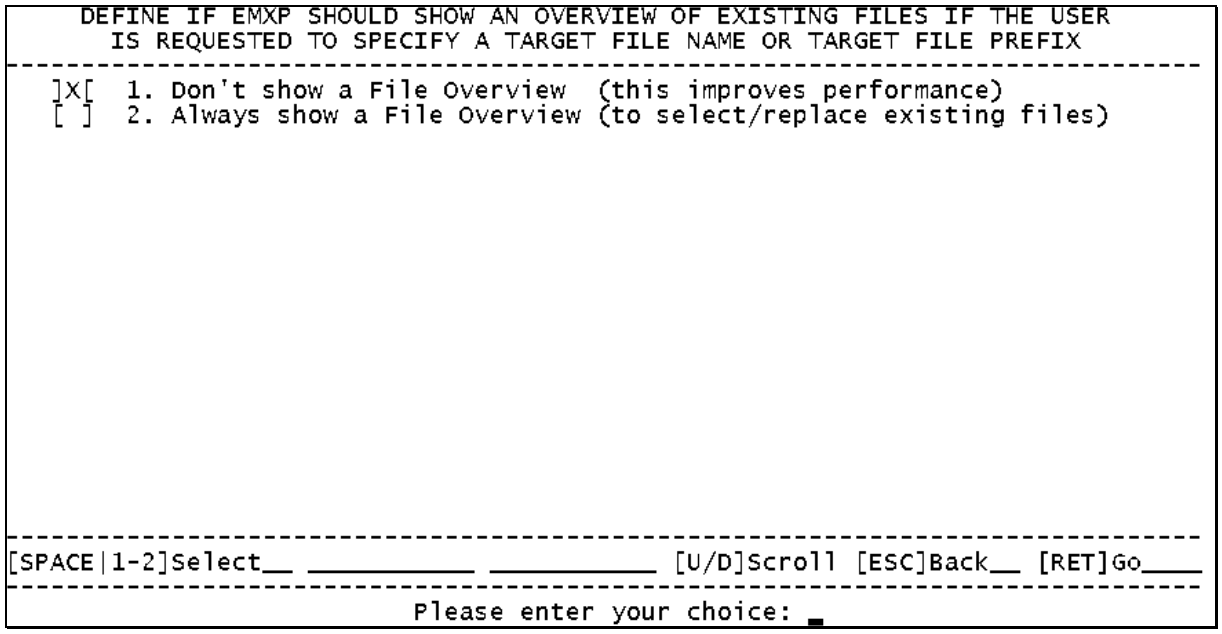


This allows you not only to create a new file (by selecting the "`-- NEW FILE --`" item) but also

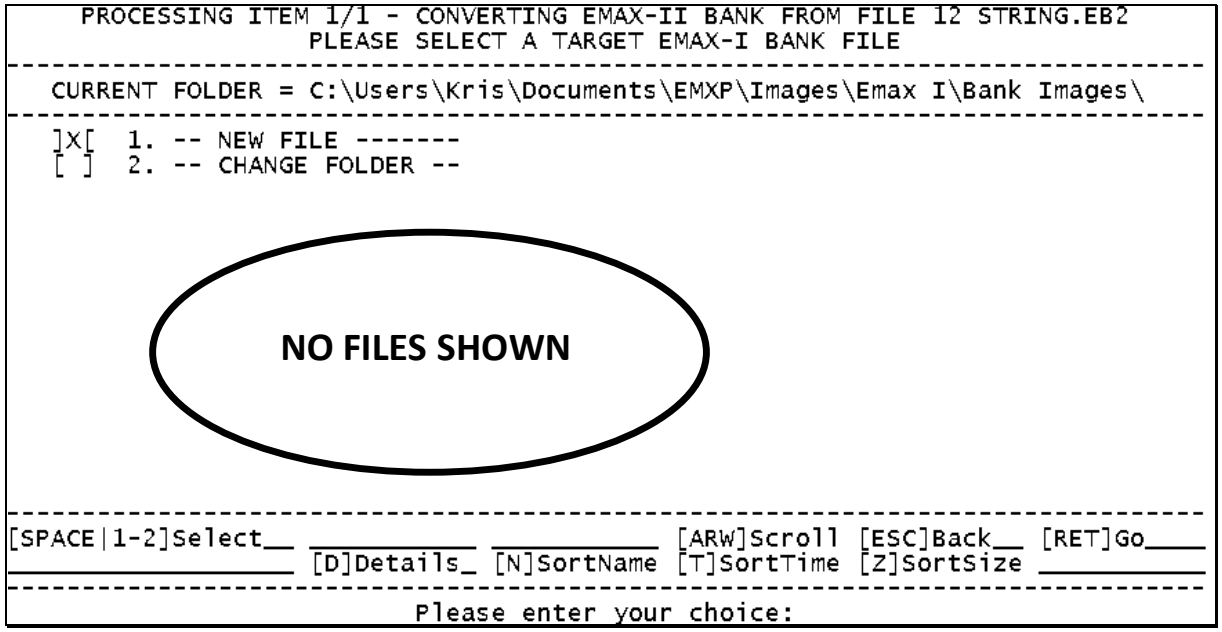
- to replace an existing file
- or to select an existing file name as a basis for the new file's name by slightly adapting the existing file name afterwards.

However if you have to enter a lot of target file names successively, this might be an annoying way of working because EMXP has to search for these files over and over again.
This can especially be annoying if the folder contains a lot of files, because in that case you will have to wait for a few seconds each time while EMXP is scanning the folder for files.

You can disable this behaviour by selecting the "Don't show a file overview (this improves performance)" option in the preference screen below.

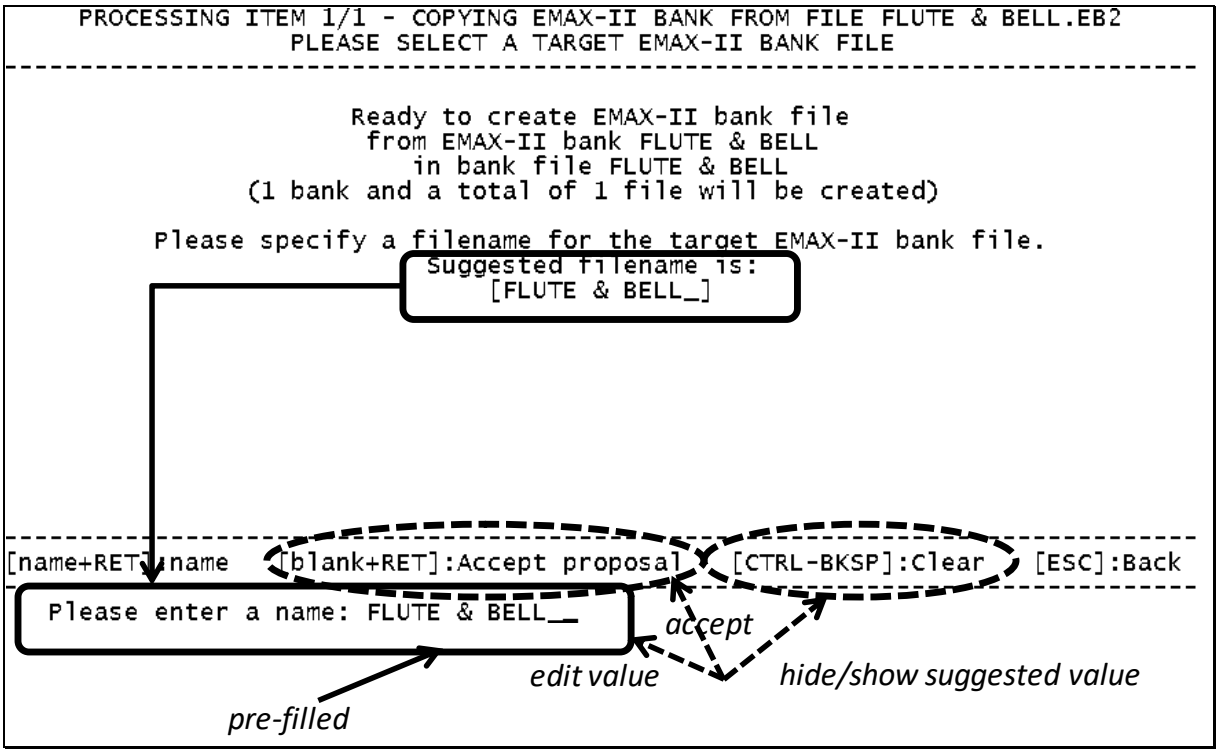


With this option disabled, the target file overview screen will look like the picture below. You can only select another folder and/or the "`-- NEW FILE --`" option.

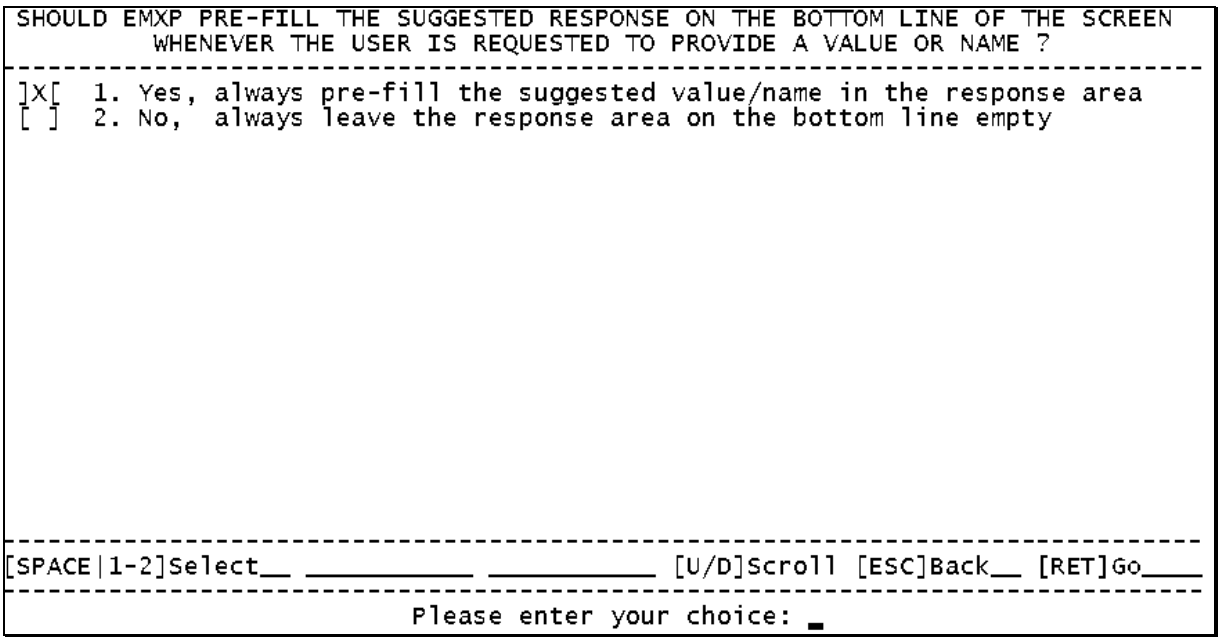


10.4.6 Define if user response area should be pre-filled with suggested response

Whenever EMXP is asking for a value or name, e.g. a file name, EMXP will propose a "default value" or a "suggested name", as shown in the picture below.
You can accept this proposal simply by pressing ENTER, or you can change or replace the proposal on the bottom line of the EMXP screen. *Note that by pressing CTRL-Backspace, you can hide and pre-fill the proposed value at any time, no matter if you have enabled or disabled the pre-fill preference !*

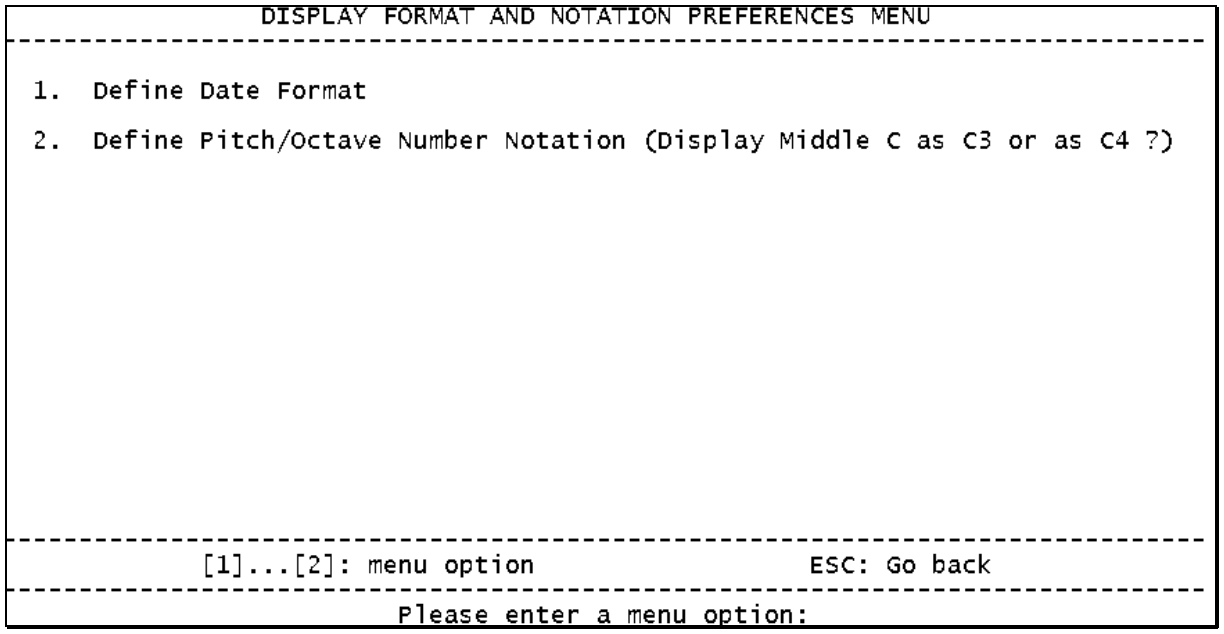


With this preference you can define whether the proposed value or name should be pre-printed on the bottom line or not.
Some users may like the fact that the proposal is immediately available for being edited, while other users may prefer the option to always enter new values or names and always ignore the proposals from EMXP.



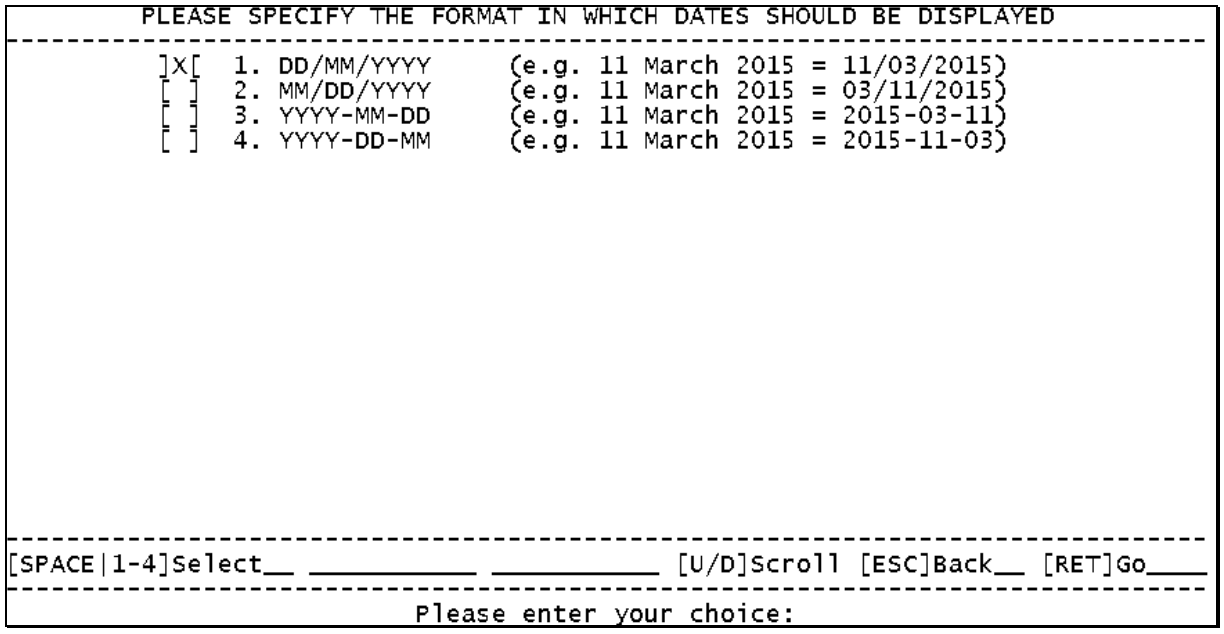
10.4.7 Define some display formats and notations

The appearance of dates and the pitch notation in EMXP can be adapted with following functions:



10.4.7.1 Define date format

When format in which dates are displayed in EMXP screens and reports can be changed in this preference screen.

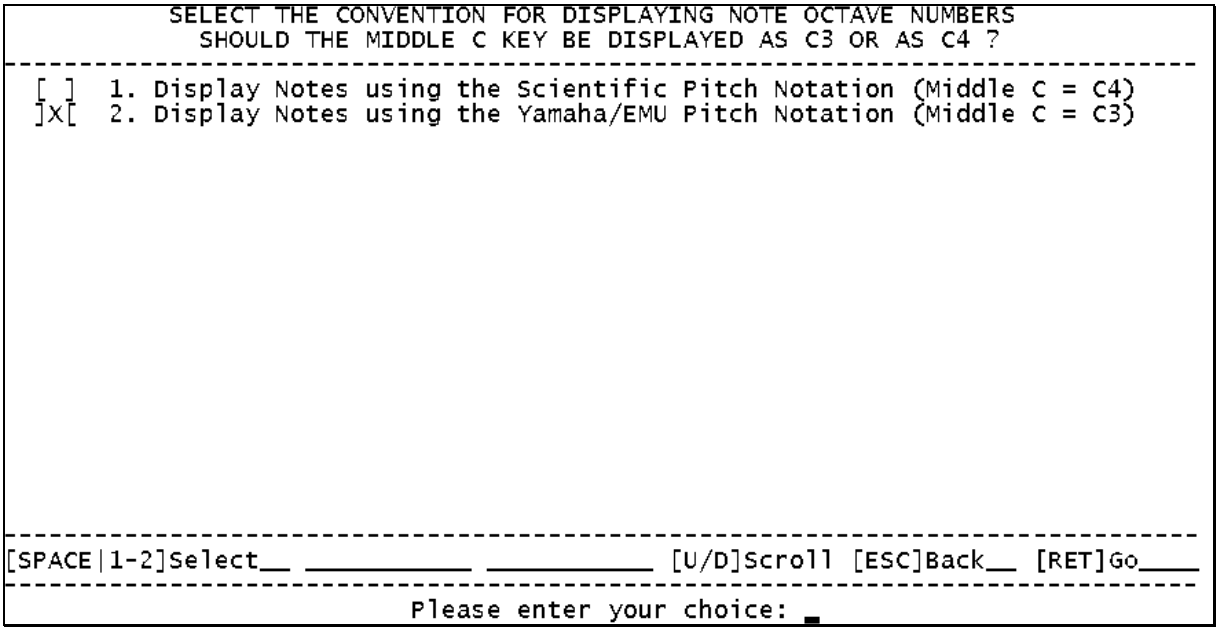


The following formats are available:

- *Option 1*: DD/MM/YYYY. E.g. 11 March 2015 is displayed as 11/03/2015
- *Option 2*: MM/DD/YYYY. E.g. 11 March 2015 is displayed as 03/11/2015
- *Option 3*: YYYY-MM-DD. E.g. 11 March 2015 is displayed as 2015-03-11
- *Option 4*: YYYY-DD-MM. E.g. 11 March 2015 is displayed as 2015-11-03

10.4.7.2 Define pitch/octave number notation (display Middle C as C3 or as C4 ?)

When EMXP displays notes / keys in any of its screens, the octave number mentioned in the key name (e.g. the 3 in key C#3) is determined by the pitch notation standard that can be selected in this preference screen.



E.g. should the first key of the EMAX-I keyboard be referred to as C1 or as C2 ?

In EMU samplers, the first key of the keyboard is referred to as C1, the A=440 Hz key is called A3, and the middle C (MIDI note 60) is referred to as C3. This is the so-called "Yamaha" Pitch Notation.
Many other instruments however apply the "Scientific Pitch Notation". In this notation standard, the A=440 Hz key is called A4 and the middle C (MIDI note 60) is referred to as C4.

It's important to understand that changing the value in this preference screen *only* has "cosmetic" consequences:

- Only the way the key/note values are *displayed* in EMXP is changed when this preference is changed.
- *No* actual pitch shift (of +/- 1 octave) will be applied during conversions when this preference is changed.

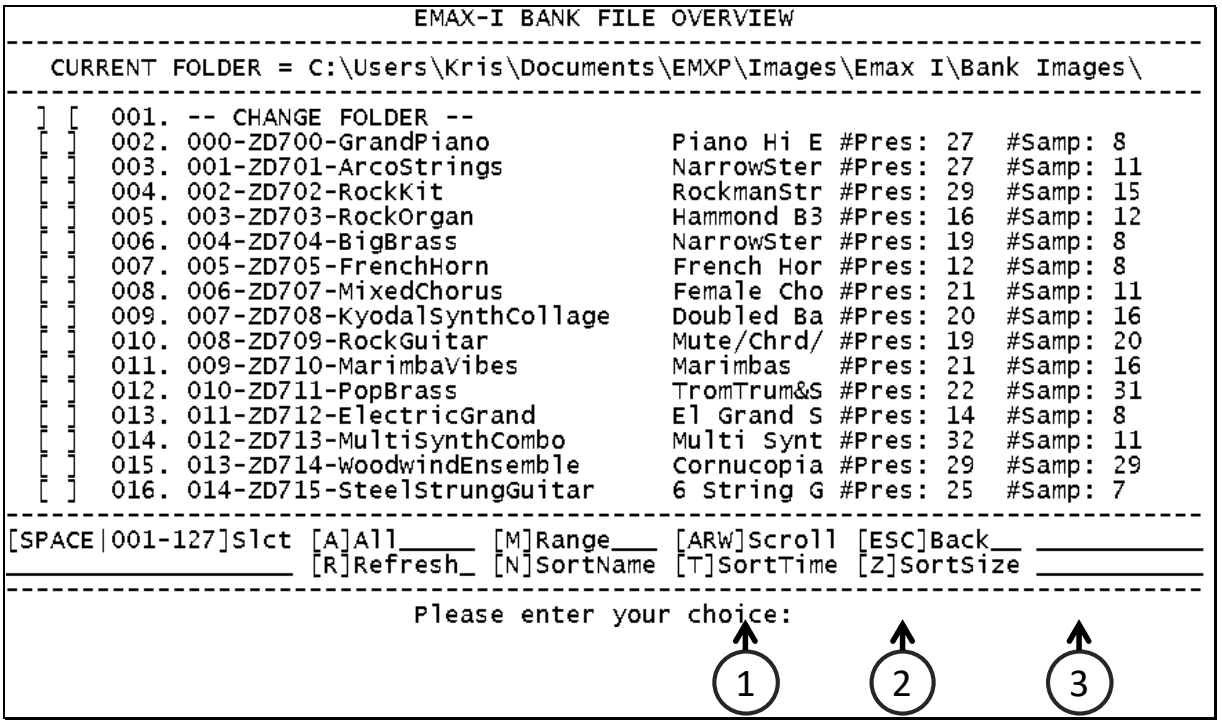
MIDI note 60 remains MIDI note 60, it doesn't matter if this note is displayed as C3 or as C4 in EMXP.

Note: in this manual all pictures and examples have been printed with the "Yamaha"/EMU notation.

10.4.8 Define alternative bank list screen view for some samplers

When displaying an overview of Emax-I, Emax-II or Emulator-II sound banks (residing in any type of file or on any type of disk), by default EMXP is only showing the bank name, the number of presets and the number of samples[18] (for banks residing on hard disks or in hard disk image files, the size of the bank is displayed as well). The picture below illustrates an Emax-I bank file overview.

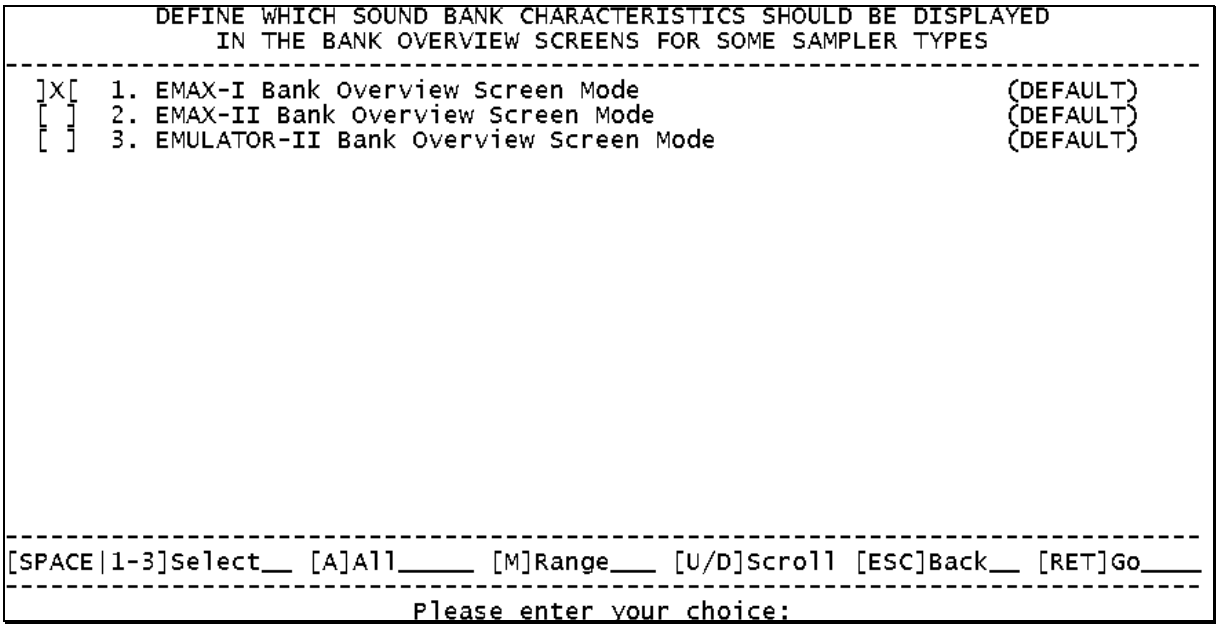
[18] For files, the file size and the date & time of the last modification are shown as well if you scroll to the right.



For each bank in each file, the following information is shown:

1. Bank name
2. Number of presets (#Pres: …)
3. Number of samples (#Samp: …)

If you would like to see the number of sequences as well, you can change the default bank overview display mode by an alternative bank overview display mode.
Changing this preference can be done independently for Emax-I, Emax-II and Emulator-II banks.



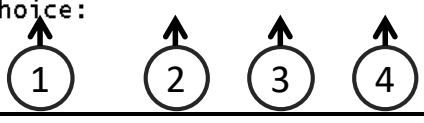
For each sampler type, two modes are available.

```
        DEFINE WHICH SOUND BANK CHARACTERISTICS SHOULD BE DISPLAYED
                      IN EMAX-I BANK OVERVIEW SCREENS
------------------------------------------------------------------------------
  [ ]  1. Show bankname, #presets, #samples [,size]                (=DEFAULT)
  ]X[  2. Show bankname, #presets, #samples, #sequences [,size] (=INCL.SEQ)
------------------------------------------------------------------------------
[SPACE|1-2]Select__ ___________ ___________ [U/D]Scroll [ESC]Back__ [RET]Go____
------------------------------------------------------------------------------
                            Please enter your choice:
```

If you select *option 2* the bank overview will contain the number of sequences as well. This is illustrated in the picture below for an Emax-I bank file overview.
For each bank in each file, the following information is shown:

1. Bank name
2. Number of presets (#P: …)
3. Number of samples (#S: …)
4. Number of sequences (#SQ: …)

```
                              EMAX-I BANK FILE OVERVIEW
------------------------------------------------------------------------------
   CURRENT FOLDER = C:\Users\Kris\Documents\EMXP\Images\Emax I\Bank Images\
------------------------------------------------------------------------------
  ] [  001. -- CHANGE FOLDER --
  [ ]  002. 000-ZD700-GrandPiano            Piano Hi E #P: 27 #S: 8  #SQ: 4
  [ ]  003. 001-ZD701-ArcoStrings           NarrowSter #P: 27 #S: 11 #SQ: 2
  [ ]  004. 002-ZD702-RockKit               RockmanStr #P: 29 #S: 15 #SQ: 2
  [ ]  005. 003-ZD703-RockOrgan             Hammond B3 #P: 16 #S: 12 #SQ: 2
  [ ]  006. 004-ZD704-BigBrass              NarrowSter #P: 19 #S: 8  #SQ: 2
  [ ]  007. 005-ZD705-FrenchHorn            French Hor #P: 12 #S: 8  #SQ: 3
  [ ]  008. 006-ZD707-MixedChorus           Female Cho #P: 21 #S: 11 #SQ: 3
  [ ]  009. 007-ZD708-KyodalSynthCollage    Doubled Ba #P: 20 #S: 16 #SQ: 3
  [ ]  010. 008-ZD709-RockGuitar            Mute/Chrd/ #P: 19 #S: 20 #SQ: 3
  [ ]  011. 009-ZD710-MarimbaVibes          Marimbas   #P: 21 #S: 16 #SQ: 2
  [ ]  012. 010-ZD711-PopBrass              TromTrum&S #P: 22 #S: 31 #SQ: 0
  [ ]  013. 011-ZD712-ElectricGrand         El Grand S #P: 14 #S: 8  #SQ: 1
  [ ]  014. 012-ZD713-MultiSynthCombo       Multi Synt #P: 32 #S: 11 #SQ: 1
  [ ]  015. 013-ZD714-WoodwindEnsemble      Cornucopia #P: 29 #S: 29 #SQ: 1
  [ ]  016. 014-ZD715-SteelStrungGuitar     6 String G #P: 25 #S: 7  #SQ: 3
------------------------------------------------------------------------------
[SPACE|001-127]Slct [A]All_____ [M]Range___ [ARW]Scroll [ESC]Back__ ___________
___________________ [R]Refresh_ [N]SortName [T]SortTime [Z]SortSize ___________
------------------------------------------------------------------------------
                            Please enter your choice:
```



Note:

- For Emulator-I and SP12 banks, the number of sequences is always shown, so no alternative mode is required for these samplers.
- Emulator-IIIX and SoundFont2 don't support sequences, so no alternative mode is required for these samplers neither.
- The number of sequences in Emulator-III banks is never shown in EMXP.

10.5 FILE AND DRIVE PREFERENCES

To change the preferences related to how to handle files and drives in EMXP:
"6. Preferences" → "4. Manage File/Drive Preferences"

Following options are provided:

```
                        FILE/DRIVE PREFERENCES MENU
------------------------------------------------------------------------------

   1.  Define file and drive location preferences

   2.  Define if these preferences should be updated automatically

   3.  Define some file extension related settings

   4.  Define SCSI2SD related settings

   5.  Define what to do if default folders are not found at start-up time

   6.  Define whether USB floppy drives should be ignored or not

   7.  Manage warning settings for invalid files, folders and disks

   8.  Manage EMULATOR-II disk and disk image preferences

   9.  Reset file and drive related preferences

------------------------------------------------------------------------------
            [1]...[9]: menu option                  ESC: Go back
------------------------------------------------------------------------------
                        Please enter a menu option:
```

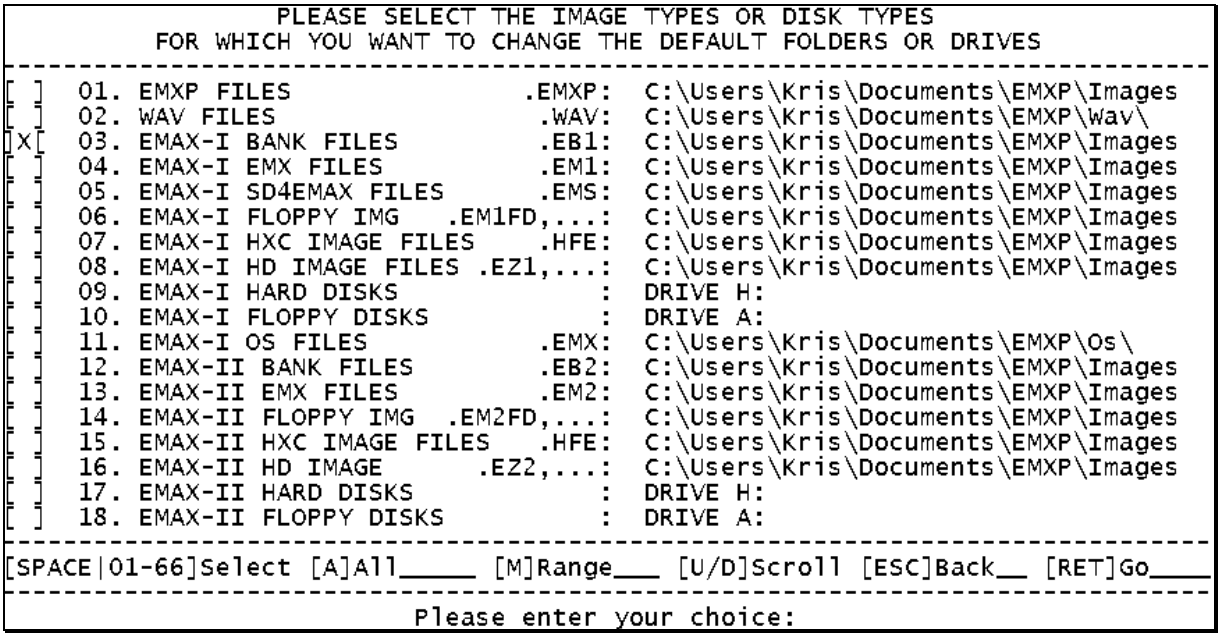
10.5.1 Define file and drive location preferences

For any file type or disk type supported by EMXP, you can define the *default folder* or *default drive* that should be used when accessing files or disks of that specific file type or disk type.

E.g. you might want EMXP to look for your EMAX-I bank files by default in the
"C:\Users\Me\Documents\EMXP\Images\EMAX I\Bank Images\" folder
while you want EMXP to look for your EMAX-I EMX files in the
"C:\Users\Me\Documents\EMXP\Images\EMAX I\" folder

E.g. you might want to have EMXP selecting the I-drive by default for EMAX-II hard disks, while you want EMXP to select the A-drive by default for EMAX floppy disks.

These *preferred* (default) folders and drives can be set in this preference screen.



For each supported file type or disk type (see left), the default folder or drive is mentioned in the overview (see the right column).

After selecting a file or disk type, EMXP will launch the File Manager or Disk Manager and you will have the possibility to select another folder or drive for that file type or disk type.

Note that you can select multiple file types or disk types at once: after pressing ENTER, this allows you to define all selected default folders and drives successively in one run.

Important note
You don't have to define the preferred folders and drives explicitly here if you have enabled the option to *update the file and drive location preferences automatically.* See the next *section "10.5.2 Define if these preferences should be updated automatically"*.
If this option is enabled, EMXP will always remember the most recent folder or drive that you have used for a particular file or disk type. It will use this folder or drive again the next time it has to look for files of disks of that type.

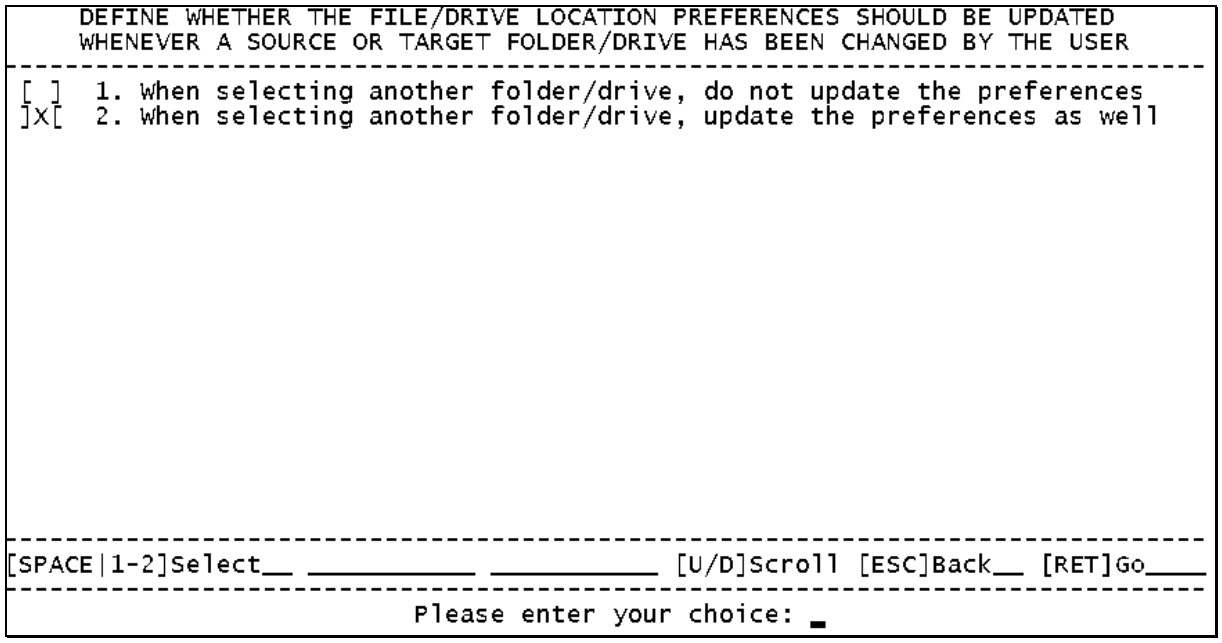
10.5.2 Define if these preferences should be updated automatically

EMXP can "remember" which folder you have accessed the last time when reading or writing a file of a specific type. E.g. EMXP can remember that you recently used the "C:\Users\Me\Documents\EMXP\Images\EMAX I\Bank Images\" folder when looking for EMAX-I bank files, and that you recently used the "C:\Users\Me\Documents\EMXP\Images\EMAX I\" folder when looking for EMAX-I EMX files.

The same is true for disk drives, e.g. when accessing EMAX-II hard disks or Akai S1000 floppy disks.

The big advantage of this setting is that you don't have to browse to a certain folder over and over again.
The disadvantage may be that if you are using a *preferred* folder in let's say 50 pct of the cases, and a lot of different other folders in the other 50 pct, you may not like EMXP to "remember" these "other" folders.

With this preference you can define whether EMXP should remember the most recently accessed folder and drives or not.

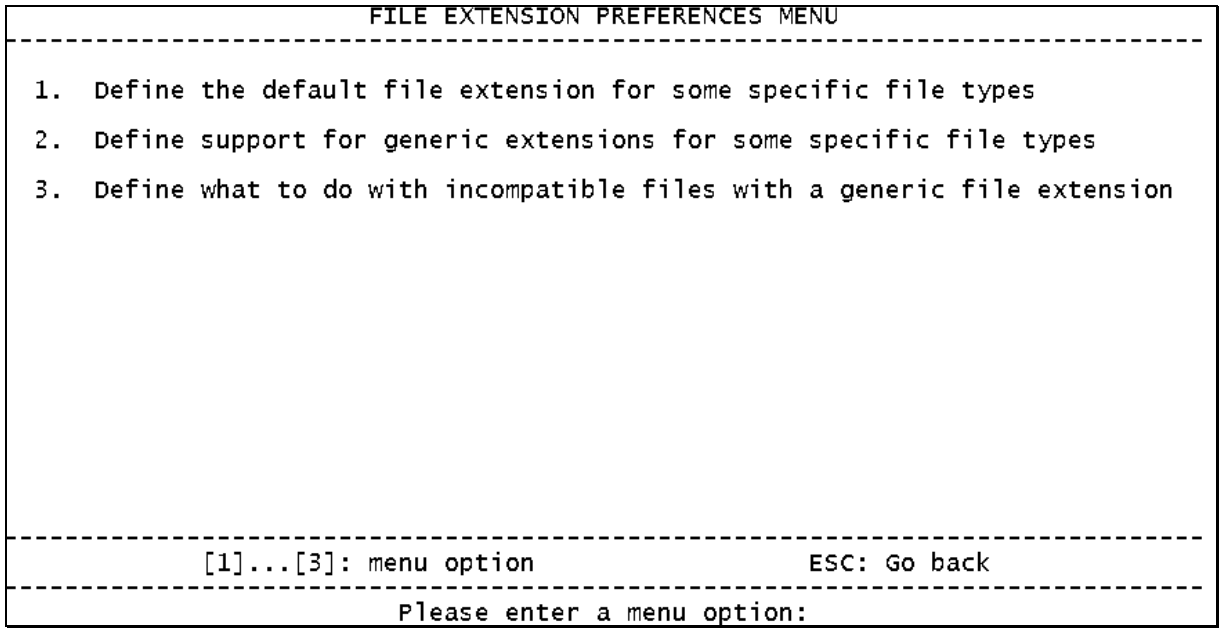


If you enable this setting, EMXP will simply overwrite the folders and drives which are maintained in the preferences overview (see *section "10.5.1 Define file and drive location preferences"*).

10.5.3 Define some file extension related settings

Some files in EMXP can have multiple file extensions. E.g. an Emax-I hard disk image file can have file extension .EZ1, .ISO or .IMG. Except for the file extension, there's no other difference between these file formats: an Emax-I hard disk image with file extension .EZ1 has exactly the same file structure/format as an Emax-I hard disk image with file extension .ISO. But not every .ISO file is an Emax-I hard disk image file. It's perfectly possible to have Emax-II, Emulator-II, Emulator-III, ESI or any other (non-sampler) disk image files all having a file extension of .ISO (or .IMG).

In this menu, you can define which file extensions are allowed for which file type, and which file extension should be used as the default file extension when saving or creating files in EMXP.



10.5.3.1 Define the default extensions for some specific file types

When EMXP was originally designed in 2006-2008, we had defined that

- the default file extension for *Emulator-III bank files* would be ".EB3"
- the default file extension for *Emulator-IIIX bank files* would be ".EB3" as well
- the default file extension for *Akai S1000 sample files* would be ".AKS"
- the default file extension for *Akai S1000 program files* would be ".AKP"

Since ".EB3" is used both for Emulator-III bank files and for Emulator-IIIX bank files, EMXP always validates the actual content of an ".EB3" file to derive whether it's an Emulator-III or Emulator-IIIX bank.

In the meantime we have learned that there's another *standard* out there:

- Emulator-III bank files having a file extension of ".E3B"
- Emulator-IIIX bank files having a file extension of ".E3X"
- Akai S1000 sample files having a file extension of ".S"
- Akai S1000 program files having a file extension of ".P"

The ".E3B" and ".E3X" standard is e.g. used by the E-Synth and other later EMU samplers for importing or exporting Emulator-III banks from/to (floppy) disk.
The ".S" and ".P" standard is used by most Akai S1000 software. The ".AKS" and ".AKP" extensions are typically used for Akai S5000, Akai S6000, Akai Z4 and Akai Z8 samples and programs; the use of these extensions for Akai S1000 samples and programs (by EMXP) is confusing and should be avoided. Nevertheless these extensions are still supported in order to assure compatibility with Akai S1000 ".AKS" and ".AKP" files that have been created with previous versions of EMXP.

ESI-v2 bank files are almost identical to Emulator-IIIX bank files. As a consequence they follow the same file extension conventions as the ones for Emulator-IIIX bank files (primarily ".E3X", alternatively".EB3"). But in order to support the maximum possible range of files created from ESI samplers, EMXP supports the ".ESI" file extension for ESI-v2/Emulator-IIIX bank files as well.
While ESI-v3 bank files are different from Emulator-IIIX bank files, EMXP accepts the ".E3X" file extension for these files as well. But their default file extension is ".ESI".

Next to these Emulator-III, Emulator-IIIX, ESI and Akai S1000 files, some other file types can have multiple file extensions as well:

- Emax-I hard disk image files can have file extension ".EZ1", ".ISO" or ".IMG"
- Emax-II hard disk image files can have file extension ".EZ2", ".ISO" or ".IMG"
- Emax-I floppy disk image files can have file extension ".EM1FD" or ".IMG"
- Emax-II floppy disk image files can have file extension ".EM2FD" or ".IMG"
- Emulator-III/IIIX/ESI hard disk image files can have file extension ".EZ3", ".ISO" or ".IMG"
- Emulator-III/IIIX OS floppy disk image files can have file extension "E3OFD" or ".IMG"
- Emulator-I floppy disk image files can have file extension ".EMUFD" or ".IMG"
- Emulator-II floppy disk image files can have file extension ".EMUIIFD" or ".IMG"
- Emulator-II hard disk image files can have file extension ".DSK", ".EMUIIHD", "ISO" or ".IMG"
- Akai S1000 floppy disk image files can have file extension ".AKI" or ".IMG"
- Partitioned hard disk image files (like SCSI2SD hard disk image files containing multiple hard disk "devices" of any [sampler] type) can have file extension ".ISO" or ".IMG"

The file extensions ".ISO" and ".IMG" are so-called *generic file extensions*. They can be used for many purposes. From the list above it's clear that the same generic file extension - e.g. .IMG - can be used for different file types supported by EMXP - e.g. Akai S1000 floppy disk images, Emulator-II floppy disk images -
Next to ".ISO " and ".IMG", ".HFE" is also a generic file extension because it's used for any HxC floppy disk image file, independent of the sampler or computer to which the file belongs. But ".HFE" is the *only* file available file extension for HxC floppy disk image files, so EMXP always uses this file extension when creating HxC floppy disk image files.

When *looking* for Emulator-III, Emulator-IIIX or ESI-v3 bank files and when *looking* for Akai S1000 sample or program files, EMXP will *always* detect files having *any of the above file extensions.*
When *looking* for hard disk image files and floppy disk images files, EMXP will *always* detect files with *specific file extensions* like .EZ2, .EMUIIFD or .DSK, but files with *generic file extensions* like .ISO or .IMG will only

be detected if EMXP has been configured to do so. See *section "10.5.3.2 Define support for generic extensions for some specific file types"*.

Besides looking for files with the correct file extension, EMXP should also know what file extension to use when *saving* Emulator-III bank files, Emulator-IIIX bank files, ESI-v3 bank files, Akai S1000 sample files, Akai S1000 program files, floppy disk image files or hard disk image files.

This can be defined in this preference screen. Simply select for which file type you would like to define the file extension, and then select one of the available extensions from a pre-defined list.

```
            DEFINE WHAT FILE EXTENSIONS SHOULD BE USED WHEN EMXP
                 CREATES FILES OF SOME PARTICULAR FILE TYPES
------------------------------------------------------------------------------
] [  01. EMAX-I Floppy Disk Image Files                          .EM1FD
[ ]  02. EMAX-I Hard Disk Image Files                              .EZ1
[ ]  03. EMAX-II Floppy Disk Image Files                         .EM2FD
[ ]  04. EMAX-II Hard Disk Image Files                             .EZ2
[ ]  05. EMULATOR-I Floppy Disk Image Files                      .EMUFD
[ ]  06. EMULATOR-II Floppy Disk Image Files                   .EMUIIFD
[ ]  07. EMULATOR-II Hard Disk Image Files                         .DSK
[ ]  08. EMULATOR-III Bank Files                                   .EB3
[ ]  09. EMULATOR-IIIX Bank Files                                  .E3X
[ ]  10. ESI-V3 Bank Files                                         .ESI
[ ]  11. EMULATOR-III/X/ESI Hard Disk Image Files                  .EZ3
[ ]  12. EMULATOR-III/X OS Floppy Image Files                    .E3OFD
[ ]  13. AKAI S1000 Program Files                                    .P
[ ]  14. AKAI S1000 Sample Files                                     .S
[ ]  15. AKAI S1000 Floppy Disk Image Files                        .AKI
[ ]  16. PARTITIONED Hard Disk Image Files                         .ISO


------------------------------------------------------------------------------
[SPACE|01-16]Select [A]All_____ [M]Range___ [U/D]Scroll [ESC]Back__ ___________
------------------------------------------------------------------------------
                            Please enter your choice:
```

If a generic file extension is selected, while this extension has been *disabled* for file searches (see *section "10.5.3.2 Define support for generic extensions for some specific file types"*), EMXP will automatically enable the file extension for file searches for the selected file type.

This is illustrated below for EMAX-II hard disk image files: instead of the default ".EZ2" file extension, the ".IMG" file extension is selected as default file extension for creating EMAX-II hard disk image files. Since that extension is *by default disabled* for searching EMAX-II hard disk image files, EMXP will automatically enable this file extension for searching EMAX-II hard disk image files from now on.

```
            DEFINE WHAT FILE EXTENSION SHOULD BE USED WHEN EMXP
                    CREATES EMAX-II HARD DISK IMAGE FILES
------------------------------------------------------------------------------
  [ ]  1. Save EMAX-II Hard Disk Image Files with extension .EZ2
  [ ]  2. Save EMAX-II Hard Disk Image Files with extension .ISO
  ]X[  3. Save EMAX-II Hard Disk Image Files with extension .IMG



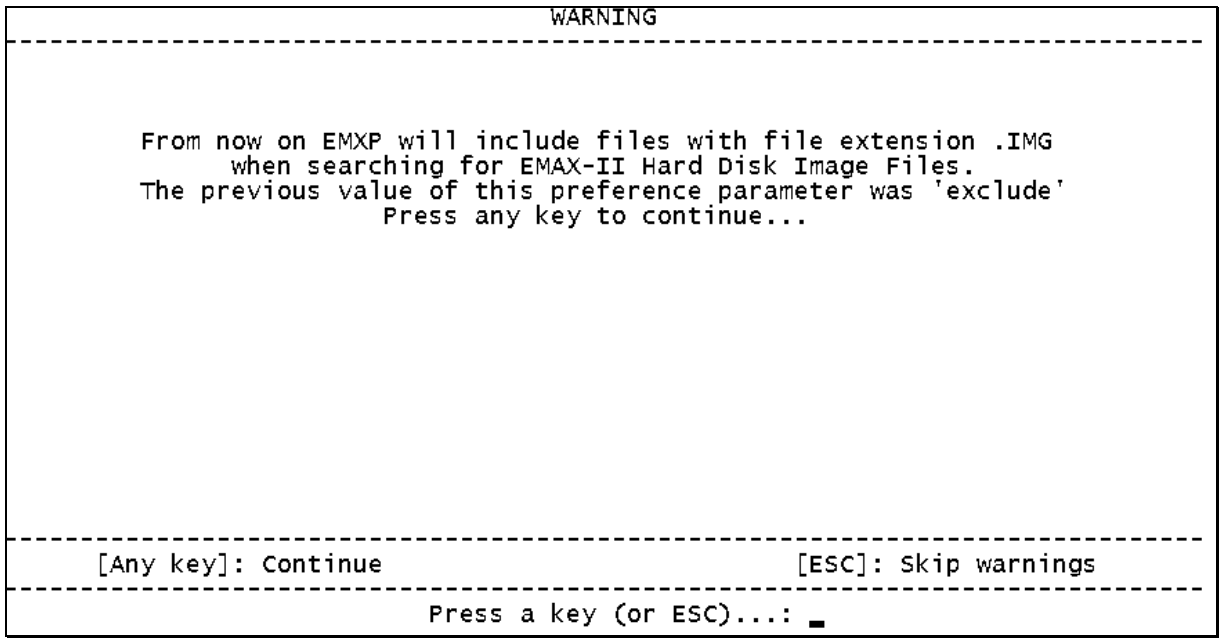






------------------------------------------------------------------------------
[SPACE|1-3]Select__ ___________ ___________ [U/D]Scroll [ESC]Back__ [RET]Go____
------------------------------------------------------------------------------
                            Please enter your choice: _
```

The following screen informs the user of the automatic activation of the file extension for file searches:



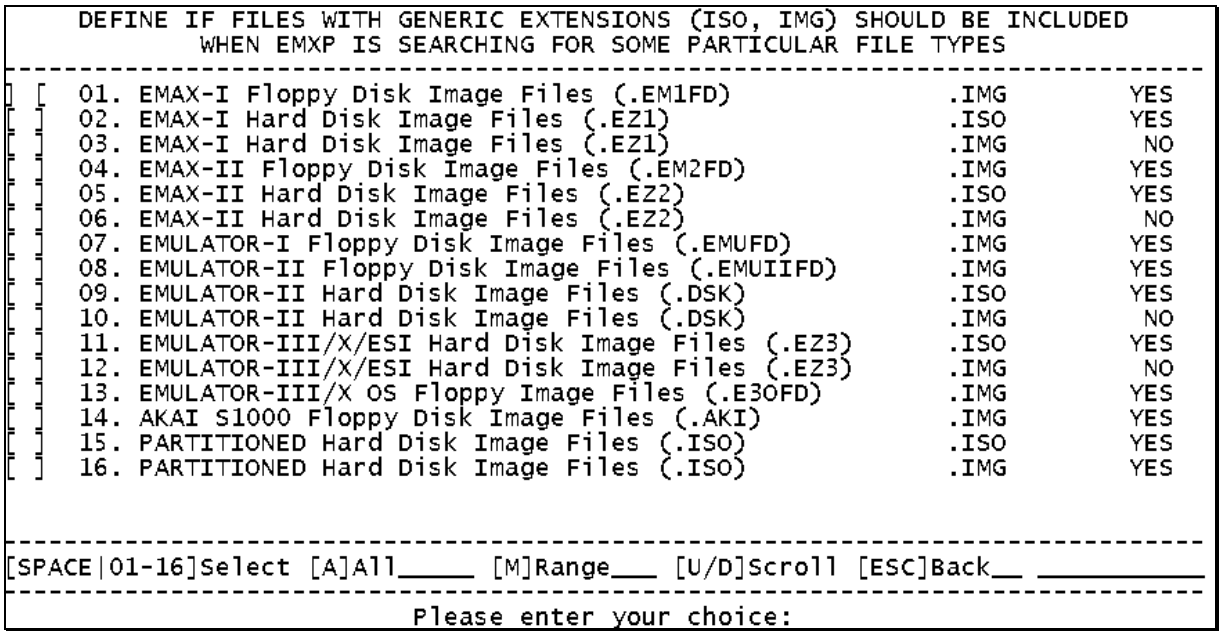
10.5.3.2 Define support for generic extensions for some specific file types

As explained in section *"10.5.3.1 Define the default extensions for some specific file types"* some files in EMXP can have *generic file extensions* next to their *specific file extension:*

- Emax-I hard disk image files can have file extension ".ISO" or ".IMG" next to ".EZ1"
- Emax-II hard disk image files can have file extension ".ISO" or ".IMG" next to ".EZ2"
- Emax-I floppy disk image files can have file extension ".EM1FD" or ".IMG"
- Emax-II floppy disk image files can have file extension ".EM2FD" or ".IMG"
- Emulator-III/IIIX/ESI hard disk image files can have file extension ".ISO" or ".IMG" next to ".EZ3"
- Emulator-III/IIIX OS floppy disk image files can have file extension "E3OFD" or ".IMG"
- Emulator-I floppy disk image files can have file extension ".IMG" next to ".EMUFD"
- Emulator-II floppy disk image files can have file extension ".IMG" next to ".EMUIIFD"
- Emulator-II hard disk image files can have file extension ".DSK", ".EMUIIHD", "ISO" or ".IMG"
- Akai S1000 floppy disk image files can have file extension ".IMG" next to ".AKI"
- Partitioned hard disk image files (like SCSI2SD hard disk image files containing multiple hard disk "devices" of any [sampler] type) can have file extension ".ISO" or ".IMG"

Generic file extensions can be used for many file types at once. When EMXP is looking for all files of a particular file type (e.g. Emulator-II floppy disk image files), EMXP has to open each file having a correct file extension (e.g. ".EMUIIFD" and ".IMG") and EMXP has to read its contents to check if the file is valid.
This can take quite a while, especially if there are many files in the selected folder.
If files with generic file extensions should be opened and checked as well, the performance can decrease even more if many files with generic file extensions are stored in that folder. If none of them belong to the requested file type, this would be a complete waste of time (e.g. because you use ".IMG" only for Akai S1000 floppy disk images files, not for Emulator-II floppy disk image files).

Therefore you can define which generic file types are applicable for each of the supported floppy disk image file types and hard disk image file types in EMXP.

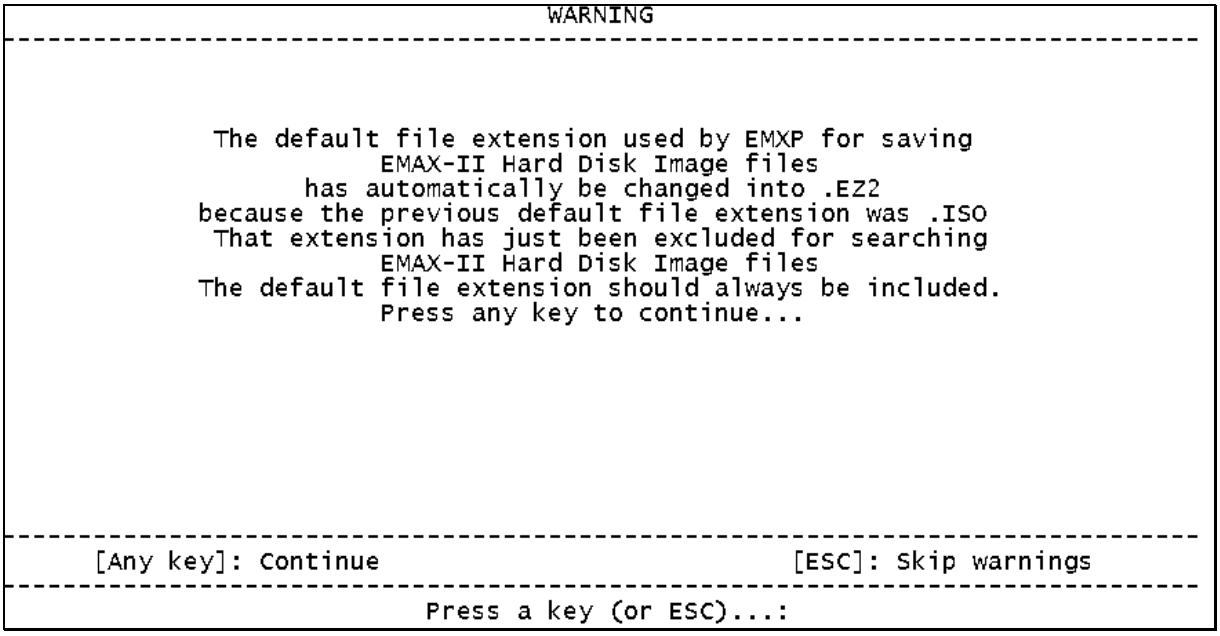


By default:

- ".IMG" is enabled for floppy disk image file searches
- ".ISO" is enabled for hard disk image file searches.
- ".IMG" is *disabled* for hard disk image file searches, except for partitioned (SCSI2SD) hard disk image file searches



If you *disable* a generic file extension while that file extension is selected as the default file extension for saving files (see *section "10.5.3.1 Define the default extensions for some specific file types"*), EMXP will automatically replace that default file extension by the *specific file extension* (instead of a generic file extension), as shown below.



10.5.3.3 Define what to do with incompatible files with a generic file extension

As explained in *section "10.5.3.1 Define the default extensions for some specific file types"*, floppy disk images files and hard disk image files can have *generic file extensions* next to their *specific file extension* in EMXP. And HxC floppy disk image files and partitioned (SCSI2SD) hard disk image files *always* have a *generic file extension.*

Since generic file extensions can be used for many file types at once, there's a high probability that EMXP will find and check files of another file type than the one EMXP is looking for.
E.g. if you instruct EMXP to find all Emulator-II floppy disk image files in a folder, and both ".EMUIIFD" and ".IMG" are allowed as a file extension (see *section "10.5.3.2 Define support for generic extensions for some specific file types"*), EMXP will check all .IMG files in the folder. However, many of them may not be Emulator-II floppy disk image files but rather EMAX-I files, EMAX-II files, Emulator-I files, Emulator-II hard disk image files, Emulator-III/IIIX files, Akai S1000 files or even other files not supported by EMXP. This would result in a warning message ("invalid file") for each file which is incompatible.

To avoid this kind of warnings in EMXP, you can *disable* these messages for files with a generic file extension.

By default these warnings are disabled for all generic file extensions and for all file types for which generic file extensions are supported (see "NO" = *don't report errors* in the right column on the screen below).

```
  DEFINE IF FILES WITH GENERIC EXTENSIONS (ISO, IMG, HFE) SHOULD BE REPORTED
      AS INVALID IF THEY ARE NOT COMPATIBLE WITH THE REQUESTED FILE TYPE
--------------------------------------------------------------------------------
] [  01. EMAX-I Floppy Disk Image Files (.EM1FD)                .IMG         NO
[ ]  02. EMAX-I HxC Floppy Image Files (.HFE)                   .HFE         NO
[ ]  03. EMAX-I Hard Disk Image Files (.EZ1)                    .ISO         NO
[ ]  04. EMAX-I Hard Disk Image Files (.EZ1)                    .IMG         NO
[ ]  05. EMAX-II Floppy Disk Image Files (.EM2FD)               .IMG         NO
[ ]  06. EMAX-II HxC Floppy Image Files (.HFE)                  .HFE         NO
[ ]  07. EMAX-II Hard Disk Image Files (.EZ2)                   .ISO         NO
[ ]  08. EMAX-II Hard Disk Image Files (.EZ2)                   .IMG         NO
[ ]  09. EMULATOR-I Floppy Disk Image Files (.EMUFD)            .IMG         NO
[ ]  10. EMULATOR-I HxC Floppy Image Files (.HFE)               .HFE         NO
[ ]  11. EMULATOR-II Floppy Disk Image Files (.EMUIIFD)         .IMG         NO
[ ]  12. EMULATOR-II HxC Floppy Image Files (.HFE)              .HFE         NO
[ ]  13. EMULATOR-II Hard Disk Image Files (.DSK)               .ISO         NO
[ ]  14. EMULATOR-II Hard Disk Image Files (.DSK)               .IMG         NO
[ ]  15. EMULATOR-III/X/ESI Hard Disk Image Files (.EZ3)        .ISO         NO
[ ]  16. EMULATOR-III/X/ESI Hard Disk Image Files (.EZ3)        .IMG         NO
[ ]  17. EMULATOR-III/X OS Floppy Image Files (.E3OFD)          .IMG         NO
[ ]  18. EMULATOR-III/X OS HxC Floppy Image Files (.HFE)        .HFE         NO
--------------------------------------------------------------------------------
[SPACE|01-22]Select [A]All_____ [M]Range___ [U/D]Scroll [ESC]Back__ ___________
--------------------------------------------------------------------------------
                            Please enter your choice:
```

After selecting one or more items on the screen above, you can change the settings regarding showing warnings for incompatible files:

```
  DEFINE IF FILES WITH GENERIC EXTENSION .IMG SHOULD BE REPORTED AS INVALID
            IF THEY ARE NOT EMULATOR-II FLOPPY DISK IMAGE FILES
--------------------------------------------------------------------------------
  ]X[  1. Ignore invalid EMULATOR-II Floppy Disk Image files with ext .IMG
  [ ]  2. Report invalid EMULATOR-II Floppy Disk Image files with ext .IMG
--------------------------------------------------------------------------------
[SPACE|1-2]Select__ ___________ ___________ [U/D]Scroll [ESC]Back__ [RET]Go____
--------------------------------------------------------------------------------
                            Please enter your choice: _
```

10.5.4 Define SCSI2SD related settings

EMXP supports *partitioned SD memory cards* which are specifically configured for use in a SCSI2SD board installed in an Emax-I, Emax-II, Emulator-III(X) or ESI sampler. Both v5 and v6 SCSI2SD boards are supported.
EMXP also supports (raw) hard disk image files (with file extension .ISO or .IMG) that have been made from partitioned SD cards or which are generated by EMXP from scratch.

The SCSI2SD supports up to 4 (for v5 boards) or even 7 (for v6 boards) SCSI hard disk *partitions* on a single SD memory card. These partitions are called *devices* in the *scsi2sd-util* program.
Each of these *devices* can be assigned a unique SCSI-ID, a size, a name and a start address on the SD card. When selecting a hard drive on the Emax-I, Emax-II, Emulator-III(X) or ESI sampler, each of the enabled SCSI-IDs on the SCSI2SD board will be available and will be presented as a separate hard drive to the sampler.

It's very important to understand that the partitioning schema of a SCSI2SDv5 SD card is *NOT STORED ON THE SD CARD*. It's only stored in flash RAM on the SCSI2SDv5 board.
For SCSI2SDv6 boards, the partitioning schema IS stored on the SD card, but EMXP does not use it.

To update the partitioning schema, the *scsi2sd-util* software[19] must be used. For SCSI2SDv5 boards, this software updates the flash RAM on the SCSI2SD board via USB but it doesn't store this information on the SD card itself. For SCSI2SDv6 boards, this software saves the information on the SD card.

Since the partitioning schema is not stored on SCSI2SDv5 SD cards, EMXP can't simply "ask" an SD card whether it's a partitioned card for use in a SCSI2SDv5 board or not.
Moreover EMXP does not support (yet) the partitioning data stored on SCSI2SDv6 SD cards. EMXP will treat v6 SD cards in the same way as v5 SD cards. The same procedure must be used for v5 and v6 cards.

If only one *device* has been enabled on the SCSI2SD, and its start address is set to the *first sector of the SD card*, the SD card can be used like any other normal un-partitioned sampler hard disk in EMXP.

But if more than one *device* has been enabled, or if the start address of the first device is not the first sector of the SD card, you will have

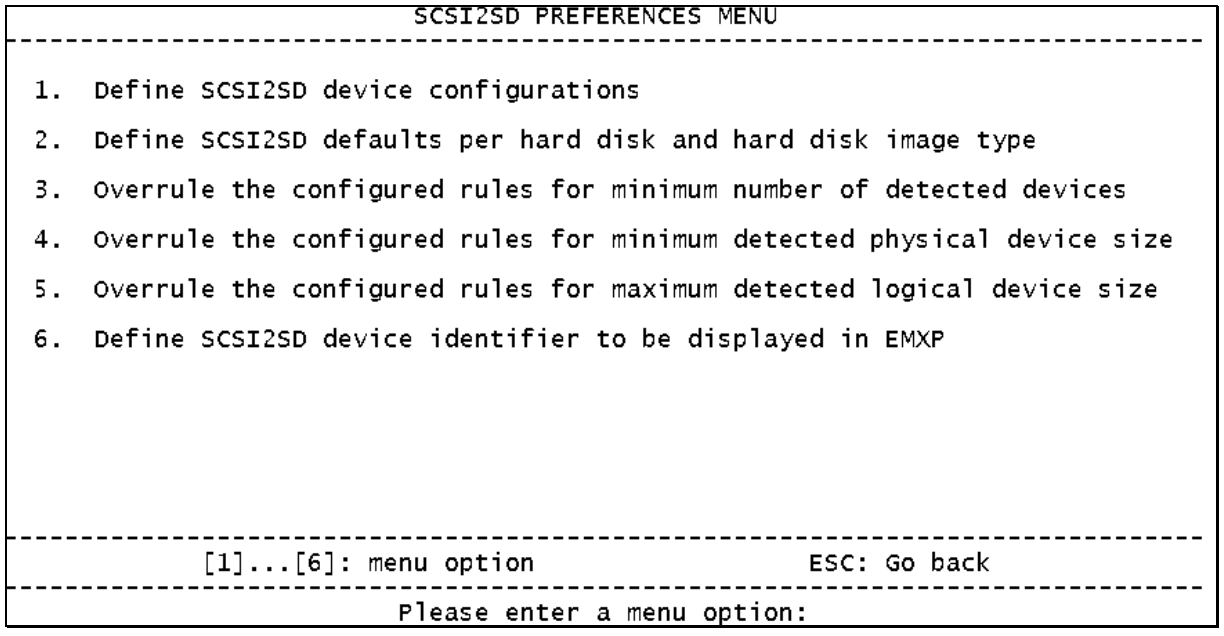
- to tell EMXP explicitly that the SD card is partitioned
- to provide the partitioning schema parameters that have been used in *scsi2sd-util* for that particular SD card

The same is true for (raw) hard disk image files (.ISO, .IMG) that have been made from partitioned SD cards.

Telling EMXP that an SD card or a hard disk image file is partitioned can be done in the EMXP Disk Manager and in the EMXP File Manager by pressing the "C" shortcut key in the disk or file overview screen. See section "4.5.2.4 Using the File Manager with SCSI2SD hard disk image files" and section "4.5.3.2 Using Disk Manager with SCSI2SD hard disks (SD cards)".

Providing the partitioning schema parameters can be done in the EMXP Disk Manager and EMXP File Manager as well (by pressing the "G" shortcut key in the disk or file overview screen, see *section "4.5.2.4 Using the File Manager with SCSI2SD hard disk image files"* and *section "4.5.3.2 Using Disk Manager with SCSI2SD hard disks (SD cards)"*).
But this information can also be defined upfront by means of SCSI2SD configuration preferences.

The following options are available:



[19] the scsi2sd-util software can be downloaded from http://www.codesrc.com/

10.5.4.1 About the default SCSI2SD detection rules applied by EMXP

As explained in *section "10.5.4 Define SCSI2SD related settings"* SCSI2SD v5 boards are not storing their configuration on the SD cards. As a consequence EMXP must apply some *rules* to find out whether a particular SD card or SD card image belongs to the SCSI2SD configuration that has been selected in the EMXP Disk Manager and EMXP File Manager.

SCSI2SD v6 boards *are* storing their configuration on SD cards, but EMXP is not using that information. EMXP deals with v6 boards in the same way as v5 boards, so it also applies the same detection rules for both v5 and v6 boards.

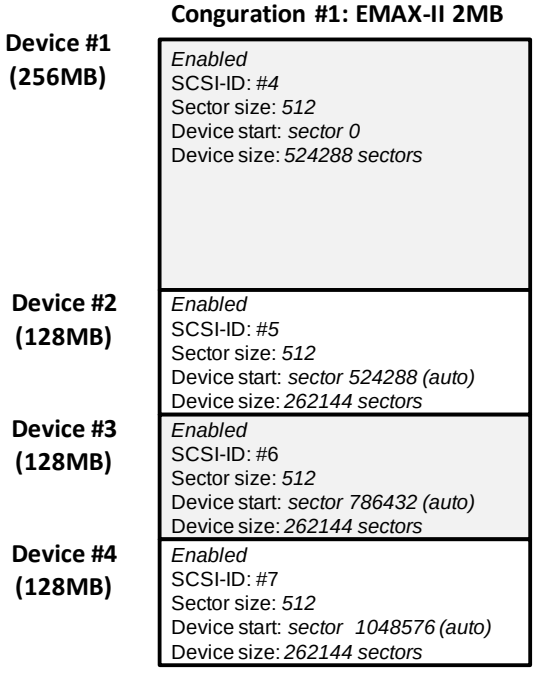
These *rules* are quite advanced. They can be tuned in the configuration definition screen (see *section "10.5.4.2 Define SCSI2SD device configurations"*) with

- option "06. Change #Required Enabled Devices", explained in *section "10.5.4.2.6 Change #required enabled devices"*.
- option "07. Change Min. Physical Device Size", explained in *section "10.5.4.2.7 Change minimum physical device size"*
- option "08. Change Max. Logical Device Size", explained *in section "10.5.4.2.8 Change maximum logical device size"*

Hint: the default rules applied by EMXP should be OK for normal use of SCSI2SD disks and disk images.

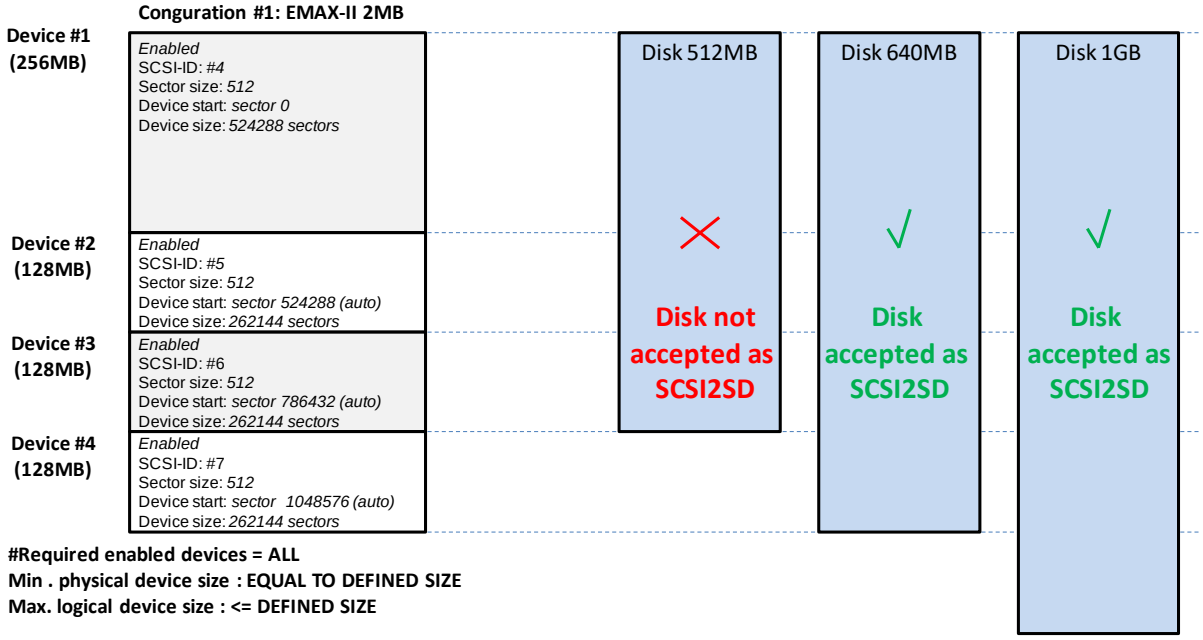
Unless you have a specific problem, you don't have to use options 6, 7 and 8 in the SCSI2SD configuration definitions screen.
In normal circumstances only options 9 → 15 should be used. These options define the basic parameters of each of the 4 or 7 devices on a SCSI2SD disk or disk image in a similar way as you have to do in the *scsi2sd-util software*.

The configuration named "EMAX-II 2MB" which is illustrated in the picture below will be used in the remainder of this chapter to explain the SCSI2SD partitioning detection rules applied by EMXP.
In this example configuration, 4 *devices* have been defined and enabled for a total size or 640MB.
The first device has a size of 256MB, the other three have a size of 128MB

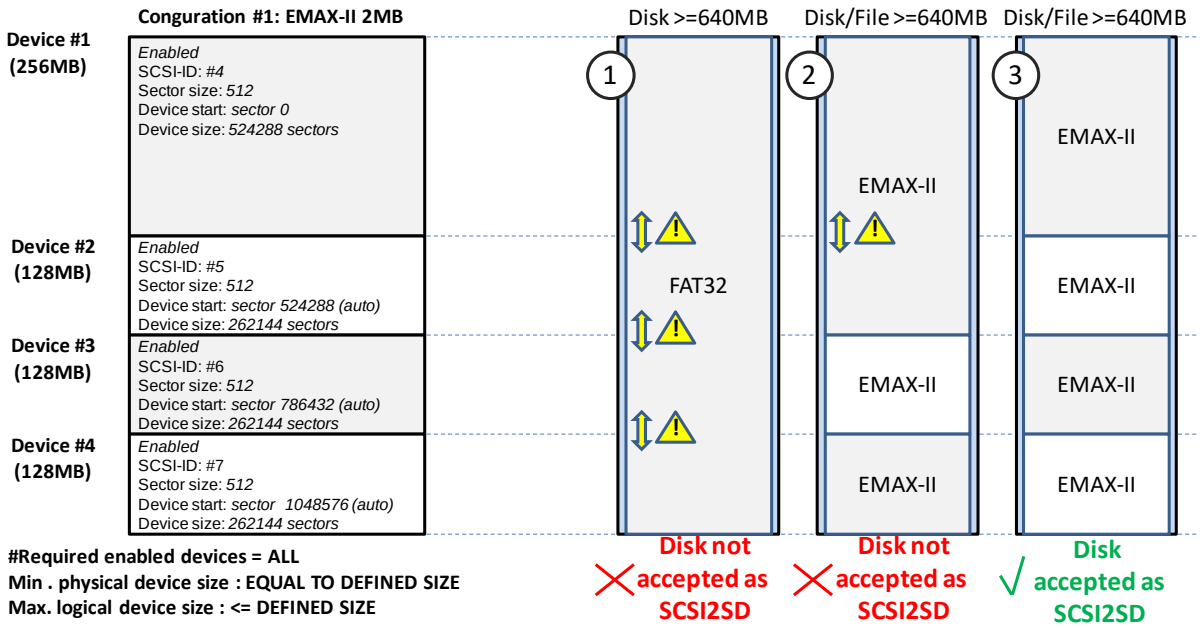


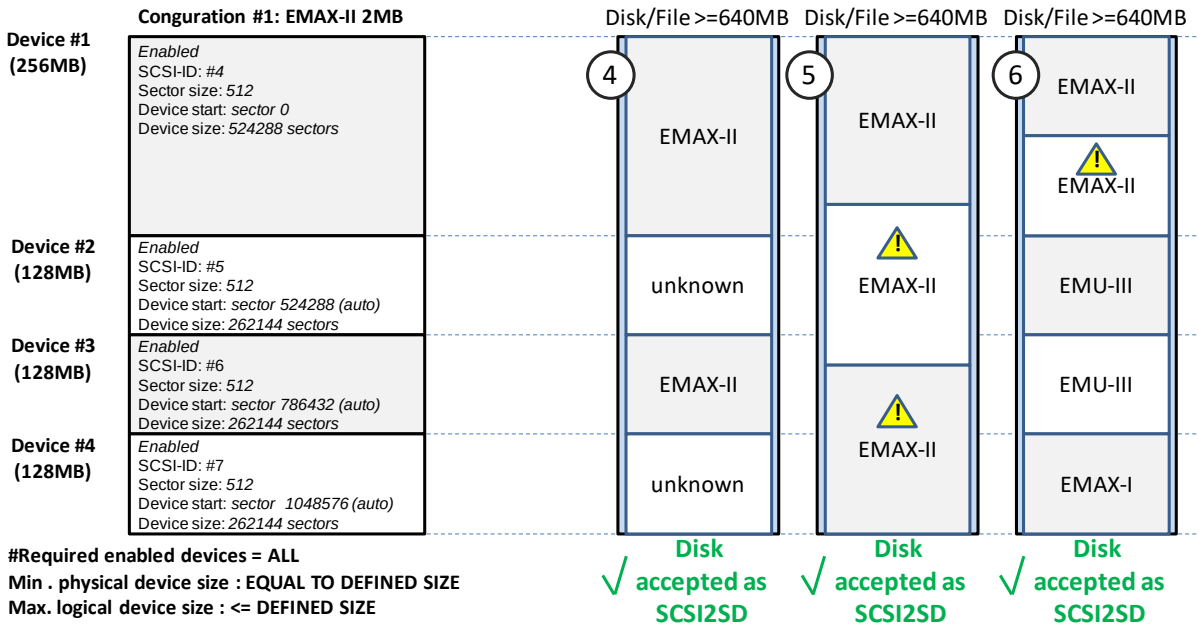
The default rules applied by EMXP to accept that an SD card (disk) or SD card image (disk image) belongs to the selected SCSI2SD configuration are:

- the physical size of the disk or disk image must be sufficient to hold at least *all enabled devices* of the SCSI2SD configuration. In the above example, the disk or disk image must have a size of at least 640MB



- none of the enabled devices (partitions) should overlap with the *logical* formatted size of any of the preceding enabled devices. Only EMU Emax-I, Emax-II or Emulator-III/X/ESI logical formats (file systems) are taken into account in this rule, as well as Windows compatible logical formats like FAT, FAT32 and NTFS but only for hard disks and if the Windows file system resides at the very beginning of the disk (in the first partition at address 0).
  For hard disk images or for partitions not starting at address 0, only EMU logical formats are subject of this rule.





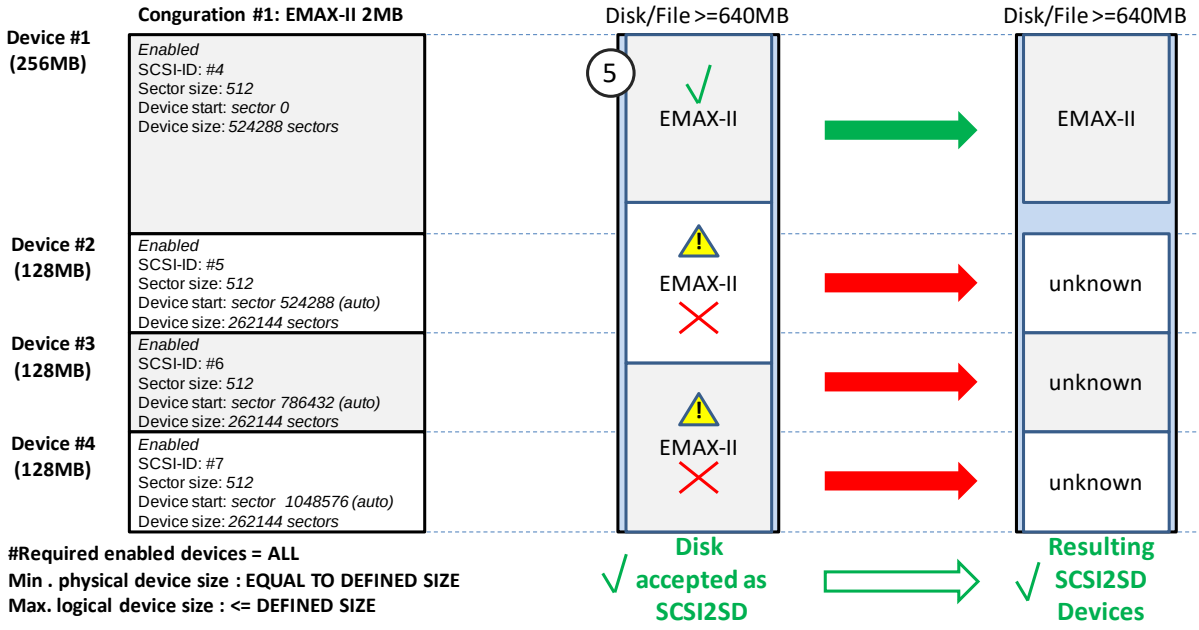
- Any logically formatted device (partition) on the disk or disk image which *does not start at exactly the same start sector of one of the enabled devices* as defined in the selected SCSI2SD configuration is *ignored* and won't be detected by EMXP. Such a disk or disk image may belong to another SCSI2SD configuration, so be careful when overwriting or formatting such disks or disk images.

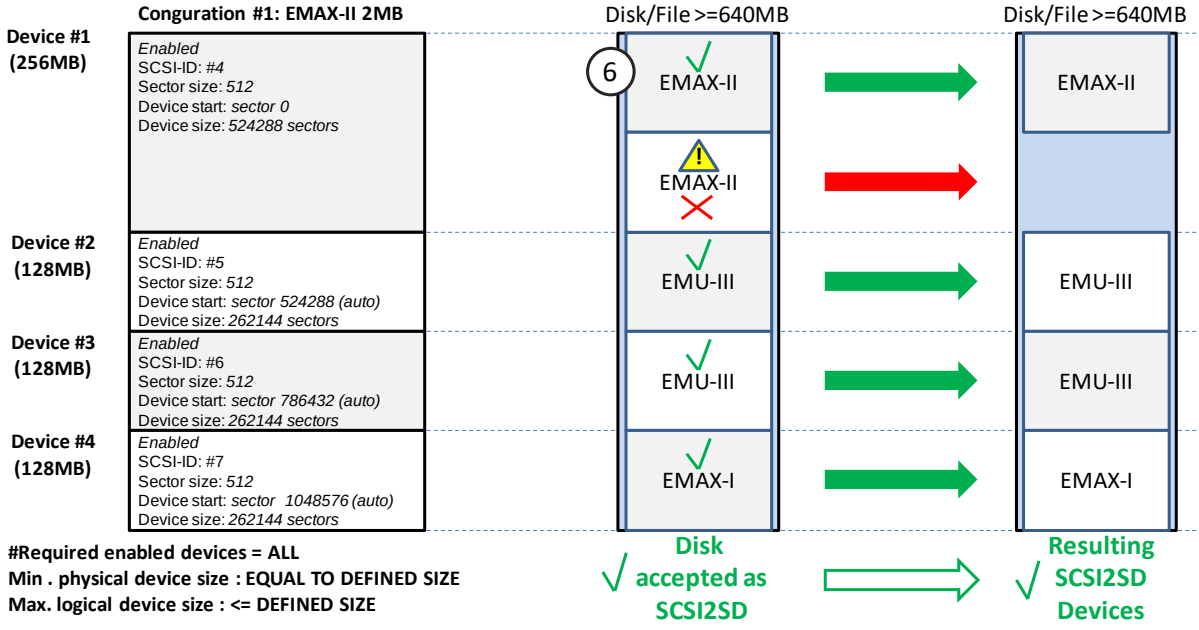
Be cautious with partitions that are labelled with NO SUPPORT or NOT EMU in the EMXP Disk and File Manager after performing a SCSI2SD scan for a particular SCSI2SD configuration.

There's a big chance that the disk or disk image belongs to another SCSI2SD configuration than the one that has been selected in the EMXP Disk and File Manager !

If you have different SCSI2SD configurations in use, you should define all of them in EMXP and you should do additional SCSI2SD scans with each of these configurations in the EMXP Disk and File Manager to verify that the disk or disk image does not belong to one of these other configurations !

The disks of examples 5 and 6 in the previous picture may belong to another configuration than the one shown at the left (#1, EMAX-II 2MB). Nevertheless *they will be accepted* as belonging to configuration EMAX-II 2MB as well. However their non-matching partitions will be ignored. The pictures below show how examples 5 and 6 are "interpreted" by EMXP when using configuration #1 EMAX-II 2MB:





If at least one of the above rules is violated, the disk or disk image will not be considered as being a partitioned disk or disk image for the SCSI2SD, unless the default rules are not applicable and have been replaced by more tolerant rules.

Replacing the default rules by more tolerant rules is explained in sections:

- *"10.5.4.2.6 Change #required enabled devices"*
- *"10.5.4.2.7 Change minimum physical device size"*
- *"10.5.4.2.8 Change maximum logical device size"*

If the default rules are applicable, or if even the more tolerant rules are violated, **t**he next best option is that EMXP Disk and File Manager will treat the disk or disk image as a standard (normal) unpartitioned disk or disk image. But it will only accept it as a standard Emax-I, Emax-II or Emulator-III/X/ESI hard disk or hard disk image *if the Emax-I, Emax-II or Emulator-III/X/ESI file system resides at the very beginning of the disk or disk image* (i.e. at address 0).

If this is not true

- and it's a hard disk (SD card), the disk will be treated as an "unsupported" / "unknown" disk in the EMXP Disk Manager. It's still possible to format it or to restore disk images to it.
- and it's a hard disk image (.ISO or IMG file), the image will be ignored and it will not appear in the EMXP File Manager.

10.5.4.2 Define SCSI2SD device configurations

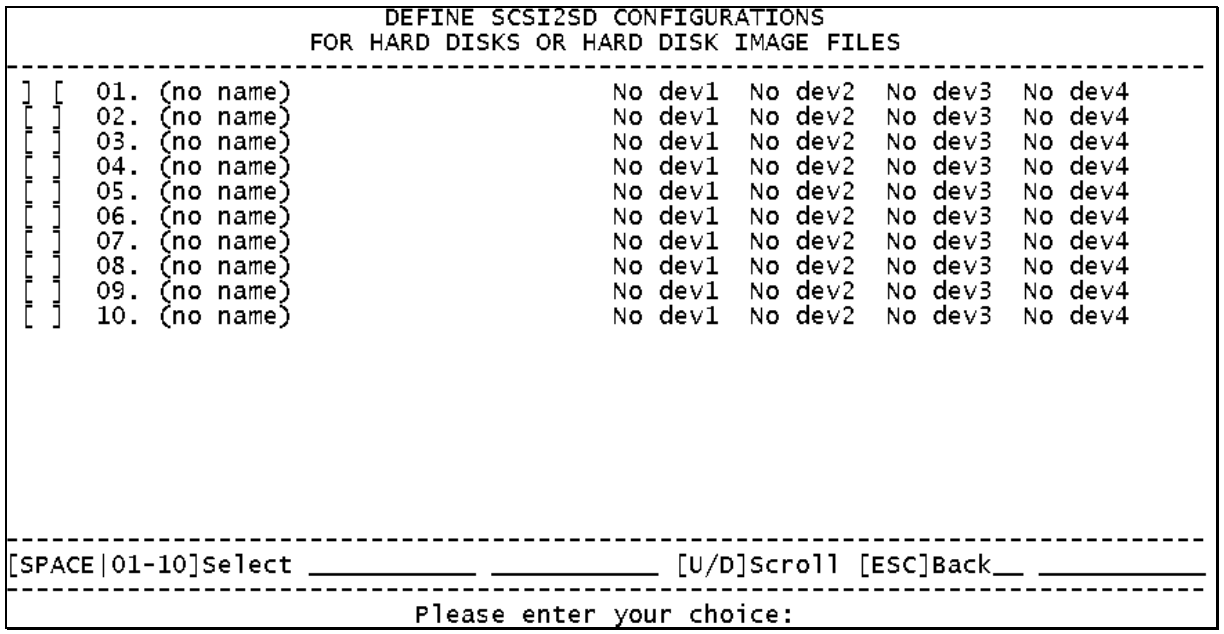
EMXP supports up to 10 different SCSI2SD configurations. This can be useful if you have multiple samplers equipped with SCSI2SD boards, each having a different configuration (partitioning scheme).
E.g. you may have an SCSI2SD board installed in

- an Emax-I sampler with an SD card consisting of 4 partitions (*devices in SCSI2SD speak)* each being 20MB in size (larger partitions are useless, since an Emax-I hard disk is limited to 19 MB)
- an Emax-II 4MB sampler with an SD card consisting of 4 partitions each being 500MB in size (larger partitions are useless, since an 4MB Emax-II sampler can only load banks of max. 4MB and an Emax-II hard disk can only hold 100 banks)
- an Emax-II 8MB sampler with an SD card consisting of 4 partitions each being 900MB in size (larger partitions are useless, since an Emax-II hard disk can contain only 100 banks each having a size of max. 8 MB)
- an Emulator-IIIXP 32 MB sampler with an SD card consisting of 4 partitions each being 3.5 GB in size size (larger partitions are useless, since an Emulator-IIIX hard disk can contain only 100 banks each having a size of max. 32 MB)

In this example, you will have configured the SCSI2SD boards with 4 different configurations using the *scsi2sd-util* software.
You can define these 4 configurations in EMXP as well and assign a different name to each of them, e.g. "EMAX-I", "EMAX-II 4MB", "EMAX-II 8MB", "EMULATOR-IIIX 32 MB", ...

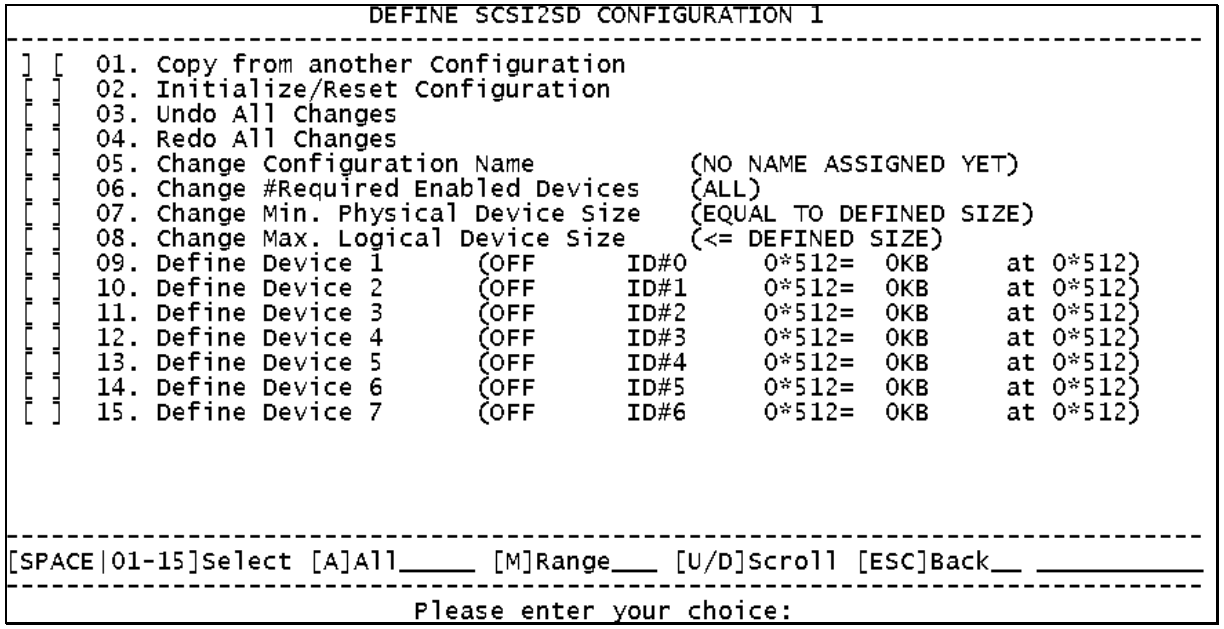
It's also possible to make each of these configurations the *default configuration* for a particular sampler, e.g. "EMAX-II 4MB" becomes the default configuration in EMXP when accessing SCSI2SD cards or .ISO hard disk image files for an EMAX-II sampler. See *section "10.5.4.3 Define SCSI2SD defaults per hard disk and hard disk image type"*.

If no SCSI2SD configurations have been defined yet, the screen looks like this:

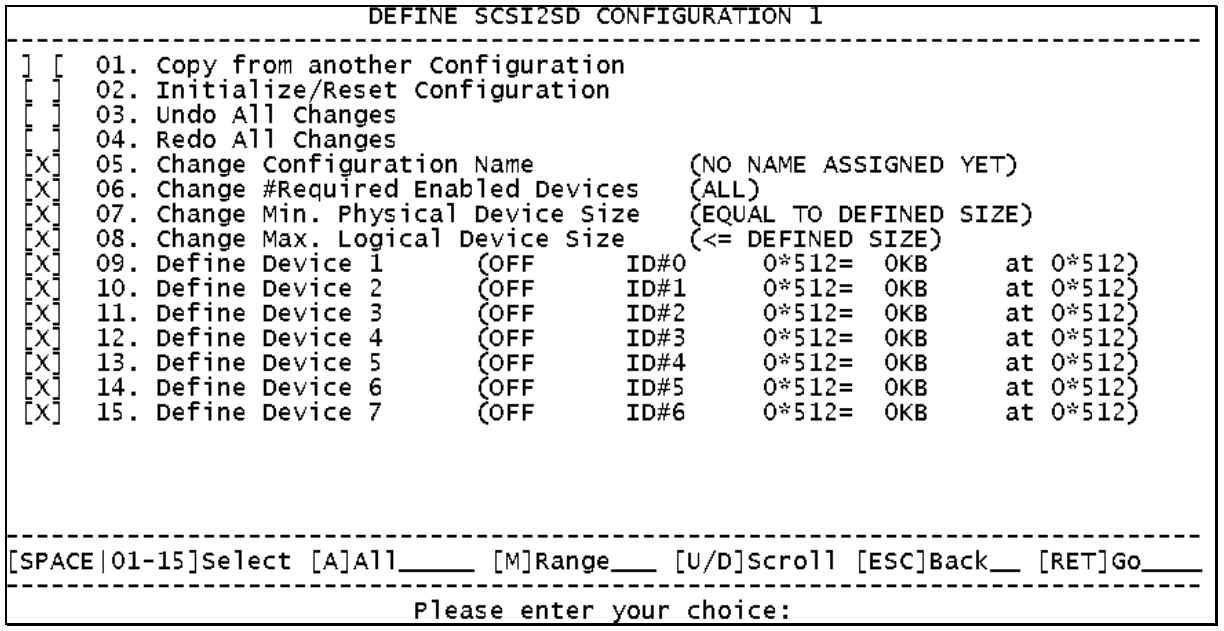


After selecting one of the 10 available configuration items, you can define or change the SCSI2SD partition parameters for the selected configuration.

If the selected configuration is new, the screen will like this:



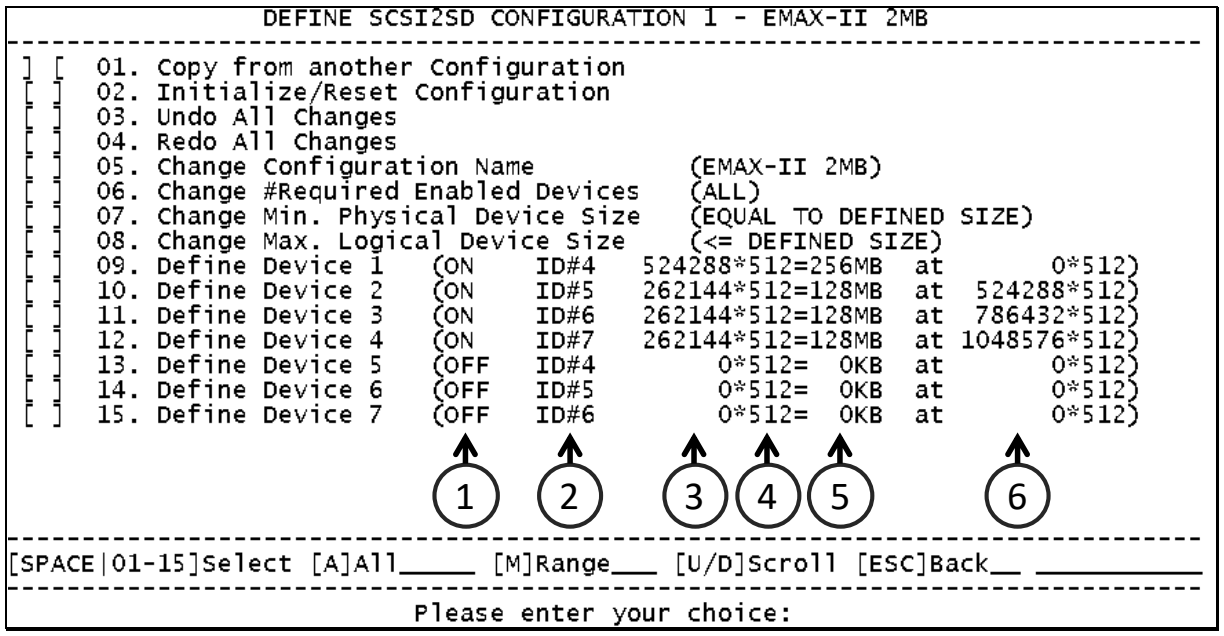
Hint: press "A" (All) to quickly define a *new configuration from scratch*, as depicted below



Hint: unless you have a specific problem, you don't have to use options 6, 7 and 8.

In normal circumstances only option 5 and option 9 → 15 should be used. Options 9 → 15 are used to define the basic parameters of each of the 4 or 7 devices on a SCSI2SD disk or disk image in a similar way as you have to do in the *scsi2sd-util software*.

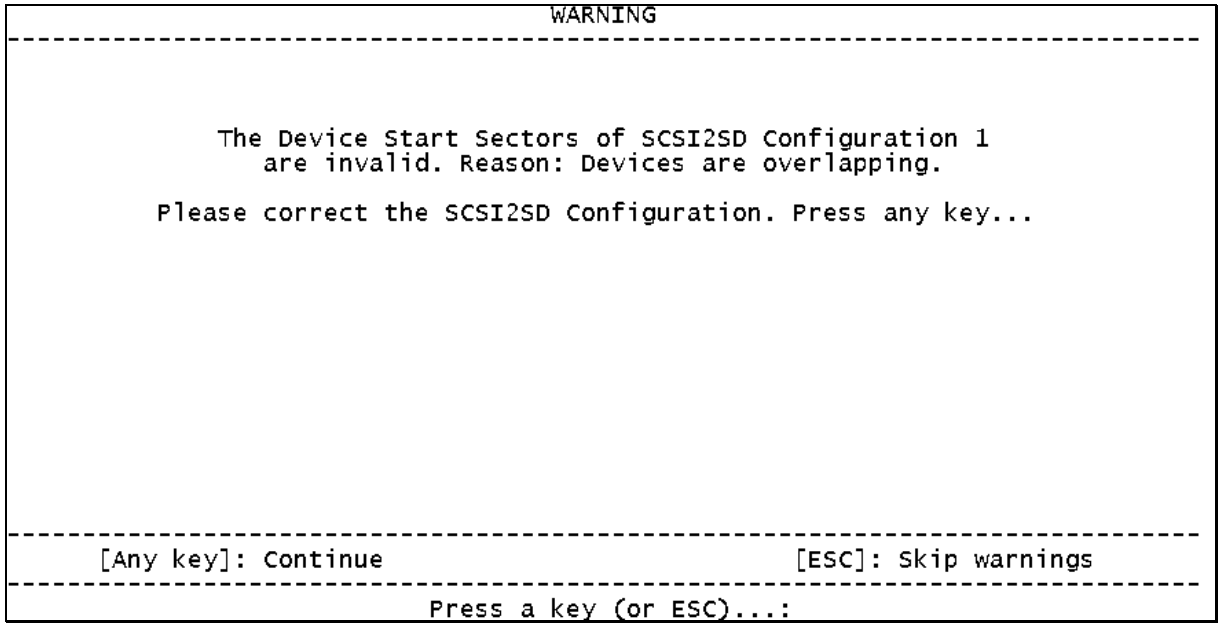
If the configuration has been defined, the screen will give an overview of all parameters of the configuration. An example is shown below.



For each SCSI2SD *device* (=partition) on the SD card (called Device 1 → Device 7) the following information is displayed:

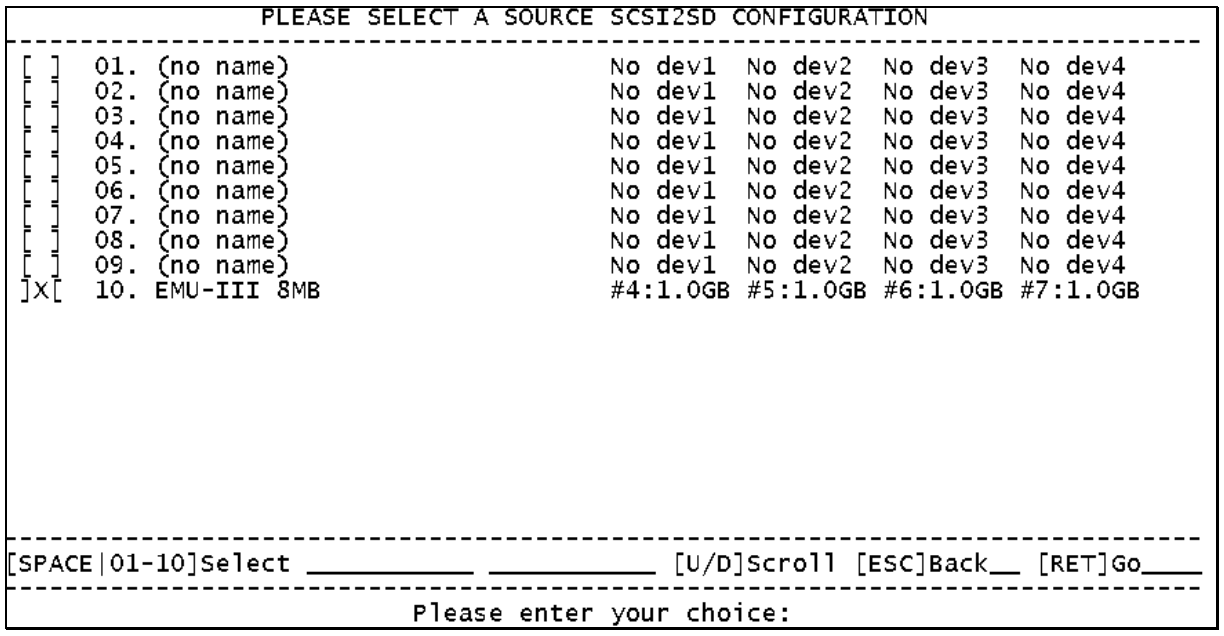
1. whether the device is enabled or disabled (ON or OFF)
2. the SCSI-ID assigned to the device (ID#N with N = SCSI-ID)
3. the size of the SCSI2SD device (partition) in number of sectors
4. the size of a sector on the SCSI2SD device
5. the size of the SCSI2SD device (partition) in KB, MB or GB
6. the start sector of the SCSI2SD device (partition). The sector size for defining the start sector is always 512 bytes

After having entered all parameters for a particular device and/or after having entered all parameters for a complete SCSI2SD configuration, EMXP will verify if the SCSI2SD configuration is valid. If any error or inconsistency is found, a warning will be shown and you will have to change the invalid parameter before you can continue. See picture below and also section *"10.5.4.2.10 SCSI2SD configuration validation"*.



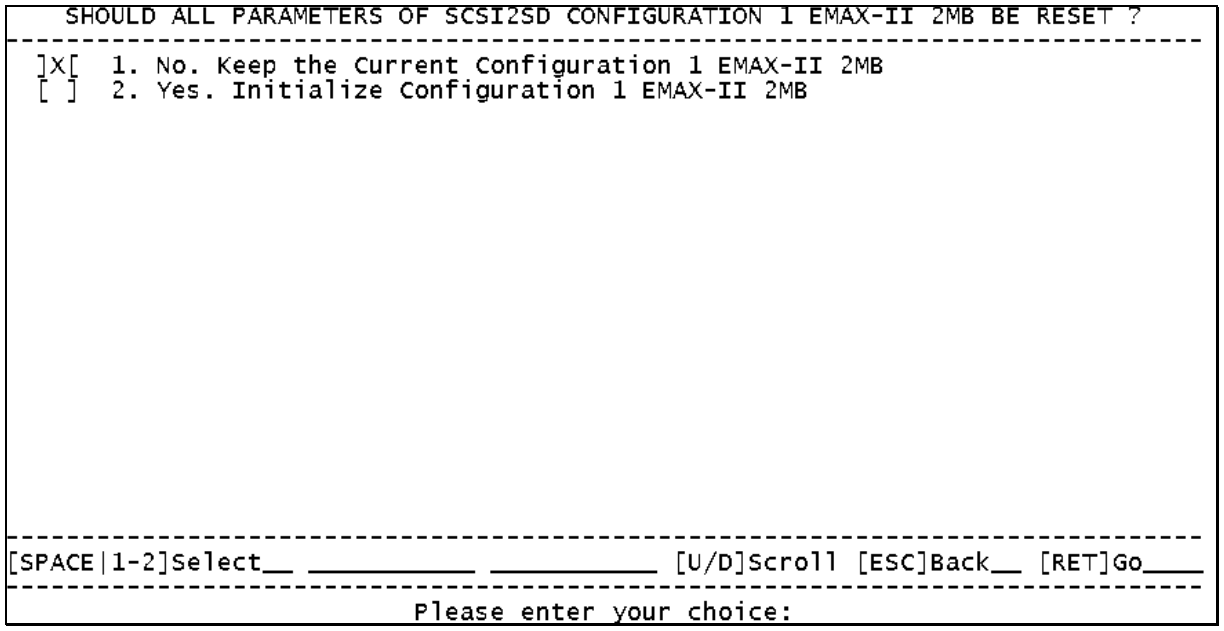
10.5.4.2.1 Copy from another configuration

It's not required to define a SCSI2SD configuration from scratch.
With this option you define a new configuration by selecting an existing configuration and adapting one or more of its parameters. The original configuration will be preserved, the changes are only applicable for the new configuration.



10.5.4.2.2 Initialize/reset configuration

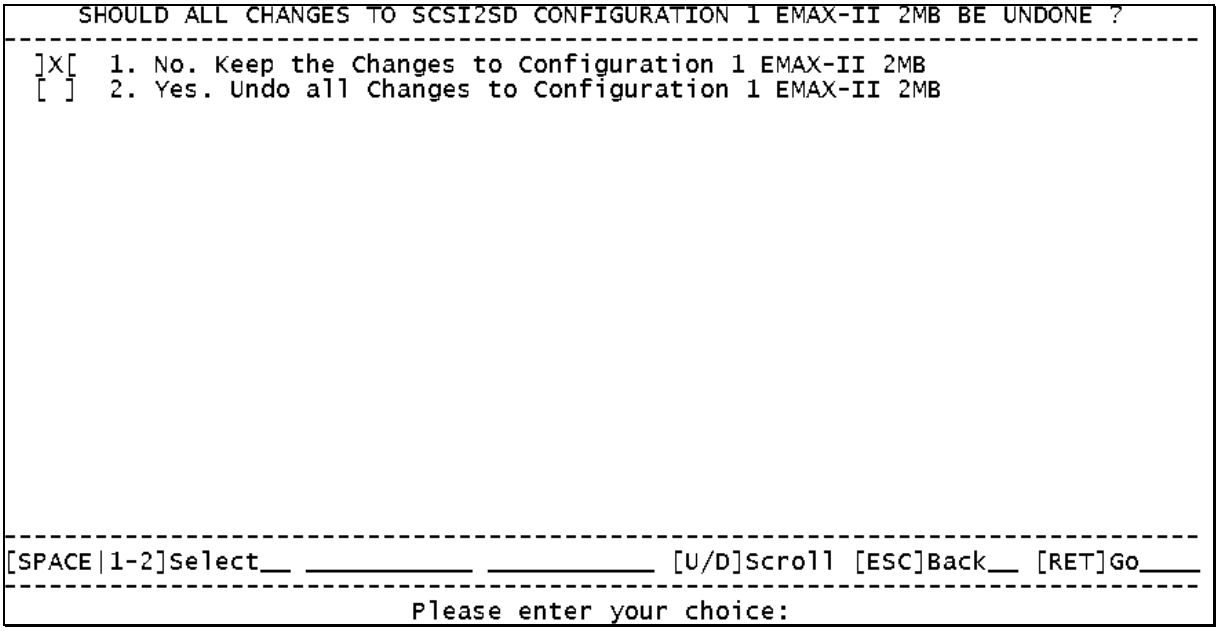
Use this option if you want to reset all parameters of a previously defined configuration to initial values again (i.e. clear its name, disable its devices, set all device sizes to zero, ...).



To reset the configuration, select *option 2.*
If you don't want to re-initialize the configuration and keep its current parameter values, select *option 1*.

10.5.4.2.3 Undo all changes

With this option you can undo any change you have applied in the current update session. All parameters of the selected configuration will be set to the original values which were applicable on the moment you started updating the configuration. See *section "10.5.4.2.4 Redo all changes"* for an example of how to use the Undo and Redo option.



To undo all changes, select *option 2*.
If you want to keep the changes, select *option 1*.

10.5.4.2.4 Redo all changes

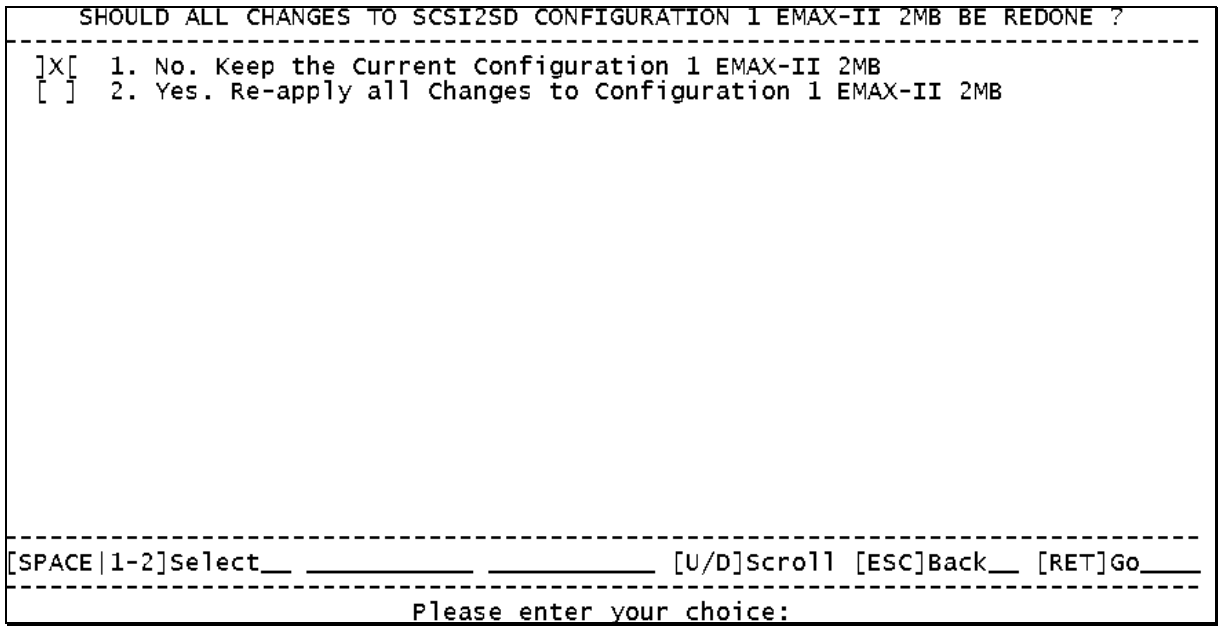
With this option you can re-apply all changes till the moment you have undone them with *option "03. Undo all changes"* (see *section "10.5.4.2.3 Undo all changes"*).

Note however that if you have changed at least one parameter *after* having selected option 3, none of the changes that were applied *before* selecting option 3 can be redone anymore. See steps 7→10 in the example below: the scope of changes that are subject of the Redo process is limited to the changes you have made since the last Undo process, unless you haven't applied any change yet (see steps 5→6 in the example below).

Example:

- Step 0: a blank configuration has been selected
- Step 1: the *name* of the configuration has been set to "EMU-III 8MB" with *option "05. Change Configuration Name"*
- Step 2: all changes are undone with *option "03. Undo All Changes"* → the *name* is blank again
- Step 3: all changes are redone with *option "04. Redo All Changes"* → the *name* is set to "EMU-III 8MB" again
- Step 4: the *minimum number of enabled devices* is set to "At Least One" instead of the default value "All"
- **Step 5**: all changes are undone with *option "03. Undo All Changes"* → the *name* is blank again and the *minimum number of enabled devices* is set to "All" again
- Step 6: all changes are redone with *option "04. Redo All Changes"* → the *name* is set to "EMU-III 8MB" again and the *minimum number of enabled devices* is set to "At Least One" again
- **Step 7**: all changes are undone with *option "03. Undo All Changes"* → the *name* is blank again and the *minimum number of enabled devices* is set to "All" again
- Step 8: the *name* of the configuration is changed to "EMAX-II 2MB" with *option "05. Change Configuration Name"*

- Step 9: all changes are undone with *option "03. Undo All Changes"* → the *name* is blank again and the *minimum number of enabled devices* is set to "All" again
- Step 10: all changes are redone with *option "04. Redo All Changes"* → the *name* is set to "EMAX-II 2MB" again but the *minimum number of enabled devices* remains "All"

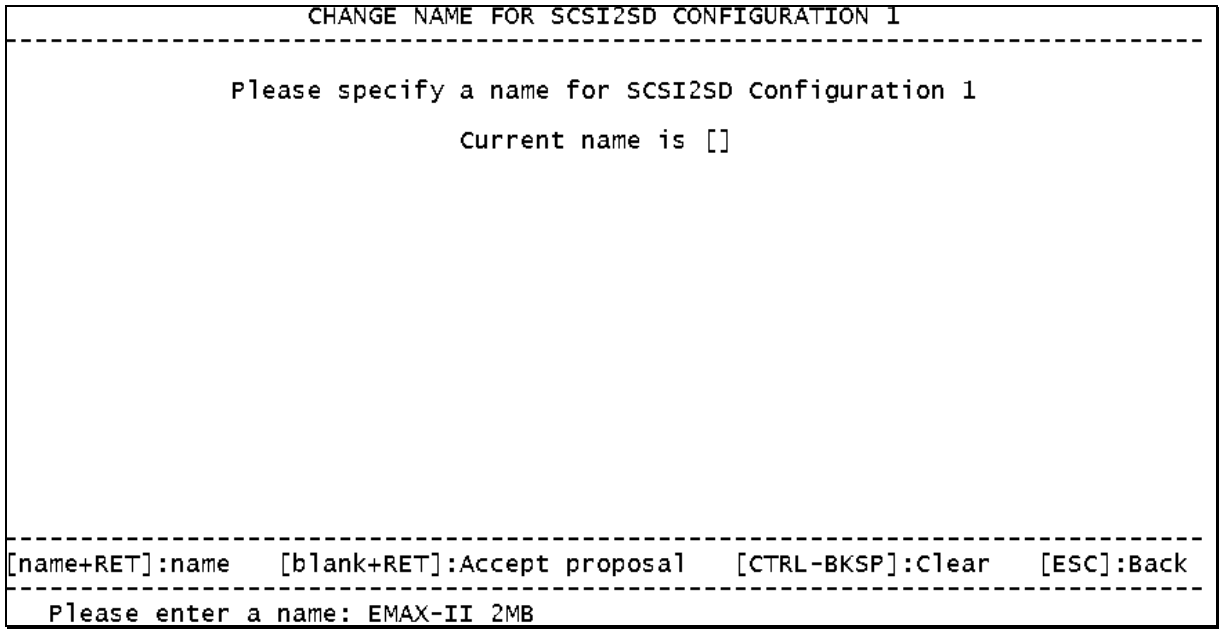


To redo all changes, select *option 2*.
If you want to keep the current parameter values, select *option 1*.

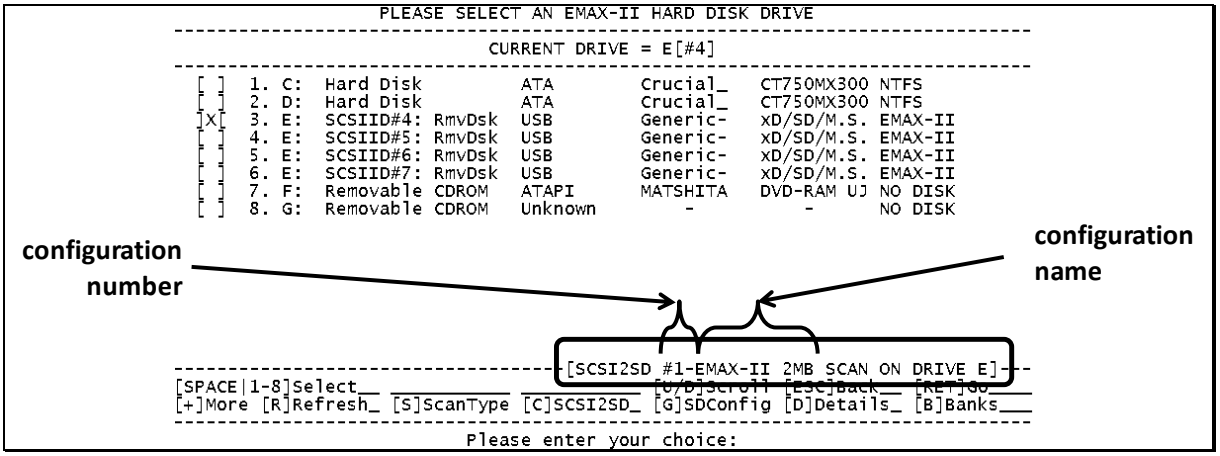
10.5.4.2.5 Change configuration name

Each of the ten configurations in EMXP can be assigned a name. This name is only used for display purposes in EMXP and can have a length of max. 20 characters.

There's no relationship with any of the parameters that can be set in the *scsi2sd-util* program.



Once a configuration has been assigned a name, the name will be displayed in most SCSI2SD related screens in EMXP. See picture below for an example in the Disk Manager. If no name has been assigned, only the configuration number (1 → 10) will be displayed in those screens, which is less user-friendly.



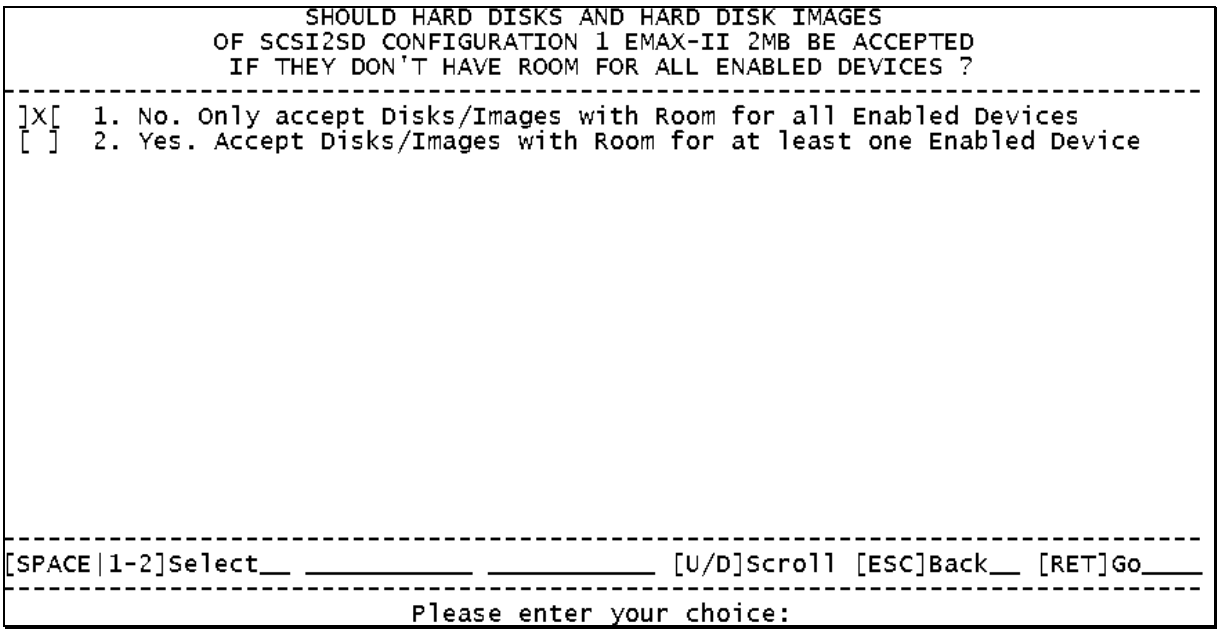
10.5.4.2.6 Change #required enabled devices

EMXP is able to accept disks or disk images as SCSI2SD partitioned disks or disk images e*ven if the disk or disk image does not contain all devices (partitions) that have been enabled in the selected SCSI2SD configuration*.

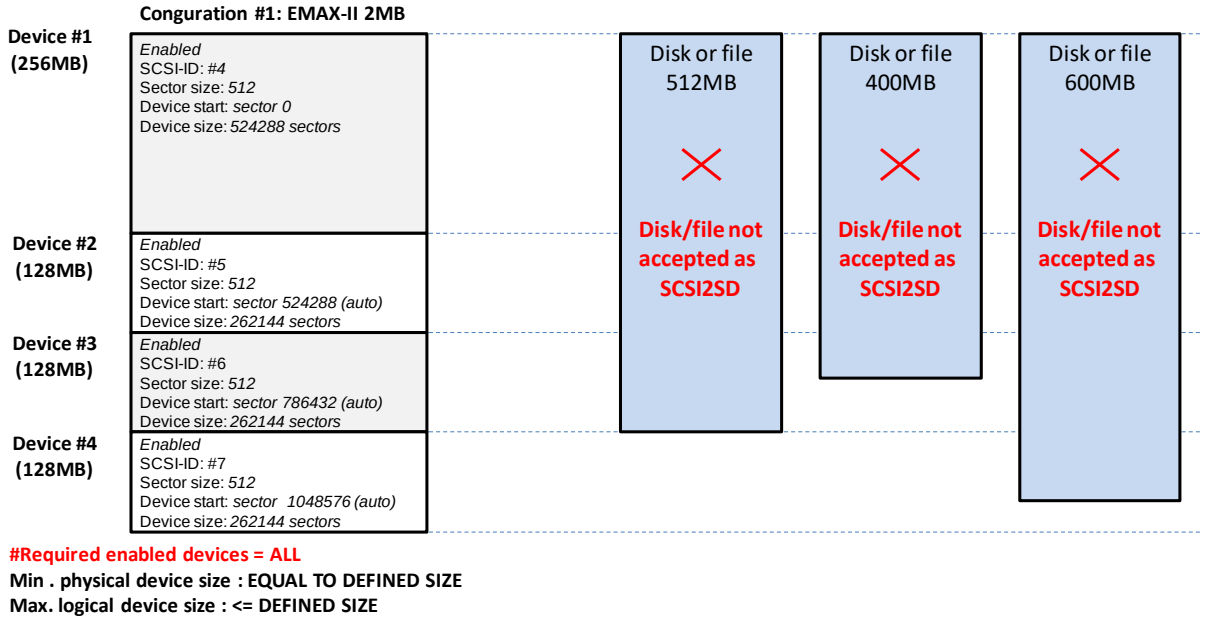
For the configuration example introduced in *section "10.5.4.1 About the default SCSI2SD detection rules applied by EMXP"*, there are two alternatives:

- *Alternative 1*: by default, EMXP will only consider a disk or disk image as being compliant with this configuration if the disk or disk image has room for at least all 4 devices, i.e. if the disk or disk image is 640MB in size or larger.
- *Alternative 2*: you can instruct EMXP to treat smaller disks or disk images as being compliant with this configuration as well, e.g. an 512MB SD card with only room for the first 3 devices. The 4th device defined in the configuration will be ignored by EMXP for that particular disk.

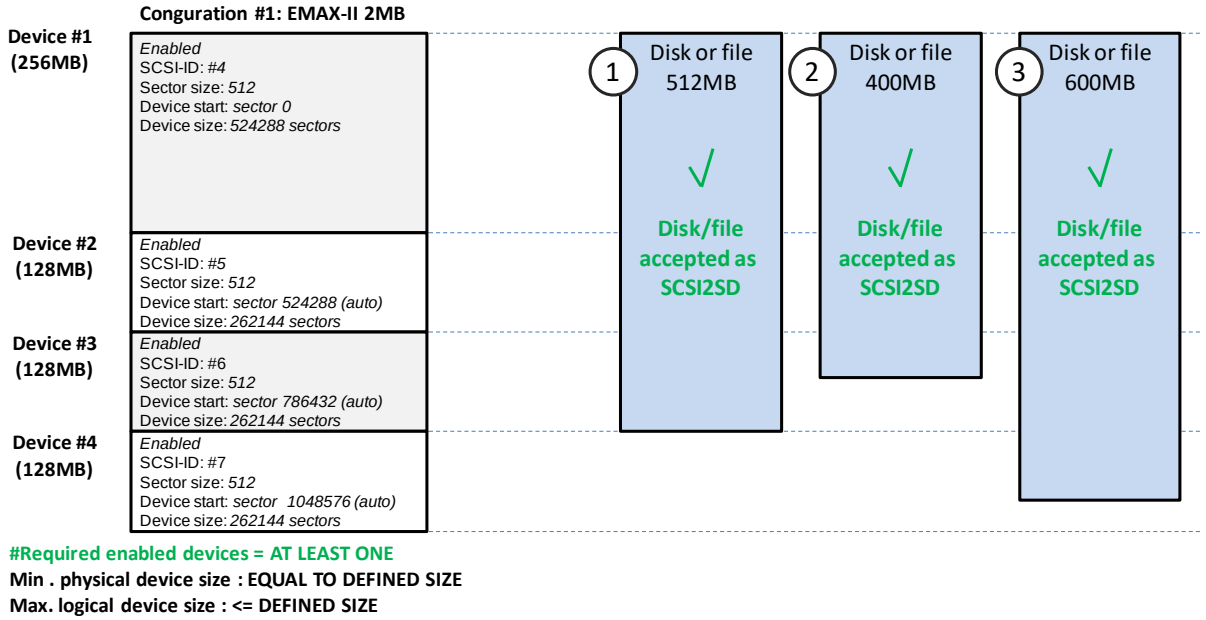
This can be defined in the screen below:



Select *option 1* (ALL) if the disk or disk image *must* have room for at least *all devices* that have been enabled in the SCSI2SD configuration. If the disk or disk image doesn't have room for all enabled devices, none of its partitions will be accepted. In that case the disk or disk image will be treated as a normal, non-partitioned disk or disk image.



Select *option 2* (AT LEAST ONE, default option) if the disk or disk image should have room for at least *the first device* that has been enabled in the SCSI2SD configuration. Only the partitions which correspond to devices for which there's room on the disk or in the disk image will be accepted, the other devices will be ignored.

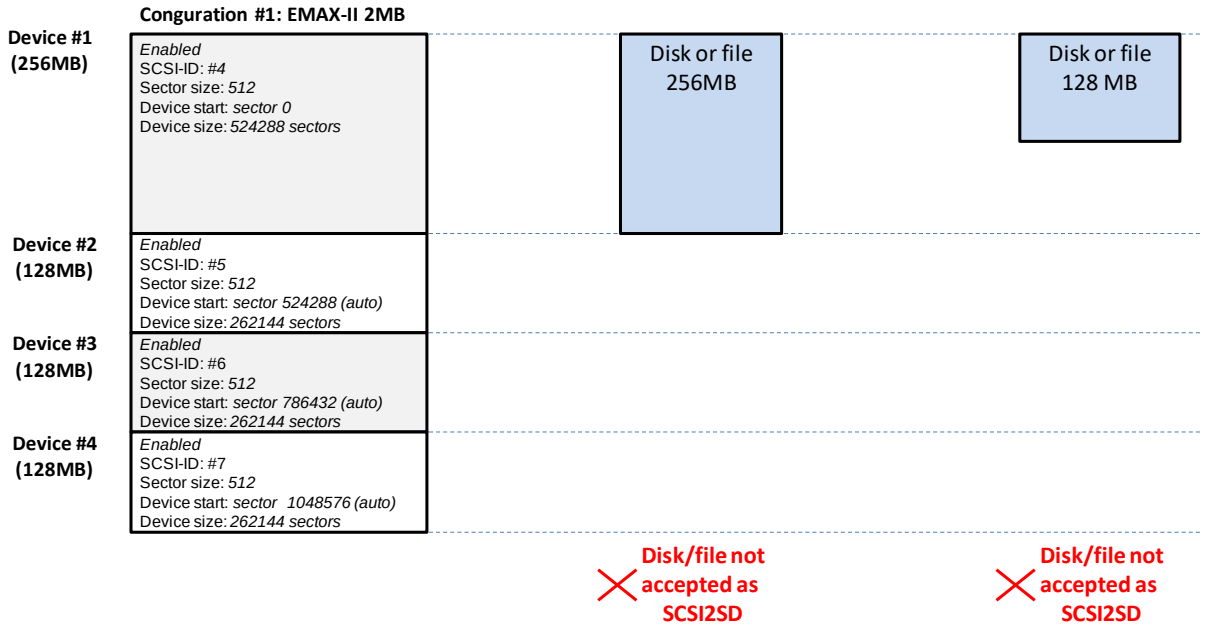


In this example each of the disks or disk images will be accepted as "EMAX-II 2MB partitioned", but

- in case (1) only the first 3 *devices* will be accepted
- in case (2) only the first 2 *devices* will be accepted, unless *partial devices* are allowed (see section "") - in that case 3 *devices* will be accepted
- in case (3) only the first 3 *devices* will be accepted, unless *partial devices* are allowed (see section "") - in that case all 4 *devices* will be accepted

If *option 2* (AT LEAST ONE) has been selected in some SCSI2SD configurations, this setting can still be overruled if the "ALL" setting has been activated as an overruling preference for *all configurations* at once (see *section "10.5.4.4 Overrule the configured rules for minimum number of detected devices"*).

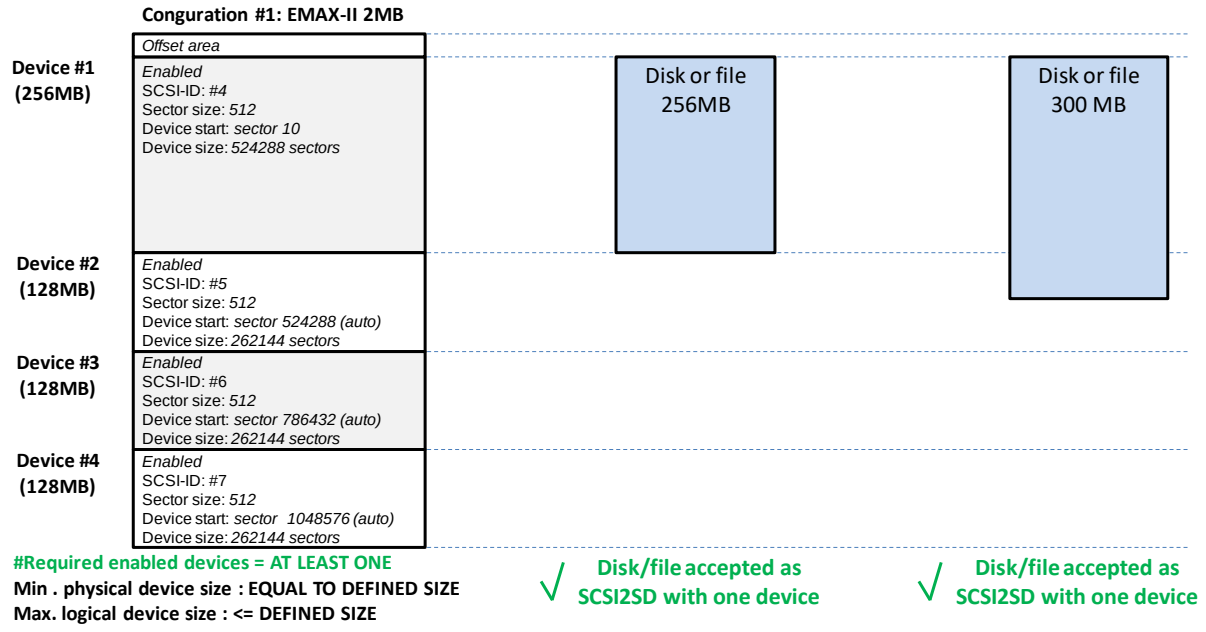
If the physical size of a disk or disk image is equal *to or smaller than* the size required to hold the *first device* (partition) and the first device is defined to start at sector 0, EMXP will never treat the disk or disk image as a partitioned disk or disk image. These disks or disk images will be treated as normal, non-partitioned disks or disk images.
This is always true, no matter if the default (strict) rules are applicable or the more tolerant rules are applicable. See picture below.



If the first device however is configured to start at a *sector different from sector 0*, and only this first device fits in the size of a disk or disk image, EMXP will treat the disk or disk image as a partitioned disk or disk image containing only *one device*. This is only true

- if the configuration consists of only this one device
- or if the parameter "minimum required number of devices" is set to "AT LEAST ONE"

This is illustrated in the picture below.



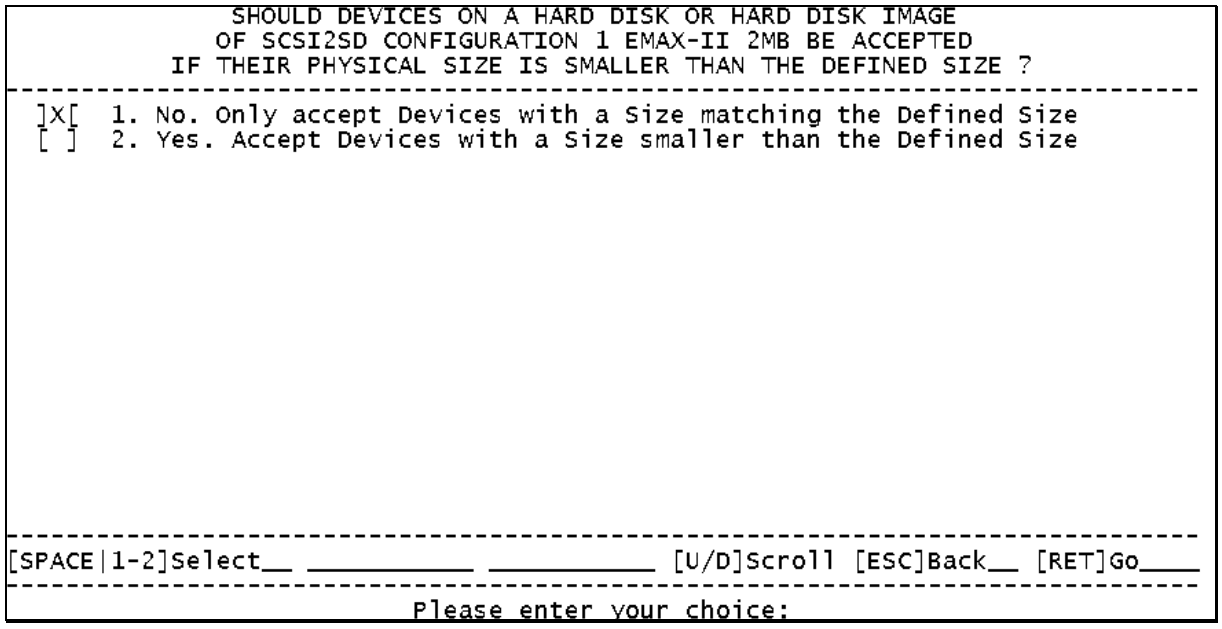
10.5.4.2.7 Change minimum physical device size

EMXP is able to accept individual *devices* (partitions) on SCSI2SD partitioned disks or disk images e*ven if the physical size of the partition on the disk or disk image is smaller than the device size that has been defined in the in the selected SCSI2SD configuration*.
In practice this feature is only relevant for the partition that resides at the end of the disk or disk image.
It can be combined with the parameter related to the minimum required number of devices which has been explained in the previous *section "10.5.4.2.6 Change #required enabled devices"*.

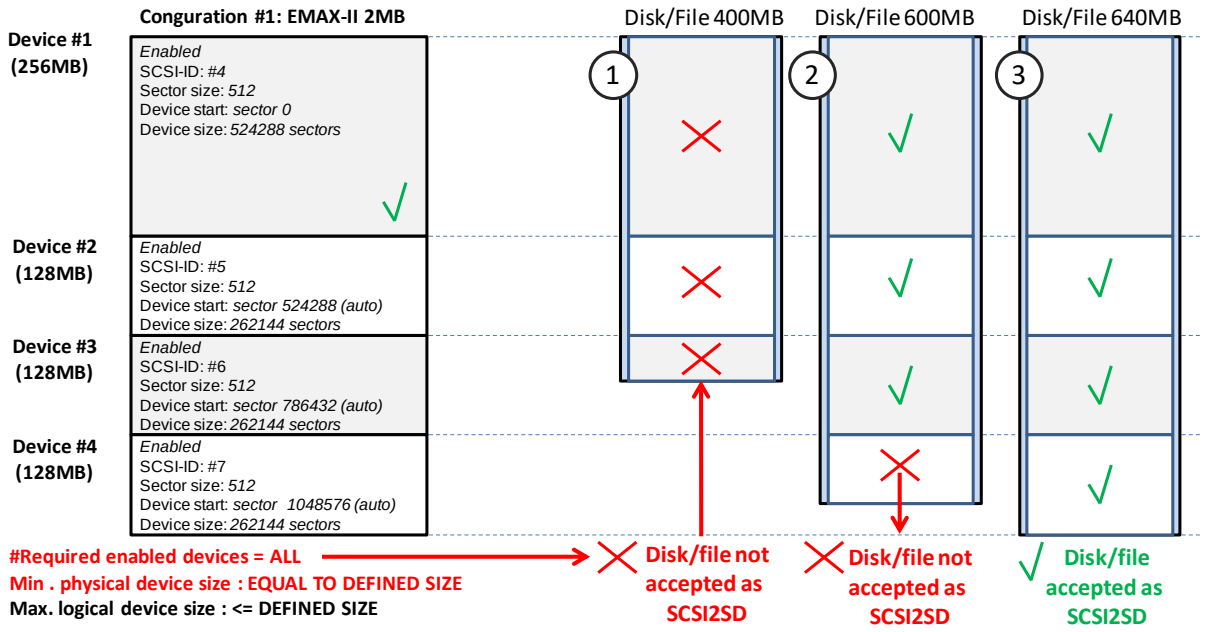
For the configuration example introduced in *section "10.5.4.1 About the default SCSI2SD detection rules applied by EMXP"*, there are two alternatives:

- *Alternative 1*: by default, EMXP will only accept the devices of which the size defined in the configuration is actually physically available on the disk or in the disk image. *Device 1* will be accepted if at least 256MB is available, *device 2* will be accepted is at least 384MB is available (256+128), and so on. E.g. on a 600MB SD card, only *devices 1, 2 and 3* will be accepted since there's not sufficient room left for *device 4*.
- *Alternative 2*: you can instruct EMXP to accept smaller devices as well. E.g. on a 600MB SD card all four devices can be accepted. *Devices 1 → 3* will have their full size (256MB, 128MB and 128MB) while *device 4* will only have a size of 88MB

This can be defined in the screen below:

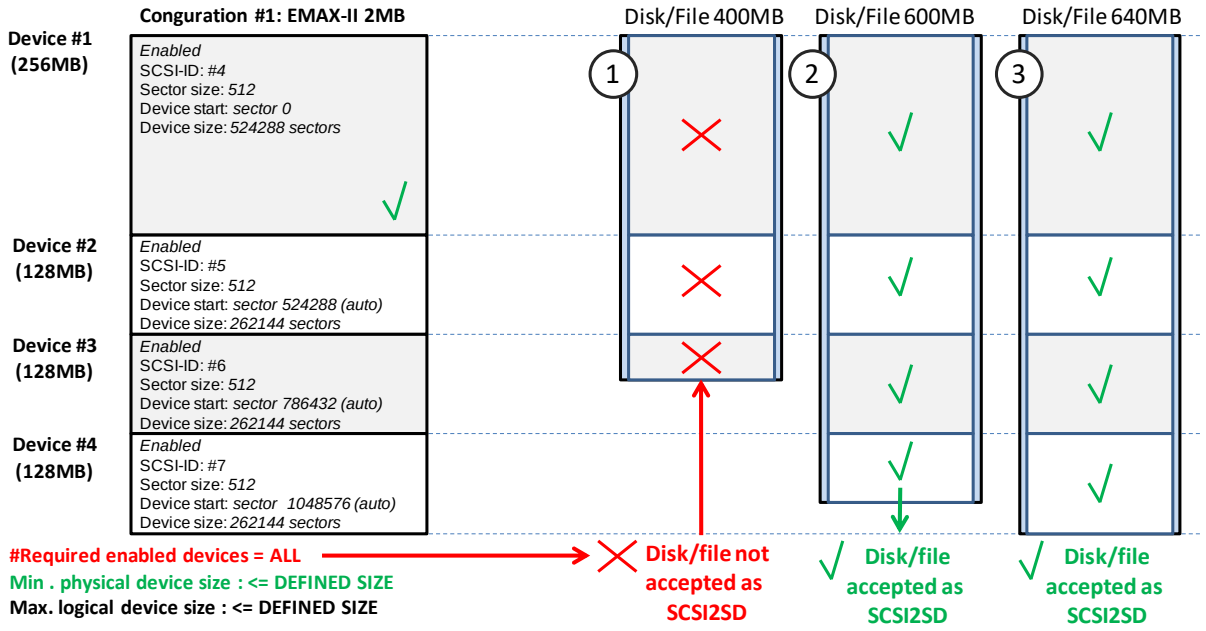


Select *option 1* (EQUAL TO DEFINED SIZE, default option) if EMXP should only accept *devices* that have a physical size which is at least the size that has been defined for that *device* in the SCSI2SD configuration.



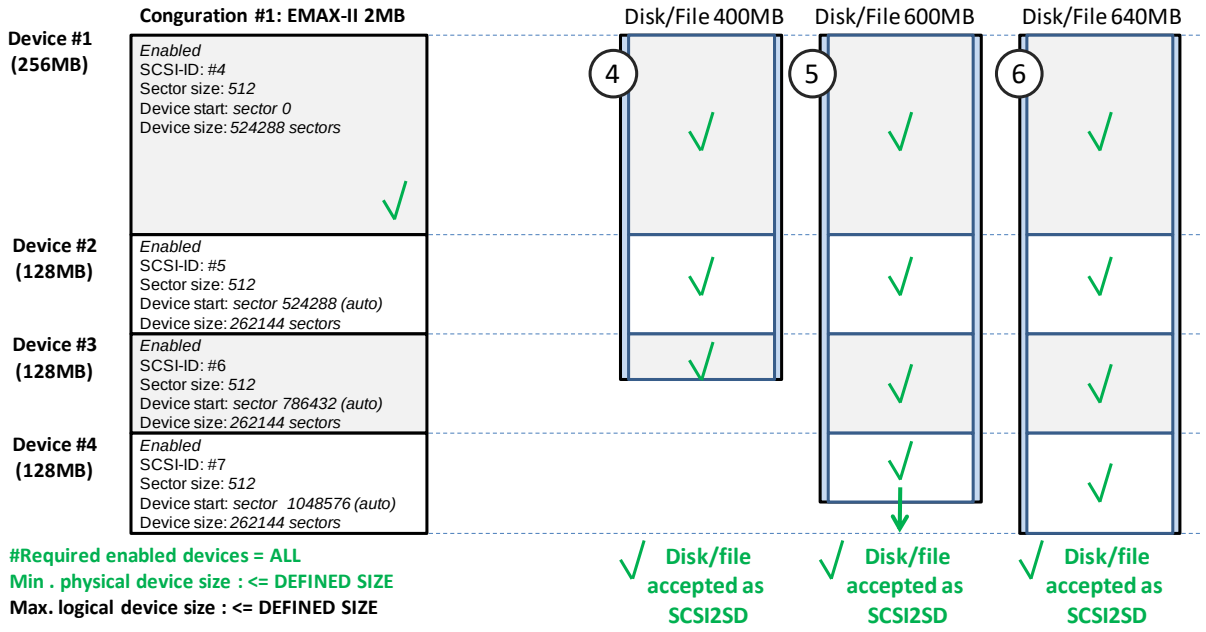
In this example, the parameter for the "minimum required number of devices" is set to ALL. As a consequence, the first disk or disk image of 400MB (see (1)) will not be accepted as a partitioned disk or disk image, no matter what value has been set for the "minimum physical device size" parameter. Hence none of its devices will be accepted neither.
The second disk or disk image of 600MB (see (2)) will not be accepted neither, because the size of the last device is too small.

Select *option 2* (<=DEFINED SIZE) if EMXP can also accept *devices* that have a physical size which is smaller than the size that has been defined for that *device* in the SCSI2SD configuration.



In this example, the parameter for the "minimum required number of devices" is still set to ALL. As a consequence, the first disk or disk image of 400MB (see (1)) will still not be accepted as a partitioned disk or disk image, no matter what value has been set for the "minimum physical device size" parameter. Hence none of its devices will be accepted neither.
The second disk or disk image of 600MB (see (2)) however will be accepted as a partitioned disk or disk image, because the first 3 devices have a size equal to their defined size and the last device is accepted because it's allowed

to have a smaller size than the defined size. As a result, 4 devices are accepted so the disk or disk image is accepted as a valid partitioned disk or disk image



In this example, the parameter for the "minimum required number of devices" is set to AT LEAST ONE. As a consequence, all disks or disk images are accepted as partitioned disks or disk images.
In case (4) 3 *devices* are accepted, but *device* 3 is smaller than the defined size.
In case (5) all 4 *devices* are accepted, but *device* 4 is smaller than the defined size.

If *option 2* (<= DEFINED SIZE) has been selected in some SCSI2SD configurations, this setting can still be overruled if the "EQUAL TO DEFINED SIZE" setting has been activated as an overruling preference for *all configurations* at once (see *section "10.5.4.2.7 Change minimum physical device size").*

10.5.4.2.8 Change maximum logical device size

EMXP is able to accept disks or disk images as SCSI2SD partitioned disks or disk images e*ven some of its devices (partitions) have been logically formatted to a size which exceeds the physical device (partition) size that has been defined in the SCSI2SD configuration.*

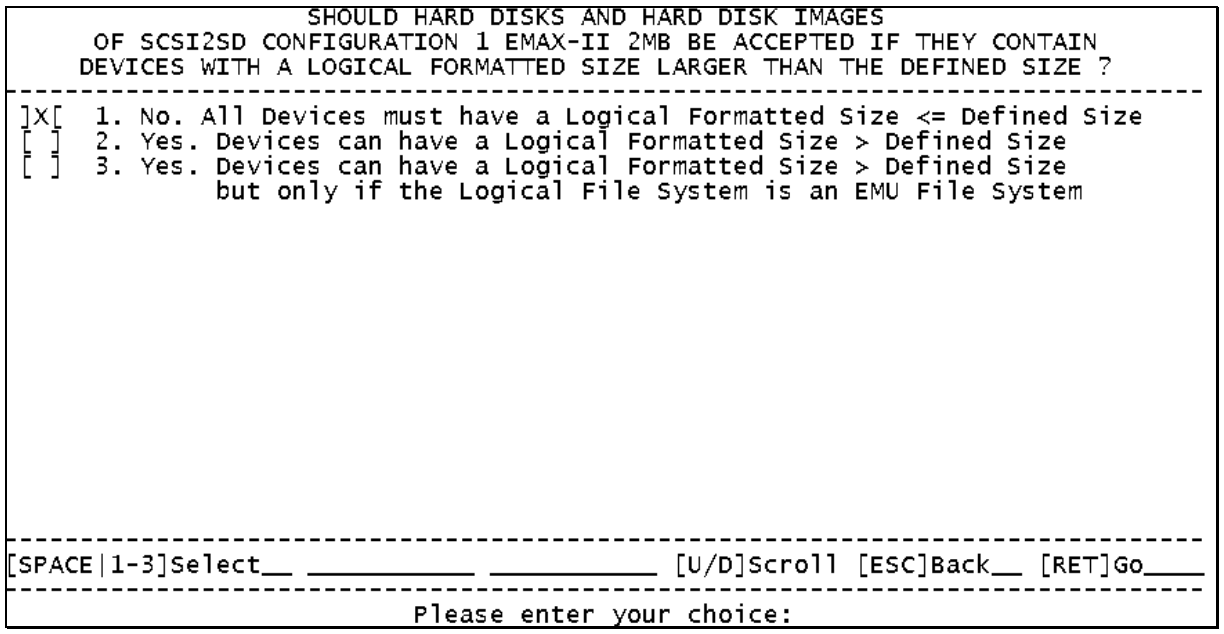
E.g. if the configuration has a device defined with a size of 200MB, but that device on the actual disk or disk image contains an Emax-II file system that has been formatted for 800MB of Emax-II data.
This option can be useful if you have sampler cdroms that have been formatted to a larger size than the cdrom size, and if you want to copy these cdroms to partitions on a small SD card. The existence of such cdroms is no exception because of the production process of these cdroms (e.g. a cdrom of 650 MB containing only 280 MB of Emulator-III soundbanks but which have been saved to an Emulator-III file system of 850 MB)

For the configuration example introduced in *section "10.5.4.1 About the default SCSI2SD detection rules applied by EMXP"*, there are two alternatives:

- *Alternative 1*: by default, EMXP will only consider a disk or disk image as being compliant with this configuration if each of the enabled devices *either contains no file system at all (i.e. it has not been logically formatted yet), or has been logically formatted to a size which does not exceed the defined device size.* E.g. *device 1* with a defined size of 256 MB has been formatted for Emax-II with a size of 240 MB, *device 2* with a defined size of 128MB has been formatted for Emax-I with a size of 19MB, and *devices* 3 and 4 have not been formatted.

- *Alternative 2*: you can instruct EMXP to treat disks or disk images as being compliant with this configuration even if some of its devices has been logically formatted to sizes larger than the defined device size. E.g. *device 1* with a defined size of 256MB has been formatted for Emax-II with a size of 850MB, device 2 with a defined size of 128MB has been formatted for Emax-I with a size of 19MB, and *devices* 3 and 4 have not been formatted

This can be defined in the screen below:



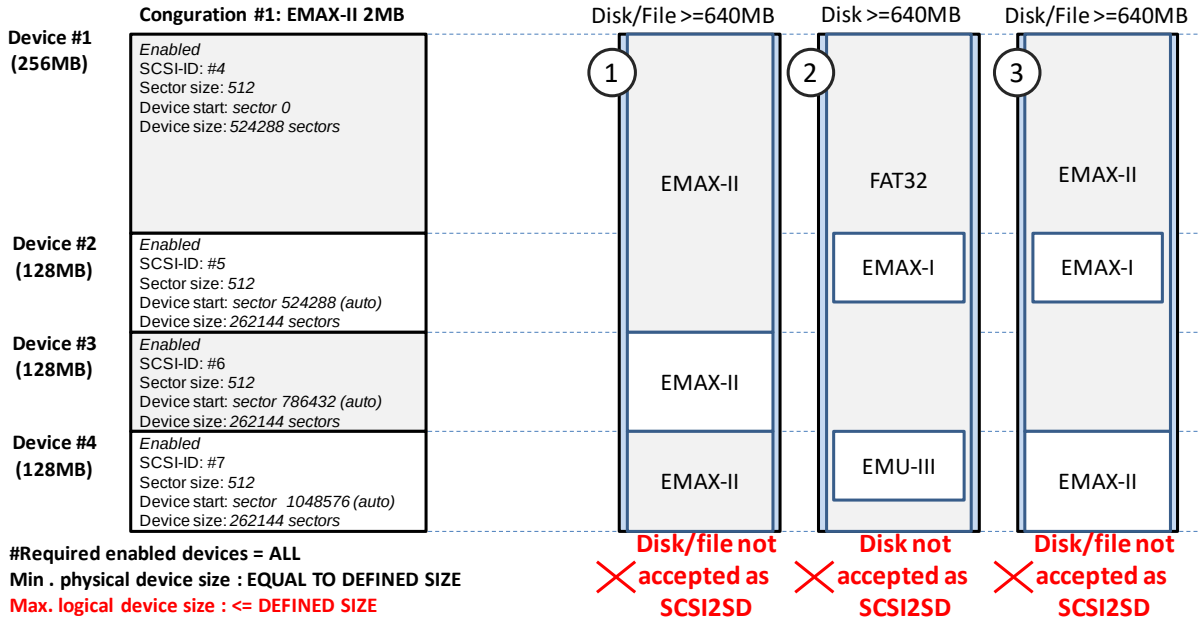
Select *option 1* (<= DEFINED SIZE, default option) if EMXP should only accept disks or disk images as being compliant with a SCSI2SD configuration if none of their *devices* can have a logically formatted size which exceeds their physical size.

Select *option 2* (ANY) if EMXP should accept disks or disk images as being compliant with a SCSI2SD configuration no matter if they contain *devices* that have been logically formatted to a size exceeding their physical size or not, and no matter if these logically formatted file systems are Emax-I, Emax-II or Emulator-III/X file systems or if they are Windows compatible file systems like FAT, FAT32, NTFS. Note however that EMXP only takes into account Windows compatible file systems that reside *on disks* (not on disk images) and only if they are located at the beginning of the disk (i.e. in the first *device*/partition at sector 0)

Select *option 3* (ANY IN CASE OF EMU FILE SYSTEM) if EMXP should accept disks or disk images as being compliant with a SCSI2SD configuration no matter if they contain *devices* that have been logically formatted for either Emax-I, Emax-II or Emulator-III/X to a size that exceeds the physical *device* size.
If however EMXP detects a Windows compatible file systems like FAT, FAT32, NTFS at the beginning of a *disk* (i.e. in the first *device*/partition at sector 0 of the disk) and its formatted size exceeds the defined size of this first *device*, the disk will not be accepted as being compliant with the SCSI2SD configuration. This exception is only applicable on *disks*, not on *disk images.*

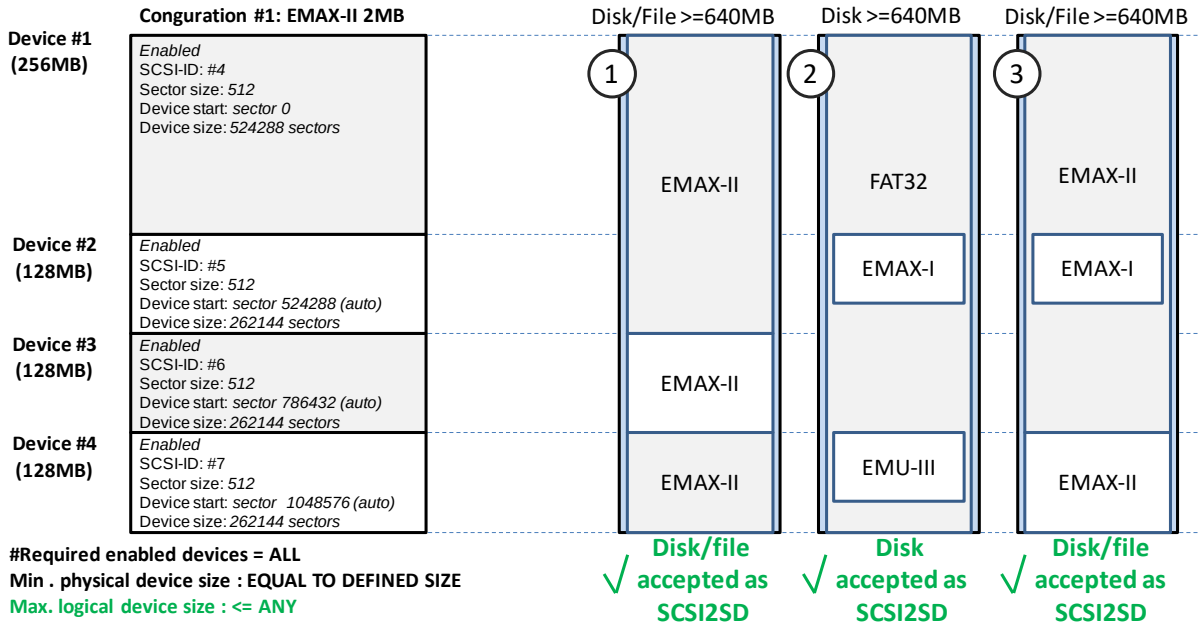
Each option is illustrated in the pictures below.

Option 1 (<=DEFINE SIZE)

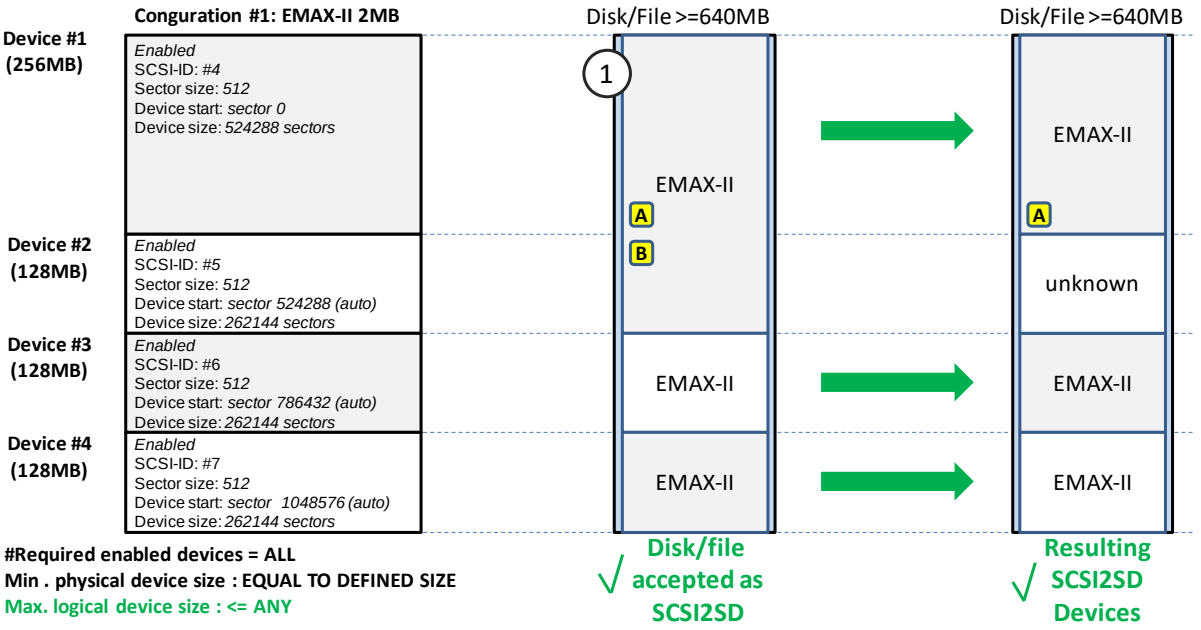


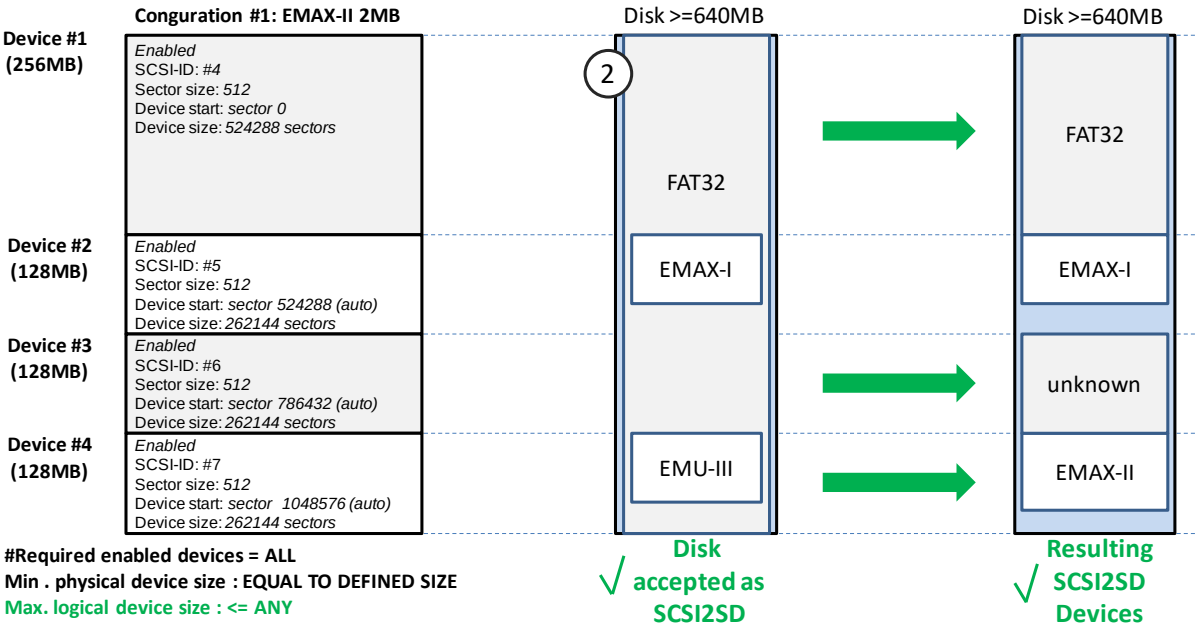
None of the 3 disks or disk images will be accepted as being compliant with the given SCSI2SD configuration, because each of them contains at least one device that has been logically formatted to a size larger than the defined device size.
As a result, disks/disk images 1 and 3 will be treated as normal un-partitioned EMAX-II disks/disk images, and disk 2 will be treated as a FAT32 disk.

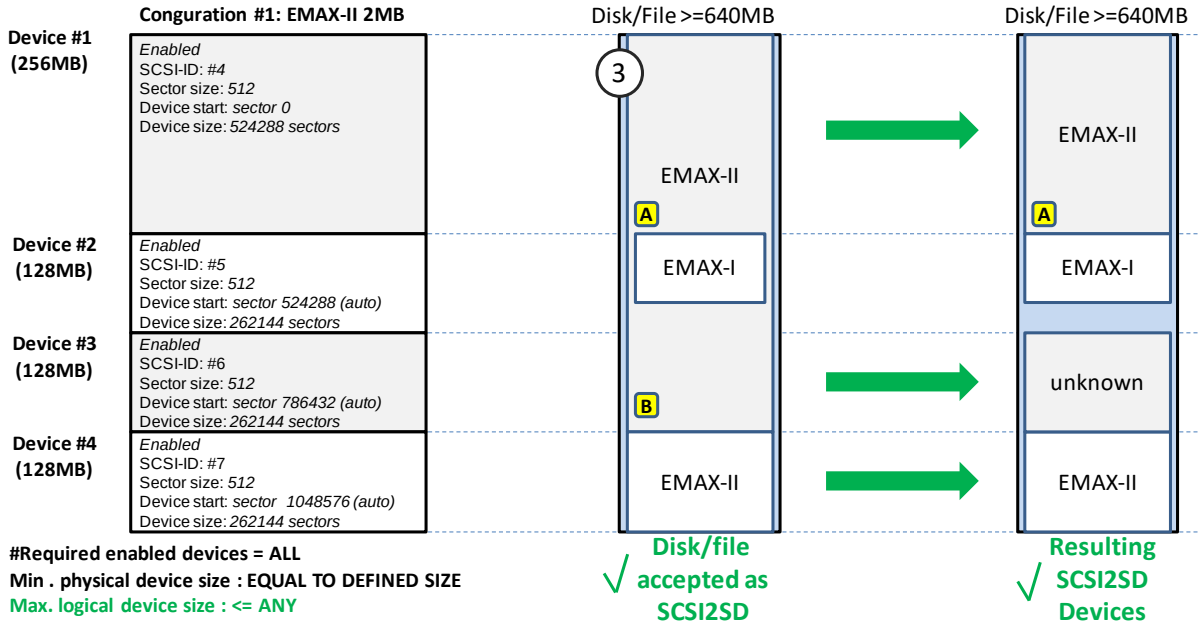
Option 2 (ANY)



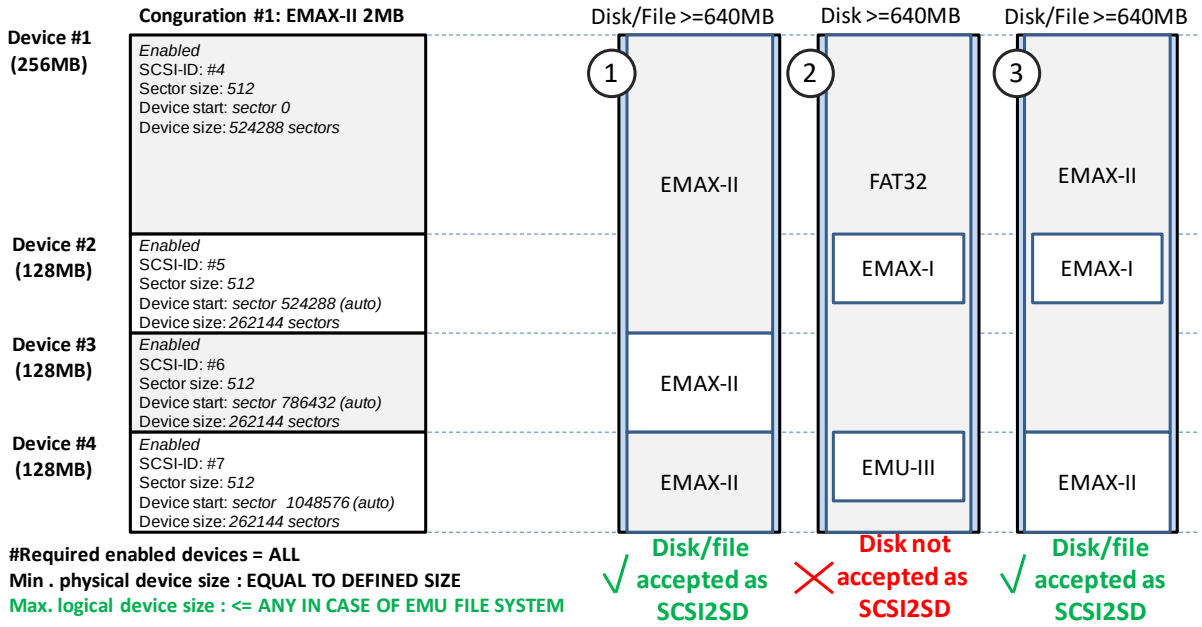
Each of the 3 disks or disk images will be accepted as being compliant with the given SCSI2SD configuration.
But if a device has been logically formatted to a size larger than the defined devices size, only the logical part that fits in the physical device size will be usable in EMXP. Any data residing in an area of the logical formatted file system which exceeds the physical device boundaries will not be accessible by EMXP !
The way EMXP will deal with the devices on each of the 3 disks/disk images is shown in the pictures below.
In case 1 and 3, Emax-II data residing in area A belonging to the first Emax-II device will be accessible by EMXP but Emax-II data belonging to the first Emax-II device which resides in area B will not be accessible by EMXP.


Conguration #1: EMAX-II 2MB
Device #1 (256MB)
Enabled
SCSI-ID: #4
Sector size: 512
Device start: sector 0
Device size: 524288 sectors
Device #2 (128MB)
Enabled
SCSI-ID: #5
Sector size: 512
Device start: sector 524288 (auto)
Device size: 262144 sectors
Device #3 (128MB)
Enabled
SCSI-ID: #6
Sector size: 512
Device start: sector 786432 (auto)
Device size: 262144 sectors
Device #4 (128MB)
Enabled
SCSI-ID: #7
Sector size: 512
Device start: sector 1048576 (auto)
Device size: 262144 sectors
#Required enabled devices = ALL
Min . physical device size : EQUAL TO DEFINED SIZE
Max. logical device size : <= ANY
Disk/File >=640MB
1
EMAX-II
A
B
EMAX-II
EMAX-II
Disk/file accepted as SCSI2SD
Disk/File >=640MB
EMAX-II
A
unknown
EMAX-II
EMAX-II
Resulting SCSI2SD Devices


Conguration #1: EMAX-II 2MB
Device #1 (256MB)
Enabled
SCSI-ID: #4
Sector size: 512
Device start: sector 0
Device size: 524288 sectors
Device #2 (128MB)
Enabled
SCSI-ID: #5
Sector size: 512
Device start: sector 524288 (auto)
Device size: 262144 sectors
Device #3 (128MB)
Enabled
SCSI-ID: #6
Sector size: 512
Device start: sector 786432 (auto)
Device size: 262144 sectors
Device #4 (128MB)
Enabled
SCSI-ID: #7
Sector size: 512
Device start: sector 1048576 (auto)
Device size: 262144 sectors
#Required enabled devices = ALL
Min . physical device size : EQUAL TO DEFINED SIZE
Max. logical device size : <= ANY
Disk >=640MB
2
FAT32
EMAX-I
EMU-III
Disk accepted as SCSI2SD
Disk >=640MB
FAT32
EMAX-I
unknown
EMAX-II
Resulting SCSI2SD Devices



Option 3 (ANY IN CASE OF EMU FILE SYSTEM)

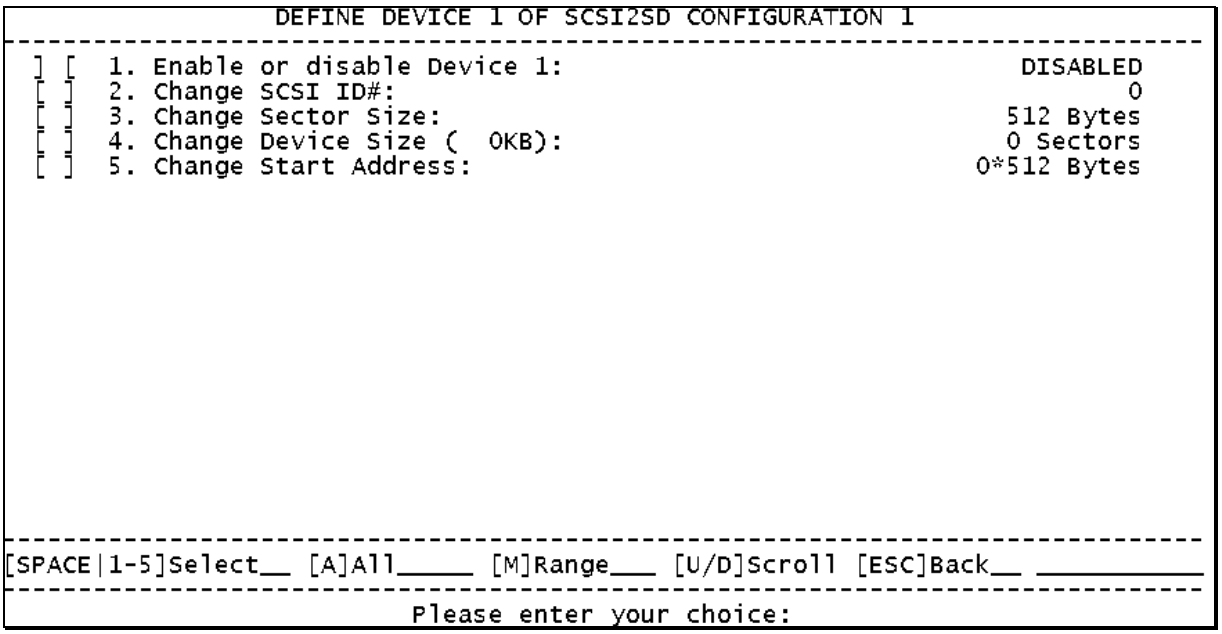


The situation is similar to the one in option 2, except for the disk in case 2. This disk contains a FAT32 file system at sector 0 and the FAT32 file system size covers the whole disk. So EMXP does not accept the disk as a partitioned SCSI2SD disk, even when an Emax-I file system and an Emulator-III file system have been logically formatted on certain locations on the disk.
At best EMXP will treat the disk as a normal un-partitioned FAT32 disk, but Windows or EMXP may return errors when trying to use this disk, since the data in the Emax-I and Emulator-III areas on the disk will be considered to be corrupt FAT32 data.

If *option 2* (ANY) or *option 3* (ANY IN CASE OF EMU FILE SYSTEM) has been selected in some SCSI2SD configurations, this setting can still be overruled if a more strict setting has been activated as an overruling preference for *all configurations* at once (see *section "10.5.4.6 Overrule the configured rules for maximum detected logical device size"*).

10.5.4.2.9 Define device

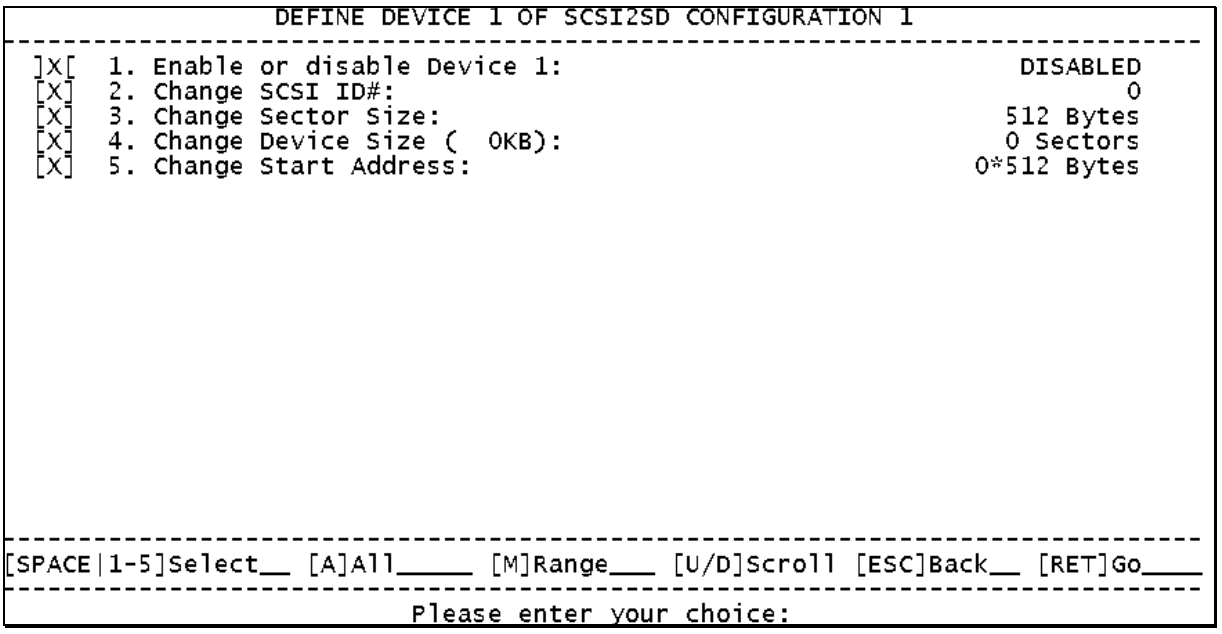
With options 9 → 15 you can define the parameters of each of the 7 SCSI devices that can be emulated by the SCSI2SD board (only 4 in case of a v5 bard).



For each *device* (=partition, called *device* 1 → *device* 7) the following five parameters can be defined:

1. whether the device is enabled or disabled (ON or OFF)
2. the SCSI-ID assigned to the device (ID#N with N = SCSI-ID)
3. the size of the SCSI2SD device (partition) in number of sectors
4. the size of a sector on the SCSI2SD device
5. the start sector of the SCSI2SD device (partition). The sector size for defining the start sector is always 512 bytes

Hint: as shown in the pictures below, the fastest way for defining a device is pressing 'A' (All) and pressing Enter. EMXP will guide you through the 5 parameters and will conclude by showing the resulting parameter overview again. By pressing Escape, you can start defining the next device.



```
          DEFINE DEVICE 1 OF SCSI2SD CONFIGURATION 1 - EMAX-II 2MB
--------------------------------------------------------------------------------
  ] [  1. Enable or disable Device 1:                                  ENABLED
  [ ]  2. Change SCSI ID#:                                                   4
  [ ]  3. Change Sector Size:                                        512 Bytes
  [ ]  4. Change Device Size (256MB):                           524288 Sectors
  [ ]  5. Change Start Address:                                    0*512 Bytes









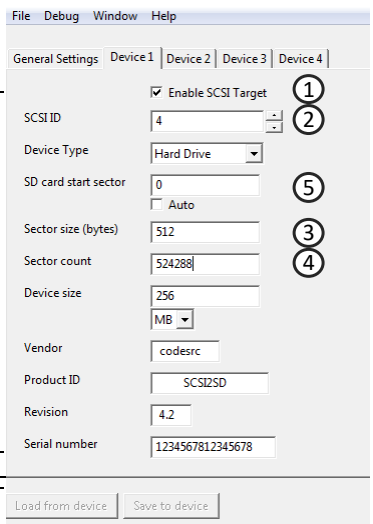
--------------------------------------------------------------------------------
[SPACE|1-5]Select__ [A]All_____ [M]Range___ [U/D]Scroll [ESC]Back__ ___________
--------------------------------------------------------------------------------
                              Please enter your choice:
```

For each device, the five parameter values should be identical to the values that have been entered in the scsi2sd-util software and that have been saved to the SCSI2SD emulator.

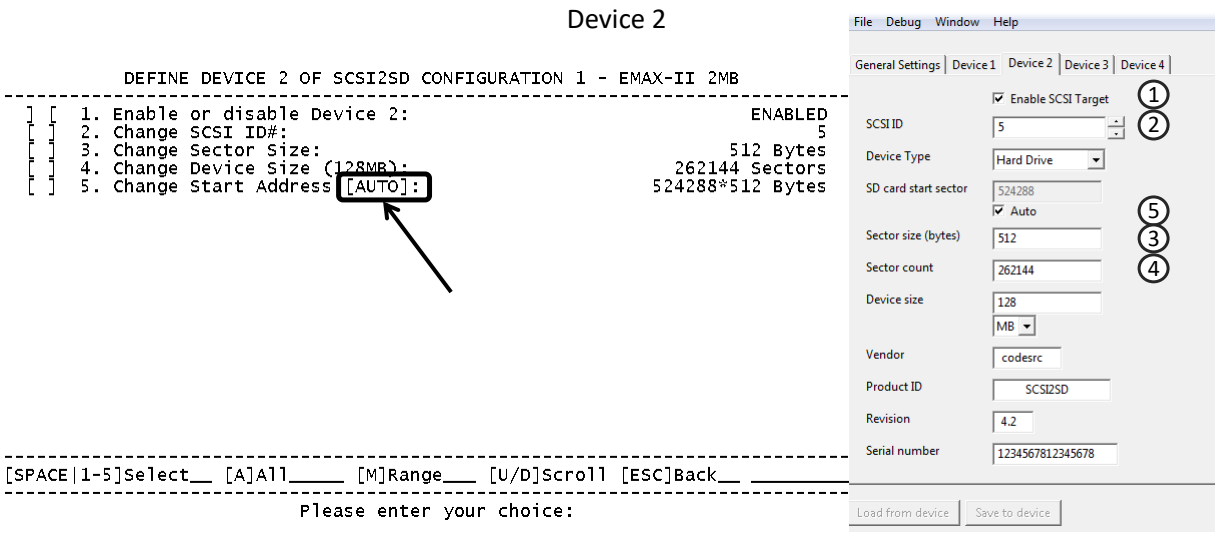
This is illustrated in the pictures below. The first device has a start address which is explicitly set to a value of 0, the second device has a start address which is automatically derived from the sizes and the start addresses of the other devices.

Device 1

```
          DEFINE DEVICE 1 OF SCSI2SD CONFIGURATION 1 - EMAX-II 2MB
--------------------------------------------------------------------------------
  ] [  1. Enable or disable Device 1:                                  ENABLED
  [ ]  2. Change SCSI ID#:                                                   4
  [ ]  3. Change Sector Size:                                        512 Bytes
  [ ]  4. Change Device Size (256MB):                           524288 Sectors
  [ ]  5. Change Start Address:                                    0*512 Bytes
```

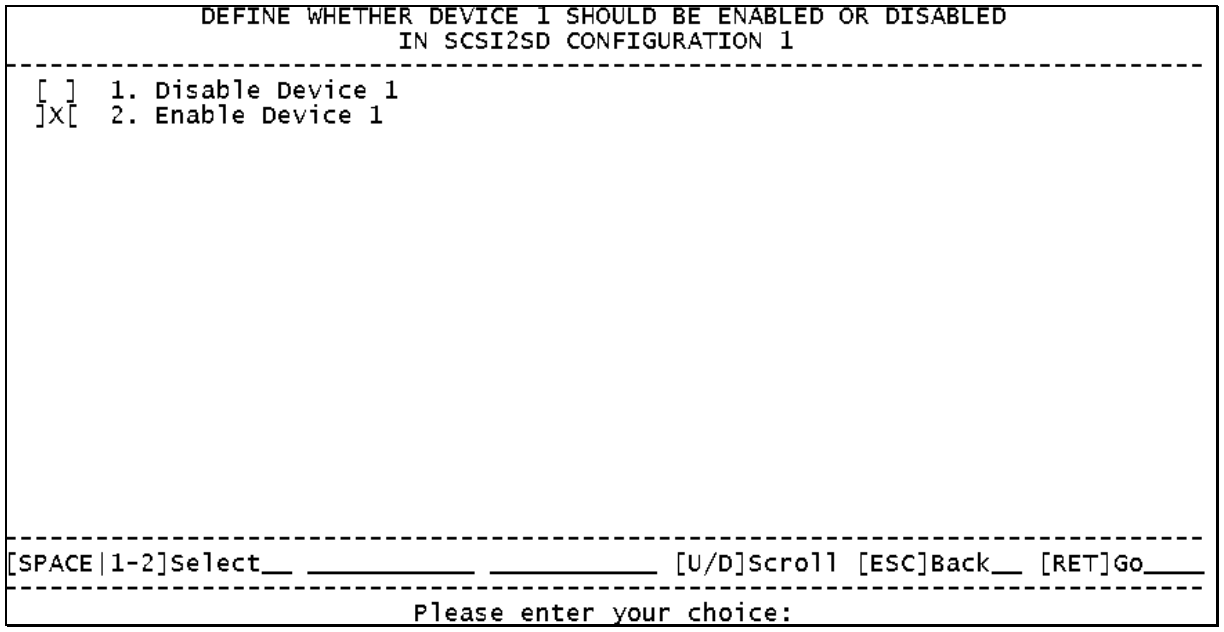



```
--------------------------------------------------------------------------------
[SPACE|1-5]Select__ [A]All_____ [M]Range___ [U/D]Scroll [ESC]Back__ ___________
--------------------------------------------------------------------------------
                              Please enter your choice:
```



Option 1: enable or disable device

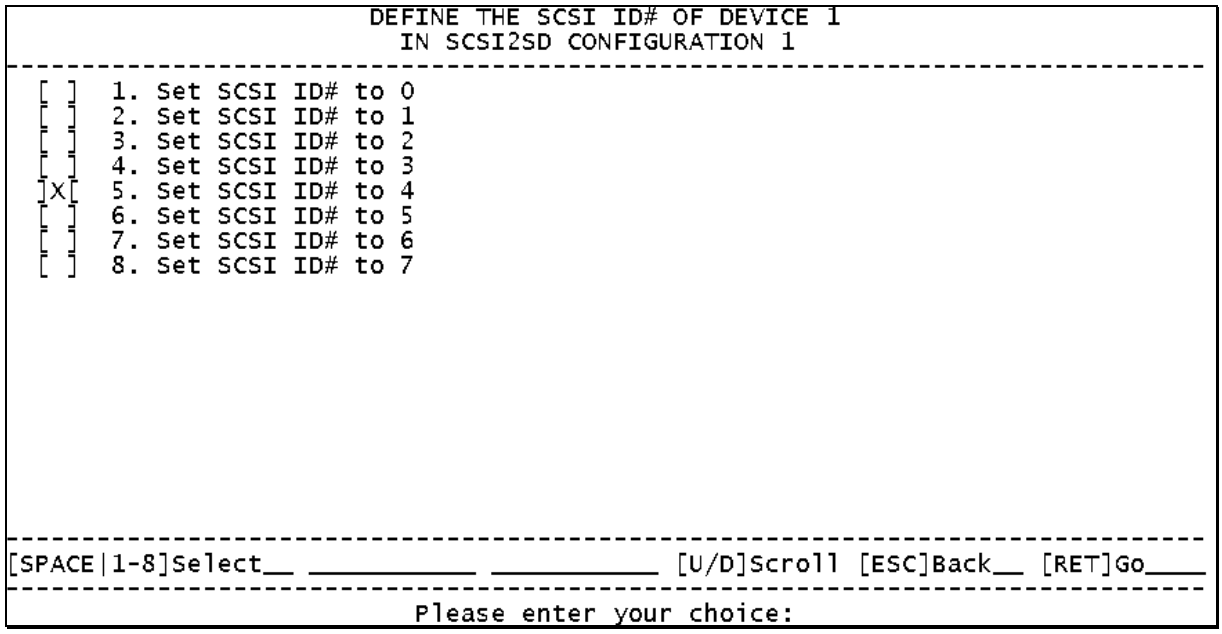
With this option you can enable or disable the device. EMXP only takes into account enabled devices; disabled devices are ignored, no matter what values have been set for the other 4 parameters.



Select *option 1* to disable the device.
Select *option 2* to enable the device

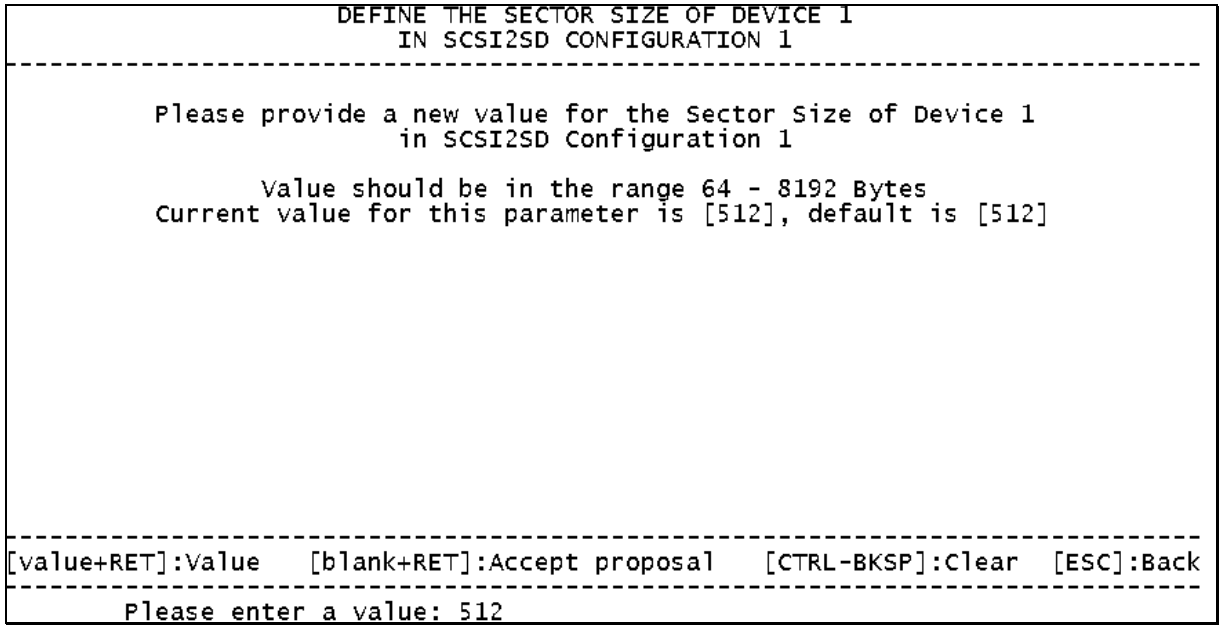
Option 2: change SCSI ID#

With this option you can set the SCSI ID number that appears on the sampler's LCD display for that device. EMXP only uses this parameter for display purposes. See also *section "10.5.4.7 Define SCSI2SD device identifier to be displayed in EMXP*".



Option 3: change sector size

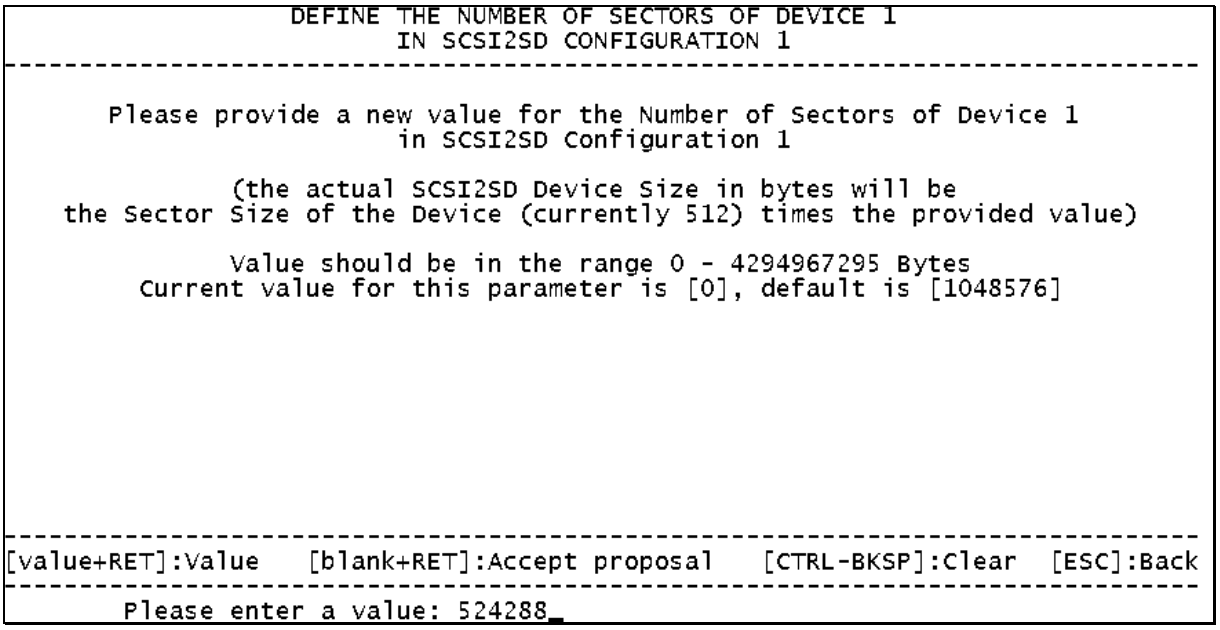
With this option you can define the size of a sector in the device.



Hint: although the SCSI2SD and EMXP allow any value within the range 64 → 8192 bytes, you should only use a sector size of 512 bytes when using the SCSI2SD in an Emax-1, Emax-II or Emulator-III/X sampler !

Option 4: change device size

With this option you can define the size of the device. The size is expressed in number of sectors.



Although a value of 0 is accepted in this screen, make sure the value is at least 1 if the device is enabled, otherwise a validation warning will be shown later in the process.

For use in an Emax-I sampler, the device size should be at least 38895 when using a sector size of 512 bytes. For use in an Emax-II or Emulator-III/X sampler, the device size should be at least 513 when using a sector size of 512 bytes. Although such a small device size is still useless in practice, it won't raise an error when using the device in an Emax-II or Emulator-III/X sampler.

If the above minimum values are not met, EMXP will not give a warning because EMXP can't know for which sampler the SCIS2SD configuration will be used.

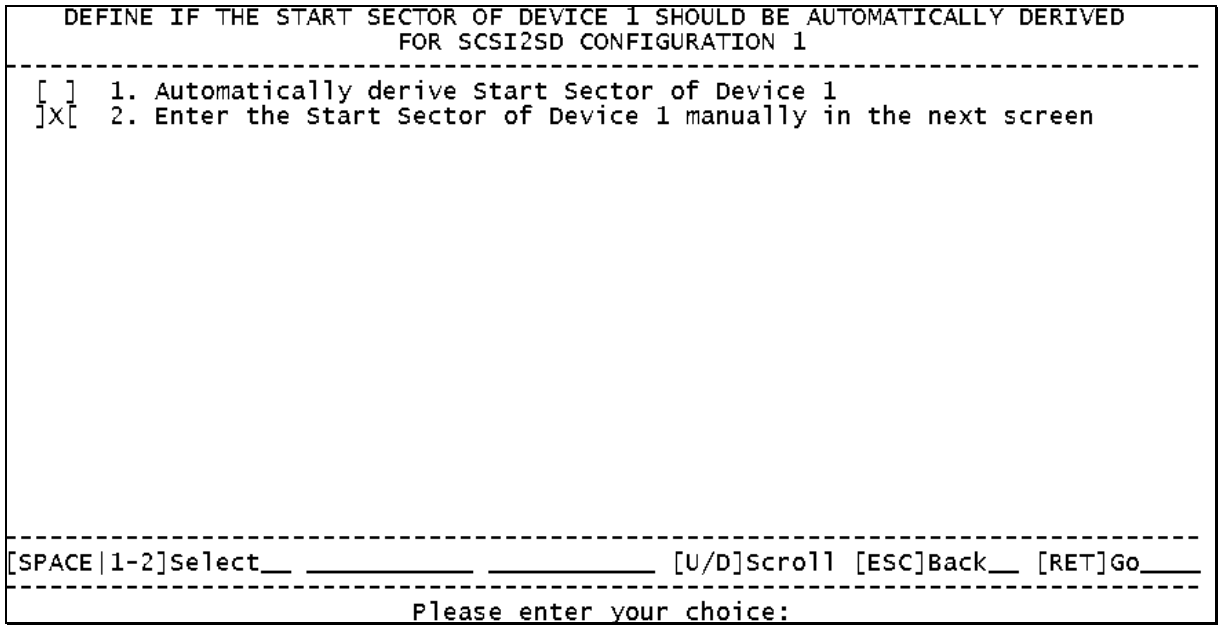
Hint: don't define too large sizes if it's not necessary.

E.g. when using a SCSI2SD board in an Emax-II sampler, don't define device sizes of more than 1GB. The Emax-II can't use more than +/- 800MB, so any larger device size is useless and may slow down processing time if you want to backup/restore all devices at once. E.g. if you define 4 devices each having a size of 4GB on an SD card of 16GB, a full backup/restore of the whole SD card will have to read/write 16GB of data, while only 4GB of data is in use by the Emax-II.

See also Hint 2 explained in option 5.

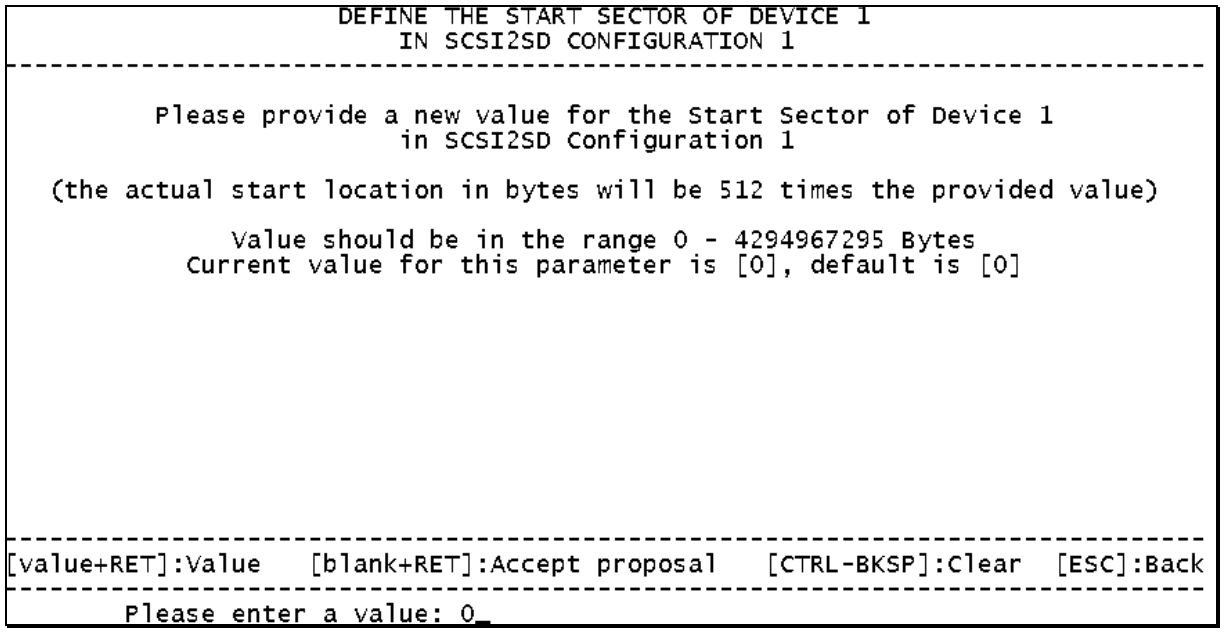
Option 5: change start address

With this option you can define the start address of the device. The start address is expressed in number of 512-byte blocks (no matter what sector size you have defined in option 4).



There are two ways of setting the start address:

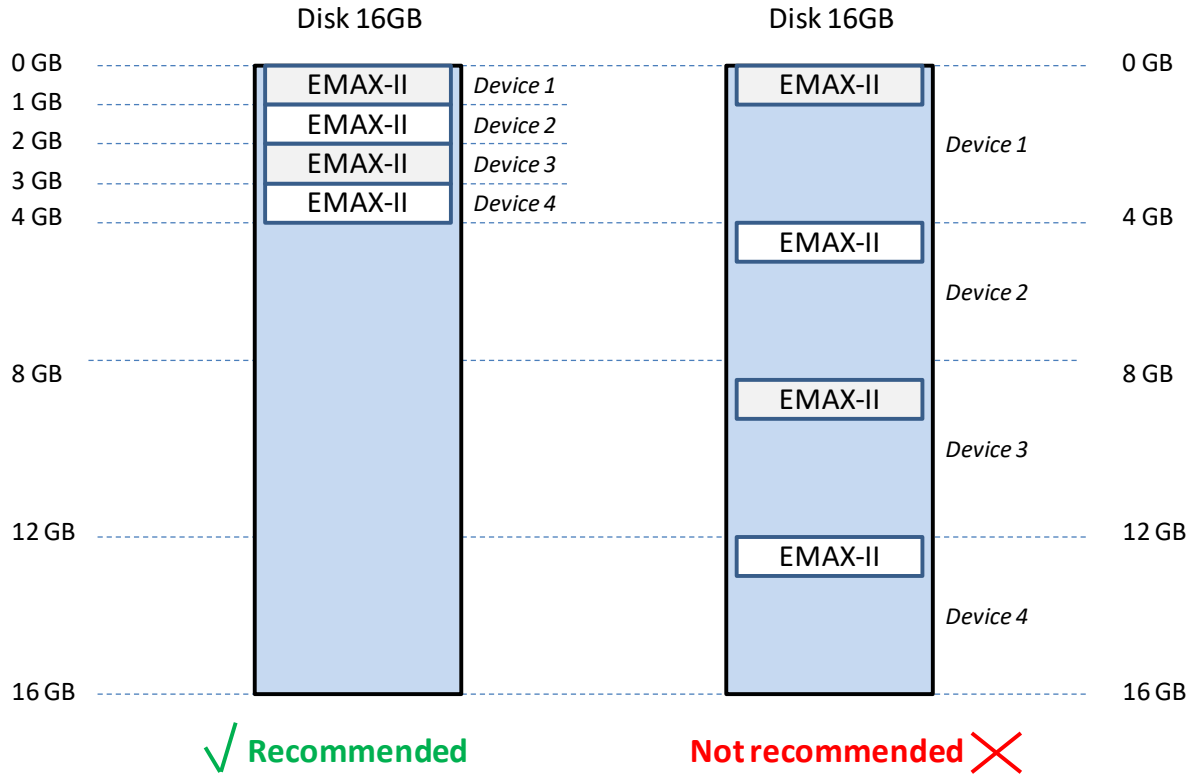
- select option 1 if you want EMXP to automatically derive the start address based on the sizes and start addresses of the other enabled devices in the configuration. EMXP searches for the first available sector which is not assigned yet to one of the other enabled devices.
- select option 2 if you want to enter the start address manually. The screen below will appear.



Hint 1: when using option 1 (automatic derivation), please check if the address derived by EMXP matches the start sector that has been defined in the scsi2sd-util software.

Hint 2: keep the devices as close as possible to each other.

E.g. if you define 4 devices, each having a size of 1GB on an SD card of 16GB, it's recommended to only use the first 4GB of the card instead of spreading the devices across the full 16GB. By doing this, a backup/restore of the all devices at once can be done much faster since only 4GB must be read/written instead of the full 16GB.



See also the hint explained in option 4.

10.5.4.2.10 SCSI2SD configuration validation

After having entered all parameters for a particular device and/or after having entered all parameters for a complete SCSI2SD configuration, EMXP will verify if the SCSI2SD configuration is valid before storing it in the EMXPNCFG.BYT file. If any error or inconsistency is found, a warning will be shown and you will have to change the invalid parameter before you can continue.

The following validations are done:

- Whether the size of each enabled device differs from 0. If this rule is violated, a warning message *"Device Size parameter is invalid or out of range"* is raised.
- Whether enabled devices don't overlap with each other. If this rule is violated, a warning message *"Device Start Sectors are invalid. Reason: Devices are overlapping"* is raised.
- Whether enabled devices don't have the same SCSI-ID#. If this rule is violated, a warning message *"Device SCSI ID#s are invalid. Reason: SCSI ID#s are overlapping"* is raised.

10.5.4.3 Define SCSI2SD defaults per hard disk and hard disk image type

As explained in *section "10.5.4.2 Define SCSI2SD device configurations"* you can define up to 10 different SCSI2SD configurations in EMXP. This may be useful if you have a SCSI2SD board installed in different types of samplers, and if the SCSI2SD configurations differ per sampler type.

E.g. you may have an SCSI2SD board installed in

- an Emax-I sampler with an SD card consisting of 4 partitions (*devices in SCSI2SD speak)* each being 20MB in size
- an Emax-II 2MB sampler with an SD card consisting of 4 partitions each being 128MB in size except for the first one which is 256MB in size
- an Emulator-III sampler with an SD card conistsing of 4 partitions each having a size of 1GB

Whenever you instruct EMXP to search for *devices* (partitions) on sampler disks or sampler disk images in the EMXP File and Disk Manager, EMXP must know *which of the 10 SCSI2SD configurations should be used* in this search operation.

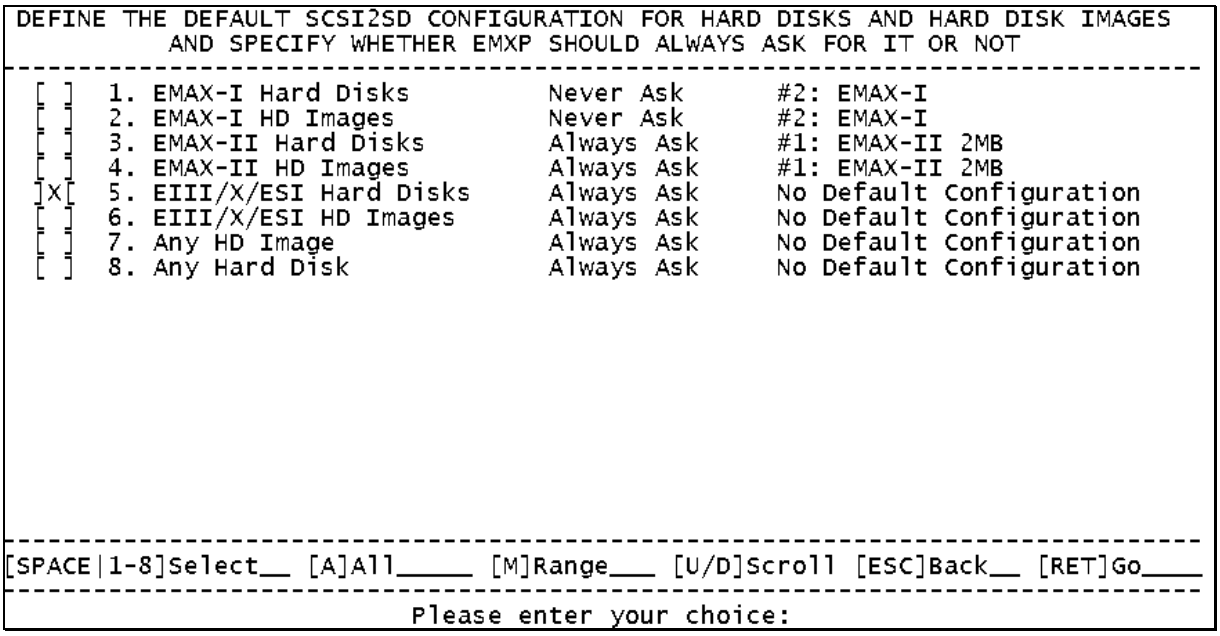
While you always have the possibility to explicitly select or change the applicable SCSI2SD configuration in the EMXP File and Disk Manager by means of the "`[G] SDConfig`" shortcut key, you can also

- assign a default SCSI2SD configuration to each sampler hard disk type and to each sampler hard disk image type supported by EMXP
- instruct EMXP to automatically use that default configuration instead of explicitly asking for it when pressing the "`[C] SCSI2SD`" shortcut key. This is the shortcut key that must be used to start or stop treating a disk or disk image as a SCSI2SD disk or disk image.

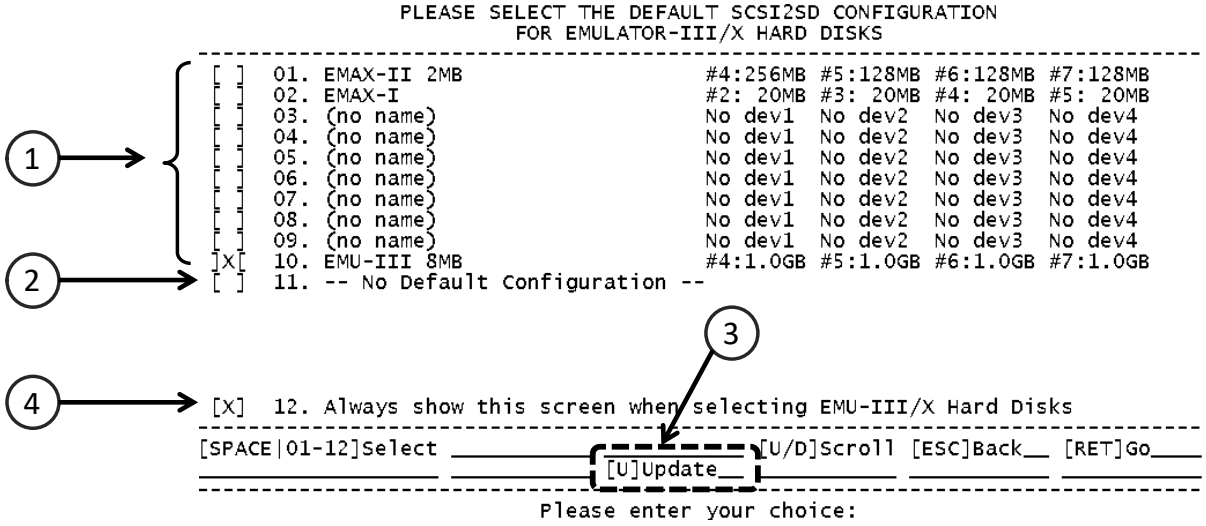
Note however that EMXP automatically updates the default SCSI2SD configuration whenever you change the configuration in the EMXP File and Disk Manager.
E.g. if you have set the default Emax-I hard disk configuration to "2: EMAX-I" in the Preferences menu, but you select another configuration (e.g. "1: EMAX-II 2MB") in the EMXP Disk Manager when scanning for Emax-I SCSISD disks, the default configuration for Emax-I hard disks will automatically be replaced by "1: EMAX-II 2MB".

In the screen below you can define

- the default SCSI2SD configuration for each supported sampler hard disk and sampler hard disk image type
- whether EMXP should always ask for a SCSI2SD configuration whenever the "`[C] SCSI2SD`" shortcut key is pressed in the EMXP File and Disk Manager.



After selecting a sampler hard disk (image) type, the following screen will appear



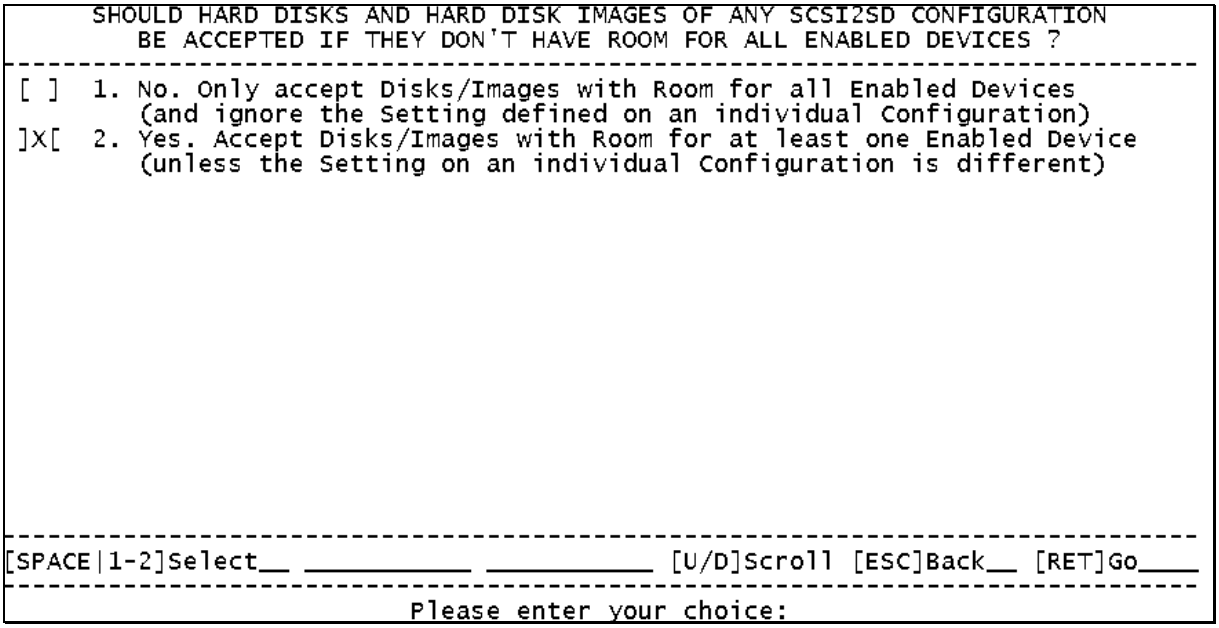
1. Select *option 1 → 10* and press Enter to assign one of the 10 available SCSI2SD configurations as the default configuration for the sampler hard disk (image) type
2. Select *option 11* if you don't want to assign a default SCSI2SD configuration to the sampler hard disk (image) type
3. Select *option 1 → 10* and press "`[U] Update`" if you want to define or change a SCSI2SD configuration before assigning it as a default configuration to the sampler hard disk (image) type
4. Select *option 12* if EMXP should always show this screen if you press the "`[C] SCSI2SD`" shortcut key in the EMXP File and Disk Manager. This is the default setting.
   Unselect *option 12* if you want EMXP to automatically use the default configuration whenever you press the "`[C] SCSI2SD`" shortcut key in the EMXP File and Disk Manager. However if no default configuration has been assigned yet, the EMXP File and Disk Manager will ignore this setting and will still request for a SCSI2SD configuration before continuing.

10.5.4.4 Overrule the configured rules for minimum number of detected devices

As explained in *section "10.5.4.2.6 Change #required enabled devices"* EMXP is able to accept disks or disk images as SCSI2SD partitioned disks or disk images e*ven if the disk or disk image does not contain all devices (partitions) that have been enabled in the selected SCSI2SD configuration*.
Whether EMXP should behave like this can be defined differently for each SCSI2SD configuration in EMXP.

Sometimes however you might want to (temporarily) overrule the settings defined for each configuration by a more strict setting which is applicable for all configurations, no matter what setting has been defined in each individual configuration.

This can be done in this screen.



Select *option 1* if you want to overrule the setting defined in each individual configuration, as follows:

Parameter 6 in a configuration	Overrule option (above screen)	Resulting rule
(1) ALL	(1) ALL	ALL
(1) ALL	(2) AT LEAST ONE	ALL
(2) AT LEAST ONE	(1) ALL	ALL
(2) AT LEAST ONE	(2) AT LEAST ONE	AT LEAST ONE

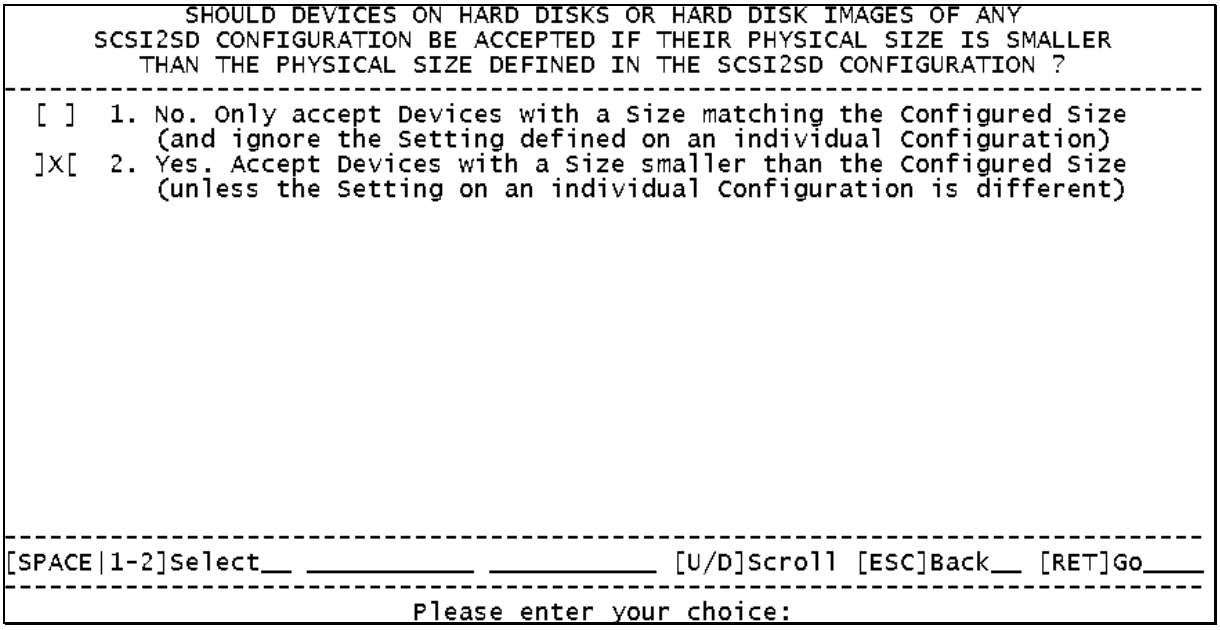
Select *option 2* if you don't want to overrule the setting defined in each individual configuration. **This is the default option.**

10.5.4.5 Overrule the configured rules for minimum detected physical device size

As explained in *section "10.5.4.2.7 Change minimum physical device size"* EMXP is able to accept individual *devices* (partitions) on SCSI2SD partitioned disks or disk images e*ven if the physical size of the partition on the disk or disk image is smaller than the device size that has been defined in the in the selected SCSI2SD configuration*.
Whether EMXP should behave like this can be defined differently for each SCSI2SD configuration in EMXP.

Sometimes however you might want to (temporarily) overrule the settings defined for each configuration by a more strict setting which is applicable for all configurations, no matter what setting has been defined in each individual configuration.

This can be done in this screen.



Select *option 1* if you want to overrule the setting defined in each individual configuration, as follows:

Parameter 7 in a configuration	Overrule option (above screen)	Resulting rule
(1) EQUAL TO DEFINED SIZE	(1) EQUAL TO DEFINED SIZE	EQUAL TO DEFINED SIZE
(1) EQUAL TO DEFINED SIZE	(2) <= DEFINED SIZE	EQUAL TO DEFINED SIZE
(2) <= DEFINED SIZE	(1) EQUAL TO DEFINED SIZE	EQUAL TO DEFINED SIZE
(2) <= DEFINED SIZE	(2) <= DEFINED SIZE	<= DEFINED SIZE

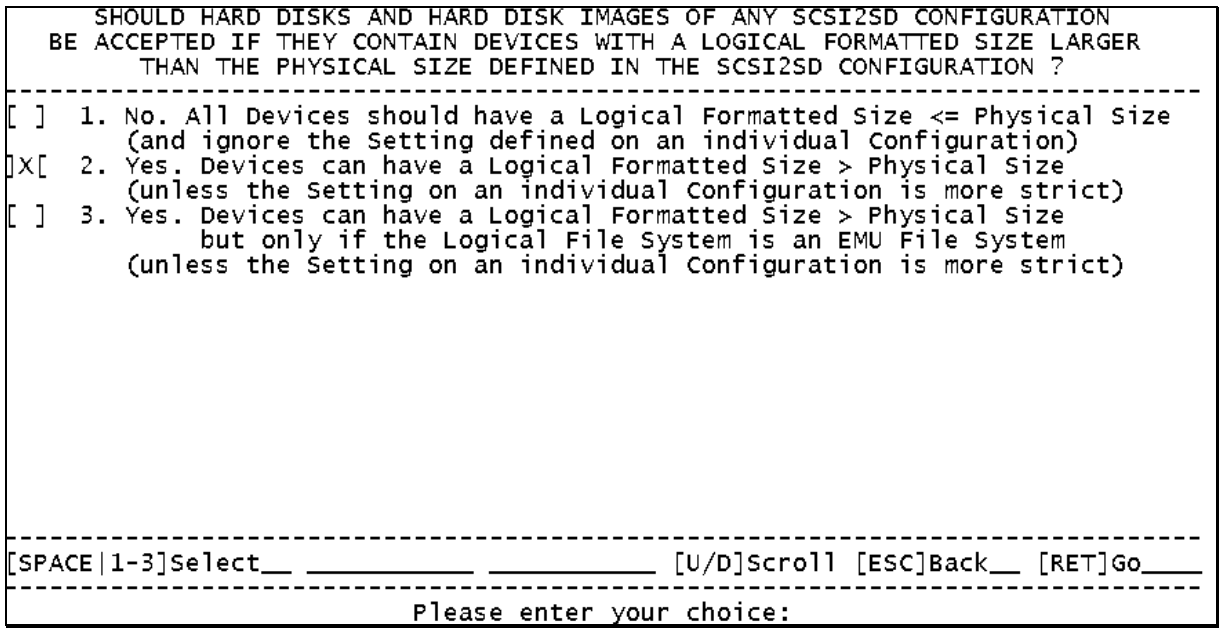
Select *option 2* if you don't want to overrule the setting defined in each individual configuration. **This is the default option.**

10.5.4.6 Overrule the configured rules for maximum detected logical device size

As explained in *section "10.5.4.2.8 Change maximum logical device size"* EMXP is able to accept disks or disk images as SCSI2SD partitioned disks or disk images e*ven some of its devices (partitions) have been logically formatted to a size which exceeds the physical device (partition) size that has been defined in the SCSI2SD configuration.*
Whether EMXP should behave like this can be defined differently for each SCSI2SD configuration in EMXP.

Sometimes however you might want to (temporarily) overrule the settings defined for each configuration by a more strict setting which is applicable for all configurations, no matter what setting has been defined in each individual configuration.

This can be done in this screen.



Select *option 1* if want to overrule the setting defined in each individual configuration, as follows:

Parameter 7 in a configuration	Overrule option (above screen)	Resulting rule
(1) <= DEFINED SIZE	(1) <= DEFINED SIZE	<= DEFINED SIZE
(1) <= DEFINED SIZE	(2) ANY	<= DEFINED SIZE
(1) <= DEFINED SIZE	(3) ANY IN CASE OF EMU FILE SYSTEM	<= DEFINED SIZE
(2) ANY	(1) <= DEFINED SIZE	<= DEFINED SIZE
(2) ANY	(2) ANY	ANY
(2) ANY	(3) ANY IN CASE OF EMU FILE SYSTEM	ANY IN CASE OF EMU FILE SYSTEM
(3) ANY IN CASE OF EMU FILE SYSTEM	(1) <= DEFINED SIZE	<= DEFINED SIZE
(3) ANY IN CASE OF EMU FILE SYSTEM	(2) ANY	ANY IN CASE OF EMU FILE SYSTEM
(3) ANY IN CASE OF EMU FILE SYSTEM	(3) ANY IN CASE OF EMU FILE SYSTEM	ANY IN CASE OF EMU FILE SYSTEM

Select *option 2* if you don't want to overrule the setting defined in each individual configuration. **This is the default option.**

10.5.4.7 Define SCSI2SD device identifier to be displayed in EMXP

A SCSI2SD disk or disk image can have up to 4 (for v5 boards) or 7 (for v6 boards) *enabled devices*. This should be configured with the *scsi2sd-util software* and it should also be configured in EMXP by means of one of the 10 available "SCSI2SD configuration" slots, as explained in section "".

Each enabled device must be assigned a unique SCSI-ID number in order to appear as a separate hard disk in the Emax-I, Emax-II or Emulator-III/X sampler.

Whenever EMXP is referring to a particular *device* on a SCSI2SD disk or in a SCSI2SD disk image, it can

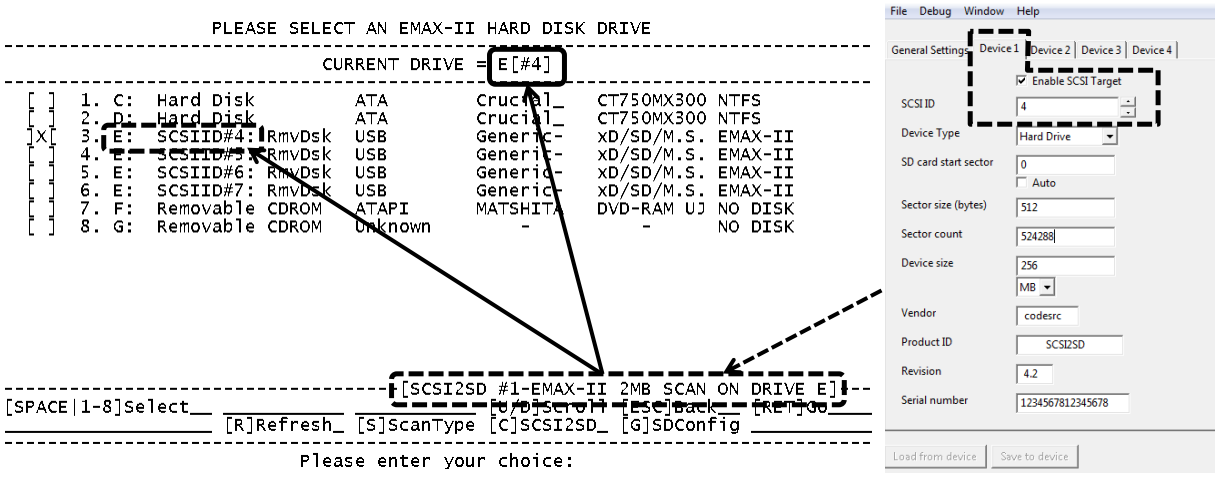
- either display the *device number* of the device (device 1 → device 7)
- or display the SCSI ID number that has been assigned to a device (SCSI ID #0 → #7)

This can be configured in the screen below.

```
        WHICH SCSI2SD DEVICE IDENTIFIER SHOULD BE DISPLAYED IN EMXP ?
--------------------------------------------------------------------------------
 ]X[  1. Display the SCSI ID# of the SCSI2SD Device
 [ ]  2. Display the Device No of the SCSI2SD Device
--------------------------------------------------------------------------------
[SPACE|1-2]Select__ _____________ _____________ [U/D]Scroll [ESC]Back__ [RET]Go____
--------------------------------------------------------------------------------
                          Please enter your choice:
```

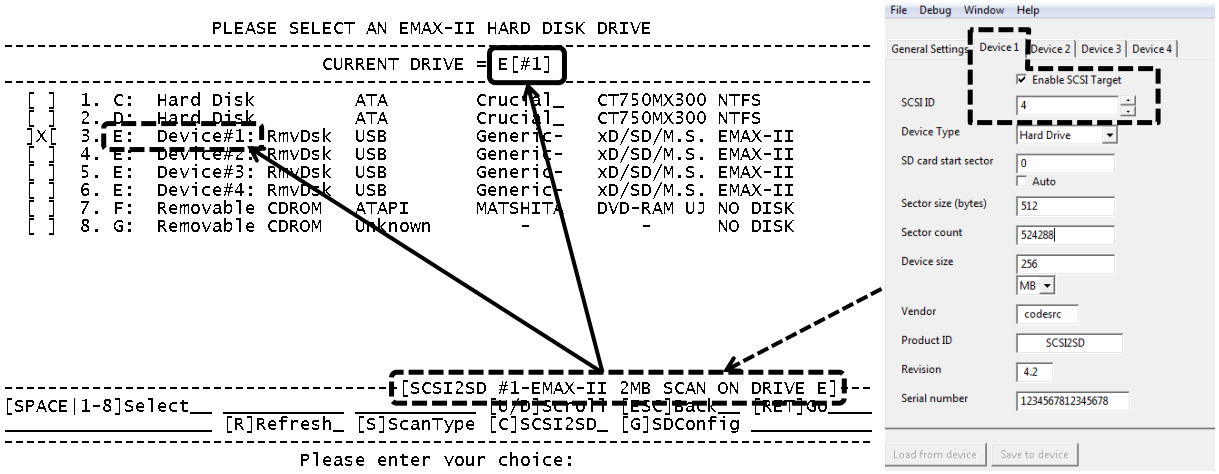
Select *option 1* if you want EMXP to display the *SCSI-ID number*. **This is the default setting.**

E.g. if *SCSI-ID #4* has been assigned to *device* 1 (see *section "10.5.4.2.9 Define device"*) in SCSI2SD configuration "1: EMAX-II 2MB" and the SD card in drive E is compliant with this SCSI2SD configuration, the first partition will be referred to as "E[#4]" in EMXP.



Selection *option 2* if you want EMXP to display the *device number*.

In the given example, the first partition will now be referred to as "E[#1]" (instead of E[#4]).

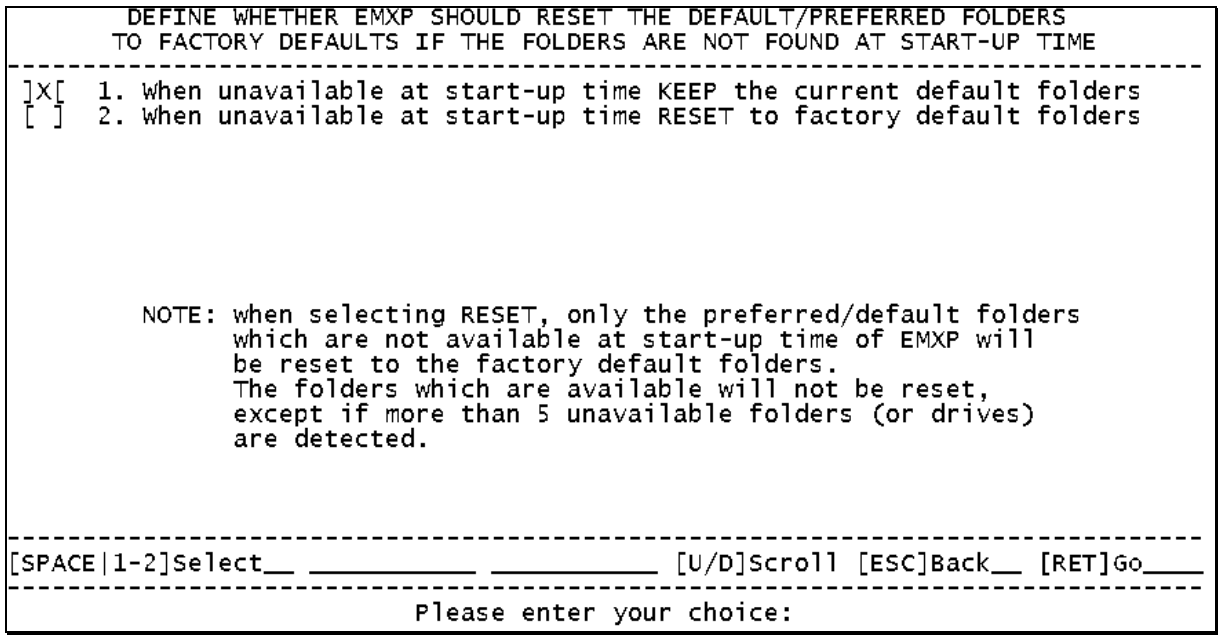


10.5.5 Define what to do if default folders are not found at start-up time

Each time EMXP is started, it is validating the availability of all folders that have been defined as *preferred* folders (see *section "10.5.1 Define file and drive location preferences"*).

Since EMXP is relying on these preferred folders, it should know what to do if one or more of these folders can not be found or are unavailable.
There are two options:

- EMXP should ignore that a preferred folder is unavailable - the unavailable folder is retained as preferred folder. Whenever EMXP will actually access this folder, a warning will be given and you will have to select another folder yourself at that point in time.
- EMXP should replace the preferred folder by the factory default folder



However if EMXP detects more than 5 unavailable folders at start-up time, it will automatically replace *all unavailable preferred folders* by the default factory ones.
This is done to reduce the start-up time of EMXP because one of the reasons folders may be unavailable can be that they are residing on a removable disk (memory card, USB stick, ...) which is currently not connected to the computer. Validating an unavailable disk (as opposed to an unavailable folder on an available disk) takes quite some time, and more than 30 of such validations have be done by EMXP.

Note
If during this validation EMXP detects that its own folder (the one in which EMXPN.EXE is stored) has been moved or changed - and as a consequence perhaps many of the preferred folders as well - it will give a warning and ask if the preferred folders can be replaced with the moved/copied ones. For more details, see *section " 1.9 MOVING EMXP TO ANOTHER LOCATION OR RENAMING EMXP'S FOLDER(S)"*.

10.5.6 Define whether USB floppy drives should be ignored or not

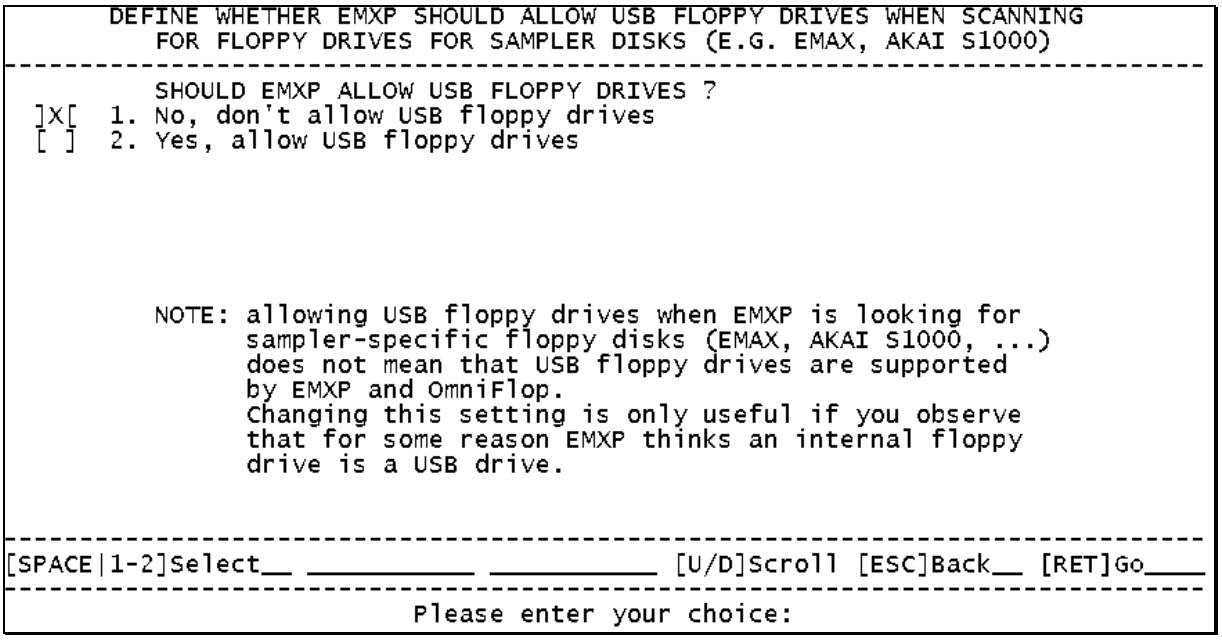
As explained in *chapter "1. INSTALLATION"*, EMXP requires *an internal floppy drive* and the OmniFlop floppy drive to be installed in order to access EMAX floppy disks and Akai S1000 floppy disks.

USB floppy drives are not supported because their firmware can not be controlled by the computer to access other disk formats than the standard MSDOS compatible ones.

When looking for floppy drives, the EMXP Disk Manager will check if the drive is an internal drive or rather a USB drive. If it detects a USB drive, it will be considered to be *not supported* and EMXP will not accept these drives for managing sampler sound data or formatting sampler floppy disks.

In some exceptional cases however EMXP may *think* that a floppy drive is a USB drive (and hence prevent using it) while in reality the drive *is an internal one* or at least *guaranteed to work fine with OmniFlop*.

To prevent EMXP to qualify a drive to be USB one while it is not, you can change the preference below to "Yes, allow USB floppy drives".



It is very important to understand that *allowing USB floppy drives* does NOT mean that *USB drives will be supported* for accessing EMAX and Akai S1000 floppy disks !

10.5.7 Manage warning settings for invalid files, folders and disks

If the file manager or disk manager detect files, folders or disks that are invalid or incompatible with the requested object type, warning screens may be displayed. Whether these warnings should be shown or not can be defined with the following functions:

```
              FILE AND DISK MANAGER WARNING PREFERENCES MENU
-------------------------------------------------------------------------------

1.  Define if Warnings should be shown when Invalid Files are detected

2.  Define if Warnings should be shown when Unavailable Folders are detected

3.  Define if Warnings should be shown when Unavailable Drives are detected

4.  Define if Warnings should be shown when Incorrect HD Sizes are detected







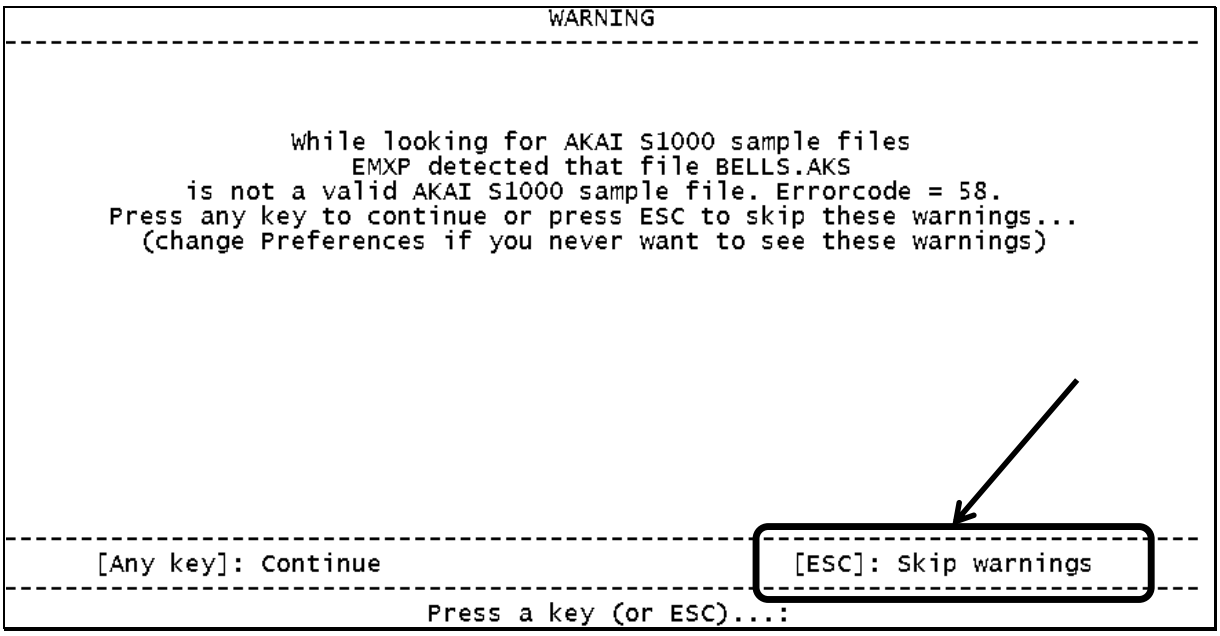


-------------------------------------------------------------------------------
           [1]...[4]: menu option                 ESC: Go back
-------------------------------------------------------------------------------
                          Please enter a menu option:
```

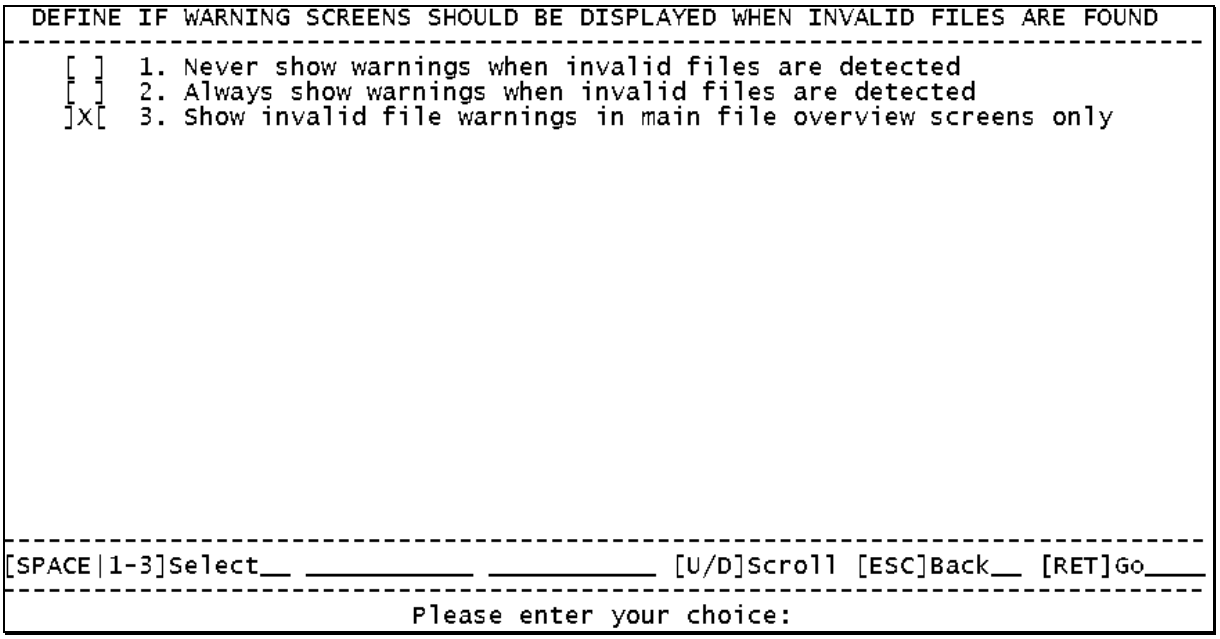
10.5.7.1 Define if warnings should be shown when invalid files are detected

When the File Manager is searching for EMXP-compatible files on your computer, it may detect files that have a correct file extension but have a corrupt or incompatible file content.

These files will be excluded from the final file overview, but EMXP can give a warning *for each invalid file* that it encountered in the current folder. If multiple invalid files are found, multiple warnings will be displayed successively, but you can skip these successive warnings at all times by pressing ESC. An example of such warning is given in the picture below.



These warning screens may be annoying for some users. If you don't want to be informed about invalid files in the current folder, you can disable the generation of warnings with this preference:



Disabling warnings for invalid files can be done on two levels:

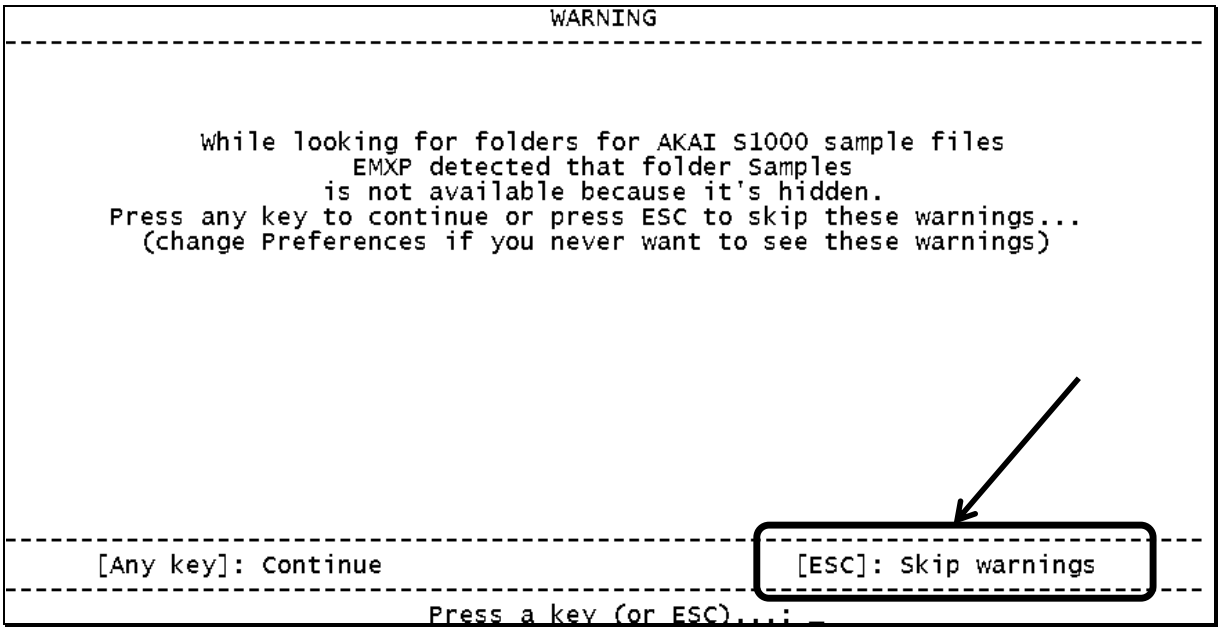
- Select "Never show warnings when invalid files are detected" if you never want to see these warnings in any of the file overview screens shown by the File Manager.
- Select "Show invalid file warnings in main file overview screens only" if you don't want to see these warnings in the File Manager whenever EMXP is asking for *a target file*, but if you still want to get these warnings if you are opening the File Manager to select source files. This is the default setting.

However if an invalid file has a *generic extension* like .IMG (instead of e.g. .EMUIIFD) and the preference has been set not to show any errors or warnings for these files, the above preference will be overruled. See also *section "10.5.3.3 Define what to do with incompatible files with a generic file extension"*.

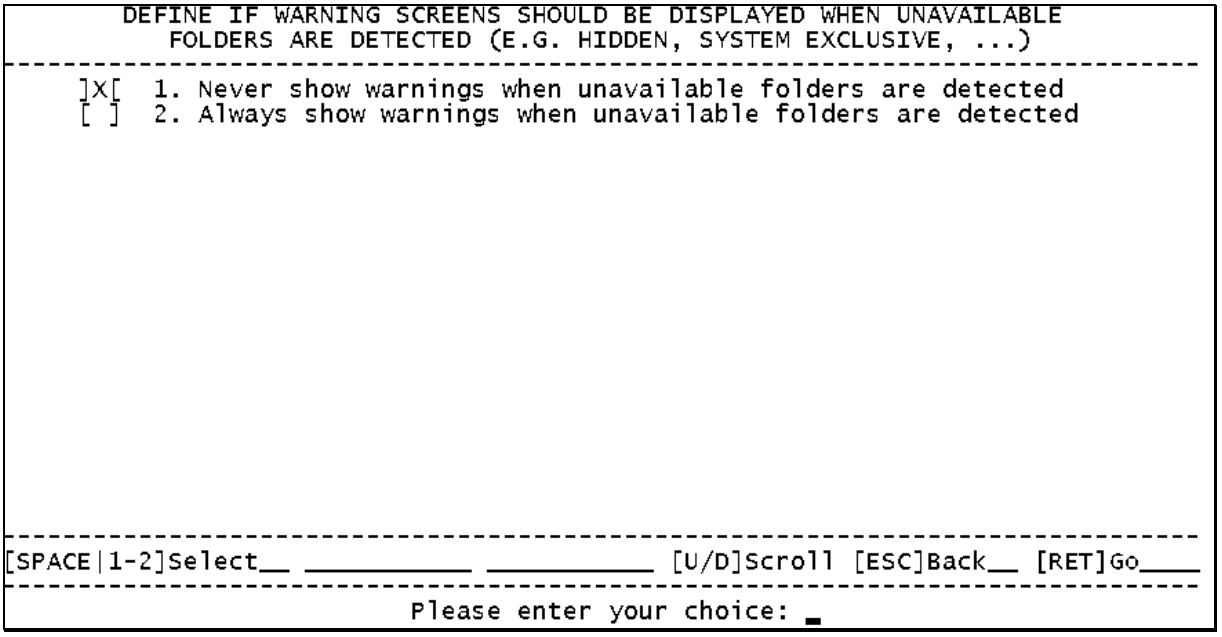
10.5.7.2 Define if warnings should be shown when unavailable folders are detected

When the File Manager is searching for folders on your computer, it may detect that some folders are not available, e.g. because they are hidden, locked or offline.

These folders will be excluded from the final folder overview, but EMXP can give a warning *for each unavailable folder* that it encountered in the current folder. If multiple unavailable folders are found, multiple warnings will be displayed successively, but you can skip these successive warnings at all times by pressing ESC. An example of such warning is given in the picture below.



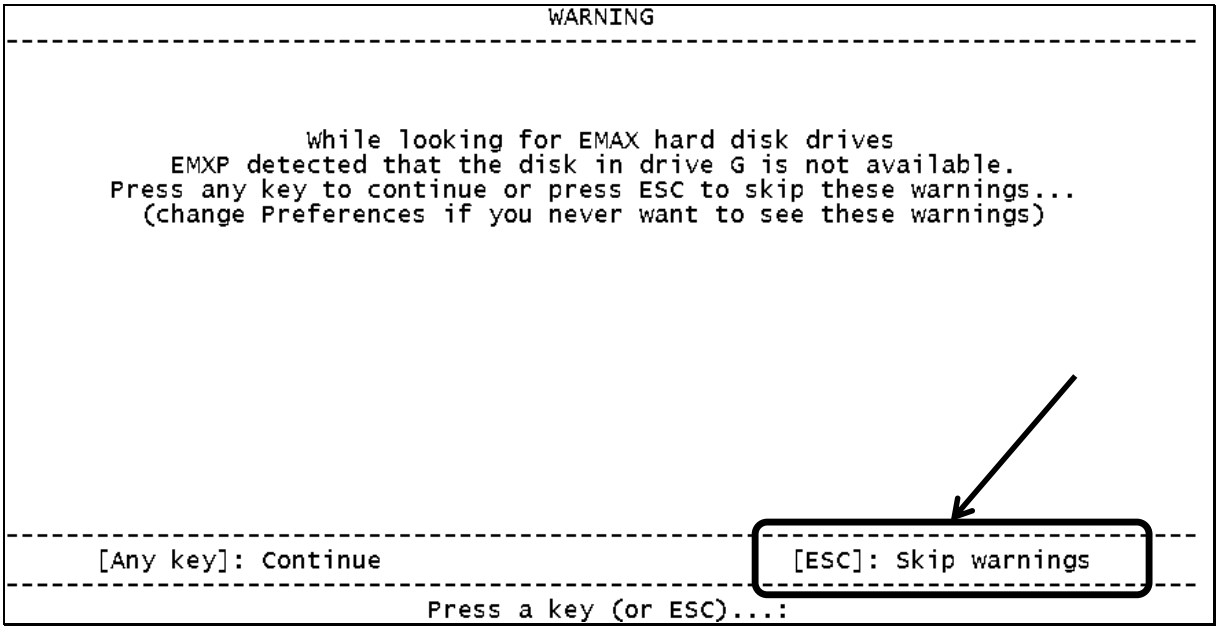
These warning screens may be annoying for some users. By default they are *disabled* in EMXP, but if you really want to be informed about unavailable folders, you can enable the generation of warnings with this preference:



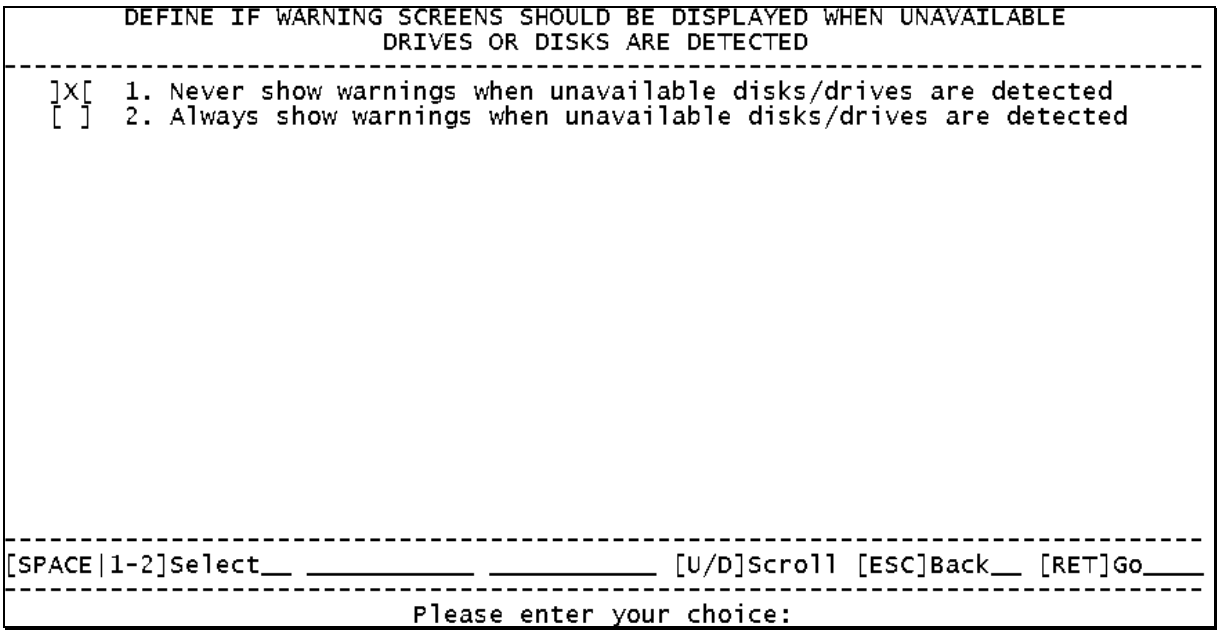
10.5.7.3 Define if warnings should be shown when unavailable drives are detected

When the Disk Manager is searching for drives on your computer, it may detect that some drives are not available, e.g. because the drive is offline, the type of drive is not supported or because the physical format (geometry) is not recognized..

These drives will be excluded from the final drive overview, but EMXP can give a warning *for each unavailable drive* that it encountered. If multiple unavailable drives are found, multiple warnings will be displayed successively, but you can skip these successive warnings at all times by pressing ESC. An example of such warning is given in the picture below.



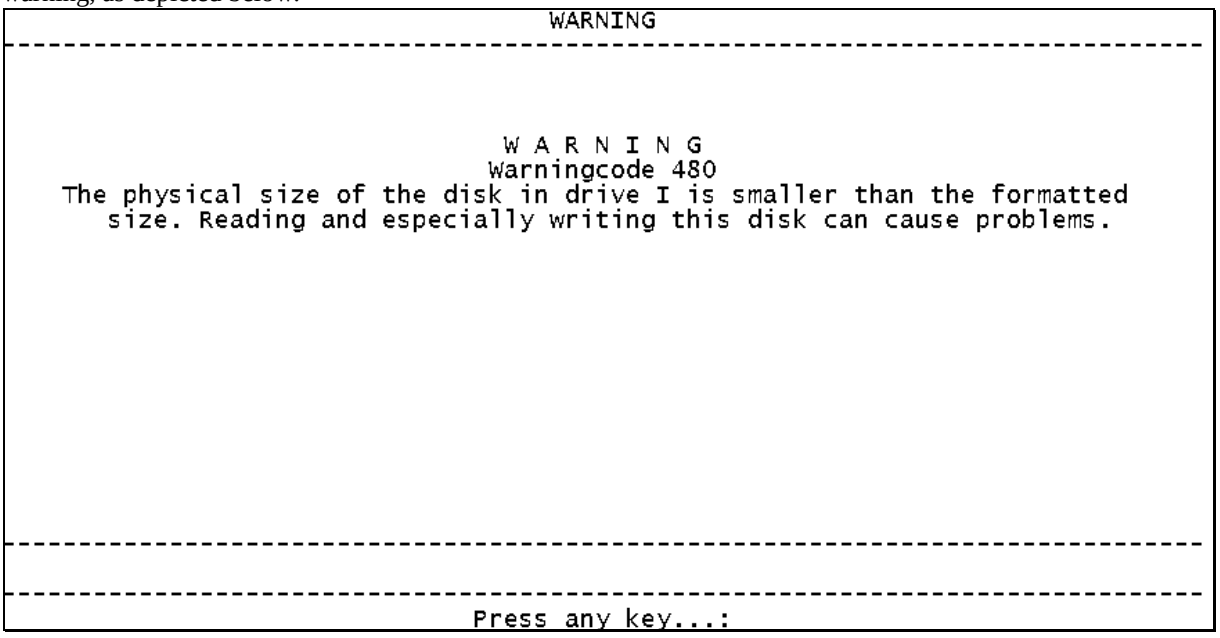
These warning screens may be annoying for some users. By default they are *disabled* in EMXP, but if you really want to be informed about unavailable drives, you can enable the generation of warnings with this preference:



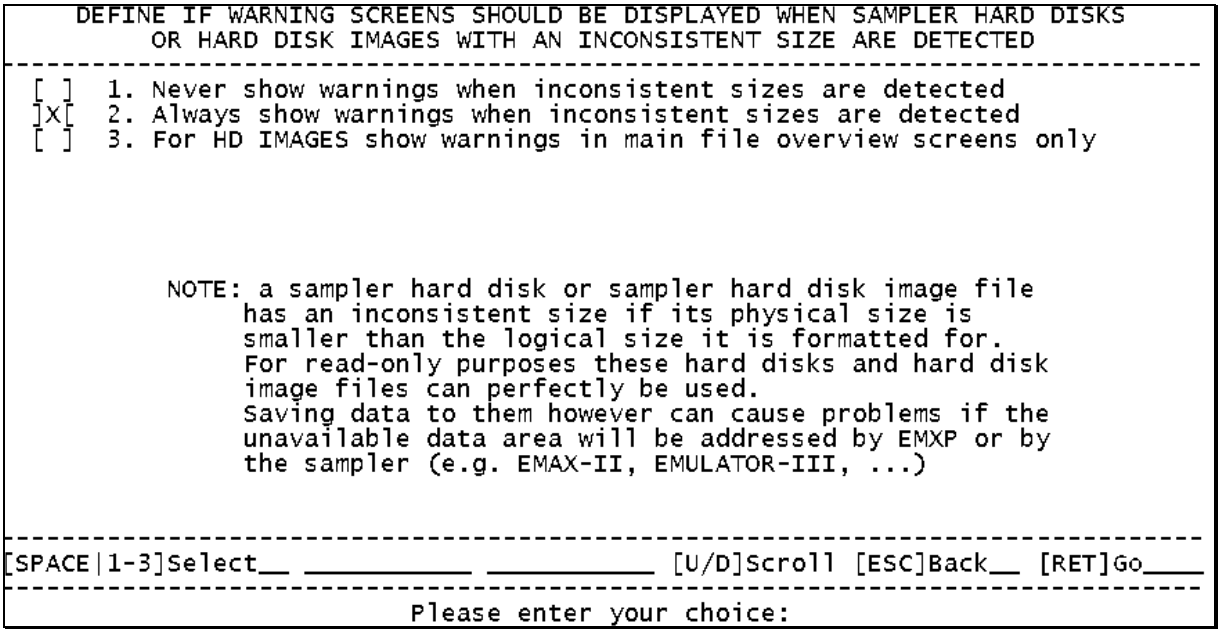
10.5.7.4 Define if warnings should be shown when incorrect HD sizes are detected

As explained in *section "9.1.3.2 Logically formatting hard disks with EMXP"*, it's perfectly possible to have an EMAX-II or Emulator-III/IIIX/ESI hard disk or cdrom which is logically formatted for a larger size than the actual physical size of the hard disk or cdrom is capable of (the same is true for EMAX-II and Emulator-III/IIIX/ESI partitions on a SCSI2SD card)
This may e.g. be the result of a copy process in which an 850 MB hard disk containing only 600 MB of sound data has been copied to a CDROM (which is limited in size to 650 MB or 700 MB). This CDROM can be read without any problem; the difference in size would only be critical when trying to write data to the disk. As a consequence there's nothing to worry about if this size difference occurs with CDROMs, which are read-only media.

Whenever EMXP tries to read or write hard disks or hard disk image files (or partitions on SCSI2SD hard disks or hard disk image files) of which the logically formatted size exceeds the physical size, EMXP can generate a warning, as depicted below.



If you don't want to get these warnings, you can disable them with this preference:



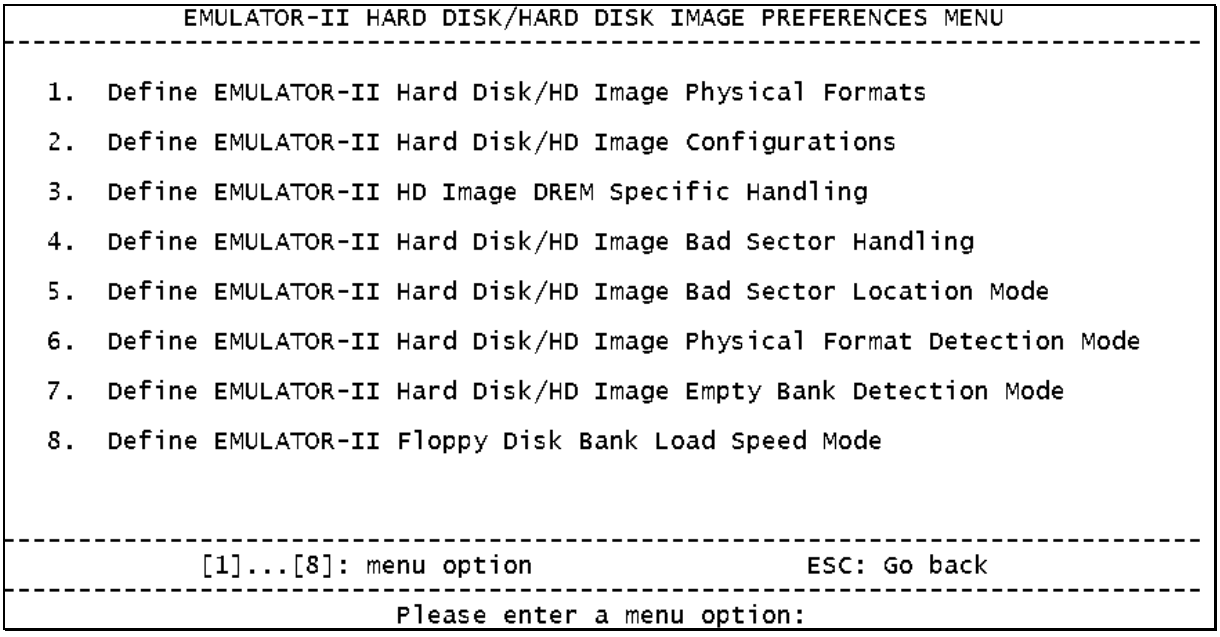
For hard disks, there's only a choice between *always showing* these warnings or *never showing* these warnings. For hard disk image files, you can in addition also select the option that these warnings should only be displayed by the File Manager if you want to select a *source image file*, but not if you are selecting a *target image file* (e.g. when EMXP is requesting to which hard disk image file a sound bank should be copied).

By default the warnings are always enabled.

If a hard disk image file has a *generic extension* like .ISO or .IMG (instead of .EZ1, .EZ2, .EZ3, .DSK) and the preference has been set not to show any errors or warnings for these files, the above preference will still be applicable (i.e. it is not overruled by the preference explained in *section "10.5.3.3 Define what to do with incompatible files with a generic file extension".)*

10.5.8 Manage Emulator-II disk and disk image preferences

The following menu is mainly dedicated to Emulator-II hard disk related settings, but there's also a function related to Emulator-II floppy disk images.



The Emulator-II hard disk and hard disk related functions (1→7) cover very specialized preferences. In normal circumstances - e.g. when using DREM files in EMXP - these preferences never have to be changed.

They are only useful

- if you succeed in connecting an original Emultor-II hard disk with a "PC compliant controller" to your computer, and want to use the disk in EMXP
- for future alternatives to the DREM (if any would appear)

10.5.8.1 Emulator-II support for hard disks: introduction

The hard disk support in the Emulator-II sampler dates from an era when SCSI hard disks were not that common yet. When formatting its hard disk, the Emulator-II operating system has to "tell" the hard disk controller which physical format parameters have to be applied (e.g. sector size, interleave, …) and which raw sectors can't be used because they contain defects (bad sectors).

When dealing with Emulator-II hard disks or hard disk image files (like DREM files), EMXP needs to know this information as well (just like the Emulator-II operating system has to know this information).

The most important reason why EMXP needs to know this information, is the correct support for bad sectors which may (or may not) exist on these disks or disk images.
This is a very specific issue which only exists for the Emulator-II+HD in the family of vintage Emu samplers. Dealing with bad sectors became the responsibility of the hard disk firmware in the Emax-I, Emax-II and Emulator-III/IIIX, but with the hard disks used in the Emulator-II, the hard disk controller had to obtain this information from the operating system instead of from the hard disk itself *when initially formatting the hard disk*.

Once the disk has been formatted, the bad sector information is stored in the raw track and sector headers of the hard disk itself. So from that point on, the Emulator-II's hard disk controller (the Adaptec ACB4000A) will retrieve this information from the hard disk instead of from the Emulator-II's operating system.
DREM files also keep track of bad sector information. This is explained in *section "10.5.8.4 Define Emulator-II hard disk image DREM specific handling"*.

10.5.8.2 Define Emulator-II hard disk/hard disk image physical formats

In order to be able to handle bad sectors correctly, EMXP needs to know the physical format (geometry) of the hard disks or hard disk images that will be used in EMXP. See also *section "10.5.8.1 Emulator-II support for hard disks: introduction"*.

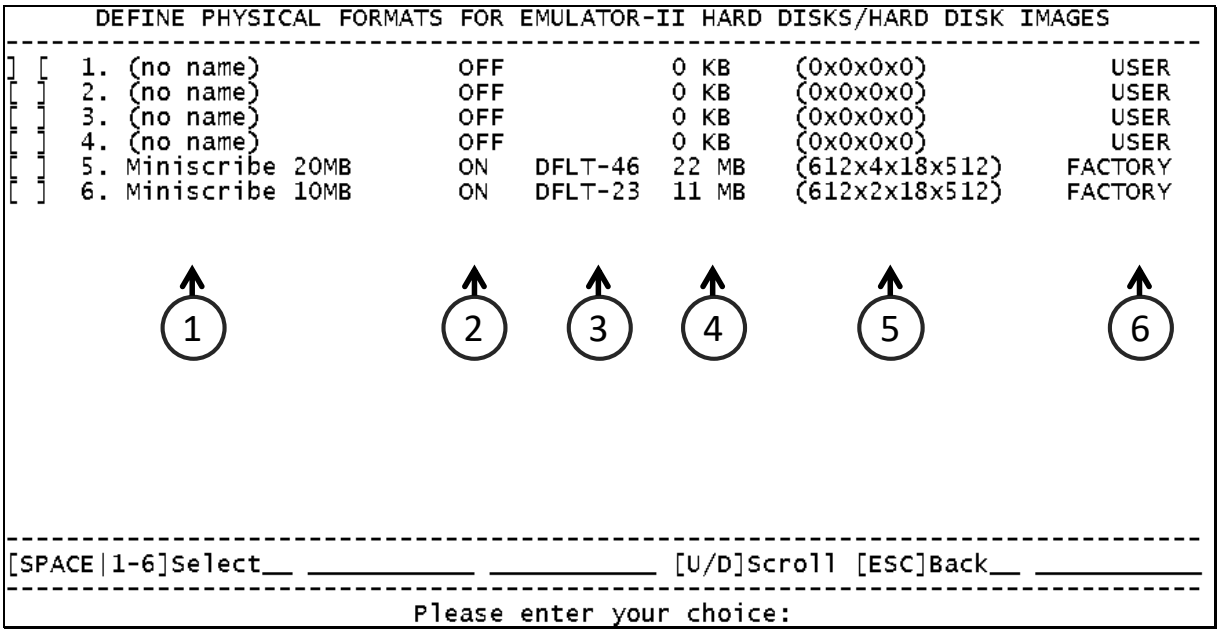
Physical formats can either be defined in this screen (which results in re-usable formats), or they can be defined as part of a *physical configuration* (which results in a format which is only applicable for that configuration).

Defining re-usable physical formats is not mandatory. Defining physical configurations (including a physical format, either as a reference to a re-usable one, or as a specific format unique for that configuration) however is mandatory: see *section "10.5.8.3 Define Emulator-II hard disk/hard disk image configurations"*.

Up to 6 re-usable hard disk formats can be defined, which allows to use hard disks/hard disk images originating from different Emulator-II+HD samplers.

EMXP uses these physical formats:

- for detecting valid hard disks when looking for Emulator-II hard disks in the Disk Manager (depending on the *physical format detection method* preference set in *section "10.5.8.7 Define Emulator-II hard disk/hard disk image physical format detection mode")*
- for detecting valid hard disk images when looking for Emulator-II hard disk images (like DREM files) in the File Manager (depending on the *physical format detection method* preference set in *section "10.5.8.7 Define Emulator-II hard disk/hard disk image physical format detection mode")*
- as input when defing Emulator-II hard disk configurations (see *section "10.5.8.3.3 Defining or changing the physical configuration parameters")*
- as input for generating DREM CFG (config) files, if the physical format has been assigned to a physical configuration (see *section "10.5.8.4 Define Emulator-II hard disk image DREM specific handling"*)



Two physical formats have been defined upfront as factory defaults in EMXP. They can't be changed:

- Miniscribe 20MB: this is the default disk format used by most Emulator-II+HD samplers. It's also the disk format used by the DREM hard disk emulator.
- Miniscribe 10MB: this is the disk format used by some early Emulator-II+HD samplers, but most of them have been upgraded later to the Miniscribe 20MB. Please note that the DREM hard disk emulator does not support the Miniscribe 10MB for the Emulator-II.

Four additional disk formats can be defined by the user.

Even though multiple physical formats can be defined, EMXP only supports two hard disk capacities:

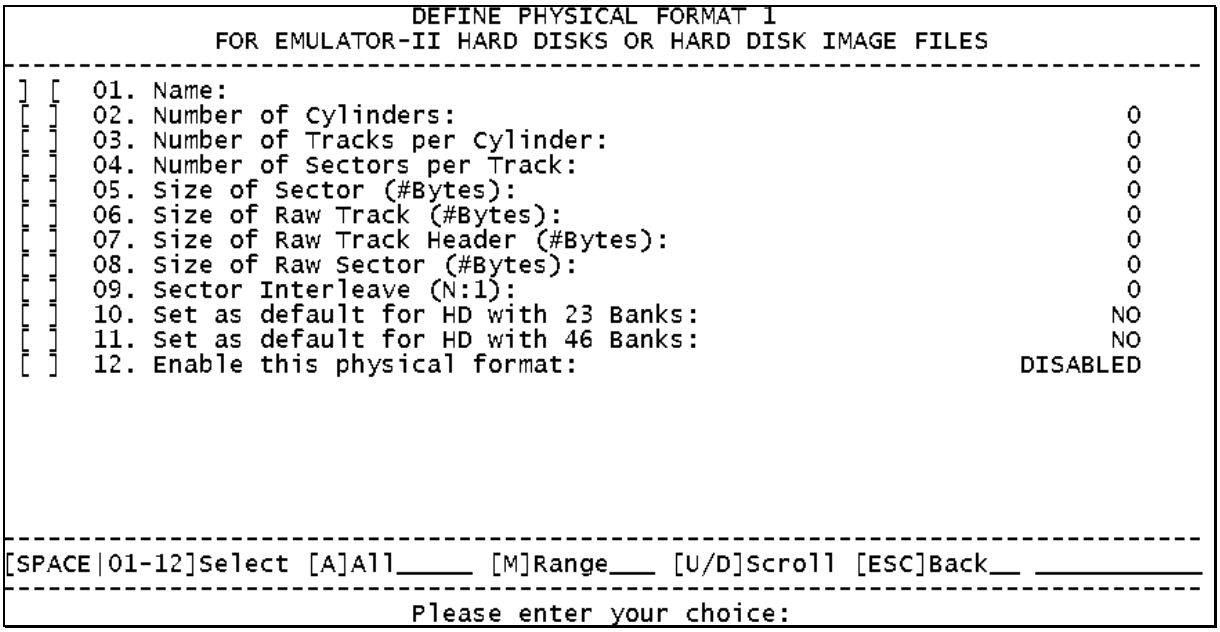
- Hard disks that can hold 46 sound banks. This is the most common capacity for the Emulator-II+HD, and the only one supported by operating systems version 2.6HD or higher
- Hard disks that can hold 23 sound banks. This the capacity used by the early Emulator-II+HD samplers and operating systems.

Important note: for most Emulator-II+HD samplers, and for any Emulator-II+HD sampler equipped with DREM, defining additional disk formats is not required.

The following information can be found on the physical format overview screen:

- The name that has been assigned to the physical format. If no name has been assigned, "(no name)" is displayed. See (1) on the picture.
- Whether the physical format is enabled (ON) or not (OFF). If a format is not enabled, it will be ignored by EMXP when detecting Emulator-II hard disks or hard disk images. See (2) on the picture
- Whether the physical format is a default format or not. See (3) on the picture. You can instruct EMXP to only use default physical formats when trying to detect Emulator-II hard disks or hard disk images. See *section "10.5.8.7 Define Emulator-II hard disk/hard disk image physical format detection mode"*. A different default can be set for the two supported hard disk capacities:
  - DFLT-46: default physical format for hard disks and hard disk images which can hold 46 banks
  - DFLT-23: default physical format for hard disks and hard disk images which can hold 23 banks
- The physical capacity of the hard disk or hard disk image. See (4) on the picture.
- The geometry characteristics of the physical format, expressed as *Number of Cylinders* X *Number of Sides/Heads* X *Number of Sectors per side* X *Number of (logical) Bytes per sector*. See (5) on the picture.
- Whether the physical format is an EMXP factory format (FACTORY)or a user-defined format (USER). See (6) on the picture.

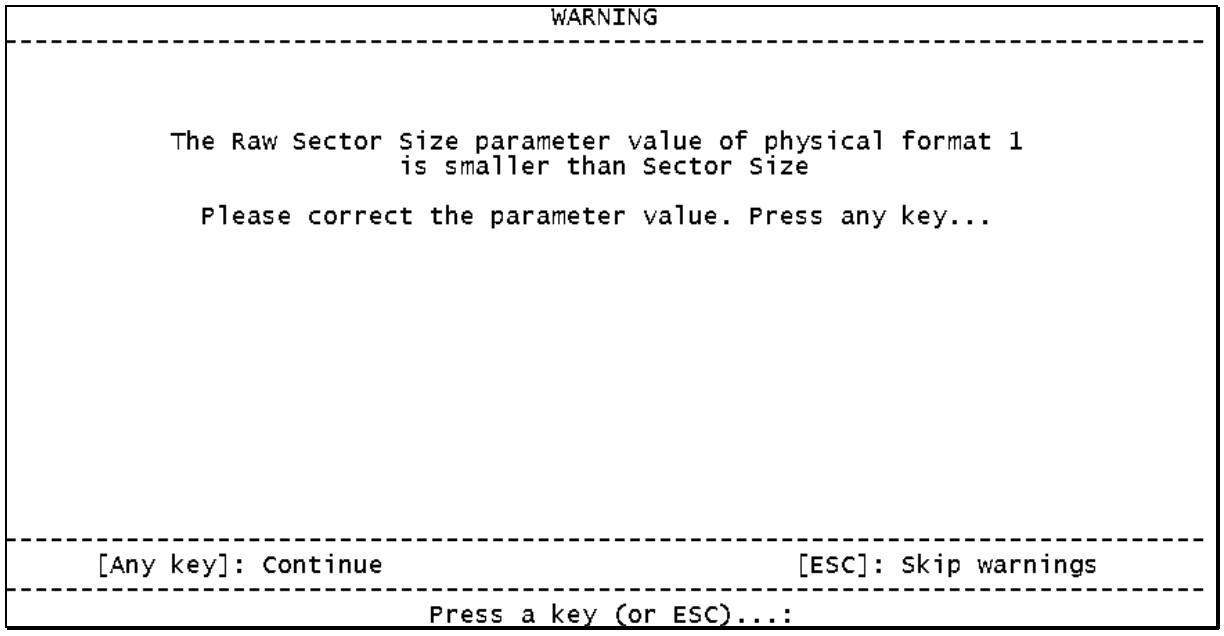
By selecting one of the *USER defined* formats in the physical format overview list and pressing ENTER, the parameters of that physical format (geometry) can be changed.



The following physical format parameters can be set:

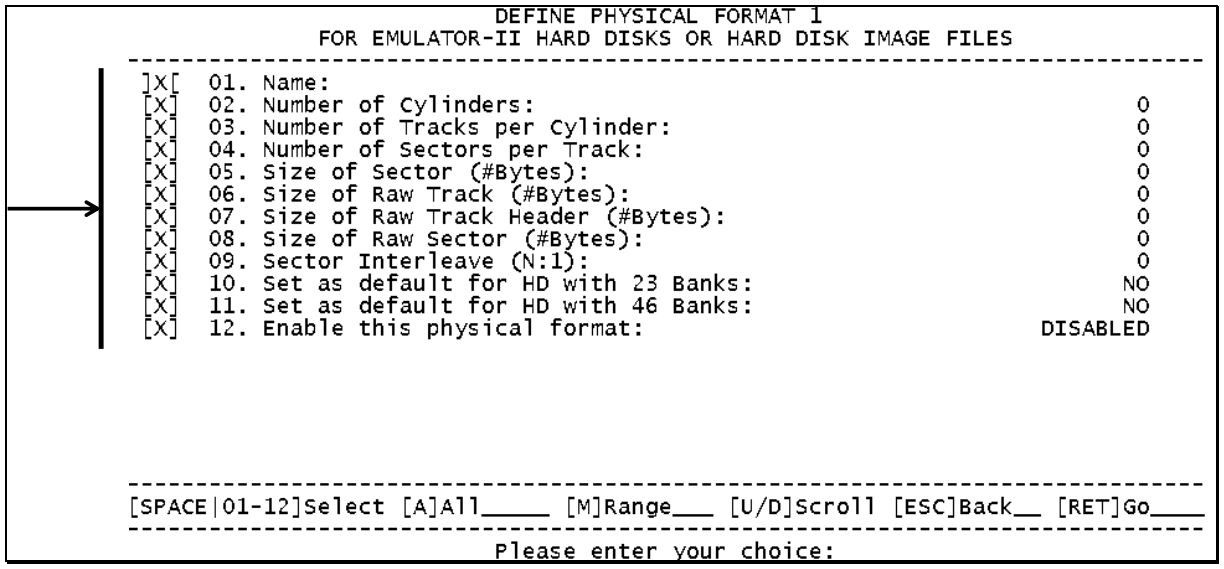
- A *name* for the physical format. A name is not mandatory, but it's recommended to assign one, because
  - it's used in other EMXP screens for referring to a selected physical format
  - it's used as a value for the Name parameter in a DREM CFG file, if the physical format is used by a physical configuration (see *section "10.5.8.3 Define Emulator-II hard disk/hard disk image configurations"*) *but only if the physical format does not correspond to one of the default formats supported by the DREM. If the physical format is supported by the DREM, the default Name parameter value expected by the DREM will be used instead.*
- The *number of cylinders* of the hard disk. Don't include the additional cylinder which may be created for Emulator-II hard disk images used in the DREM hard disk emulator.
- The *number of tracks per cylinder* of the hard disk. This is the same as the number of *sides* or the number of *heads* per cylinder.
- The *number of sectors per track* of the hard disk.
- The *sector size* expressed in number of bytes. This is the logical sector size, i.e. the usable size by the Emulator-II (typically 512 or 256 bytes)
- The *raw track size* expressed in number of bytes. This is the physical size of a complete tracks (side), including the physical space required for sync bytes, ID bytes, GAP bytes and so on. This size is specified by the hard disk vendor.
- The *raw track header size* expressed in number of bytes. This is the size of the first part of a physical track which contains track header data. This size depends on the disk controller which is used to format the disk, as well as on the number of sectors and interleave value.
- The *raw sector size* expressed in number of bytes. This is the physical size of a single sector, which is larger than the logical size of a sector because it also contains the sector header information.
- The *interleave value* used to format the hard disk, expressed in the number of physical sectors between 2 logical sectors, increased with 1. E.g. an interleave of 1:1 means no interleave has been applied.? An interleave of 2:1 means that logical sector 1 is on physical sector 1, logical sector 2 is on physical sector 3, and so on.
- Whether the physical format should be used as the *default physical format* for hard disks or hard disk images with a *capacity of 23 banks*
- Whether the physical format should be used as the *default physical format* for hard disks or hard disk images with a *capacity of 46 banks*
- Whether the physical format is enabled or disabled for being used by EMXP. If it's disabled, it will be ignored by EMXP when trying to detect an Emulator-II hard disk or hard disk image.

When changing any of the options 2→9 to a value *different from 0* EMXP will validate the provided value and check whether it is consistent with the values for the other parameters. E.g. the logical sector size can't be smaller than the physical sector size.



To avoid that you don't get validation warnings for any parameter that you try to change (because other parameters are still initialized to 0), it's strongly recommended to enter the values for all parameters at once.

To do this, simply press 'A' (All) and press ENTER



EMXP will show all parameter change screens one after the other, and only after the last value has been entered, the validation will be done. Some examples of parameter change screens are shown below. The screens for options 1→9 look similar, for options 10→12 a selection must be made from a pre-defined list of possible values.

It's not possible to enable a physical format consisting of inconsistent or invalid parameter values.

```
                              DEFINE THE NAME OF
                               PHYSICAL FORMAT 1
--------------------------------------------------------------------------------

                    Please provide a new value for the Name
                             for physical format 1

                     Value should not exceed 20 characters
                    Current value for this parameter is []









--------------------------------------------------------------------------------
[name+RET]:name   [blank+RET]:Accept proposal   [CTRL-BKSP]:Clear   [ESC]:Back
--------------------------------------------------------------------------------
   Please enter a name: My Miniscribe
```

```
                         DEFINE THE NUMBER OF CYLINDERS OF
                         PHYSICAL FORMAT 1 (My Miniscribe)
--------------------------------------------------------------------------------

              Please provide a new value for the Number of Cylinders
                       for physical format 1 (My Miniscribe)

                       Value should be in the range 0 - 1000
              Current value for this parameter is [0], default is [612]









--------------------------------------------------------------------------------
[value+RET]:Value   [blank+RET]:Accept proposal   [CTRL-BKSP]:Clear  [ESC]:Back
--------------------------------------------------------------------------------
       Please enter a value: 612
```

```
              DEFINE WHETHER PHYSICAL FORMAT 1 (My Miniscribe)
                  SHOULD BE THE DEFAULT PHYSICAL FORMAT FOR
          EMULATOR-II HARD DISKS/HARD DISK IMAGES WITH 46 BANKS OR NOT
--------------------------------------------------------------------------------
 ]X[  1. Set format 1 (My Miniscribe) as default format for 46 banks
 [ ]  2. Keep format 5 (Miniscribe 20MB) as default format for 46 banks
--------------------------------------------------------------------------------
[SPACE|1-2]Select__ ___________ ___________ [U/D]Scroll [ESC]Back__ [RET]Go____
--------------------------------------------------------------------------------
                            Please enter your choice:
```

The characteristics of a *FACTORY defined* format can't be changed. The only parameters that can be set are whether EMXP should consider the format as a default physical format or not for disks or disk images of either 23 banks or 46 banks:

```
                  DEFINE PHYSICAL FORMAT 5 (Miniscribe 20MB)
               FOR EMULATOR-II HARD DISKS OR HARD DISK IMAGE FILES
--------------------------------------------------------------------------------
          Name:                                                Miniscribe 20MB
          Number of Cylinders:                                           612
          Number of Tracks per Cylinder:                                   4
          Number of Sectors per Track:                                    18
          Size of Sector (#Bytes):                                       512
          Size of Raw Track (#Bytes):                                  10416
          Size of Raw Track Header (#Bytes):                              10
          Size of Raw Sector (#Bytes):                                   566
          Sector Interleave (N:1):                                         2
 ] [  1. Set as default for HD with 23 Banks:                             NO
 [ ]  2. Set as default for HD with 46 Banks:                            YES
--------------------------------------------------------------------------------
[SPACE|1-2]Select__ [A]All_____ [M]Range___ [U/D]Scroll [ESC]Back__ ___________
--------------------------------------------------------------------------------
                            Please enter your choice:
```

10.5.8.3 Define Emulator-II hard disk/hard disk image configurations

10.5.8.3.1 Introduction

In order to recognize, read, write and format Emulator-II hard disks or hard disk images (like DREM files),, EMXP needs to know the physical configuration of the hard disks or hard disk images that will be used in EMXP. See also *section "10.5.8.1 Emulator-II support for hard disks: introduction"*.

A *physical configuration* basically consists of

- a definition of the physical format (geometry) of the hard disk or hard disk image
- the bad sectors (defect sectors, error list) on the hard disk or hard disk image

Up to 6 hard disk configurations can be defined, which allows to use hard disks/hard disk images originating from different Emulator-II+HD samplers.

EMXP uses these physical configurations:

- for detecting valid hard disks when looking for Emulator-II hard disks in the Disk Manager (depending on the *physical format detection method* preference set in *section "10.5.8.7 Define Emulator-II hard disk/hard disk image physical format detection mode")*
- for detecting valid hard disk images when looking for Emulator-II hard disk images (like DREM files) in the File Manager (depending on the *physical format detection method* preference set in *section "10.5.8.7 Define Emulator-II hard disk/hard disk image physical format detection mode")*
- for formatting Emulator-II hard disks
- for generating/creating new Emulator-II hard disk images (like DREM files)
- for copying Emulator-II hard disks (hard disk images) to other Emulator-II hard disks (hard disk images) having a different physical format or different bad sectors.
- for generating or updating Emulator-II floppy disk images or HxC floppy disk images which will be used in an Emulator-II+HD, e.g. to use the format option in the Emulator-II+HD itself.
- for generating DREM CFG (config) files, *see section "10.5.8.4 Define Emulator-II hard disk image DREM specific handling"*.

Two physical configurations have been defined upfront as factory defaults in EMXP. They can't be changed:

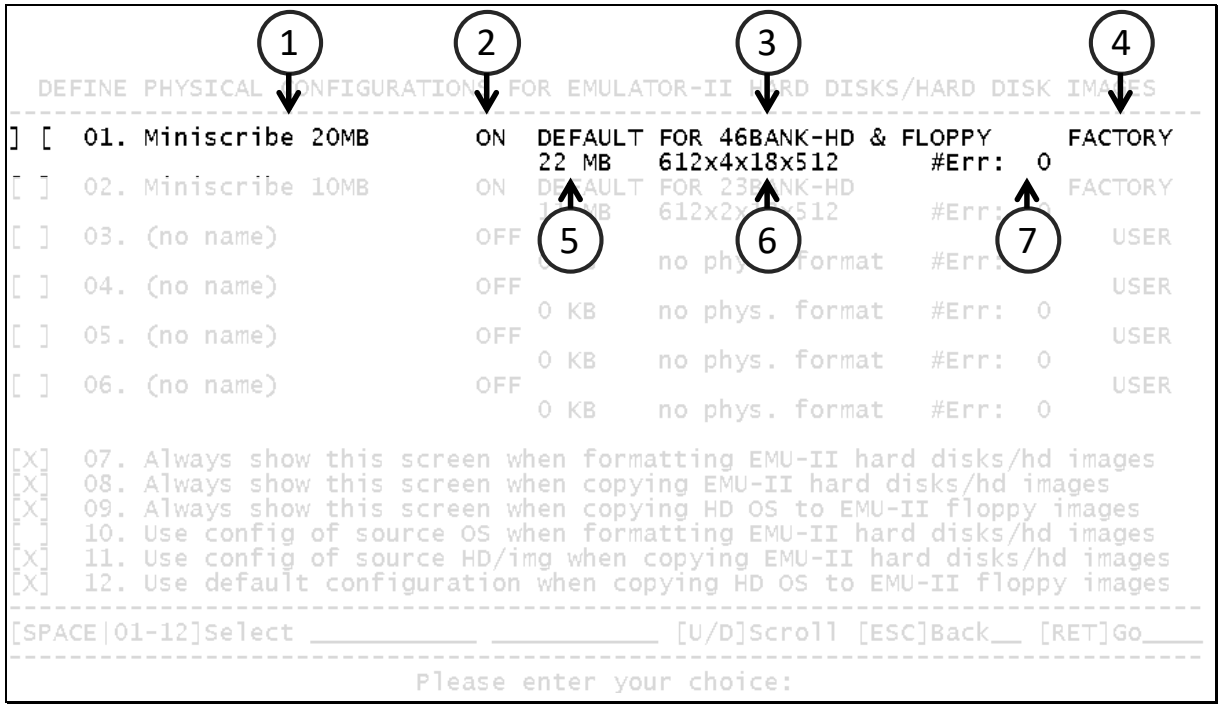
- Miniscribe 20MB: this is the default configuration for most Emulator-II+HD samplers, which expect a hard disk with a capacity of 46 sound banks, and which run operating system 2.6HD, 3.0HD or 3.1HD. It's also the default configuration for the DREM hard disk emulator. It consists of the default Miniscribe 20MB physical format and an empty defect list (no bad sectors).
- Miniscribe 10MB: this is the default configuration for some early Emulator-II+HD samplers, which expect a hard disk with a capacity of 23 sound banks. It consists of the default Miniscribe 10MB physical format and an empty defect list (no bad sectors). This configuration is not supported by the DREM hard disk emulator.

```
  DEFINE PHYSICAL CONFIGURATIONS FOR EMULATOR-II HARD DISKS/HARD DISK IMAGES
--------------------------------------------------------------------------------
] [  01. Miniscribe 20MB       ON  DEFAULT FOR 46BANK-HD & FLOPPY     FACTORY
                                   22 MB   612x4x18x512      #Err:  0
[ ]  02. Miniscribe 10MB       ON  DEFAULT FOR 23BANK-HD              FACTORY
                                   11 MB   612x2x18x512      #Err:  0
[ ]  03. (no name)             OFF                                      USER
                                   0 KB    no phys. format   #Err:  0
[ ]  04. (no name)             OFF                                      USER
                                   0 KB    no phys. format   #Err:  0
[ ]  05. (no name)             OFF                                      USER
                                   0 KB    no phys. format   #Err:  0
[ ]  06. (no name)             OFF                                      USER
                                   0 KB    no phys. format   #Err:  0

[X]  07. Always show this screen when formatting EMU-II hard disks/hd images
[X]  08. Always show this screen when copying EMU-II hard disks/hd images
[X]  09. Always show this screen when copying HD OS to EMU-II floppy images
[ ]  10. Use config of source OS when formatting EMU-II hard disks/hd images
[X]  11. Use config of source HD/img when copying EMU-II hard disks/hd images
[X]  12. Use default configuration when copying HD OS to EMU-II floppy images
--------------------------------------------------------------------------------
[SPACE|01-12]Select __________ __________ [U/D]Scroll [ESC]Back__ [RET]Go____
--------------------------------------------------------------------------------
                            Please enter your choice:
```

Options 1→6 should be selected to define or change the 6 physical configurations
Options 7→12 should be used to change the default behaviour of EMXP when formatting or copying Emulator-II hard disks/hard disk images, or when copying a hard disk operating system to a (HxC) floppy disk image.

The main screens shows a summary of the main characteristics of each physical configuration:



The main parameters shown for each physical configuration are:

1. The *name* assigned to the configuration. If no name has been assigned, "(no name)" is displayed
2. Whether the configuration is *enabled (ON) or disabled (OFF)* for being used by EMXP. If a configuration is disabled, it will be ignored by EMXP when detecting Emulator-II hard disks or hard disk images, and it can't be used for formatting/copying hard disks or hard disk images, nor for updating (HxC) floppy disk images when saving a hard disk operating system to that image.
3. Whether the configuration is used as a *default configuration* by EMXP, and for what purpose it should be used as a default. Possible values are:
    - *empty:* the configuration is not a default
    - DEFAULT FOR 23BANK-HD: the configuration is the default for formatting or detecting disks/disk images with a capacity of 23 sound banks
    - DEFAULT FOR 23BANK-HD & FLOPPY: the configuration is the default for formatting or detecting disks/disk images with a capacity of 23 sound banks, and for (HxC) floppy disk images when EMXP saves a hard disk operating system on them.
    - DEFAULT FOR 46BANK-HD: the configuration is the default for formatting or detecting disks/disk images with a capacity of 46 sound banks
    - DEFAULT FOR 46BANK-HD & FLOPPY: the configuration is the default for formatting or detecting disks/disk images with a capacity of 46 sound banks, and for (HxC) floppy disk images when EMXP saves a hard disk operating system on them
    - DEFAULT FOR 23+46BANK-HD: the configuration is the default for formatting or detecting disks/disk images with a capacity of 23 sound banks or with a capacity of 46 sound banks.
    - DEFAULT FOR 23+46BANK-HD & FLOPPY: the configuration is the default for formatting or detecting disks/disk images with a capacity of 23 sound banks or with a capacity of 46 sound banks, and for (HxC) floppy disk images when EMXP saves a hard disk operating system on them
    - DEFAULT FOR FLOPPY: the configuration is the default for (HxC) floppy disk images when EMXP saves a hard disk operating system on them (only applicable if the source of the HD OS is not a hard disk or hard disk image; otherwise the configuration of that disk/image will be used)
4. Whether the configuration is an EMXP *factory* configuration (FACTORY)or *a user-defined* configuration (USER).
5. The *capacity* of the hard disk or hard disk image, expressed in kilobytes (KB) or megabytes (MB). This is NOT necessarily the capacity which is available for the Emulator-II+HD, because the Emulator-II+HD only supports 23 sound banks (10 MB) or 46 sound banks (21 MB).

6. The geometry characteristics of the physical format of the configuration, expressed as *Number of Cylinders* X *Number of Sides/Heads* X *Number of Sectors per side* X *Number of (logical) Bytes per sector*. If no physical format is assigned, "no phys. format" is displayed instead.
7. The *number of bad sectors* (defects) on the hard disk or hard disk image. This can be expressed in two ways, depending on the origination of the configuration:
    - #Err: N, where N is the number of defects stored in the error log section of the hard disk and/or or on the floppy disk (image) which is used to format the hard disk
    - #Err: N (M*), where
        - N is the number of defects stored in the error log section of the hard disk and/or or on the floppy disk (image) which is used to format the hard disk
        - M is the number of defects stored in the additional cylinder of a DREM hard disk image.

      This dual way of showing the number of defects is only applicable for configurations which have been imported from a DREM hard disk image.

The following options can be selected:

- *Options 1→6:* use one of these options if you want to change the parameters of a physical configuration.This is explained in detail in the remainder of this section.
- *Option 7*: enable this option if you expect EMXP to always ask for a physical configuration if you use EMXP to format an Emulator-II hard disk or to generate/create a new (empty) Emulator-II hard disk image. By default this option is enabled, but you can disable this option if you will always use the default configuration , or the configuration of the operating system saved to the hard disk/hard disk image during the format process (see option.10).
  Note that selecting the DREM specific settings when generating a new Emulator-II hard disk image will also have to be done in this screen (these DREM related options will appear instead of options 8→12). So if you disable option 7, you won't be able to set the DREM related settings neither. But you can still change them in the preferences menu of course, see *section "10.5.8.4 Define Emulator-II hard disk image DREM specific handling"*.
- *Option 8*: enable this option if you expect EMXP to always ask for a target physical configuration if you use EMXP to copy (backup, restore) an source Emulator-II hard disk or hard disk image to a target Emulator-II hard disk or hard disk image. By default this option is enabled, but you can disable this option if you will always use the default configuration, or the configuration of the source hard disk or source hard disk image (see option 11)
  Note that selecting the DREM specific settings when copying an entire Emulator-II hard disk or hard disk image to a new Emulator-II hard disk image will also have to be done in this screen (these DREM related options will appear instead of options 7 and 9→12). So if you disable option 8, you won't be able to set the DREM related settings neither. But you can still change them in the preferences menu of course, see *section "10.5.8.4 Define Emulator-II hard disk image DREM specific handling"*.
- *Option 9*: enable this option if you expect EMXP to always ask for the physical configuration which should be saved to a (HxC) floppy disk image whenever you use EMXP to copy a hard disk operating system from a non-hard disk/non-hard disk image to a (HxC) floppy disk image. By default this option is enabled, but you can disable this option if you will always use either the default configuration, or the configuration of the operating system being copied to the (HxC) floppy disk image. This can be selected with option 12.
- Option 10: enable this option if EMXP should use the configuration of the operating system which will be saved to a hard disk or hard disk image when formatting an Emulator-II hard disk of hard disk image. By default this option is disabled. Even if this option is enabled, the operating system's configuration will *only be used* if
    - you instructed EMXP to save an operating system to the disk or image as part of the format process. See *section "9.1.3 Formatting EMAX-I, EMAX-II, Emulator-II, Emulator-III/IIIX/ESI hard* disks*"* and *section "9.2 GENERATING EMPTY HARD DISK IMAGES"*.
    - the selected operating system contains a valid configuration (i.e. defect list)

  If these conditions are not met, you'll have to select another physical configuration, or EMXP will use the default configuration (if option 7 is disabled)
- *Option 11*: enable this option if EMXP should use the physical configuration of the *source* Emulator-II hard or hard disk image as the physical configuration of the *target* hard disk or hard disk image, when copying entire hard disks or hard disk images. By default this option is enabled.
- *Option 12*: enable this option if EMXP should always save the default configuration to a (HxC) floppy disk image whenever a hard disk operating system is saved to a (HxC) floppy disk image. This setting only applies if the source of the hard disk operating system is not a hard disk or hard disk image. If the

OS is copied directly from a hard disk or hard disk image, EMXP will always use the physical configuration of that hard disk or hard disk image. By default this option is enabled. If the option is disabled, EMXP will use the configuration of the operating system itself (but only if its physical configuration is valid)

The remainder of this section explains how the parameters of a physical configuration can be defined or changed (options 1→6).

10.5.8.3.2 Description of the parameters

The only parameters that can be changed for FACTORY configurations (options 1 and 2) are the ones that define whether the configuration is a default configuration or not, and for which purpose it's a default.
As a consequence, the screen for changing a factory configuration is much simpler than the screen for changing a user configuration.

See picture below.

```
              DEFINE PHYSICAL CONFIGURATION 1 (Miniscribe 20MB)
            FOR EMULATOR-II HARD DISKS OR HARD DISK IMAGE FILES
--------------------------------------------------------------------------------
  ] [  1. Set this Configuration as Default

          Name and Status:                          Miniscribe 20MB, ENABLED
          Default for copying HDOS to floppy:                              YES
          Default for formatting HD/HD image:   23 BANKS: NO, 46 BANKS: YES
          Physical Format Settings:
            Name and Status:                        Miniscribe 20MB, ENABLED
            Origin:                                from physical format list
            Size:                                    22 MB      612x4x18x512
            Interleave and Raw Track Size:     2:1, 10416     10+18x566+218
          Number of Errors (Error Log):                                     0
          Number of Errors (Additional Cyl*):                             N/A









--------------------------------------------------------------------------------
[SPACE|1-1]Select__ [A]All_____ [M]Range___ [U/D]Scroll [ESC]Back__ ___________
--------------------------------------------------------------------------------
                           Please enter your choice:
```

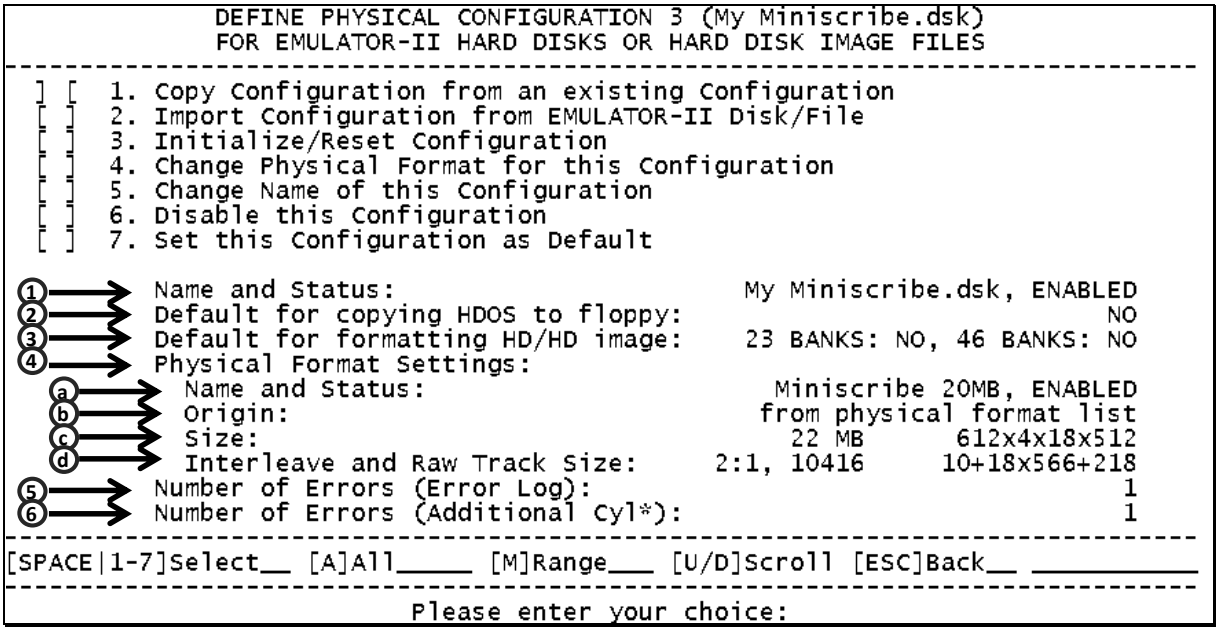
When selecting a USER configuration (options 3→6), the following screen appears:

```
                      DEFINE PHYSICAL CONFIGURATION 3
            FOR EMULATOR-II HARD DISKS OR HARD DISK IMAGE FILES
--------------------------------------------------------------------------------
  ] [  1. Copy Configuration from an existing Configuration
  [ ]  2. Import Configuration from EMULATOR-II Disk/File
  [ ]  3. Initialize/Reset Configuration
  [ ]  4. Change Physical Format for this Configuration
  [ ]  5. Change Name of this Configuration
  [ ]  6. Enable this Configuration
  [ ]  7. Set this Configuration as Default

          Name and Status:                          (no name) ,DISABLED
          Default for copying HDOS to floppy:                          NO
          Default for formatting HD/HD image:    23 BANKS: NO, 46 BANKS: NO
          Physical Format Settings:
            Name and Status:                        (no name), DISABLED
            Origin:                                 specific for this config
            Size:                                  0 KB     (no phys. format)
            Interleave and Raw Track Size:   N/A, 0        (no phys. format)
          Number of Errors (Error Log):                                     0
          Number of Errors (Additional Cyl*):                             N/A
--------------------------------------------------------------------------------
[SPACE|1-7]Select__ [A]All_____ [M]Range___ [U/D]Scroll [ESC]Back__ ___________
--------------------------------------------------------------------------------
                           Please enter your choice:
```

The lower half of the screen shows the current values of all parameters belonging to the selected physical configuration. In the screen shown above, the configuration has not been defined yet, so the parameters still have values their initial (unassigned) values.
These values can be changed with options 1→7.

To explain the information shown in the lower half of the screen, let's use a screen of a configuration which has been imported from an existing Emulator-II hard disk image file called "MyMiniscribe.DSK":



The following information can be found on this screen:

1. The *name* that has been assigned to the configuration and the *status* whether the configuration is enabled or not.
    - The name can be changed with *option 5*. If the configuration has been imported from an Emulator-II disk or image (option 2), the name has been derived from the disk/image name, but it can be replaced by any other name. If no name has been assigned, "(no name)" will be displayed
    - The status can be changed with *option 6*. The status can have two possible values: ENABLED or DISABLED.
2. Whether this configuration is the *default configuration* that should be written to a (HxC) *floppy disk image* whenever an Emulator-II hard disk operating system is saved to that (HxC) floppy disk image.
    - This default setting can be changed with *option 7*. There are two possible values: YES or NO
3. Whether this configuration is the *default configuration* that should be used when formatting an Emulator-II hard disk or when generating/creating a new Emulator-II hard disk image (like a DREM file). Different values can be set depending on the target capacity of the hard disk or hard disk image.
    - There's a value for a 23 BANK capacity and a value for a 46 BANK capacity
    - These default settings can be changed with *option 7*. There are two possible values: YES or NO
4. The *physical format* (or geometry) of this configuration. The physical format can be changed with *option 4*. The following details are shown:
    a) The *name* that has been assigned to the physical format and the *status* whether the physical format is enabled or not.
        - if no name has been assigned, "(no name)" is displayed
        - the status can have two posible values: ENABLED or DISABLED
        - this name is used as a value for the Name parameter in a DREM CFG file, *but only if the physical format does not correspond to one of the default formats supported by the DREM. If the physical format is supported by the DREM, the default Name parameter value expected by the DREM will be used instead.*

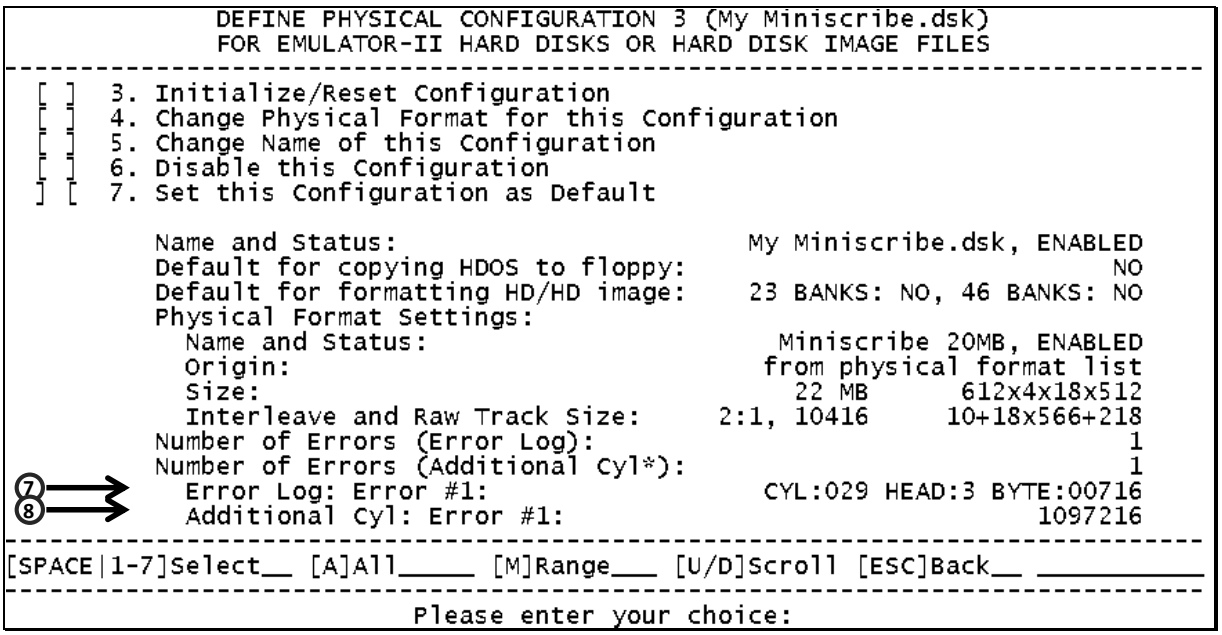
b) The *origin* of the physical format, i.e. where the assigned physical format comes from. There are 2 possible values:
   - "from physical format list": in this case, the physical format assigned to the configuration is one of the re-usable physical formats that can be defined in the "physical format" preferences, see *section "10.5.8.2 Define Emulator-II hard disk/hard disk image physical formats"*.
   - "specific for this config": in this case, a specific physical format has been defined which only applies to this configuration (and which does not appear in the list of re-usable physical formats)

c) The *size* of the physical format and the *geometry characteristics*
   - The size is the *capacity* of the hard disk or hard disk image, expressed in kilobytes (KB) or megabytes (MB). This is NOT necessarily the capacity which is available for the Emulator-II+HD, because the Emulator-II+HD only supports 23 sound banks (10 MB) or 46 sound banks (21 MB).
   - The geometry characteristics are expressed as *Number of Cylinders* X *Number of Sides/Heads* X *Number of Sectors per side* X *Number of (logical) Bytes per sector*. If no physical format is assigned, "(no phys. format)" is displayed instead

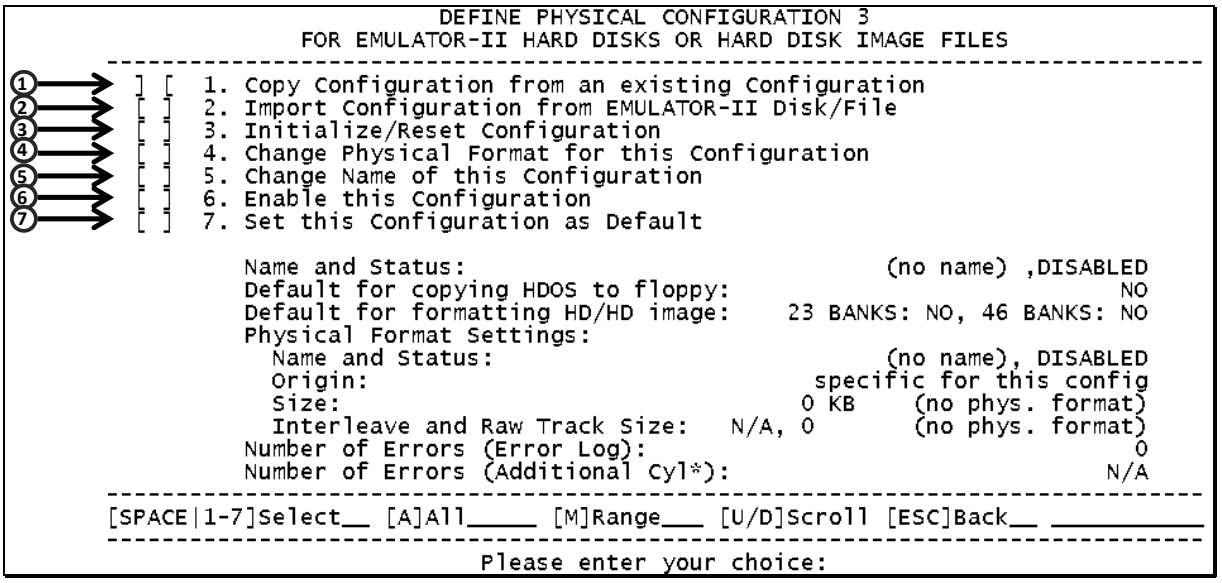
d) The *sector interleave* and the *raw track size*, including the structure of a single raw track
   - The *interleave value* is expressed in the number of physical sectors between 2 logical sectors, increased with 1. If no interleave has been defined, a "N/A" is displayed.
   - The *raw track size* expressed in number of bytes. This is the physical size of a complete tracks (side), including the physical space required for sync bytes, ID bytes, GAP bytes and so on. This size is specified by the hard disk vendor.
   - The *structure of a raw track* expressed as *Raw Track Header Size + (Number of Sectors X Raw Sector Size) + GAP4 Size*

5. The number of *defects* (errors in sectors) that are defined in the *error log* of the hard disk, hard disk image or installation (HxC) floppy disk image
   - *This value can not be changed*. Error log information can only be imported by means of option 2. For importing the error log of an existing (original) Emulator-II+HD hard disk, see *section "10.5.8.3.4 Obtaining the error log of an existing Emulator-II hard disk"*.
   - Error log information was originally provided by the vendor of the hard disk. While in theory defects are only relevant for true hard disks (and not for hard disk images like DREM files), they can be included as 'unusable areas' in hard disk images as well. See also section "". For generating new (DREM) hard disk images, the number of defects can be 0. There is no reason at all to artificially add defects to a DREM file.
   - The value can be 0 or higher. 0 means that no defects have been registered in the error log.
   - If the value is 1 or higher, the actual locations of the defects can be found at the bottom of the screen (you may have to scroll down to see this information)
6. The number of *bad sectors* that are registered in the bad sector index in the additional cylinder of a DREM hard disk image.
   - *This value can not be changed.* The location of defect sectors in a DREM file can only be imported from a DREM hard disk image, by means of option 2.
   - The bad sector index cylinder of a DREM file represents the same information as the bad sector flags that can be found in the raw sector header data on an original Emulator-II hard disk.
   - The value can be 0 or higher, or N/A
     - N/A means that no DREM bad sector index (additional cylinder) is available for the configuration. In that case, EMXP will always use the defect information in the error log.
     - 0 means that there are no defects (bad sectors) in the hard disk image
   - If the bad sectors in the error log don't match the bad sectors in the DREM additional cylinder
     - the DREM index always has a higher priority for EMXP when using existing Emulator-II hard disk images
     - for formatting Emulator-II hard disks or generating new Emulator-II hard disk images, the priority between the error log and the DREM bad sector index can be defined by the user. See *section "10.5.8.5 Define Emulator-II hard disk/hard disk image bad sector handling"*.
   - If the value is 1 or higher, the actual locations of the defects can be found at the bottom of the screen (you may have to scroll down to see this information)

7. A list of the defects registered in the error log.
    - This list is only available if the number of defects in the error log is 1 or higher
    - The values can't be changed in EMXP. Error log information can only be imported by means of option 2.
    - You may have to scroll down to see this list
    - The defect locations are represented by the *Cylinder, Head (=track) and Byte offset from track index*
8. A list of the bad sector locations registered in the additional DREM cylinder (the DREM bad sector index
    - This list is only available if DREM additional cylinder data has been imported in the configuration and if this bad sector index contains at least one bad sector
    - The values can't be changed in EMXP. The location of defect sectors in a DREM file can only be imported from a DREM hard disk image, by means of option 2..
    - You may have to scroll down to see this list
    - The defect locations are expressed as *offsets in logical bytes*



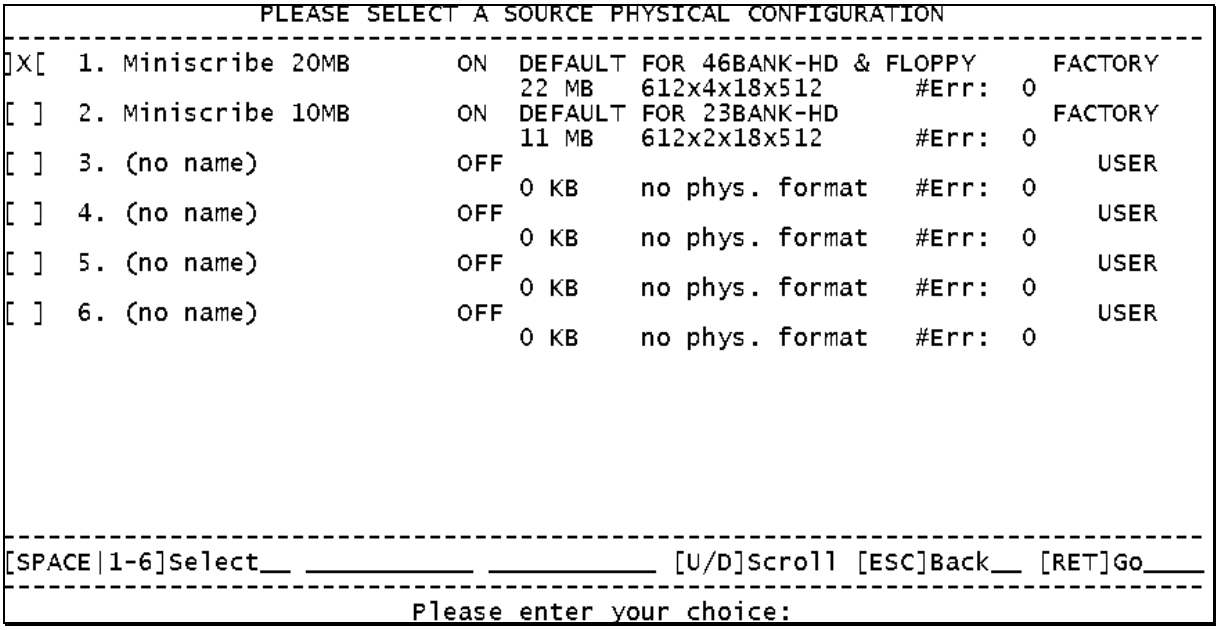
10.5.8.3.3 Defining or changing the physical configuration parameters



To define or change a physical configuration, the following options are available:

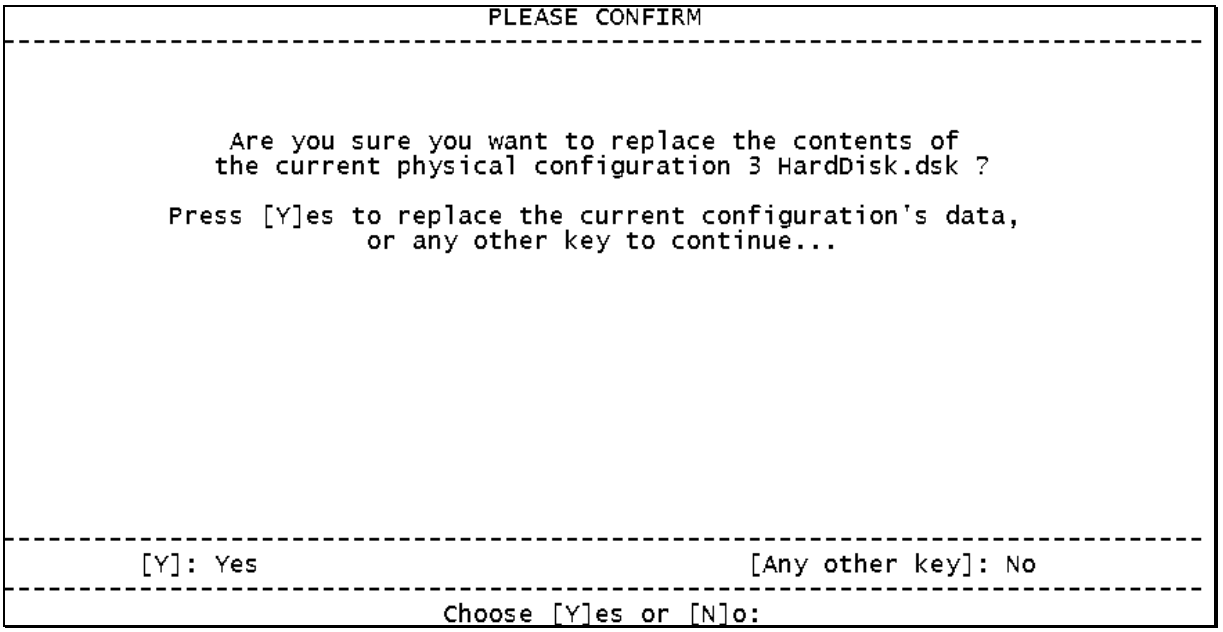
- *Option 1*: copying an existing physical configuration to the current physical configuration

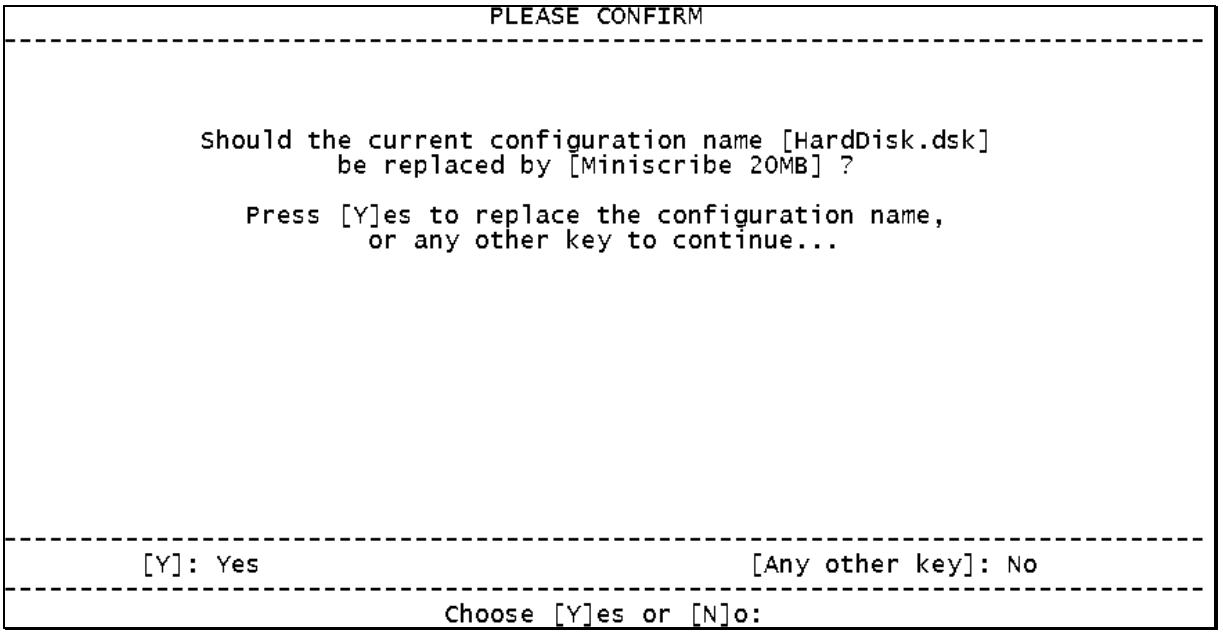
  With this option, you can take a jumpstart by copying an existing configuration (e.g. a factory configuration) first and then adapting one or more of its parameters.



  Simply select one of the existing configurations and press ENTER.

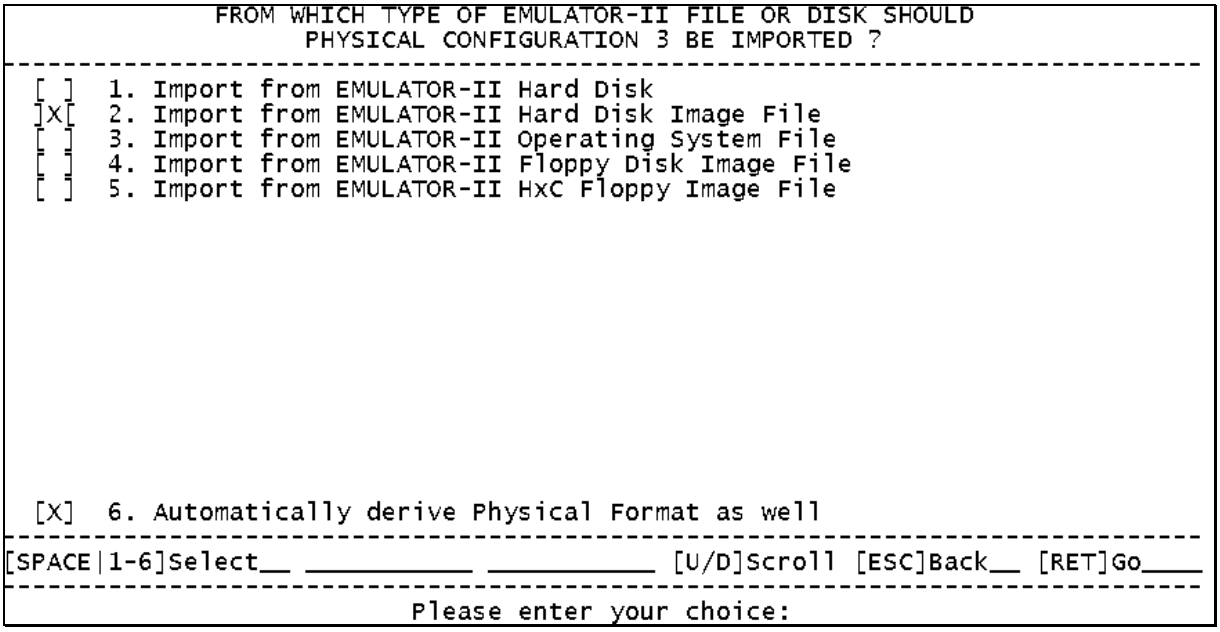
If you are changing or replacing an existing physical configuration, EMXP will ask for confirmation to replace the current configuration's data, and whether the name assigned to the current configuration should be replaced as well. See pictures below.





- *Option 2*: importing a configuration from an existing disk or image

  This is the only available method if you want to obtain an error log or a DREM bad sector index.



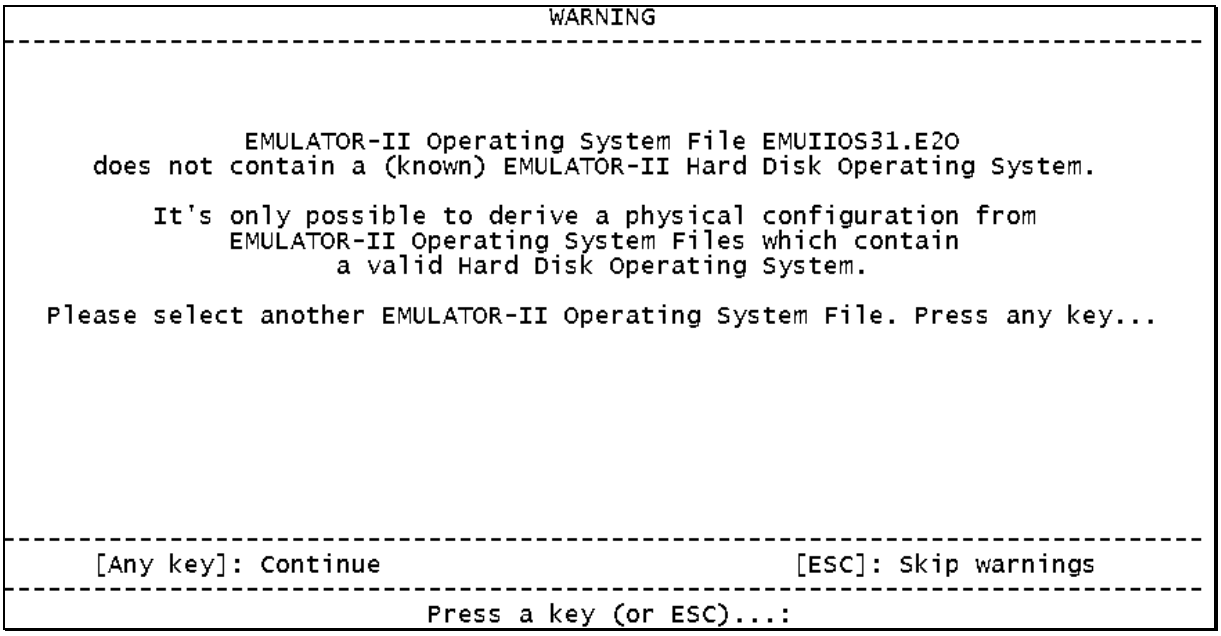
  The physical configuration can be imported from five possible sources:
  1. An existing Emulator-II hard disk.
  2. An existing Emulator-II hard disk image, e.g. a DREM file
  3. An existing Emulator-II hard disk operating system file
  4. An existing Emulator-II floppy disk image which contains a hard disk operating system
  5. An existing Emulator-II HxC floppy disk image which contains a hard disk operating system

  After selecting option 1→5, the EMXP File or Disk Manager will be launched, and the disk or file can be selected.

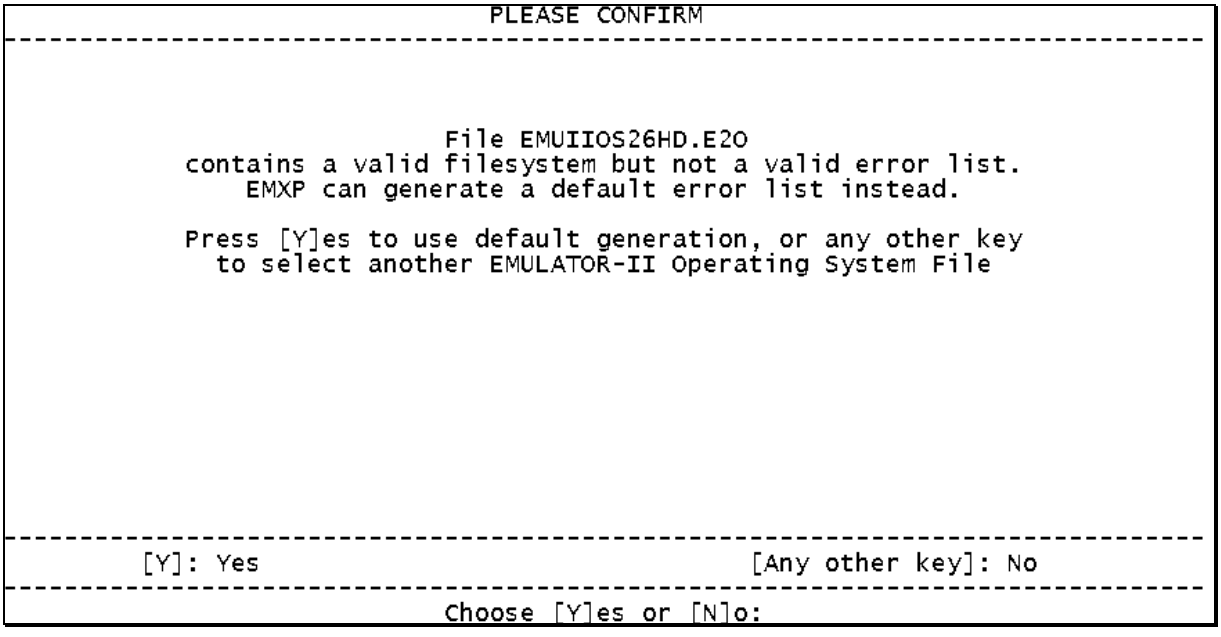
  By enabling *option 6 (Automatically derive Physical Format as well)* EMXP will not only import error log and/or bad sector index information, but also try to derive the original hard disk physical format (geometry) corresponding to the selected file or disk:
    - if the source is a hard disk or hard disk image, the probability that this information is correct is high
    - if the source is an operating system file or a (HxC) floppy disk image file, a "best effort" approach is used.

  No matter if option 6 is selected or not, you can always change the physical format with option 4 in the physical configuration definition screen.

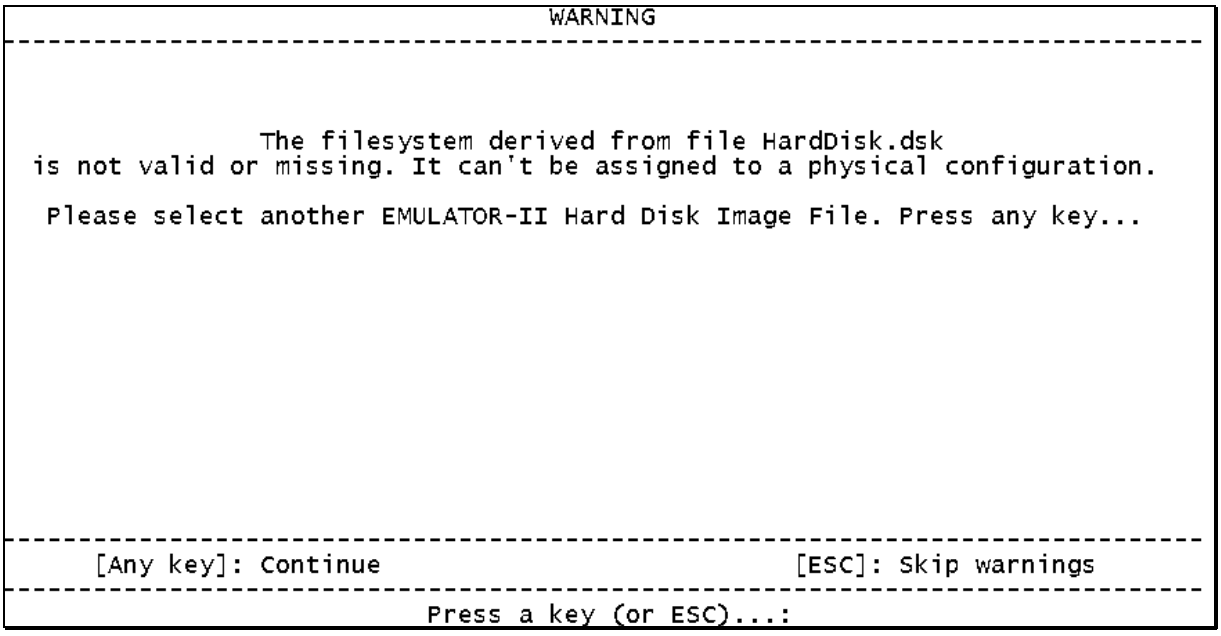
  If the source is an operating system file or (HxC) floppy disk image file, the file **must** contain a known Emulator-II **hard disk** operating system. If no known HD OS is found, the import will not continue and a warning will be displayed:



If the file system and/or the error log on the selected source disk or file is not found or invalid, a warning will be raised and EMXP will ask if it should generate a default file system and/or error log instead. This is illustrated in the screen below, where an error log was not found in an operating system file.



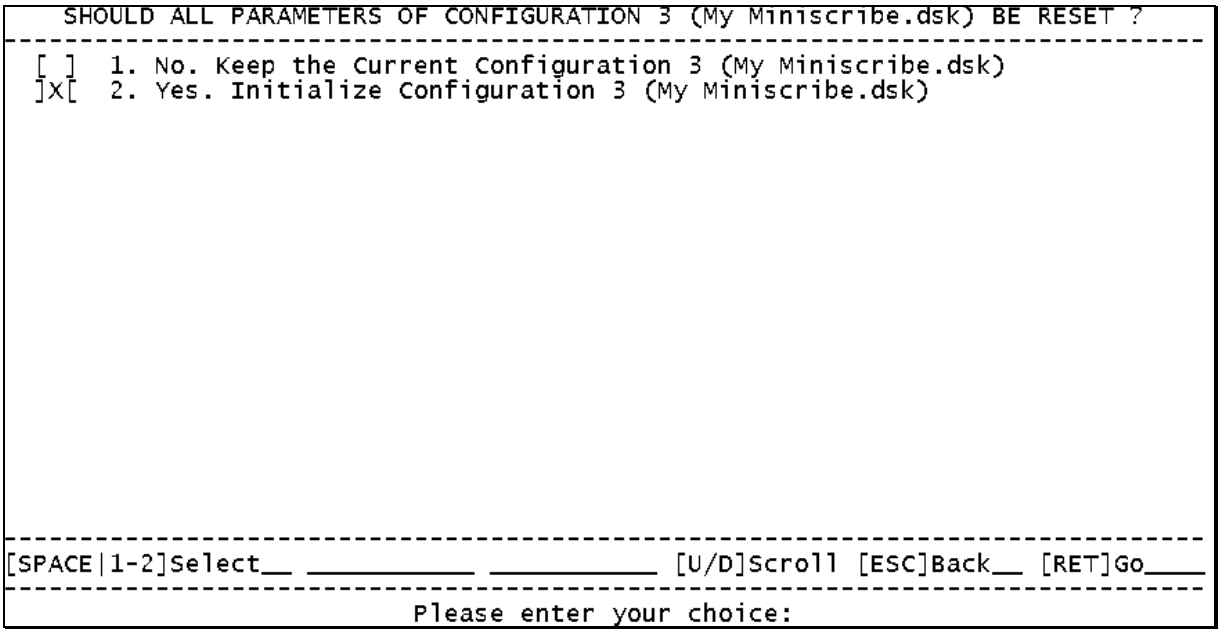
If the source disk or file is not usable at all, the import will not be possible. In that case the following warning will be displayed:



If the import is possible, and if you are changing or replacing an existing physical configuration, EMXP will ask for confirmation to replace the current configuration's data, and whether the name assigned to the current configuration should be replaced as well. This is similar to what has been explained for option 1 (copying an existing configuration).

- *Option 3*: re-initializing the physical configuration

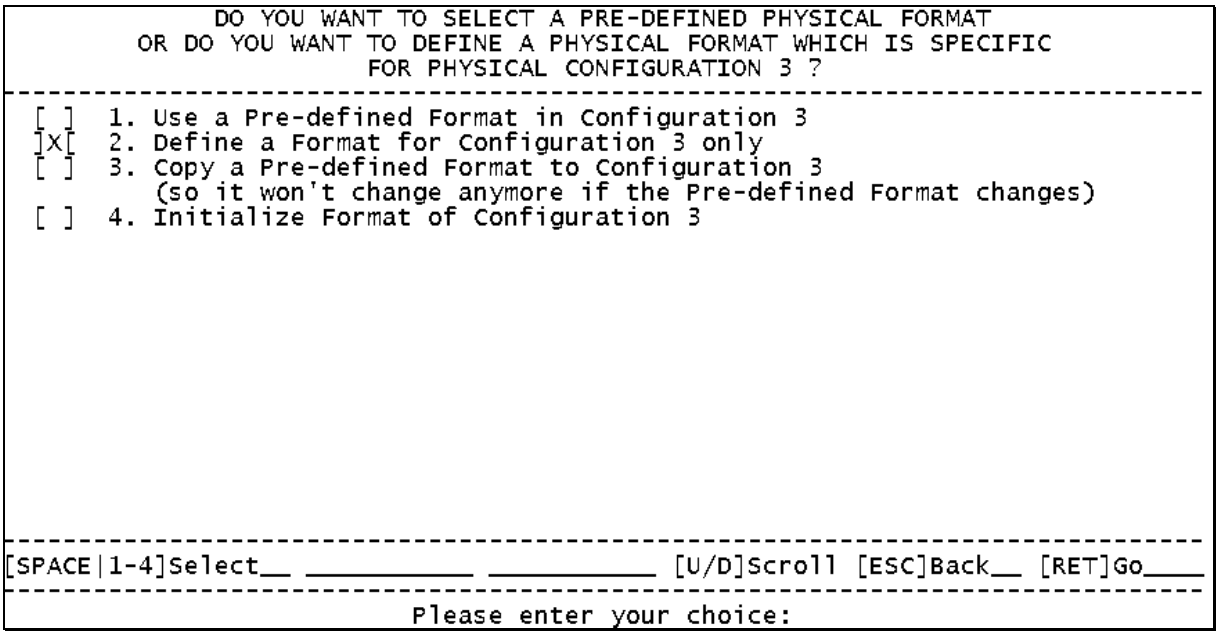
  With this option, you can re-set all parameter values of the configuration.
  EMXP will ask for confirmation, as shown in the screen below.



Select YES and press ENTER if you really want to re-initialize the configuration.

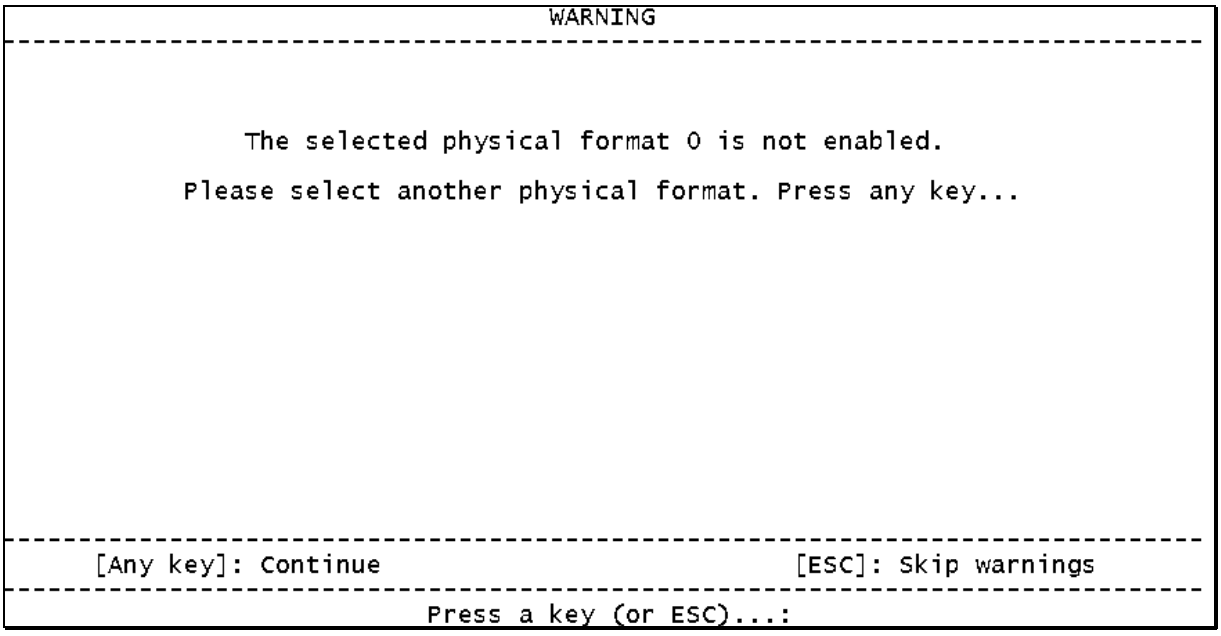
- *Option 4*. changing the physical format of the configuration

  Whether an existing configuration was copied or imported to the current configuration or not (options 1 and 2), it's always possible to define or change the physical format assigned to the current configuration.



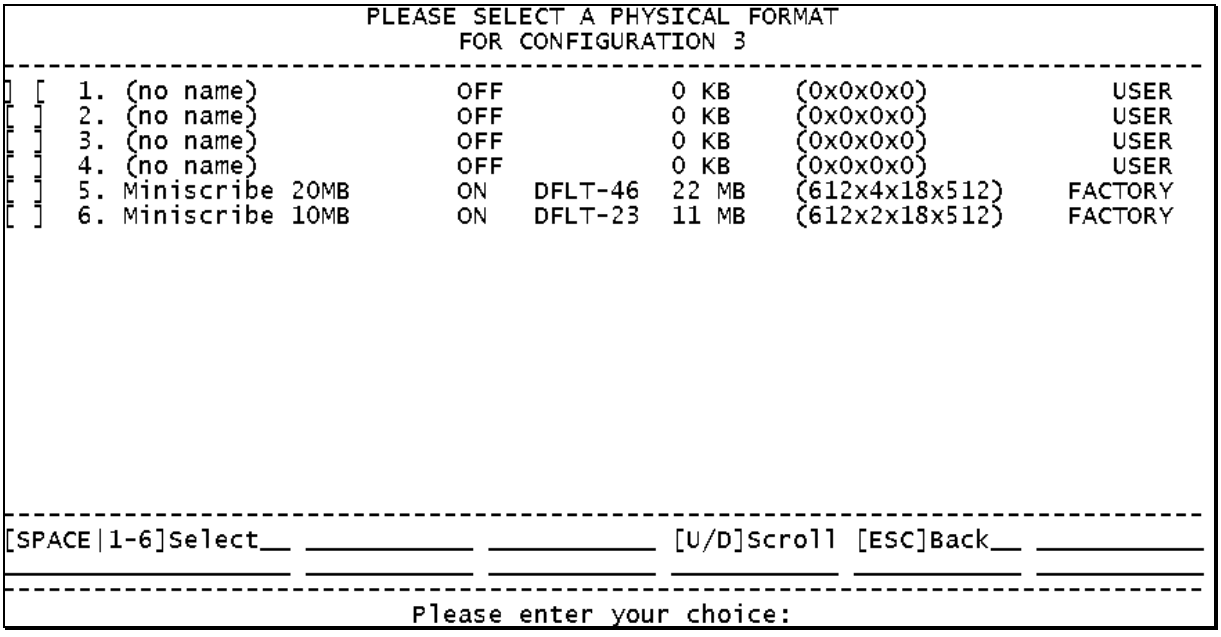
  There are 4 ways to define or change the physical format of a configuration:
  1. *Select one of the re-usable physical formats*, which can be defined as another type of preference *(see section "10.5.8.2 Define Emulator-II hard disk/hard disk image physical formats")*.
     - Whenever the parameters of the selected re-usable physical format would change, these changes will be applicable for the configuration as well.
     - If you don't want this, use option 3 instead.
  2. *Define a physical format "from scratch"*, which will only be applicable for this specific configuration. It will not appear as a re-usable physical format.
  3. *Copy one of the re-usable physical formats*, and make this copy only applicable for this specific configuration.
     - When the parameters of the selected re-usable physical format would change, these changes will NOT be applicable for the configuration.
     - The selected physical format can be used as a starting point. You can change one or more of the parameters with option 2 now.
  4. *Re-set the parameters of the physical format*. All parameter values will be initialize.

  Except for option 4 (or for option 2 if all parameters are set to 0), you always have to select of define an ENABLED physical format. If you select a disabled format, a warning message will appear, and you'll have to select or define another format (or leave the process by pressing ESCAPE).



When selecting *option 1* or *option 3*, an overview of the available physical formats will appear.
A description of the information that is shown on that screen can be found in *section "10.5.8.2 Define Emulator-II hard disk/hard disk image physical formats"*.

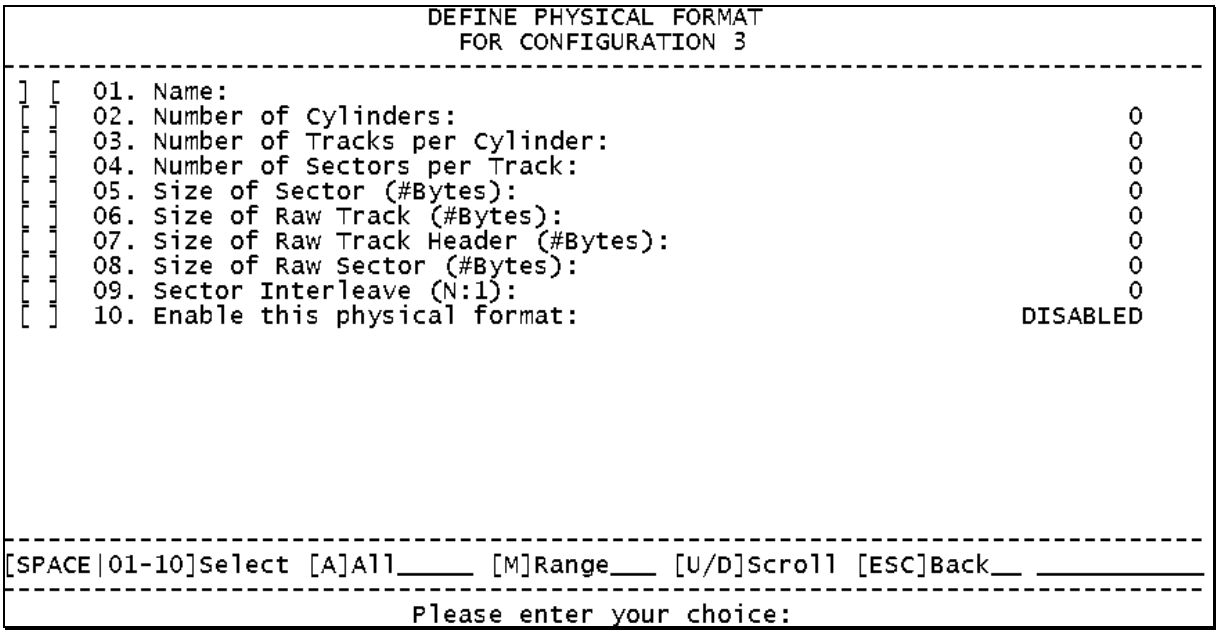
Simply select one of the ENABLED formats and press ENTER.



When selecting option 2, a physical format definition screen will appear.

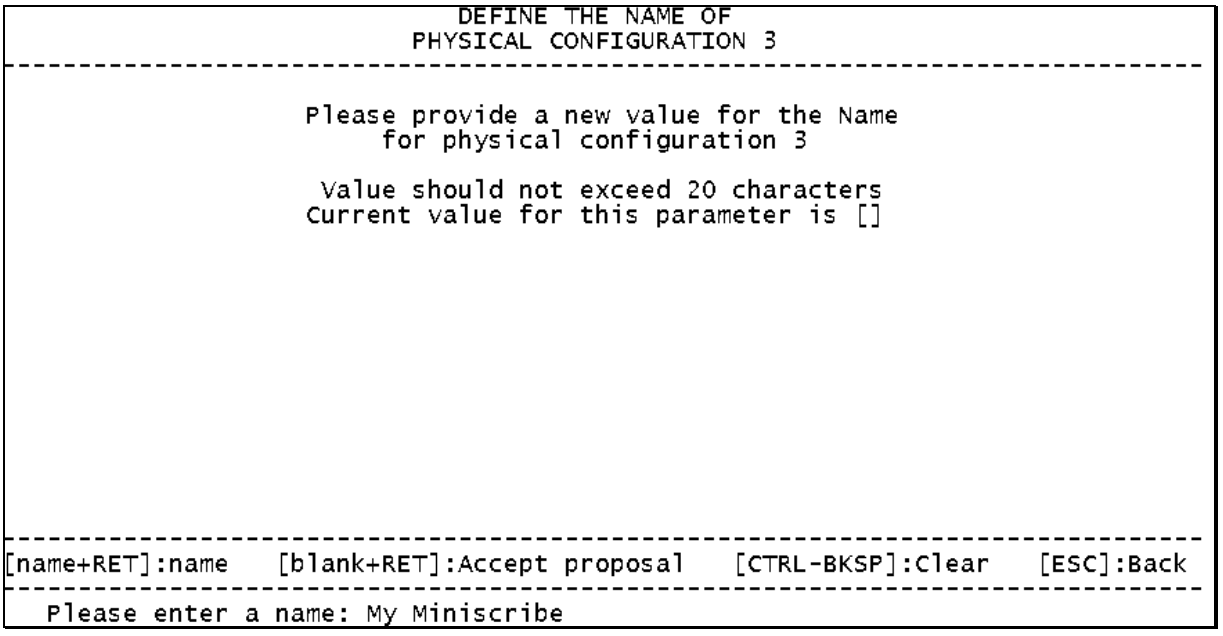
- If no format was assigned/defined yet for this configuration, all parameters will still be set to 0 and the format will be disabled.
- If a format was already assigned/defined before, the current values of the parameters will be displayed.

An explanation how to change the different parameters can be found in *section "10.5.8.2 Define Emulator-II hard disk/hard disk image physical formats"*.



- *Option 5*: changing the name assigned to the configuration

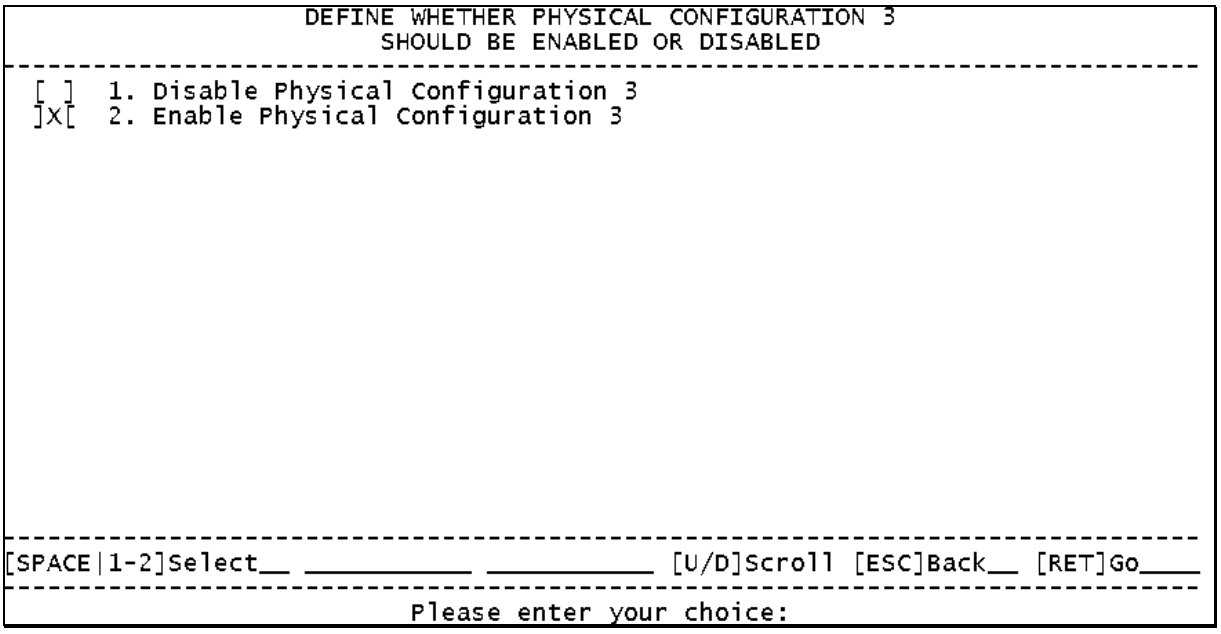
  Assigning a name to a configuration is not required, but recommended because EMXP refers to the selected configuration by its name and number.



  Simply enter a name and press ENTER.

- *Option 6*: enabling or disabling the configuration

  You can enable or disable any user-defined configuration.
  If a configuration is disabled, it won't (and can't) be used by EMXP for
  - finding and detecting existing Emulator-II hard disks or hard disk images
  - formatting or copying Emulator-II hard disks or hard disk images
  - storing the configuration to a (HxC) floppy disk image when saving a hard disk operating system to it



- *Option 7*: setting the configuraton as default

  The pre-defined "factory" configurations in EMXP are also the factory defaults:
  But you can promote any other configuration to become the default configuration in EMXP.

  The default configurations are used by EMXP:
  - as the priority configurations when trying to detect existing Emulator-II hard disks or hard disk images (depending on the *physical format detection method* preference, see *section "10.5.8.7 Define Emulator-II hard disk/hard disk image physical format detection mode")*
  - as the default configuration for formatting Emulator-II hard disks and generating new Emulator-II hard disk images (depending on the behaviour defined by *options 7 and 10* in the physical configuration overview screen, *see section "10.5.8.1 Emulator-II support for hard disks: introduction")*
  - as the default target configuration when copying entire Emulator-II hard disks or hard disk images (depending on the behaviour defined by *options 8 and 11* in the physical configuration overview screen, see *section "10.5.8.1 Emulator-II support for hard disks: introduction")*
  - as the default configuration that will be stored to a (HxC) floppy disk image when EMXP is saving a hard disk operating system to that image (depending on the behaviour defined by *options 9 and 12* in the physical configuration overview screen, see *section "10.5.8.1 Emulator-II support for hard disks: introduction")*

  Different default configurations can be defined, depending on the purpose of the configuration:
  - the configuration which should be saved by default on a (HxC) *floppy disk image* when saving a hard disk operating system to that image
  - the configuration which should be used by default for formatting, copying or detecting hard disks and hard disk images capable of holding *23 sound banks*
  - the configuration which should be used by default for formatting, copying or detecting hard disks and hard disk images capable of holding *46 sound banks*

  For each of these three purposes, the screens allows for:
  - setting the current configuration as a default (see options 1, 3 and 5 in the first example below)
  - keeping the current default configuration (see options 2, 4 and 6 in the first example below)
  - re-setting the factory configuration as a default. These options only appear if the current default configuration is not a factory configuration, see option 7 in the second example below)

```
              DEFINE WHETHER PHYSICAL CONFIGURATION 3 SHOULD BE
   THE DEFAULT WHEN COPYING AN HD OS TO EMULATOR-II FLOPPY DISK IMAGE FILES
    AND/OR WHEN FORMATTING/COPYING EMULATOR-II HARD DISKS/HARD DISK IMAGES
--------------------------------------------------------------------------------
          WHICH CONFIGURATION SHOULD BE THE DEFAULT CONFIGURATION...

          ...WHEN COPYING AN HD OPERATING SYSTEM TO FLOPPY DISK IMAGES ?
  [ ]  1. Set Configuration 3 as Default Configuration
  ]X[  2. Keep Configuration 1 (Miniscribe 20MB) as Default


          ...WHEN FORMATTING/COPYING 23 BANK HARD DISKS/HARD DISK IMAGES ?
  [ ]  3. Set Configuration 3 as Default Configuration
  [X]  4. Keep Configuration 2 (Miniscribe 10MB) as Default


          ...WHEN FORMATTING/COPYING 46 BANK HARD DISKS/HARD DISK IMAGES ?
  [ ]  5. Set Configuration 3 as Default Configuration
  [X]  6. Keep Configuration 1 (Miniscribe 20MB) as Default


--------------------------------------------------------------------------------
[SPACE|1-6]Select__ ___________ ___________ [U/D]Scroll [ESC]Back__ [RET]Go____
--------------------------------------------------------------------------------
                            Please enter your choice:
```

Example 1. All current default configurations are factory configurations

```
              DEFINE WHETHER PHYSICAL CONFIGURATION 3 SHOULD BE
   THE DEFAULT WHEN COPYING AN HD OS TO EMULATOR-II FLOPPY DISK IMAGE FILES
    AND/OR WHEN FORMATTING/COPYING EMULATOR-II HARD DISKS/HARD DISK IMAGES
--------------------------------------------------------------------------------
          WHICH CONFIGURATION SHOULD BE THE DEFAULT CONFIGURATION...

          ...WHEN COPYING AN HD OPERATING SYSTEM TO FLOPPY DISK IMAGES ?
  [ ]  1. Set Configuration 3 as Default Configuration
  ]X[  2. Keep Configuration 1 (Miniscribe 20MB) as Default


          ...WHEN FORMATTING/COPYING 23 BANK HARD DISKS/HARD DISK IMAGES ?
  [ ]  3. Set Configuration 3 as Default Configuration
  [X]  4. Keep Configuration 2 (Miniscribe 10MB) as Default


          ...WHEN FORMATTING/COPYING 46 BANK HARD DISKS/HARD DISK IMAGES ?
  [ ]  5. Set Configuration 3 as Default Configuration
  [X]  6. Keep Configuration 6 (My Miniscribe) as Default
  [ ]  7. Set Factory Configuration 1 (Miniscribe 20MB) as Default Config.

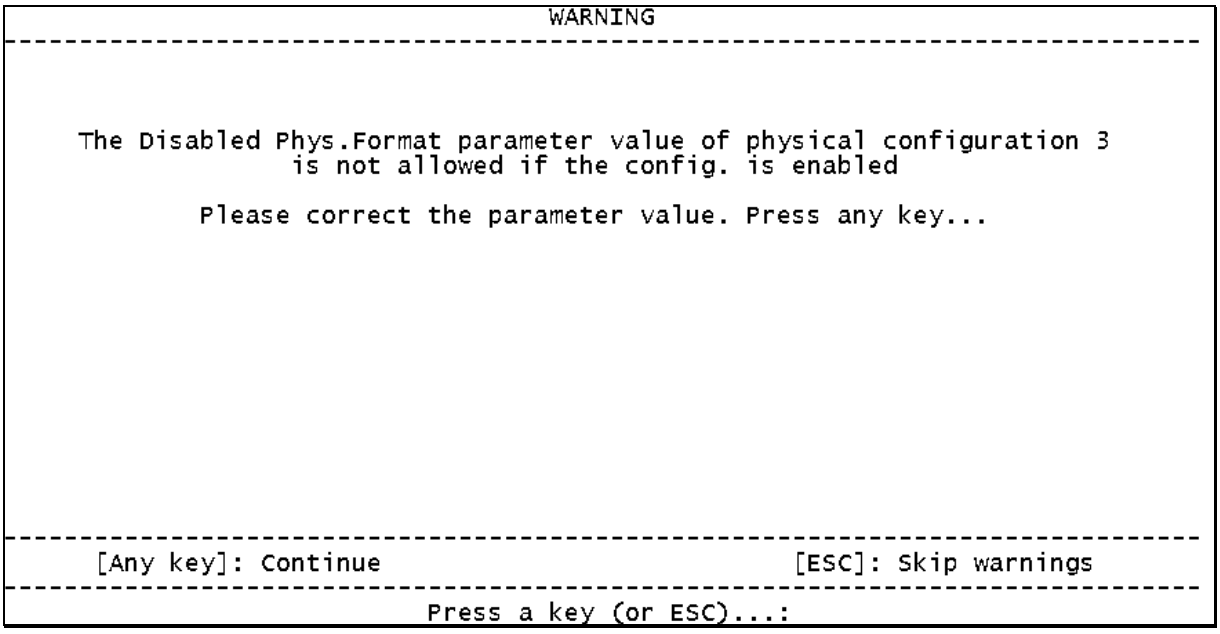
--------------------------------------------------------------------------------
[SPACE|1-7]Select__ ___________ ___________ [U/D]Scroll [ESC]Back__ [RET]Go____
--------------------------------------------------------------------------------
                            Please enter your choice:
```

Example 2: The current default configuration for 46 BANK hard disks/hard disk images is not a factory configuration

After a configuration has been defined, EMXP will do a validation and consistency check of all parameter values. If one or more parameters value are invalid or inconsistent with other parameter values, a warning will be raised, and the problem will have to be solved before EMXP will accept the configuration.

If you want to overrule these warnings, you should disable the confiuration (with option 6), but in that case the configuration will not be available in EMXP.

The following screen illustrates avalidation warning.



10.5.8.3.4 Obtaining the error log of an existing Emulator-II hard disk

It's not possible to explicitly enter or change the bad sector locations of a physical configuration in EMXP. The only way to obtain information about bad sector locations is by importing a configuration from an existing hard disk, hard disk image (like DREM file), (HxC) floppy disk image or operating system file which contain an error log (and bad sector index in case of DREM hard disk images).

If your Emulator-II+HD is still equipped with an original hard disk (so not a DREM emulator), it's possible to import the error log of that hard disk into EMXP:

- Possibility 1:
  - if you have the original floppy disk containing the error log of the hard disk, *and*
  - if you have a Kryoflux floppy disk controller with floppy disk drive connected to your computer

  To import the error log into EMXP:
  - use the Kryoflux software to make an .EMUIIFD floppy disk image of the original floppy disk (*see chapter "13.1.1 Reading Emulator-I and Emulator-II floppy disks"*)
  - use this floppy disk image as the source for importing a physical configuration, as explained in the *previous section "10.5.8.3.3 Defining or changing the physical configuration parameters"* under option 2.

- Possibility 2:
  - if the floppy drive of your Emulator-II has been replaced by an HxC emulator, *and*
  - if you have the original paper/label of your hard disk which contains a written/printed list of all bad sector locations

  To import the error log into EMXP:
  - create a new empty bootable HxC floppy disk image
    - with a hard disk operating system on it
    - using one of the *factory* physical configurations (typically Miniscribe 20MB) which have an empty error log

    this is explained in *section "6.4.3 Generating empty bootable EMU floppy disk images"*.
  - save this floppy disk image to the SD card of the HxC and select it as the active "floppy disk" on the HxC after having booted the Emulator-II+HD
  - use Special Function 19 on the Emulator-II+HD to enter the error log manually,
    - use slider A to enter the defects, e.g. e.g. if the label of the hard disk mentions a single defect on cylinder 66, head 2 and byte offset 1848, then enter
      - CYL#: 66
      - HEAD#: 2
      - BYTE-IX: 1848

        - when prompted for writing the error log to hard disk, answer "NO"
        - when prompted for writing the error log to floppy, anser "YES".
        - the error log you have just entered on the Emulator-II+HD will now be written to the HxC floppy disk image
    - use the updated HxC floppy disk image as the source for importing a physical configuration, as explained in the *previous section "10.5.8.3.3 Defining or changing the physical configuration parameters"* under option 2.

10.5.8.4 Define Emulator-II hard disk image DREM specific handling

When creating new Emulator-II hard disk image files, the size of the file is based on the physical format of the hard disk to which the image file corresponds.
This physical format (or geometry) is defined in the physical configuration, which is used by EMXP to generate a new Emulator-II hard disk image. See *section "10.5.8.3 Define Emulator-II hard disk/hard disk image configurations".*

If the hard disk image file is meant to be used with the DREM emulator (as a .DSK file), the size of the file must be extended with one additional cylinder. This "virtual" cylinder is used by the DREM to keep track of some meta data of the hard disk it is emulating, e.g. for storing the locations of bad sectors.

When using Emulator-II hard disk images in the DREM emulator, the DREM also expects a *config file* (.CFG file) with the same name as the hard disk image file (.DSK file). This CFG file describes which type of hard disk is emulator by the DSK file.

EMXP is able to generate a DREM config file whenever it generates an Emulator-II hard disk image. More specifically, EMXP is able to generate a DREM CFG file

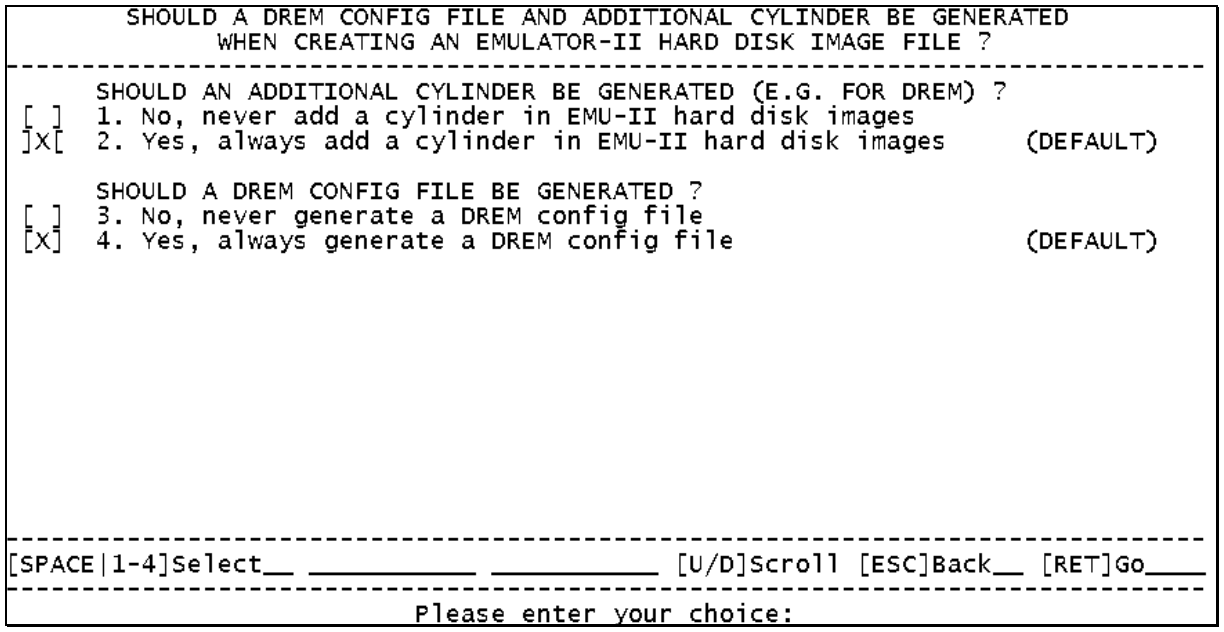
- when it creates (formats) a new Emulator-II hard disk image
- when it copies an entire Emulator-II hard disk or hard disk image to an Emulator-II hard disk image.

This CFG file will be saved in the same folder as the folder in which the hard disk image is saved.
By default it's name will be the same as the the name of the hard disk image, but you will have the option to define another name if a CFG file with the same name already exists.

The contents of the generated DREM config file is based on the physical format of the configuration that will be used for creating the Emulator-II hard disk image.

- If that physical format is one of the formats known by the DREM for use with the Emulator-II+HD, the parameter values in the generated CFG files will be compliant with the ones defined in the DREM user manual.
- If the physical format is *not* known by the DREM, the parameter values in the CFG files will be based on the physical format's parameters. Since these CFG files will probably not be accepted by the DREM emulator, EMXP will raise a warning at the end of the generation or copy process. See *section "9.2 GENERATING EMPTY HARD DISK IMAGES"* and *section "6.5 COPYING ENTIRE FLOPPY DISK (IMAGE)S AND HARD DISK (IMAGE)S*".

Since the most common purpose of Emulator-II hard disk image files will be to use them as .DSK files in the DREM, EMXP will by default always add this cylinder and always generate a DREM config file when generating a new hard disk image file. But you can disable these settings.
This can be done in the screen shown below.



- Select *option 1* if you don't want EMXP to generate an additional cylinder.
- Select *option 2* if you want EMXP to generate an additional cylinder. This option must be selected for DREM. It's the default setting.

- Select *option 3* if you don't want EMXP to generate a DREM config file.
- Select *option 4* if you want EMXP to generate a DREM config file. This is the default setting.

Changing these preferences can also be done during the format or copy process itself. They will appear as additional options on the *Physical Configuration selection* screen, but only if you have instructed to always show that selection screen during the format or copy process. See *section "10.5.8.3 Define Emulator-II hard disk/hard disk image configurations"*, options 7 and 8.

10.5.8.5 Define Emulator-II hard disk/hard disk image bad sector handling

As explained in the introduction of this chapter (see *section "10.5.8.1 Emulator-II support for hard disks: introduction"*), some Emulator-II hard disk image files like DREM files can contain *bad sectors*, just like a n original Emulator-II+HD hard disk could have contained bad sectors.

Whether bad sectors are present or not depends on the error log which is used to format the hard disk or hard disk image file (like DREM .DSK file).

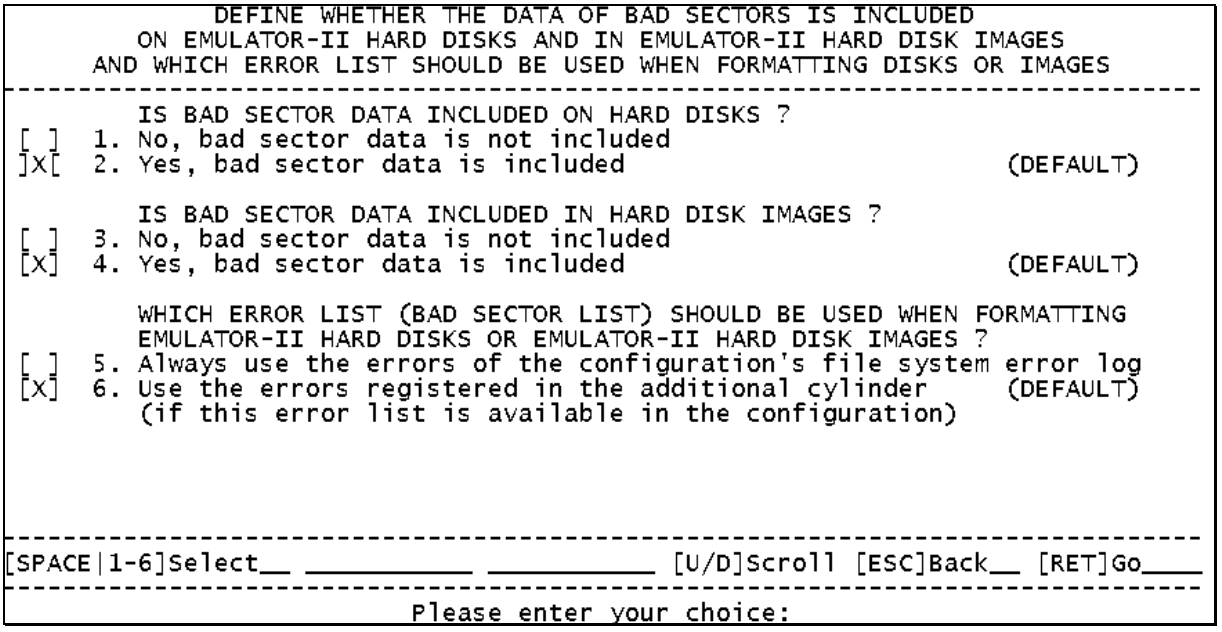
Bad sectors in hard disk image files are of course not really bad sectors. But they represent areas in the image file which are not available for storing data, so their existence is important for EMXP.

Whether bad sector areas should be taken into account by EMXP depends on whether they are kept hidden or not.
And this in turn depends on the way a hard disk is connected to your computer or the way hard disk image files will be used.

- *Hard disks*: if you succeed in connecting an original Emulator-II hard disk to your computer, it depends on the driver and controller whether the bad sectors remain hidden for the application (like EMXP) or not.
  Note that - at the time of writing this manual - we are not aware of any possibility to connect an original Emulator-II hard disk to a computer.
  Note also that EMXP is not capable of communicating with the Adaptec ACB4000A controller which was used in the Emulator-II+HD.

- *Hard disk image files:*
    - if the hard disk image file will be used by a hard disk emulator which does not hide the bad sectors (like the DREM), bad sector areas should be taken into account by EMXP
    - if the hard disk image file will be used by a hard disk emulator which hides the bad sectors, bad sector areas should not be taken into account by EMXP. *Note that we are not aware of the existince of this type of device at the time of writing this manual.*
    - if the hard disk image file is a backup of a real hard disk, it depends on the driver and controller used by the backup/restore procedure whether EMXP should take into account bad sector areas or not.

In order to support other devices than DREM, you can specify whether bad sector areas are hidden for EMXP or not.



- For *hard disks*:
    - Select *option 1* if the bad sectors are kept hidden by the driver/controller
    - Select *option 2* if the bad sectors are exposed by the driver/controller. This is the default setting.
- For *hard disk image files:*
    - Select *option 3* if the bad sectors are not included in the hard disk image files used by EMXP
    - Select *option 4* if the bad sectors are included in the hard disk image files used by EMXP. This is the default setting. This setting is required for DREM.

The above preferences should be used in combination with the *bad sector location mode* preference. See *section "10.5.8.6 Define Emulator-II hard disk/hard disk image bad sector location mode"*.

If bad sectors are included on a hard disk or hard disk image, and EMXP will be used to format hard disks or hard disk images, EMXP needs to know where it should obtain the exact locations of the bad sectors.
As explained in *section "10.5.8.3 Define Emulator-II hard disk/hard disk image configurations"*, these locations must be defined in the physical configuration that will be used for formatting hard disks or generating hard disk images files.

Two different lists of bad sector locations can be defined in a physical configration:

- a list which originates from the *error log* used by the Emulator-II itself. This list is always available in a configuration, but it may not represent the reality because it depends on the user of the Emulator-II+HD if the error log was correctly saved to the hard disk and/or to a floppy disk. See the Hard Disk Addendum of the Emulator-II User Manual.
- a list which originates from the bad sector index residing in the *additional cylinder* of a DREM file (*see section "10.5.8.4 Define Emulator-II hard disk image DREM specific handling"*). This list is only available if the configuration was imported from a DREM file (see *section "10.5.8.3.3 Defining or*

changing the physical configuration parameters"). But if it's available, it's supposed to be more accurate than the the list in the error log.

You can define which of these two lists should be used by EMXP when formatting a hard disk or generating a new hard disk image file:

- use *option 5* if you want EMXP to always use the bad sector locations defined in the error log of the configuration (no matter if the configuration also contains the bad sector locations from the DREM)
- use *option 6* if you want EMXP to use the bad sector locations originating from the DREM additional cylinder, if those locations are available in the configuration. If they are not available, use the error log instead (equivalent to option 5). This is the default setting.

10.5.8.6 Define Emulator-II hard disk/hard disk image bad sector location mode

If bad sector areas are included on an Emulator-II hard disk or hard disk image (see previous section ""), the exact location of these areas depends on

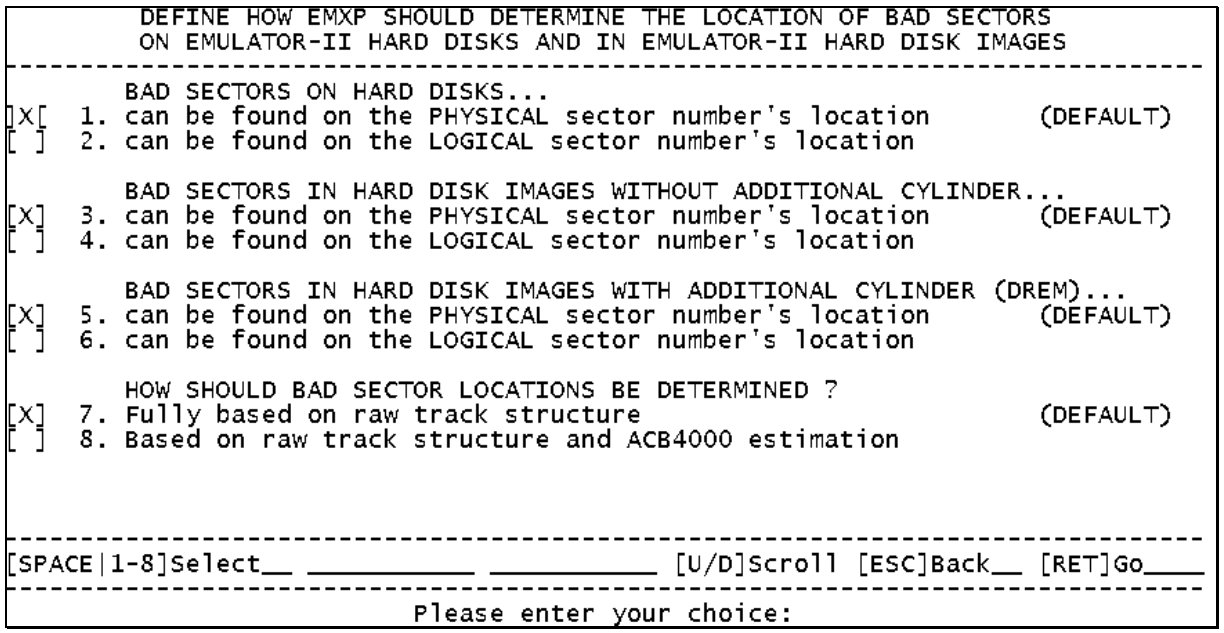
1. the location specified in either the Emulator-II's error log or in the DREM bad sector index (in the additional cylinder), and which of these 2 sources should be used, and
2. the calculation method for converting the physical defect location into a logical defect location , and
3. whether the sector interleave should be taken into account when converting the physical defect location into a logical defect location

Condition (1) has been explained in *section "10.5.8.5 Define Emulator-II hard disk/hard disk image bad sector handling"*.
Conditions (2) and (3) are only applicable when EMXP is using the error log information instead of the DREM bad sector index information.

You can define these conditions in this screen.
Condition (3) can be defined separately for:

- hard disks: options 1→2
- non-DREM hard disk images (which don't have an additional cylinder with a bad sector index): options 5→6
- DREM hard disk images (which have an additional cylinder with a bad sector index): options 3→4

Condition (2) is a general setting, which is applicable for all Emulator-II hard disks and hard disk images.



- Select *options 1, 3 and 5* if EMXP should not take into acount the sector interleave when converting a physical defect location from the error log into a logical defect location. This is the default setting.
- Select options 2, 4 and 6 if EMXP should take into account the sector interleave when converting a physical defect location from the error log into a logical defect location

- Select *option 5* if EMXP should perform an exact translation from physical to logical address, fully based on the raw physical track format (as defined in the physical format of a configuration, see *section "10.5.8.3 Define Emulator-II hard disk/hard disk image configurations"*). This is the default setting.
- Select *option 6* if EMXP should use an estimation algorithm for translating a physical address to a logical address. This estimation algorithm is applied by the Adapted ACB4000A board, but only in case it doesn't succeed in determining the exact location.

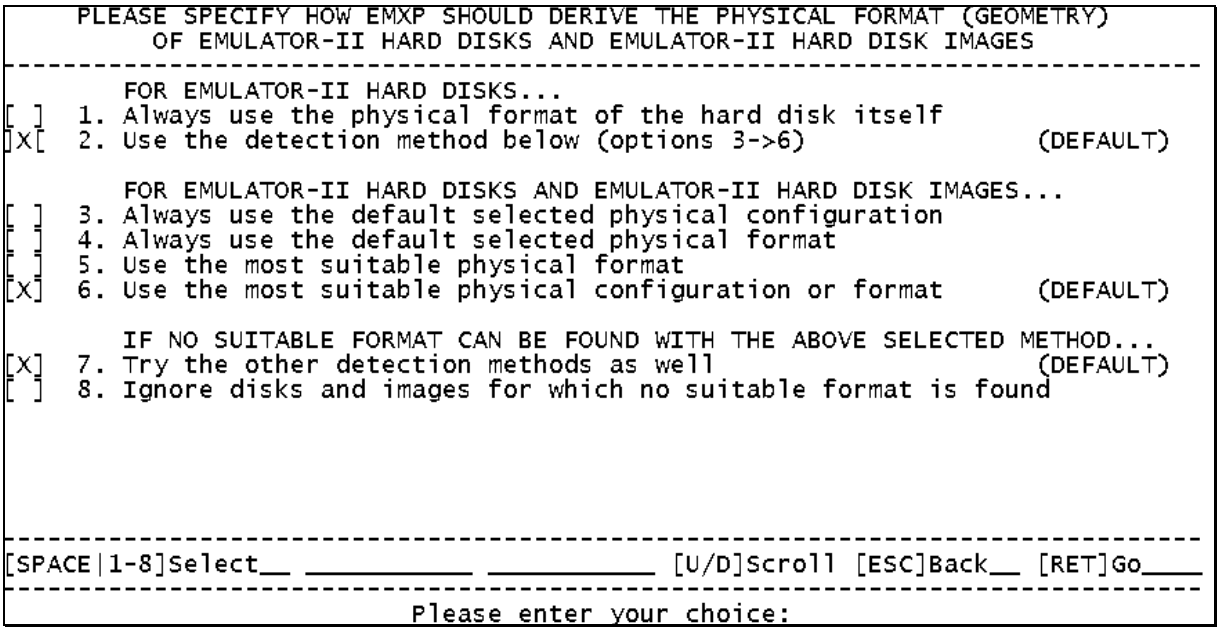
10.5.8.7 Define Emulator-II hard disk/hard disk image physical format detection mode

Whenever you want to use an existing Emulator-II hard disk or hard disk image in EMXP, EMXP will first validate if the disk or image is indeed an Emulator-II hard diisk or hard disk image.

Due to the specific characteristics of Emulator-II hard disks and hard disk images, EMXP needs to know upfront the original physical format (geometry) of any possible Emulator-II hard disk or hard disk image that will be used in EMXP.
Only if you succeed in connecting a true original Emulator-II hard disk to your computer, this is not required, because in that case EMXP can obviously retrieve that information from the computer's disk driver. But if the hard disk is an emulated one, EMXP needs to know the supported physical formats upfront as well.

Sections "10.5.8.2 Define Emulator-II hard disk/hard disk image physical formats" and "10.5.8.3 Define Emulator-II hard disk/hard disk image configurations" explain how these physical formats can be defined in EMXP, either as physical formats on thier own, or as physical formats which have been assigned to a physical configuration.

EMXP will use these physical formats and configurations when trying to detect Emulator-II hard disks and hard disk images.
The way EMXP should do this can be defined in the screen below.
The preference can be set separately for hard disks and hard disk images.



- Options 1→2 are only applicable for Emulator-II hard disks:
    - Select option 1 if EMXP should always derived the physical format of a hard disk from the hard disk's geometry itself. This only makes sense if you plan to connect an original true Emulator-II hard disk to your computer.
    - Select option 2 if EMXP should apply the same detection algorithm for hard disks and hard disk images. This is the default setting.

- Options 3→6 are applicable for Emulator-II hard disk images (like DREM files), and are also applicable for Emulator-II hard disks if option 2 has been enabled:
    - Select option 3 if EMXP should only accept disks and images as Emulator-II hard disks and hard disk images if they comply with one of the default physical configurations (see *section "10.5.8.3 Define Emulator-II hard disk/hard disk image configurations")* and if they contain a valid Emulator-II file system. Any disk or image which does not correspond to the physical format and bad sector information that has been assigned to one of the default configuratuons, will be ignored by EMXP. *This is the most limiting (strict) detection mechanism supported by EMXP*.
    - Select *option 4* if EMXP should only accept disks and images as Emulator-II hard disks and hard disk images if they comply with one of the default physical formats (see *section "10.5.8.2 Define Emulator-II hard disk/hard disk image physical formats"*) and if they contain a valid Emulator-II file system. Any disk or image which does not correspond to a default physical format will be ignored by EMXP.
    - Select *option 5* if EMXP should accept any disk or image as an Emulator-II hard disk or hard disk image if it complies with at least one of the re-usable physical formats (see *section "10.5.8.2 Define Emulator-II hard disk/hard disk image physical formats"*) and if it contains a valid Emulator-II file system. Any disk or image which does not correspond to a known physical format will be ignored by EMXP. If a disk or image complies with more than one known physical format, EMXP will choose the "most suitable" one - the EMXP algorithm takes into account multiple parameters to take this decision, e.g. default physical formats get higher priority than non-default physical formats.
    - Select *option 6* if EMXP should accept any disk or image as an Emulator-II hard disk or hard disk image if it complies with at least one of the re-usable physical formats or with at least one of the known physical configurations (see *section "10.5.8.2 Define Emulator-II hard disk/hard disk image physical formats"* and *section "10.5.8.3 Define Emulator-II hard disk/hard disk image configurations")* and if it contains a valid Emulator-II file system. Any disk or image which does not correspond to a known physical format or known physical configuration will be ignored by EMXP. If a disk or image complies with more than one known physical format and/or physical configuration, EMXP will choose the "most suitable" one - the EMXP algorithm takes into account multiple parameters to take this decision, e.g. default physical formats/configurations get higher priority than non-default ones, a matching configuration gets higher priority than a matching physical format, ... This is the default setting.

- Options 7→8 are applicable for both Emulator-II hard disks and Emulator-II hard disk images:
    - Select *option 7* if EMXP should try the other detection methods as well if the selected one does not result in a detected Emulator-II hard disk or Emulator-II hard disk image. E.g. if you selected option 4 but EMXP does not accept a disk or an image based on one of the default phyical formats, EMXP can re-scan the disk or file and apply the other methods as well (in the order of option 3→option 4→option 5→option 6). This can be interesting if you have a *preferred method* which should be applied by EMXP with a higher priority than any of the other methods. This is the default setting
    - Select *option 8* if EMXP should only apply the detection method that you have selected in options 1→6.

10.5.8.8 Define Emulator-II hard disk/hard disk image empty bank detection mode

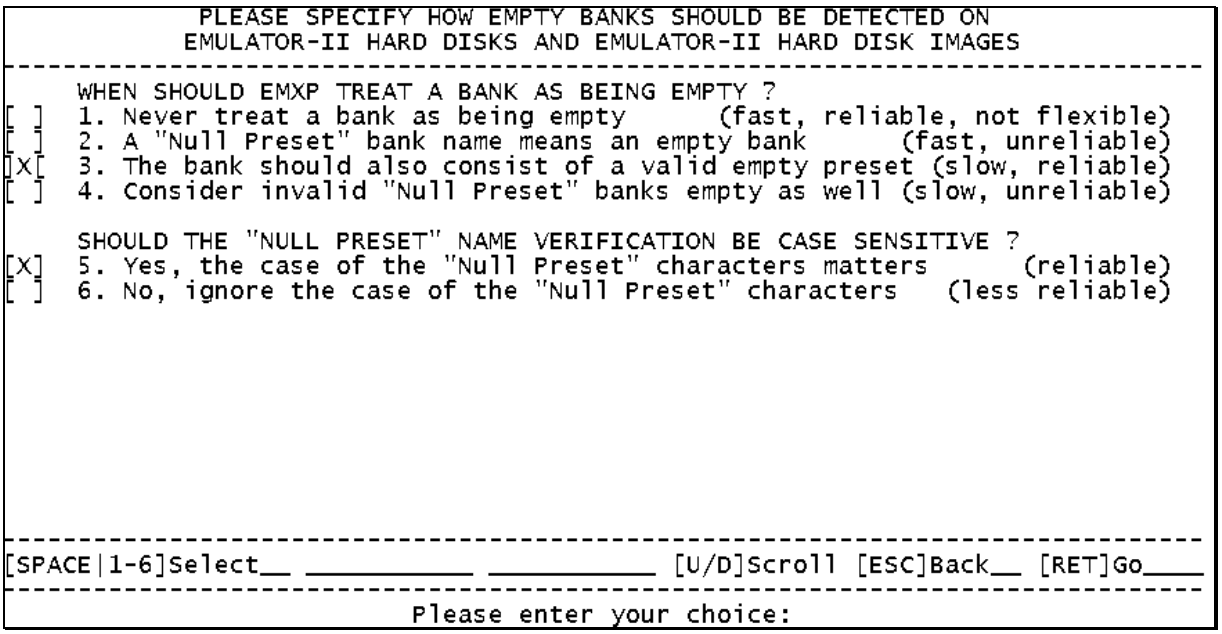
While the hard disk file system of samplers like the Emax-I, Emax-II and Emulator-III/IIIX keeps track of which hard disk bank slots are actually in use and which are not the Emulator-II+HD always assumes that all bank slots (e.g. B02→B47) contain a sound bank.
If a bank slot does not contain a bank but just some random (garbage) data, the Emulator-II+HD will still try to load the bank, but will report it as corrupt or even worse, it may crash/hang. To prevent this situation, the Emulator-II+HD will save empty but valid "NULL PRESET" banks to each bank slot when it formats a hard

disk. You have the option not to do that (the Emulator-II+HD will ask for confirmation), but answering NO is at own risk...

EMXP can apply the same logic as the Emulator-II+HD , and assume that all bank slots on an Emulator-II hard disk or hard disk image contain a sound bank.
But EMXP offers other possibilities as well, which can make life more comfortable.

The main reason why you would not like use the Emualtor-II+HD logic, is the *automateed (batch) mode* of copying and/or converting banks to Emulator-II hard disks/hard disk images in EMXP.
In this mode - which is often used in the EMXP community because it's easy and fast - EMXP decides by itself to which bank slot the next sound bank will be saved. However, EMXP only uses *empty bank slots* when taking this decison. If none of the bank slots would ever be considered as being empty (as in the default Emulator-II+HD way of working), automated copying/converting would not be possible.

EMXP offers four possibilities for determining whether a bank slot is empty or not.
They can be defined in this screen.



- Options 1→4 can be used to select the empty bank detection mode:
  - Select option 1 if you want EMXP to apply the same logic as the logic applied by the Emulator-II+HD. All bank slots are always assumed to be filled with sound banks. They are never considered to be empty. If they don't contain a valid bank, EMXP will report the bank as being corrupt. In this mode automated copying/converting to hard disks and hard disk images will not be possible (the copy/conversion process will result in errors). But there's no risk that EMXP will overwrite a bank without confirmation by the user. And it's a fast method because EMXP does not have to check the actual contents of the bank slot.
  - Select *option 2* if a bank slot should be considered empty by EMXP if the *file system* of the disk or image indicates that the bank slot contains a "Null Preset" bank. Whether the actual bank in that bank slot is indeed empty is not checked by EMXP. So a valuable bank with many presets, voices and samples which happen to have a name of "Null Preset" (because it's default preset is called "Null Preset") may automatically be overwritten by EMXP. This method is a fast method, but not recommended because of the risk of accidently overwriting important sound banks.
  - Select *option 3* if a bank slot should be considered empty by EMXP if the *file system* of the disk or image indicates that the bank slot contains a "Null Preset" bank *and if the bank slot indeed contains an emty sound bank consisting of an empty preset called NULL PRESET.* This is the most reliable method but also a slow method because EMXP has to check the contents of the bank slots. It is the default setting.

- Select *option 4* if a bank slot should be considered empty by EMXP if the *file system* of the disk or image indicates that the bank slot contains a "Null Preset" bank *and if the bank slot contains*
  - either an emty sound bank consisting of an empty preset called NULL PRESET.
  - *or an invalid sound bank* (e.g. garbage data)

  This methode is not recommended because it's as slow as option 3 but less reliable than option 3.

- Options 5→6 can be used to refine the empty bank detection modes of options 2→4
  - Select *option 5* if the case (upper/lower) of the characters matter when checking the name of an empty Null Preset bank in the file system and in the actual sound bank. By default the Emulator-II assigns a "Null Preset" name to an empty bank in its file system, and a "NULL PRESET" name to the preset of an empty bank. If EMXP should only consider banks to be empty if their names have the same case as the default ones assigned by the Emulator-II, option 5 should be selected. This is the default setting.
  - Select *option 6* if the case of the characters of the empty bank/empty preset does not matter. This is less reliable, because a "NULL PRESET" file system entry will result in an empty bank detection by EMXP if option 2, 3 or 4 has been selected. While the bank may consist of valuable bank but its default preset was named NULL PRESET when it was saved to the bank slot.

  The selected option 5 or 6 is also used for determining whether a sound bank on a (HxC) floppy disk image is an "empty" NULL PRESET bank of not. See *section "10.5.8.9 Define Emulator-II floppy disk bank load speed mode"*.

10.5.8.9 Define Emulator-II floppy disk bank load speed mode

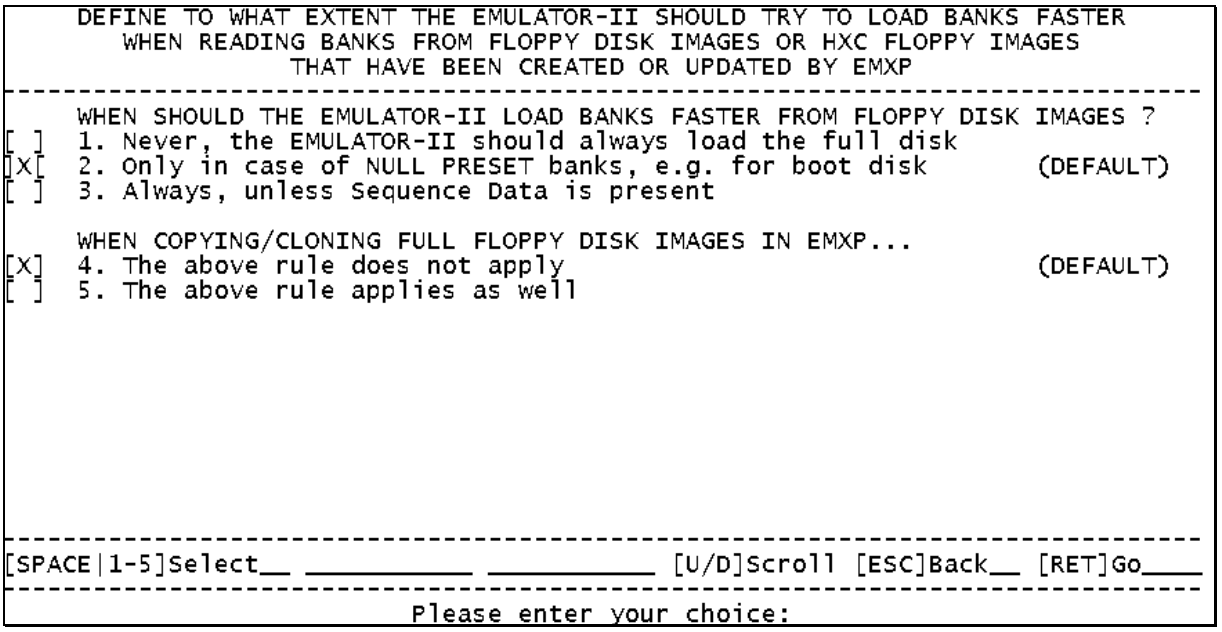
When loading a bank from a performance floppy disk or from a HxC performance floppy disk image in an Emulator-II sampler, the Emulator-II will always load the maximum size of a sound bank (485888 bytes), no matter what the actual size of the sound bank is.
Since loading a bank from a floppy disk (image) is a slow process, this means that loading a bank always takes 28 seconds.

EMXP can save banks to (HxC) floppy disk images in a way which speeds up the load process on the Emulator-II sampler. The fast load process will only load the bank data which is actually used (parameters and sample data). If only half of the maxium size of a bank is actually being used by the bank, the load process will only take 14 seconds.

The fast load feature is also interesting for floppy disks and floppy disk images which contain a NULL PRESET bank and are only used for booting the Emulator-II. In that case only the operating system must be loaded; loading the bank will take less than second.
EMXP considers any bank containing a single preset called "NULL PRESET" but no voices, no samples and no key area assignments as a NULL PRESET bank. Whether the preset name should be checked in a case-sensitive way or not is determined by another preference, which is also used for detecting NULL PRESET banks on an Emulator-II hard disk/hard disk image. See *section "10.5.8.8 Define Emulator-II hard disk/hard disk image empty bank detection mode"*.

Fast loading does not work for sound banks that contain sequences.

Please note that the fast load mode will be disabled on a floppy disk/floppy disk image if you save the loaded sound bank back to floppy disk/floppy disk image on the Emulator-II.



- Select *option 1* if you don't want to enable the fast load mode in EMXP. Whenever EMXP saves a sound bank to a (HxC) floppy disk image, the maximum bank size will be loaded by the Emulator-II sampler.
- Select *option 2* if EMXP should only enable the fast load mode for empty NULL PRESET banks. Whenever EMXP saves an empty NULL PRESET bank to a (HxC) floppy disk image (incl. when generating a new bootable (HxC) floppy disk image), the fast load mode will be enabled. But when saving any other bank, the maximum bank size will still be loaded by the Emulator-II sampler. This is the default setting.
- Select *option 3* if you want EMXP to enable the fast load mode whenever a sound bank is saved to a (HxC) floppy disk image, except if the bank contains sequences. While this is the most interesting mode, it is not the default mode because it's not "officially" supported by the Emulator-II.

Options 1→3 are applicable when EMXP is saving a sound bank to a (HxC) floppy disk image during a copy or conversion request, or when creating an empty bootable (HxC) floppy disk image.

It addition, it's also possible to apply the same selected (option 1→3) method when *copying entire (HxC) floppy disk images*. This can be useful if you want to enable the fast load mode on an existing set of (HxC) floppy disk images: simply copy all images from one folder to another, and EMXP will make sure the fast load mode will be enabled in the resulting images.

- Select *option 4* if you don't want EMXP to take into accout options 1→3 when copying entire (HxC) floppy disk images. This is the default setting.
- Select *option 5* if you want EMXP to also take into account options 1→3 when copying entire (HxC) floppy disk images.

10.6 COMMUNICATION PREFERENCES

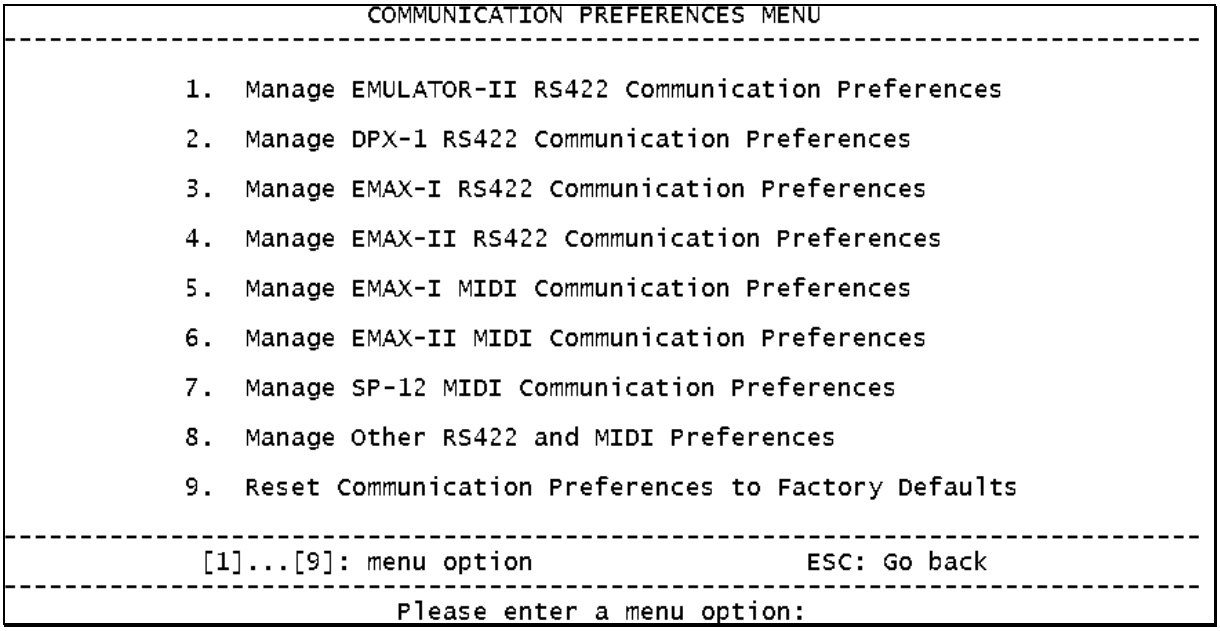
To change the preferences related to RS422 and MIDI:
"6. Preferences" → "5. Manage Communication Preferences"

EMXP is configured with default communication settings for RS422 and MIDI which should allow for a smooth communication with the EMAX-I , EMAX-II, Emulator-II, Oberheim DPX-1 and SP-12 on *modern fast computers.*
However, depending on the speed of the computer, the reliability of the USB ports (if any are being used), the type of RS422 or MIDI hardware being used, the Windows OS version being used and/or the revision of the E-Mu sampler being used, the communication link could be less reliable than assumed by EMXP. This is especially true for the EMAX-I and EMAX-II. If this is the case, you will often encounter errors during uploading or downloading banks.

The stability of the communication link can be increased by changing some of the communication configuration parameters.
These parameters are described in this section.

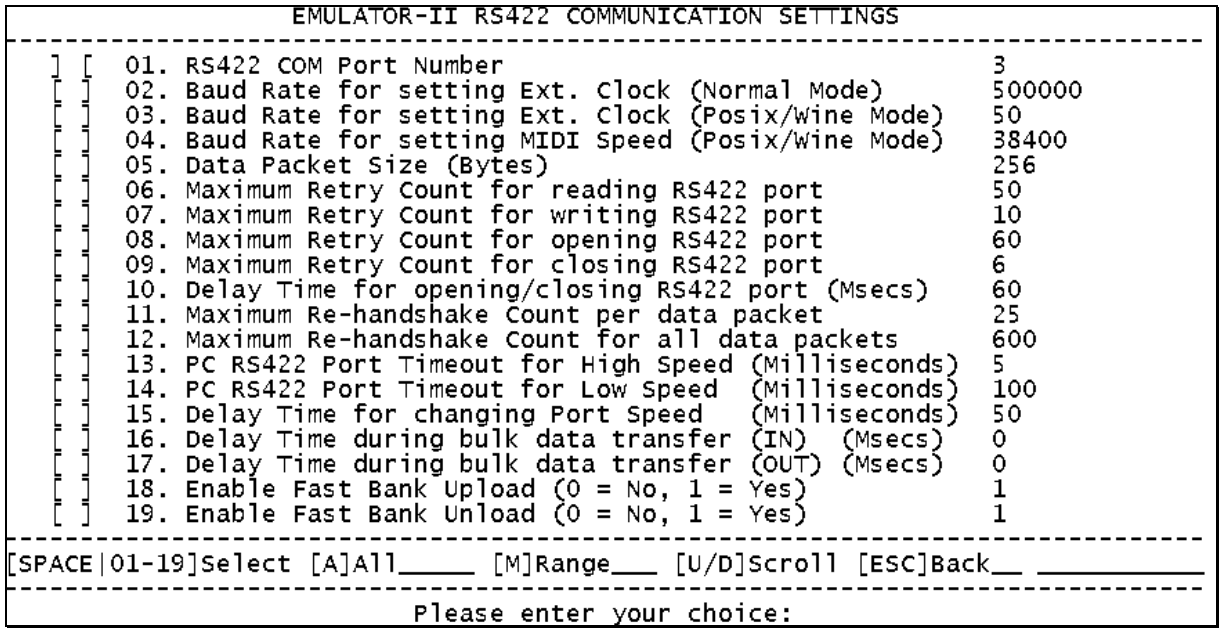
The underlined parameters are the parameters which will probably have the most effect when trying to get the communication more stable or faster. Focus first on the **bold underlined** parameters !
Increasing the values for these parameters (or decreasing for the Data Packet Size parameter) typically result in a more stable communication, but will also typically result in slower communication.

Following options are provided:



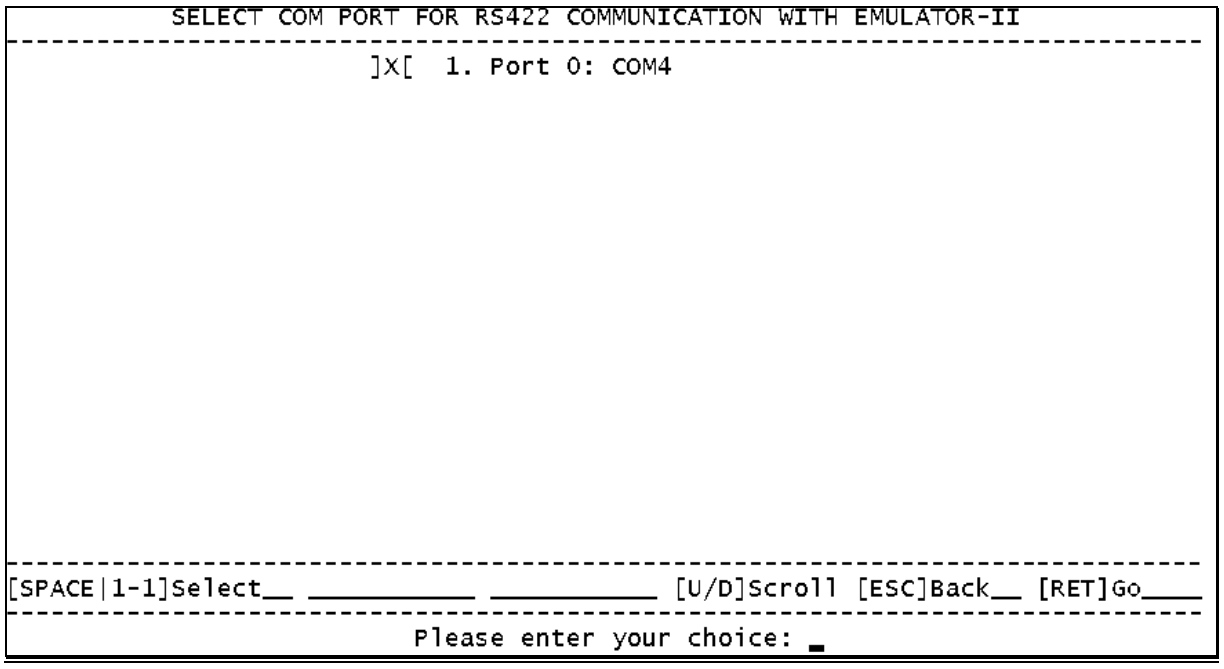
10.6.1 Manage Emulator-II RS422 communication preferences

Following communication parameters can be changed



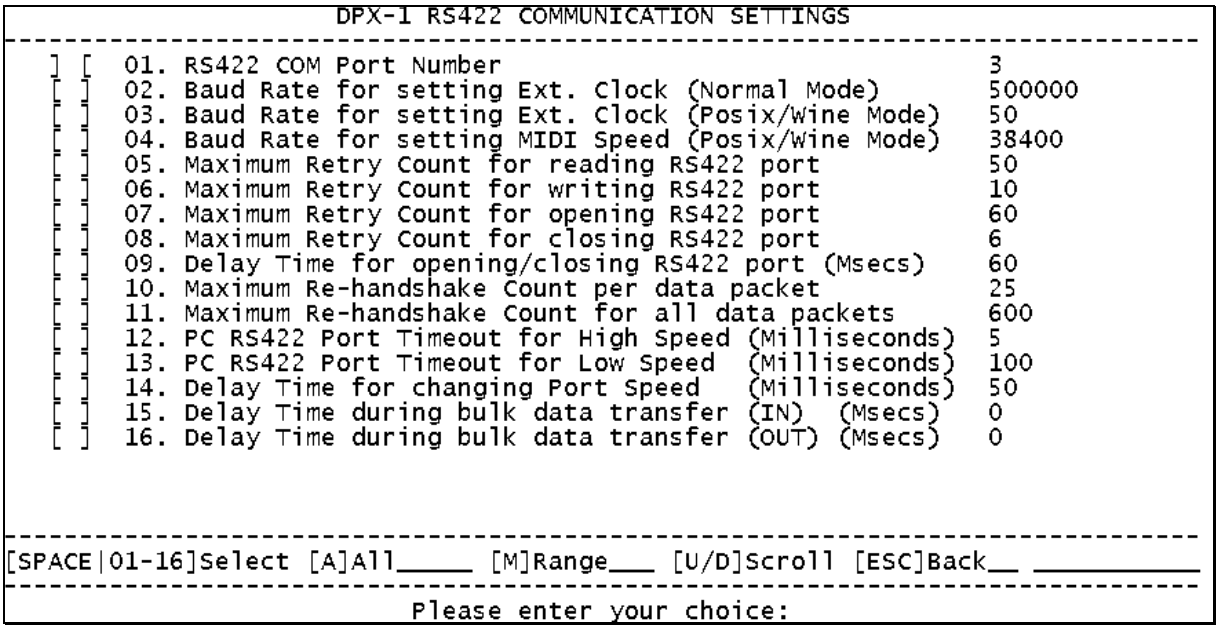
- RS422 Com Port Number: the COM port number of the RS422 Port. See picture at the end of this section. To find out this port number, check the “Ports” section in the “Device Manager” of the “System” section in the “Configuration” menu of Windows. EMXP will show a list of available COM ports on your computer.
- Baud Rate for setting Ext. Clock (Normal Mode): this is the baud rate which instructs the RS422 adapter to switch to external clocking when EMXP is running on Windows. See also *section "9.6.1 RS422 Hardware Adapter"* and *section "10.6.6.5 Define RS422 baud rate mode (Windows vs. POSIX/Wine)"*. If you are using an EMuSer, you should not change this value.
- Baud Rate for setting Ext. Clock (Posix/Wine Mode): this is the baud rate which instructs the RS422 adapter to switch to external clocking when EMXP is running under Wine on macOS. See also *section "9.6.1 RS422 Hardware Adapter"* and *section "10.6.6.5 Define RS422 baud rate mode (Windows vs. POSIX/Wine)"*. If you are using an EMuSer, you should not change this value.
- Baud Rate for setting MIDI Speed (Posix/Wine Mode): this is the baud rate which instructs the RS422 adapter to switch to MIDI speed when EMXP is running under Wine on macOS. See also *section "9.6.1 RS422 Hardware Adapter"* and *section "10.6.6.5 Define RS422 baud rate mode (Windows vs. POSIX/Wine)"*. If you are using an EMuSer, you should not change this value.
- **Data Packet Size**: communication between EMXP and Emulator-II is done by transferring many data packets. The size of these packets are configurable. The maximum size is 256 bytes, which is the most “unreliable” packet size but which at the same time guarantees the fastest transfer time.
- Maximum Retry Count for reading RS422 port: number of times EMXP has to re-read the RS422 Port if it expects data but doesn’t find data yet on the port.
- Maximum Retry Count for writing RS422 port: sometimes writing the RS422 Port can fail on slower computers. This parameter sets the total number of write-attempts that should be performed by EMXP before raising an error.
- Maximum Retry Count for opening RS422 port: EMXP is opening and closing the COM port corresponding to the RS422 port frequently. Due to delays on Windows level, it can occur that an attempt to (re-)open the COM port does not succeed immediately. To avoid an error due to this problem, EMXP can re-try to open the port a few times. This parameter sets the total number of attempts that should be performed by EMXP to open the COM port before raising an error.
- Maximum Retry Count for closing RS422 port: EMXP is opening and closing the COM port corresponding to the RS422 port frequently. Due to delays on Windows level, it can occur that an attempt to close the COM port does not succeed immediately. To avoid an error due to this problem, EMXP can re-try to close the port a few times. This parameter sets the total number of attempts that should be performed by EMXP to close the COM port before raising an error.

- Delay Time for opening/closing RS422 port: when EMXP performs multiple subsequent attempts to open or close the COM port corresponding to the RS422 port (see previous parameters), it waits a short period of time in between two attempts. This parameter sets this “hold” time in milliseconds.
- Maximum Re-handshake Count per data packet: if too many re-handshakes occur for a single data packet transfer, the communication line may be considered too instable to continue further data exchange. This parameter sets the number of re-handshakes which are allowed for transferring a single data packet before stopping the serial communication.
- Maximum Re-handshake Count for all data packets: if re-handshakes occur for many data packet transfers, the communication line may be considered too instable to continue further data exchange. This parameter sets the total number of re-handshakes (across multiple data packet transfers) which are allowed before stopping the serial communication.
- PC RS422 Port Timeout for High Speed: the number of milliseconds the PC RS422 port should wait before going into error mode if it doesn’t receive data from the Emulator-II during high speed data transfer.
- PC RS422 Port Timeout for Low Speed: the number of milliseconds the PC RS422 port should wait before going into error mode if it doesn’t receive data from the Emulator-II during low speed request/response communication. This parameter is currently not being used for the Emulator-II.
- **Delay Time for changing port speed**: the number of milliseconds EMXP should wait before switching from an asynchronous MIDI baud rate to a synchronous external baud rate, or the other way around. Especially on fast computers, this wait time can be important because EMXP may "miss" some data still sent by the Emulator-II at the previous speed due to switching to the other speed to fast.
- **Delay Time during bulk data transfer (IN)**: the number of milliseconds EMXP should wait before sending a response during the unload of a bank or a sample. Increasing this value can make the data transfer more reliable, especially on fast computers which may otherwise send data to the sampler faster than the sampler can handle. Note however that this delay will be applied for *each* transferred data packet, so when increasing the value the *total data transfer time will increase with multiple seconds* !
- **Delay Time during bulk data transfer (OUT)**: the number of milliseconds EMXP should wait before sending a data packet during the upload of a bank or a sample. Increasing this value can make the data transfer more reliable, especially on fast computers which may otherwise send data to the sampler faster than the sampler can handle. Note however that this delay will be applied for *each* transferred data packet, so when increasing the value the *total data transfer time will increase with multiple seconds* !
- **Enable Fast Bank Upload**: if enabled, EMXP will try to upload the bank faster by optimizing the number of bytes which have to be uploaded. Disable the option if you want to make sure that an exact copy of the sound bank is transferred to the Emulator-II. By default this option is enabled.
- **Enable Fast Bank Unload**: if enabled, EMXP will try to unload the bank faster by optimizing the number of bytes which have to be unloaded. Disable the option if you want to make sure that an exact copy of the sound bank is transferred to the computer. By default this option is enabled.



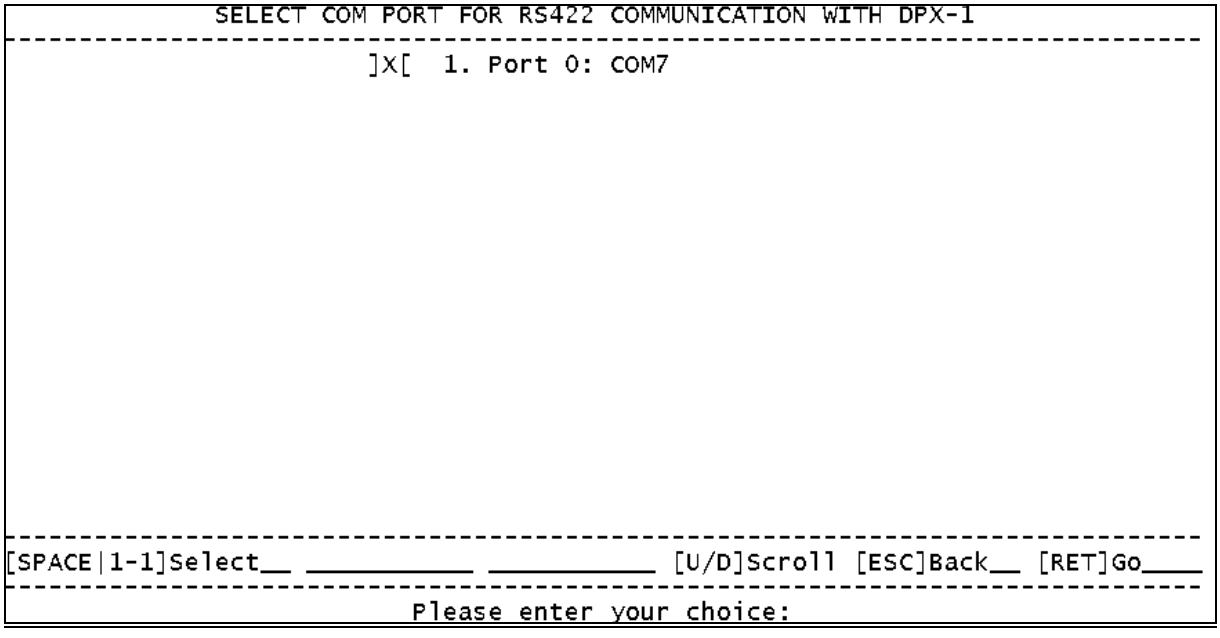
10.6.2 Manage DPX-1 RS422 communication preferences

Following communication parameters can be changed



- RS422 Com Port Number: the COM port number of the RS422 Port. See picture at the end of this section. To find out this port number, check the “Ports” section in the “Device Manager” of the “System” section in the “Configuration” menu of Windows. EMXP will show a list of available COM ports on your computer.
- Baud Rate for setting Ext. Clock (Normal Mode): this is the baud rate which instructs the RS422 adapter to switch to external clocking when EMXP is running on Windows. See also *section "9.6.1 RS422 Hardware Adapter"* and *section "10.6.6.5 Define RS422 baud rate mode (Windows vs. POSIX/Wine)"*. If you are using an EMuSer, you should not change this value.
- Baud Rate for setting Ext. Clock (Posix/Wine Mode): this is the baud rate which instructs the RS422 adapter to switch to external clocking when EMXP is running under Wine on macOS. See also *section "9.6.1 RS422 Hardware Adapter"* and *section "10.6.6.5 Define RS422 baud rate mode (Windows vs. POSIX/Wine)"*. If you are using an EMuSer, you should not change this value.
- Baud Rate for setting MIDI Speed (Posix/Wine Mode): this is the baud rate which instructs the RS422 adapter to switch to MIDI speed when EMXP is running under Wine on macOS. See also *section "9.6.1 RS422 Hardware Adapter"* and *section "10.6.6.5 Define RS422 baud rate mode (Windows vs. POSIX/Wine)"*. If you are using an EMuSer, you should not change this value.
- Maximum Retry Count for reading RS422 port: number of times EMXP has to re-read the RS422 Port if it expects data but doesn’t find data yet on the port.
- Maximum Retry Count for writing RS422 port: sometimes writing the RS422 Port can fail on slower computers. This parameter sets the total number of write-attempts that should be performed by EMXP before raising an error.
- Maximum Retry Count for opening RS422 port: EMXP is opening and closing the COM port corresponding to the RS422 port frequently. Due to delays on Windows level, it can occur that an attempt to (re-)open the COM port does not succeed immediately. To avoid an error due to this problem, EMXP can re-try to open the port a few times. This parameter sets the total number of attempts that should be performed by EMXP to open the COM port before raising an error.
- Maximum Retry Count for closing RS422 port: EMXP is opening and closing the COM port corresponding to the RS422 port frequently. Due to delays on Windows level, it can occur that an attempt to close the COM port does not succeed immediately. To avoid an error due to this problem, EMXP can re-try to close the port a few times. This parameter sets the total number of attempts that should be performed by EMXP to close the COM port before raising an error.
- Delay Time for opening/closing RS422 port: when EMXP performs multiple subsequent attempts to open or close the COM port corresponding to the RS422 port (see previous parameters), it waits a short period of time in between two attempts. This parameter sets this “hold” time in milliseconds.

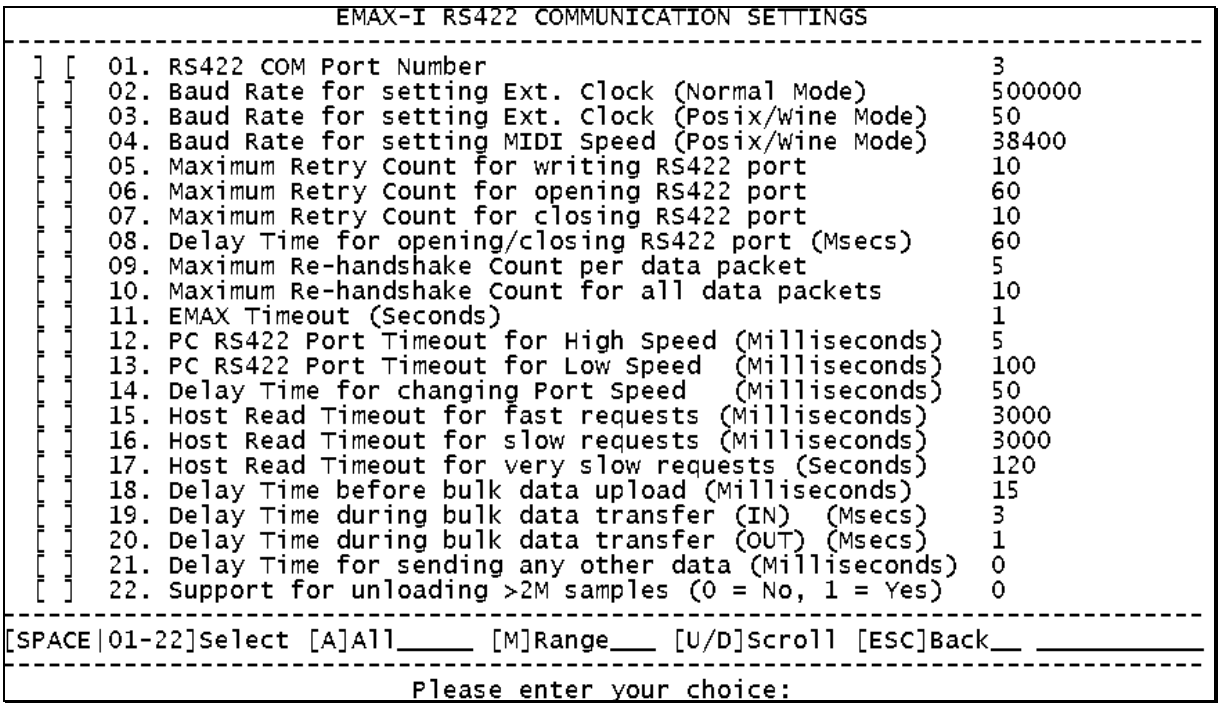
- Maximum Re-handshake Count per data packet: if too many re-handshakes occur for a single data packet transfer, the communication line may be considered too instable to continue further data exchange. This parameter sets the number of re-handshakes which are allowed for transferring a single data packet before stopping the serial communication.
- Maximum Re-handshake Count for all data packets: if re-handshakes occur for many data packet transfers, the communication line may be considered too instable to continue further data exchange. This parameter sets the total number of re-handshakes (across multiple data packet transfers) which are allowed before stopping the serial communication.
- PC RS422 Port Timeout for High Speed: the number of milliseconds the PC RS422 port should wait before going into error mode if it doesn't receive data from the Emulator-II during high speed data transfer.
- PC RS422 Port Timeout for Low Speed: the number of milliseconds the PC RS422 port should wait before going into error mode if it doesn't receive data from the Emulator-II during low speed request/response communication. This parameter is currently not being used for the Emulator-II.
- **Delay Time for changing port speed**: the number of milliseconds EMXP should wait before switching from an asynchronous MIDI baud rate to a synchronous external baud rate, or the other way around. Especially on fast computers, this wait time can be important because EMXP may "miss" some data still sent by the Emulator-II at the previous speed due to switching to the other speed to fast.
- **Delay Time during bulk data transfer (IN)**: the number of milliseconds EMXP should wait before sending a response during the unload of a bank or a sample. Increasing this value can make the data transfer more reliable, especially on fast computers which may otherwise send data to the sampler faster than the sampler can handle. Note however that this delay will be applied for *each* transferred data packet, so when increasing the value the *total data transfer time will increase with multiple seconds* !
- **Delay Time during bulk data transfer (OUT)**: the number of milliseconds EMXP should wait before sending a data packet during the upload of a bank or a sample. Increasing this value can make the data transfer more reliable, especially on fast computers which may otherwise send data to the sampler faster than the sampler can handle. Note however that this delay will be applied for *each* transferred data packet, so when increasing the value the *total data transfer time will increase with multiple seconds* !



10.6.3 Manage EMAX-I and EMAX-II RS422 communication preferences

EMXP supports different configuration settings for the EMAX-I and EMAX-II, because these samplers behave a little bit differently from communication reliability point of view. If you use both the EMAX-I and EMAX-II sampler with EMXP, the support for 2 different parameter configurations avoids that you have to change the parameters every time you switch connections from EMAX-I to EMAX-II or vice versa.
This is the only reason why two different preference menus are provided.
In fact you can perfectly connect to an EMAX-I with the "send/receive to/from EMAX-II…" functions anywhere in EMXP. The same is true for connecting to an EMAX-II with the "send/receive to/from EMAX-I…" functions.
The picture below shows the configuration parameters for the EMAX-I, but the same possibilities are offered for the EMAX-II. **There are 22 parameters that can be set, so you may have to scroll down to get access to the last parameter !**

Following communication parameters can be changed:

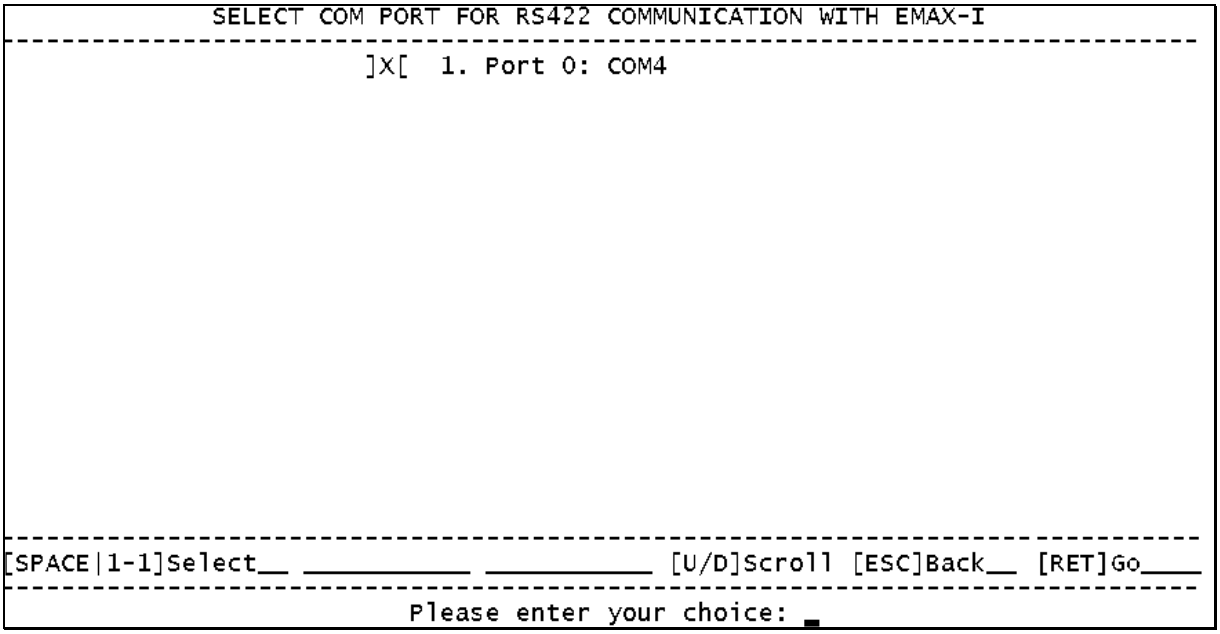


- RS422 Com Port Number: the COM port number of the RS422 Port. See picture at the end of this section. To find out this port number, check the "Ports" section in the "Device Manager" of the "System" section in the "Configuration" menu of Windows.
- Baud Rate for setting Ext. Clock (Normal Mode): this is the baud rate which instructs the RS422 adapter to switch to external clocking when EMXP is running on Windows. See also *section "9.6.1 RS422 Hardware Adapter"* and *section "10.6.6.5 Define RS422 baud rate mode (Windows vs. POSIX/Wine)"*. If you are using an EMuSer, you should not change this value.
- Baud Rate for setting Ext. Clock (Posix/Wine Mode): this is the baud rate which instructs the RS422 adapter to switch to external clocking when EMXP is running under Wine on macOS. See also *section "9.6.1 RS422 Hardware Adapter"* and *section "10.6.6.5 Define RS422 baud rate mode (Windows vs. POSIX/Wine)"*. If you are using an EMuSer, you should not change this value.
- Baud Rate for setting MIDI Speed (Posix/Wine Mode): this is the baud rate which instructs the RS422 adapter to switch to MIDI speed when EMXP is running under Wine on macOS. See also *section "9.6.1 RS422 Hardware Adapter"* and *section "10.6.6.5 Define RS422 baud rate mode (Windows vs. POSIX/Wine)"*. If you are using an EMuSer, you should not change this value.
- Maximum Retry Count for writing RS422 port: sometimes writing the RS422 Port can fail on slower computers. This parameter sets the total number of write-attempts that should be performed by EMXP before raising an error

- Maximum Retry Count for opening RS422 port: EMXP is opening and closing the COM port corresponding to the RS422 port frequently. Due to delays on Windows level, it can occur that an attempt to (re-)open the COM port does not succeed immediately. To avoid an error due to this problem, EMXP can re-try to open the port a few times. This parameter sets the total number of attempts that should be performed by EMXP to open the COM port before raising an error.
- Maximum Retry Count for closing RS422 port: EMXP is opening and closing the COM port corresponding to the RS422 port frequently. Due to delays on Windows level, it can occur that an attempt to close the COM port does not succeed immediately. To avoid an error due to this problem, EMXP can re-try to close the port a few times. This parameter sets the total number of attempts that should be performed by EMXP to close the COM port before raising an error.
- Delay Time for opening/closing RS422 port: when EMXP performs multiple subsequent attempts to open or close the COM port corresponding to the RS422 port (see previous parameters), it waits a short period of time in between two attempts. This parameter sets this "hold" time in milliseconds.
- Maximum Re-handshake Count per Data Packet: each transmitted 127-byte packet must be acknowledged. If this fails, a re-handshake can be launched. This parameter defines the maximum of retrials of handshakes for a single data packet.
- Maximum Re-handshake Count for all data packets: if re-handshakes occur for many data packet transfers, the communication line may be considered too instable to continue further data exchange. This parameter sets the total number of re-handshakes (across multiple data packet transfers) which are allowed before stopping the serial communication.
- **EMAX Timeout**: this is the number of seconds the EMAX RS422 port should wait before going into error mode if it doesn't receive data from EMXP. Try to keep this parameter set to 1 second, especially on the EMAX-II.
- PC RS422 Port Timeout for High Speed: the number of milliseconds the PC RS422 port should wait before going into error mode if it doesn't receive data from the EMAX during high speed data transfer.
- PC RS422 Port Timeout for Low Speed: the number of milliseconds the PC RS422 port should wait before going into error mode if it doesn't receive data from the EMAX during low speed request/response communication.
- **Delay Time for changing port speed**: the number of milliseconds EMXP should wait before switching from an asynchronous MIDI baud rate to a synchronous external baud rate, or the other way around. Especially on fast computers, this wait time can be important because EMXP may "miss" some data still sent by the EMAX at the previous speed due to switching to the other speed to fast.
- Host Read Timeout for fast requests: the number of milliseconds EMXP should wait for data or a response from the EMAX during fast processing (e.g. sample or bank dump), before deciding that no data has been sent by the EMAX. The default is set to a rather high amount of 3 seconds in order to support communication with EMAX samplers that run their OS from a floppy disk. The EMAX may need this delay time for initially loading the OS module for RS422 communication. If your EMAX boots from a hard drive, this parameter can be set to a much lower value (e.g. 300 milliseconds).
- Host Read Timeout for slow requests: the number of milliseconds EMXP should wait for data or a response from the EMAX during normal processing (e.g. getting information about a sample or voice), before deciding that no data has been sent by the EMAX.
- Host Read Timeout for very slow requests: the number of seconds EMXP should wait for data or a response from the EMAX during very slow processing (e.g. shortening or lengthening sample memory on the EMAX during a replace), before deciding that no data has been sent by the EMAX.
- Delay Time before bulk data upload: the number of milliseconds EMXP should wait before starting the bulk upload of sample or bank data packets towards the EMAX. If the computer or PC RS422 port is too fast for the EMAX, increasing this parameter could stabilize the communication.
- **Delay Time during bulk data transfer (IN)**: the number of milliseconds EMXP should wait before sending a response during the unload of a bank or a sample. Increasing this value can make the data transfer more reliable, especially on fast computers which may otherwise send data to the sampler faster than the sampler can handle. Note however that this delay will be applied for *each* transferred data packet, so when increasing the value the *total data transfer time will increase with multiple seconds* ! Note: *this preference has been deliberately set to a pretty high value (3 milliseconds) to prevent instable communication on Windows. As a consequence the total unload time for samples and sound banks is quite long (approx. 1 minute). Decrease this value if you want to increase the unload speed. When running in Wine on macOS, the default value is lower (1 millisecond)*
- **Delay Time during bulk data transfer (OUT)**: the number of milliseconds EMXP should wait before sending a data packet during the upload of a bank or a sample. Increasing this value can make the data transfer more reliable, especially on fast computers which may otherwise send data to the sampler faster

than the sampler can handle. Note however that this delay will be applied for *each* transferred data packet, so when increasing the value the *total data transfer time will increase with multiple seconds* !

- Delay Time for sending any other data: the number of milliseconds EMXP should wait before sending a request or response to the EMAX when no bulk transfer is being performed. If the computer or PC RS422 port is too fast for the EMAX, increasing this parameter could stabilize the communication.
- Support for unloading >2M samples: set this parameter to Yes if you are planning to download samples from an EMAX-II which are larger than 4MB (i.e. 2 mega sample points). As a default this parameter should be turned off, because when it's turned on, EMXP will cause some overhead (delay) at the end of each unload of an EMAX-II sample.

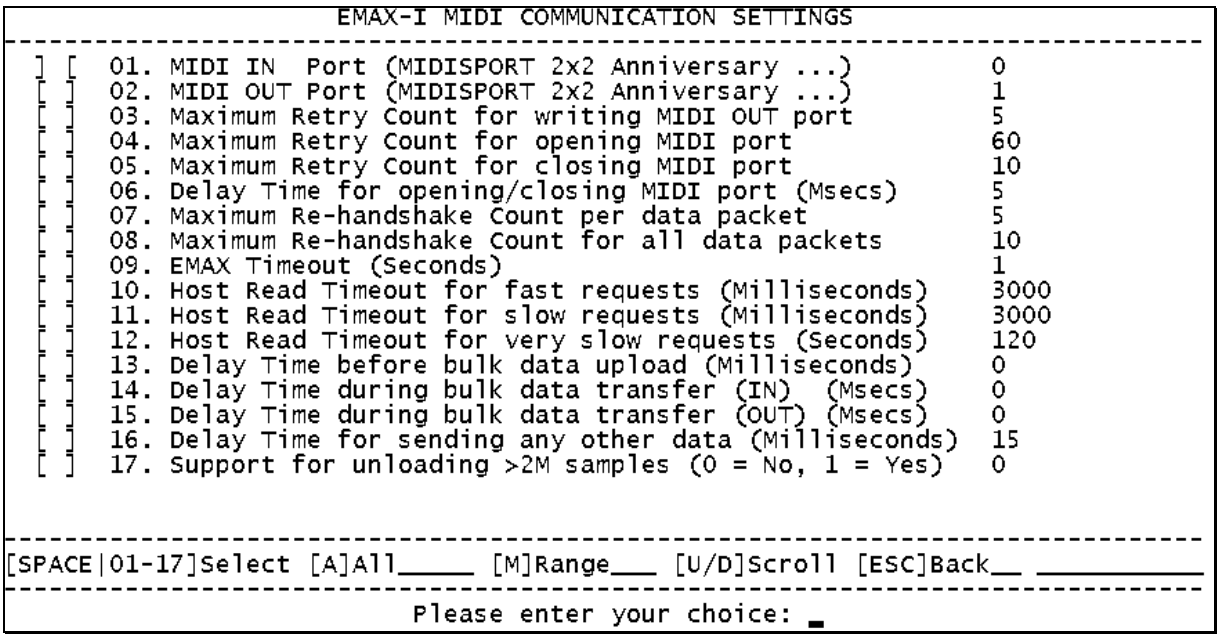


10.6.4 Manage EMAX-I and EMAX-II MIDI communication preferences

Again, EMXP supports different configuration settings for the EMAX-I and EMAX-II.

The picture below shows the configuration parameters for the EMAX-I, but the same possibilities are offered for the EMAX-II.

Following communication parameters can be changed:



- MIDI IN Port: the MIDI IN port of the computer which is connected to the EMAX MIDI OUT/THRU port. When changing this parameter EMXP will show a list of available MIDI IN ports on your system. See picture at the end of this section.
- MIDI OUT Port: the MIDI OUT port of the computer which is connected to the EMAX MIDI IN port. When changing this parameter EMXP will show a list of available MIDI OUT ports on your system. See picture at the end of this section.
- Maximum Retry Count for writing MIDI OUT port: sometimes writing the MIDI OUT Port can fail on slower computers. This parameter sets the total number of write-attempts that should be performed by EMXP before raising an error
- Maximum Retry Count for opening MIDI port: EMXP is opening and closing the MIDI IN and MIDI OUT ports frequently. Due to delays on Windows level, it can occur that an attempt to (re-)open the MIDI ports does not succeed immediately. To avoid an error due to this problem, EMXP can re-try to open the port a few times. This parameter sets the total number of attempts that should be performed by EMXP to open the MIDI ports before raising an error.
- Maximum Retry Count for closing MIDI port: EMXP is opening and closing the MIDI IN and MIDI OUT ports frequently. Due to delays on Windows level, it can occur that an attempt to close the MIDI ports does not succeed immediately. To avoid an error due to this problem, EMXP can re-try to close the port a few times. This parameter sets the total number of attempts that should be performed by EMXP to close the MIDI ports before raising an error.
- Delay Time for opening/closing MIDI port: when EMXP performs multiple subsequent attempts to open or close the MIDI ports (see previous parameters), it waits a short period of time in between two attempts. This parameter sets this “hold” time in milliseconds.
- Maximum Re-handshake Count per data packet: each transmitted 127-byte packet must be acknowledged. If this fails, a re-handshake can be launched. This parameter defines the maximum number of retrials of handshakes for a single data packet. This parameter also determines the maximum number of retrials to initialize MIDI IN buffers.

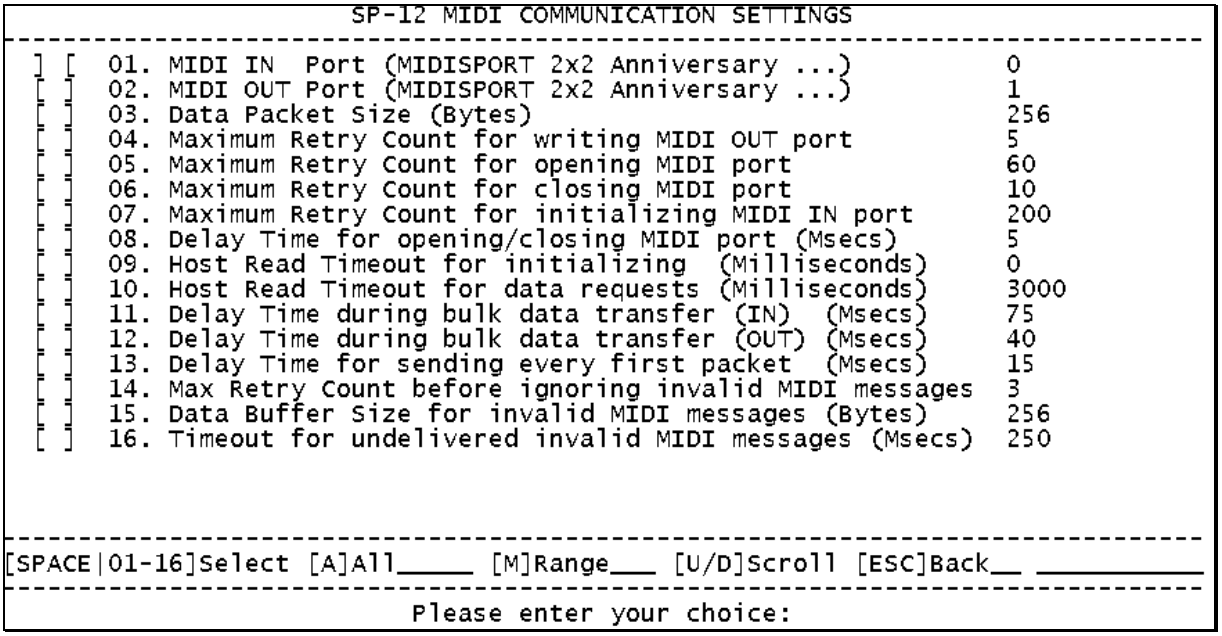
- Maximum Re-handshake Count for all data packets: if re-handshakes occur for many data packet transfers, the communication line may be considered too instable to continue further data exchange. This parameter sets the total number of re-handshakes (across multiple data packet transfers) which are allowed before stopping the serial communication.
- **EMAX Timeout**: this is the number of seconds the EMAX RS422 port should wait before going into error mode if it doesn't receive data from EMXP. Try to keep this parameter set to 1 second, especially on the EMAX-II. Experience shows that higher values cause problems when using MIDI sample transfers on an EMAX-II.
- Host Read Timeout for fast requests: the number of milliseconds EMXP should wait for data or a response from the EMAX during fast processing (e.g. sample of bank dump), before deciding that no data has been sent by the EMAX. The default is set to a rather high amount of 3 seconds in order to support communication with EMAX samplers that run their OS from a floppy disk. The EMAX may need this delay time for loading the OS module for RS422 communication. If your EMAX boots from a hard drive, this parameter can be set much lower (e.g. 300 milliseconds).
- Host Read Timeout for slow requests: the number of milliseconds EMXP should wait for data or a response from the EMAX during normal processing (e.g. getting information about a sample or voice), before deciding that no data has been sent by the EMAX.
- Host Read Timeout for very slow requests: the number of seconds EMXP should wait for data or a response from the EMAX during very slow processing (e.g. shortening or lengthening sample memory on the EMAX during a replace), before deciding that no data has been sent by the EMAX.
- Delay Time before bulk data upload: the number of milliseconds EMXP should wait before starting the bulk upload of sample or bank data packets towards the EMAX. If the computer or MIDI interface is too fast for the EMAX, increasing this parameter could stabilize the communication. For the EMAX-II it is important to set this parameter about 500 milliseconds higher than the EMAX Timeout setting. Therefore the default setting for EMAX-II is 1500 while the default for EMAX-I is 0.
- **Delay Time during bulk data transfer (IN)**: the number of milliseconds EMXP should wait before sending a response during the unload of a bank or a sample. Increasing this value can make the data transfer more reliable, especially on fast computers which may otherwise send data to the sampler faster than the sampler can handle. Note however that this delay will be applied for *each* transferred data packet, so when increasing the value the *total data transfer time will increase with multiple seconds* !
- **Delay Time during bulk data transfer (OUT)**: the number of milliseconds EMXP should wait before sending a data packet during the upload of a bank or a sample. Increasing this value can make the data transfer more reliable, especially on fast computers which may otherwise send data to the sampler faster than the sampler can handle. Note however that this delay will be applied for *each* transferred data packet, so when increasing the value the *total data transfer time will increase with multiple seconds* !
- Delay Time for sending any other data: the number of milliseconds EMXP should wait before sending a request or response to the EMAX. If the computer or MIDI interface is too fast for the EMAX, increasing this parameter could stabilize the communication. This parameter defaults to 15 milliseconds, which is convenient for most MIDI interfaces. Be careful with lower values – they may cause transmission errors.
- Support for unloading >2M samples: set this parameter to Yes if you are planning to download samples from an EMAX-II which are larger than 4MB (i.e. 2 mega sample points). As a default this parameter should be turned off, because when it's turned on, EMXP will cause some overhead (delay) at the end of each unload of an EMAX-II sample.

```
              SELECT MIDI IN PORT FOR COMMUNICATION WITH EMAX-I
--------------------------------------------------------------------------------
               ]X[  1. Port 0: MIDISPORT 2x2 Anniversary In A
               [ ]  2. Port 1: MIDISPORT 2x2 Anniversary In B
--------------------------------------------------------------------------------
[SPACE|1-2]Select__ _____________ _____________ [U/D]Scroll [ESC]Back__ [RET]Go____
--------------------------------------------------------------------------------
                            Please enter your choice: _
```

```
              SELECT MIDI OUT PORT FOR COMMUNICATION WITH EMAX-I
--------------------------------------------------------------------------------
               [ ]  1. Port 0: Microsoft GS Wavetable Synth
               ]X[  2. Port 1: MIDISPORT 2x2 Anniversary Out A
               [ ]  3. Port 2: MIDISPORT 2x2 Anniversary Out B
--------------------------------------------------------------------------------
[SPACE|1-3]Select__ _____________ _____________ [U/D]Scroll [ESC]Back__ [RET]Go____
--------------------------------------------------------------------------------
                            Please enter your choice: _
```

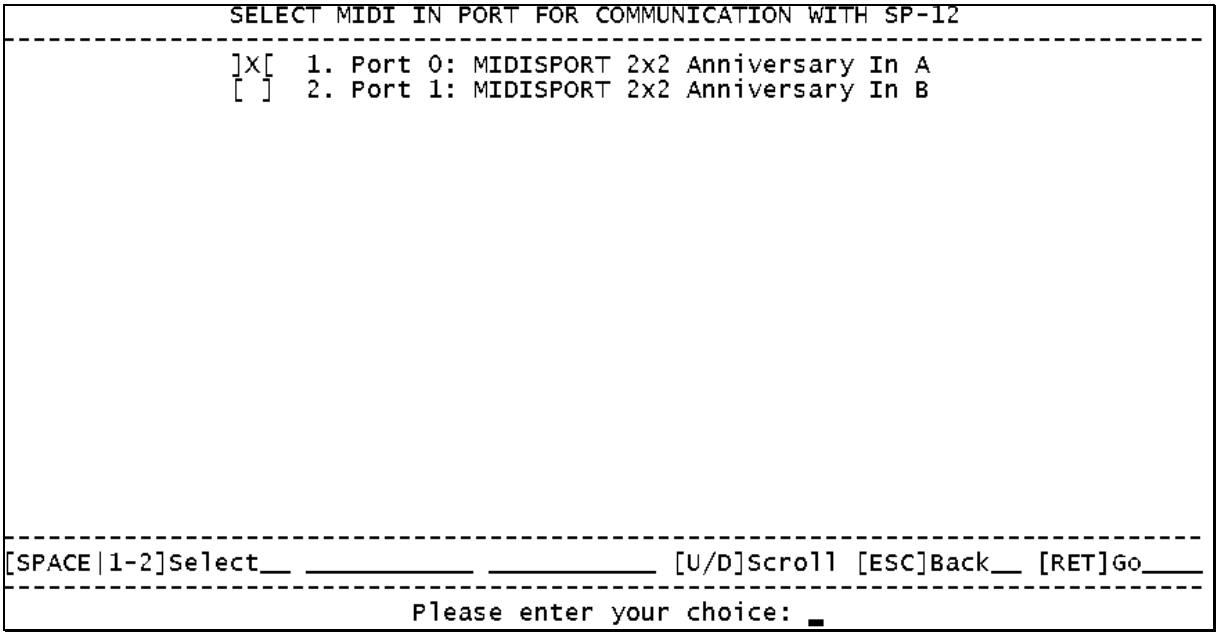
10.6.5 Manage SP-12 MIDI communication preferences

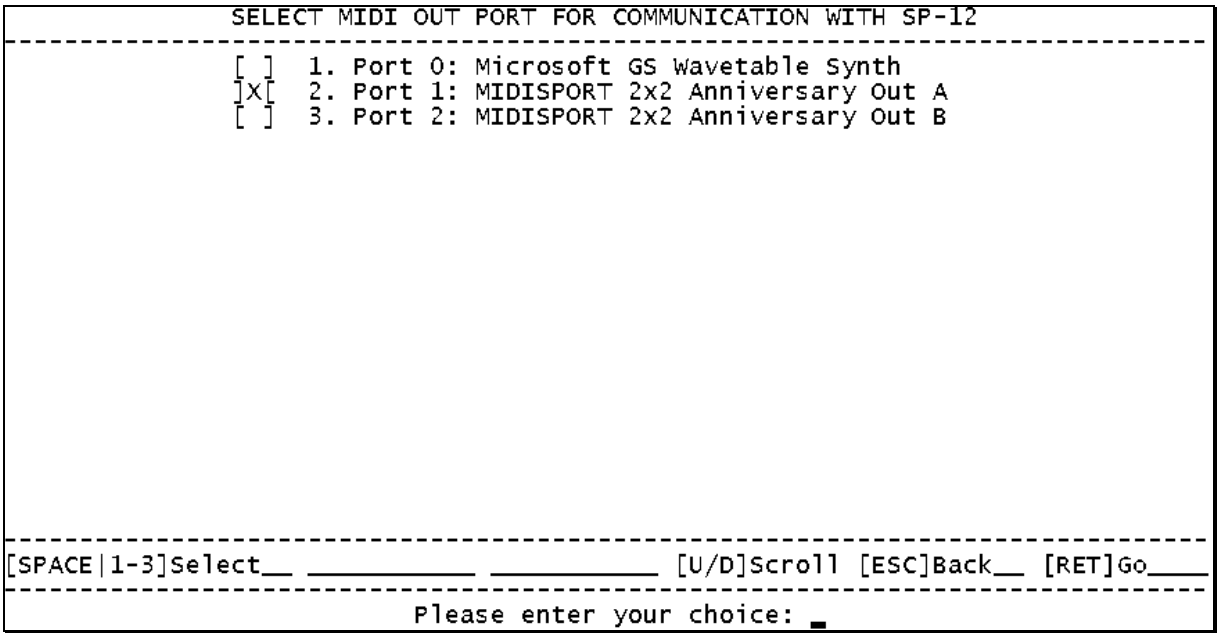
Following communication parameters can be changed:



- MIDI IN Port: the MIDI IN port of the computer which is connected to the SP-12 MIDI OUT port. When changing this parameter EMXP will show a list of available MIDI IN ports on your system. See picture at the end of this section.
- MIDI OUT Port: the MIDI OUT port of the computer which is connected to the SP-12 MIDI IN port. When changing this parameter EMXP will show a list of available MIDI OUT ports on your system. See picture at the end of this section.
- **Data Packet Size**: communication between EMXP and SP-12 is done by transferring many data packets. The size of these packets are configurable. The SP-12 "prefers" large data packets, but the firmware of many MIDI interfaces only support small data packet sizes. The maximum size is 8192 bytes (for the fastest communication) but in order to be compatible with as many MIDI interfaces as possible, the default packet size is set to 256. *If the driver of the MIDI interface is based on the generic Microsoft audio driver (USBAUDIO.SYS), the data packet size may have to be set to a value of **293** or **298** in order to avoid communication errors or to avoid that EMXP freezes during communication. Communication will be slower though if the data packet size is set to one of these values*.
- Maximum Retry Count for writing MIDI OUT port: sometimes writing the MIDI OUT Port can fail on slower computers. This parameter sets the total number of write-attempts that should be performed by EMXP before raising an error
- Maximum Retry Count for opening MIDI port: EMXP is opening and closing the MIDI IN and MIDI OUT ports frequently. Due to delays on Windows level, it can occur that an attempt to (re-)open the MIDI ports does not succeed immediately. To avoid an error due to this problem, EMXP can re-try to open the port a few times. This parameter sets the total number of attempts that should be performed by EMXP to open the MIDI ports before raising an error.
- Maximum Retry Count for closing MIDI port: EMXP is opening and closing the MIDI IN and MIDI OUT ports frequently. Due to delays on Windows level, it can occur that an attempt to close the MIDI ports does not succeed immediately. To avoid an error due to this problem, EMXP can re-try to close the port a few times. This parameter sets the total number of attempts that should be performed by EMXP to close the MIDI ports before raising an error.
- Maximum Retry Count for initializing MIDI IN port: this parameter sets the maximum number of re-trials to initialize MIDI IN buffers before raising an error.
- Delay Time for opening/closing MIDI port: when EMXP performs multiple subsequent attempts to open or close the MIDI ports (see previous parameters), it waits a short period of time in between two attempts. This parameter sets this “hold” time in milliseconds.

- Host Read Timeout for initializing: the number of milliseconds EMXP should wait for data or a response from the SP-12 during initialization (detection of SP-12 instructions), before deciding that no data has been sent by the SP-12.
- Host Read Timeout for data requests: the number of milliseconds EMXP should wait for data or a response from the SP-12 during normal data transfer processing (loading/saving sounds and sequences), before deciding that no data has been sent by the SP-12.
- **Delay Time during bulk data transfer (IN):** the number of milliseconds EMXP should wait each time before it receives a data packet. If the computer or MIDI interface is too fast for the SP-12, increasing this parameter could stabilize the communication.
- **Delay Time during bulk data transfer (OUT)**: the number of milliseconds EMXP should wait each time before it sends the next data packet of a MIDI message. If the computer or MIDI interface is too fast for the SP-12, increasing this parameter could stabilize the communication.
- Delay Time for sending every first packet: the number of milliseconds EMXP should wait each time before it sends the first data packet of a MIDI message. If the computer or MIDI interface is too fast for the SP-12, increasing this parameter could stabilize the communication.
- Max Retry Count before ignoring invalid MIDI messages: when receiving incomplete MIDI messages, this is the maximum number EMXP should check for additional data packets before deciding that no more data packets are to be expected and that the MIDI message is incomplete or invalid. This parameter is useful for MIDI MMA violation detections.
- Data Buffer Size for invalid MIDI messages: incomplete MIDI messages due to MIDI MMA violations may have to be buffered in order to be able to receive and process the valid MIDI messages succeeding them. This parameter determines the buffer size for storing these invalid messages.
- Timeout for undelivered invalid MIDI messages: due to MIDI MMA violations some invalid MIDI messages may arrive quite late. This parameter defines the maximum number of milliseconds that EMXP should wait before considering the message as being arrived (even if it didn't arrive yet).



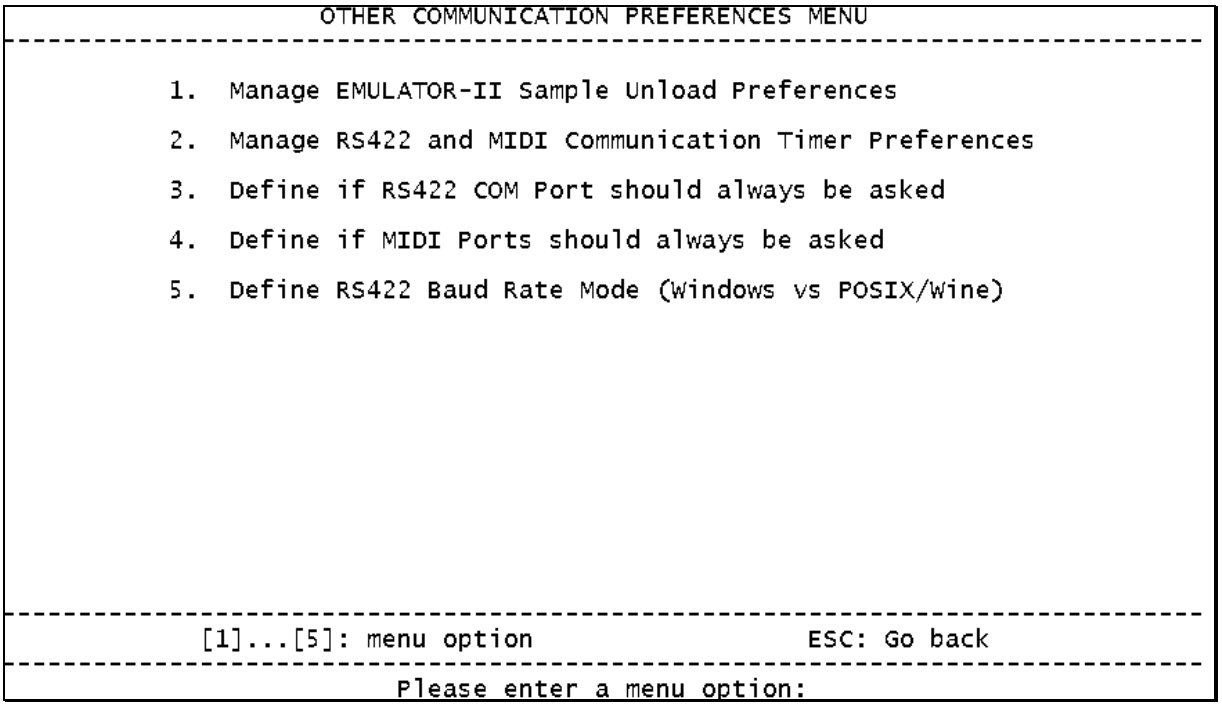

SELECT MIDI OUT PORT FOR COMMUNICATION WITH SP-12
[ ] 1. Port 0: Microsoft GS Wavetable Synth
]X[2. Port 1: MIDISPORT 2x2 Anniversary Out A
[ ] 3. Port 2: MIDISPORT 2x2 Anniversary Out B
[SPACE|1-3]Select [U/D]Scroll [ESC]Back [RET]Go
Please enter your choice:

10.6.6 Manage other RS422 and MIDI preferences

Some additional communication preferences are provided in EMXP. These are related to

- the internal timer resolution that should be used during RS422 and MIDI communication
- whether EMXP should always ask for a MIDI or RS422 COM port or whether EMXP should simply assume the previously configured ports
- which baud rates should be used to instruct the RS422 port (e.g. EMuSer) to select MIDI speed and External Clock
- whether EMXP should take into account *soft sample truncations* when exchanging samples with the Emulator-II via RS422.

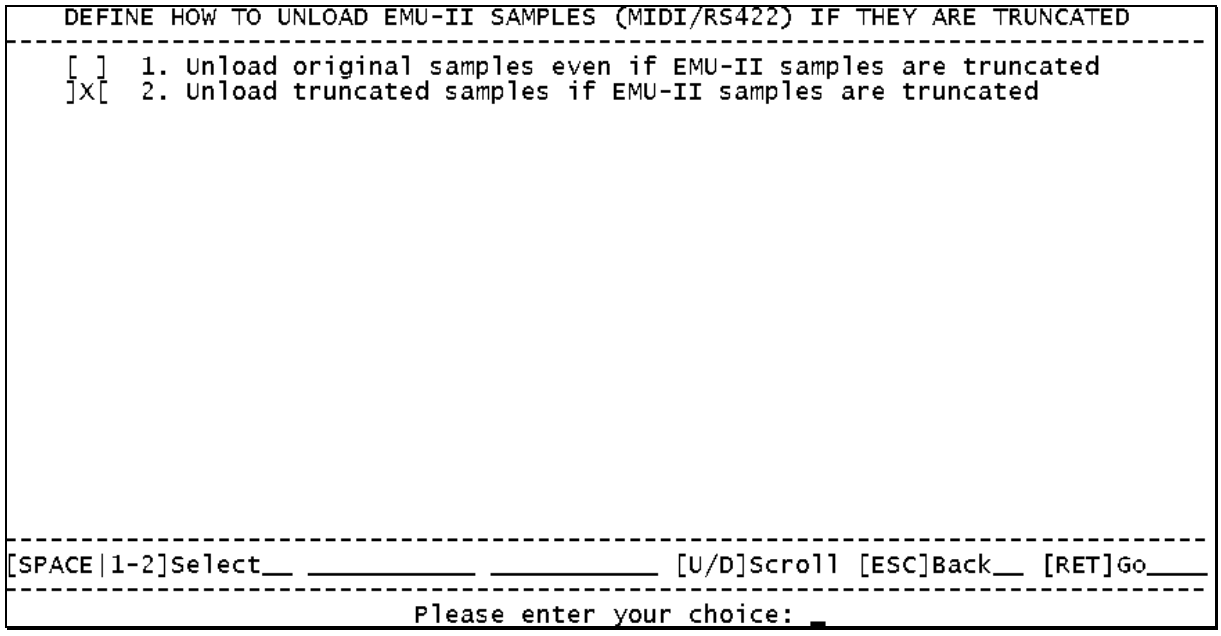
Following submenus are available:



10.6.6.1 Manage Emulator-II sample unload preferences

The Emulator-II supports *soft truncation* of samples: while a sample may be available in memory with its full length, it is possible to use only a part (=truncated section) of this sample in a voice.
When unloading samples with RS422, you can choose between:

- unloading the full length of the sample
- unloading on the truncated part that is being used on the selected key (voice)



This parameter can also be set during the actual sample unload process if you have selected the MANUAL or SEMI-MANUAL mode.

10.6.6.2 Manage RS422 and MIDI communication timer preferences

Modern computers are much faster than the computers from the eighties. When communicating with the EMAX-I, EMAX-II, Emulator-II, Oberheim DPX-1 or SP-12 through RS422 or MIDI ports, the response time of EMXP may be much faster than the sampler is actually expecting or can deal with, and the response time of the sampler may be much slower than EMXP is expecting.
Because of this, EMXP uses programmed delays for sending data packets, and it contains programmed waits before deciding that the sampler is not responding or not sending any data anymore.
These delay and wait times can be set in the RS422 and MIDI preferences for each sampler (see previous sections). Most of them have to be defined in units of milliseconds.

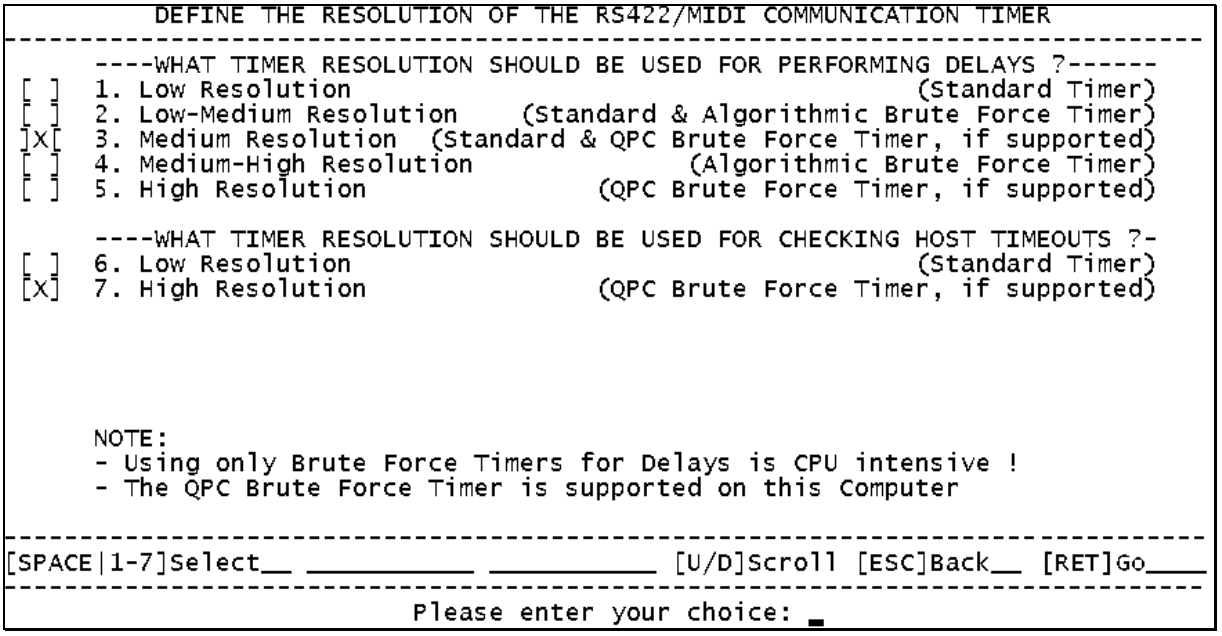
There are different ways to implement timer functions. EMXP supports a few of them. It depends on the hardware of your computer which way gives the best results.

The main reason why different timer functions are supported is because they can have different *timer resolutions.* If the resolution of the standard timer function is 64 milliseconds, but you have defined a delay or wait time of 10 milliseconds between transferring data packets, the actual delay or wait time per packet in EMXP will be 64 milliseconds, because a more fine-grained measurement is not possible. The consequence would be that the total data transfer time will dramatically increase.

The timer resolution issue can be solved by using more fine-grained timer functions. Both an algorithmic brute force method (counting programmed loop cycles) and a QPC brute force method (QueryPerformanceCounter, a timer-API which is based on hardware CPU timing information) are supported. The disadvantage of these brute force timers however is that they consume a lot of CPU.

That's why EMXP also supports a combination of the standard timer function and brute force timer functions. E.g. for a delay of 100 milliseconds and a standard timer resolution of 64 milliseconds, EMXP can measure the first 64 milliseconds with the standard timer and the remaining 36 milliseconds with a brute force timer.

Not all computers support the QPC method. Whether you r computer supports QPC or not is mentioned at the bottom line of the screen (see picture below).



Options 1 → 5 should be used for setting the timer resolution for delays.

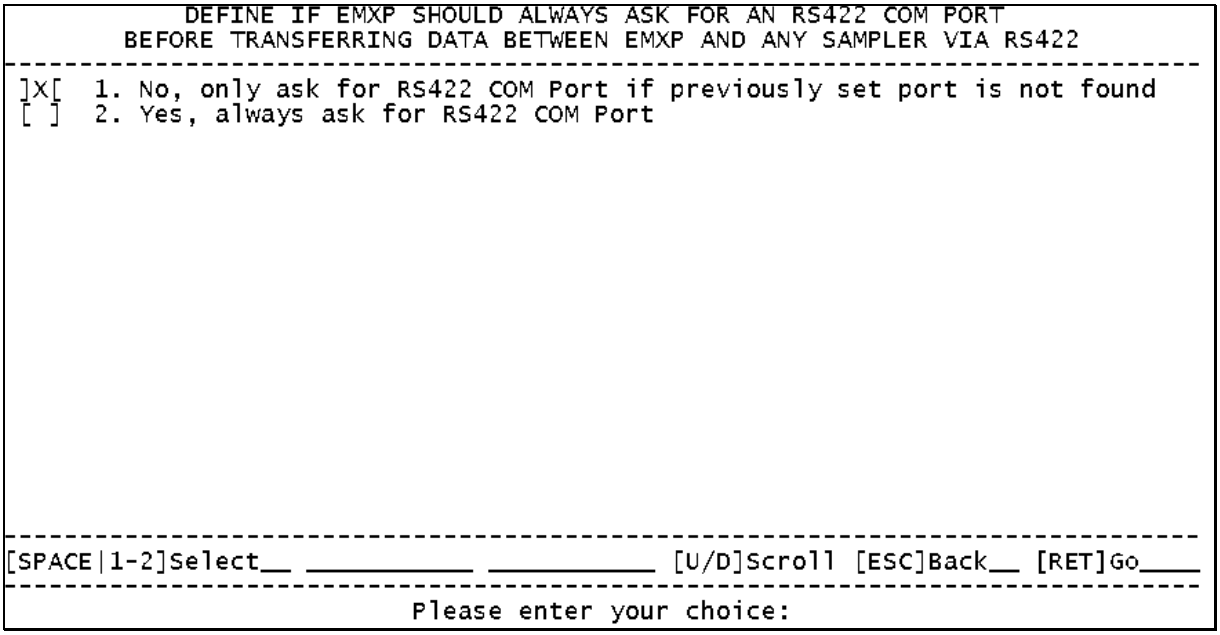
- *Option 1*: The standard timer functions of Windows are used. This can result in a low resolution and slow data transfers, but CPU consumption is low.
- *Option 2*: Both the standard timer functions of Windows and an algorithmic brute force timer are used. EMXP tries to use the standard timer for the majority of the delay and the brute force timer for the small remaining part of the delay. The negative impact on the total data transfer time should be low and the CPU consumption is moderate.
- *Option 3*: Similar with option 2, but instead of using an algorithmic brute force timer, the QPC API is used. If you select this mode while your computer does not support QPC, EMXP will automatically use option 2 instead.
- *Option 4*: Only an algorithmic brute force timer is used. The total transfer time is almost not suffering from timer resolution problems, but the CPU consumption is high.
- *Option 5*: Similar with option 4, but the QPC API is used. If you select this mode while your computer does not support QPC, EMXP will automatically use option 4 instead.

Options 6 → 7 should be used for setting the timer resolution for waits/time-outs. Since these are less critical regarding the impact on the total data transfer time and CPU consumption, only two options are available here.

- *Option 6:* The standard timer functions of Windows are used (low resolution, low CPU consumption)
- *Option 7:* The QPC timer function is used (high resolution, low CPU consumption). If you select this mode while your computer does not support QPC, EMXP will automatically use option 6 instead.

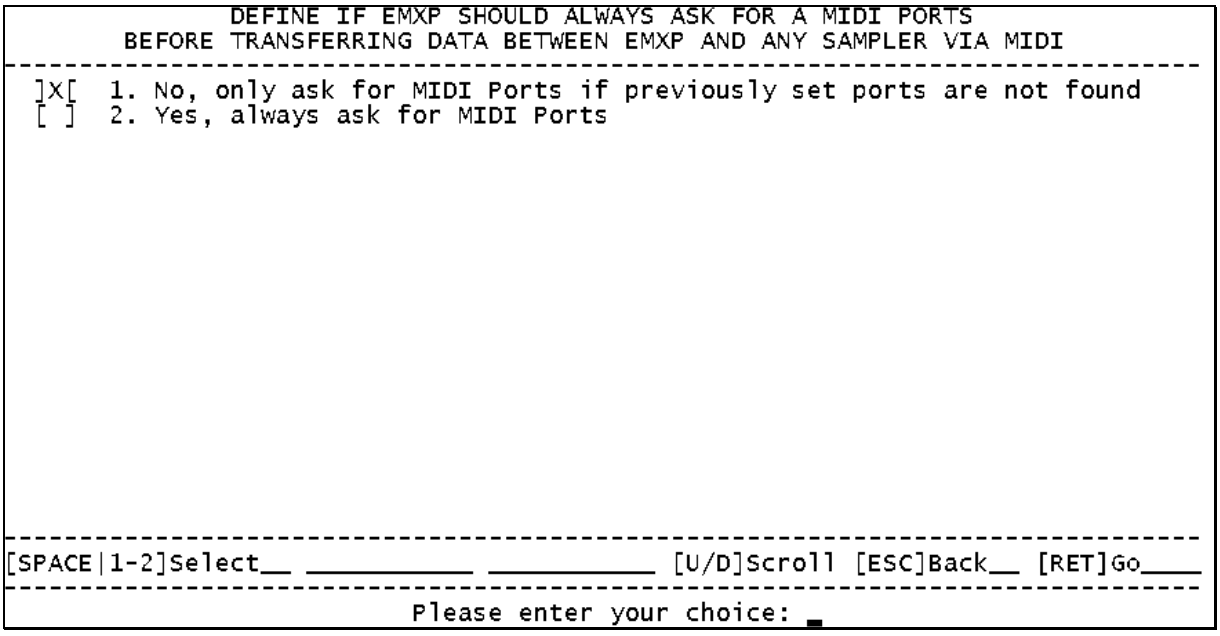
10.6.6.3 Define if RS422 port should always be asked

Once you have selected a default COM port for RS422 communication with the EMAX-I, EMAX-II, Emulator-II or Oberheim DPX-1 (either by setting the preference, or when starting RS422 communication with that sampler for the first time after installation of EMXP), EMXP will not ask a COM port anymore for that sampler, unless the default COM port for that sampler is not found anymore.
Please note that EMXP is not checking the driver using that COM port. As soon a COM port with the specified number is available, EMXP will assume it's an RS422 port (even if that COM port number has now been assigned to a mouse or modem...).
If you want to select the COM port *every time* you start RS422 communication with any sampler, you should select option 2 in the screen below.



10.6.6.4 Define if MIDI ports should always be asked

Once you have selected a default MIDI IN port and a default MIDI OUT port for the EMAX-I, EMAX-II or SP-12 (either by setting the preference, or when starting MIDI communication with that sampler for the first time after installation of EMXP), EMXP will not ask MIDI ports anymore for that sampler, unless the default MIDI ports for that sampler are not found anymore.
If you want to select the MIDI ports *every time* you start MIDI communication with any sampler, you should select option 2 in the screen below.



10.6.6.5 Define RS422 baud rate mode (Windows vs. POSIX/Wine)

The RS422 communication with the EMAX-I, EMAX-II, Emulator-II and Oberheim DPX-1 relies on two different clock signals:

- The internal clock of the RS422 port for transmitting data asynchronously at MIDI compliant speed
- The external clock of the sampler for transmitting data synchronously at high speed

By default EMXP assumes that the RS422 port connected to the computer is a USB ←→ RS422 device consisting of *firmware* which is capable of switching to the external clock signal whenever a "SET BAUDRATE TO 500000" is received from EMXP.

This operating mode is applied by EMXP when EMXP is run natively on a Windows operating system. The serial driver in Windows (usbser.sys) supports this mode. It's called the *normal mode.*
The firmware of all EMuSers (firmware version 1.00.1) is compatible with the above requirements.

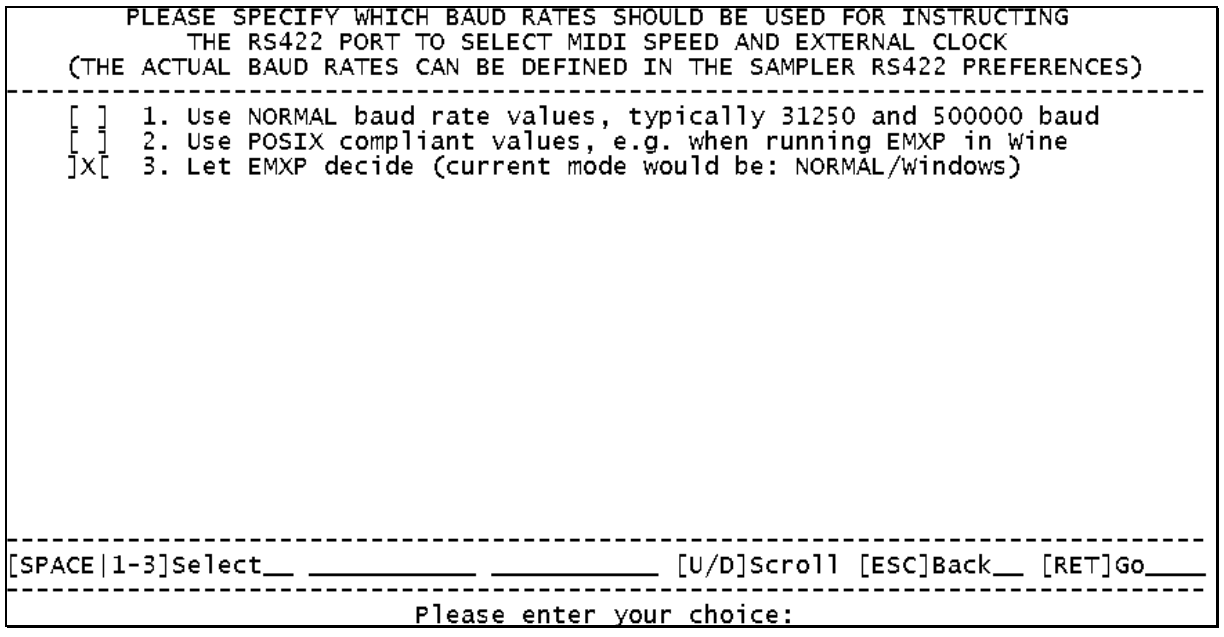
However some serial drivers are strictly POSIX compliant, meaning that they only accept "SET BAUDRATE" instructions for a limited number of baud rates. The ACM-CDC driver used in macOS is an example of such a driver.
Starting with version 3.05, EMXP can be used on macOS by means of the free Wine application, which creates a kind of "Windows" layer on top of EMXP in order to make it run under macOS without having to use a virtual machine.

In order to be able to use the RS422 features of EMXP under Wine with the EMuSer connected to the Apple computer, the firmware of the EMuSer has been extended with support for POSIX-only baud rates, as follows:

- next to the *normal mode*, the EMuSer will also switch to MIDI compliant speed whenever a "SET BAUDRATE TO 38400" is received from EMXP
- next to the *normal mode*, the EMuSer will also switch to the external clock signal whenever a "SET BAUDRATE TO 50" is received from EMXP

This operating mode is applied by EMXP when EMXP is run under Wine on macOS. It's called the *Posix/Wine mode*.
The latest firmware of the EMuSer (firmware version 1.02.1) is compatible with both operating modes. If you want to run EMXP under Wine and use its RS422 functionality with the EMuSer, you'll first have to upgrade the firmware of the EMuSer (if it hasn't been done yet by the person who built the EMuSer).
This is a very easy process which takes only one minute. We refer to a separate manual which describes how to use EMXP on macOS.

In the preference screen below, you can define which baud rates should be used by EMXP.



The default is option 2. In this mode, EMXP will automatically select the correct baud rate instruction set based on whether EMXP is running under Wine or not. See *section "10.9.2 Show WINE version"*.
In the picture EMXP is running on Windows, hence the *current mode* would be "NORMAL/Windows".

If for some reason EMXP seems not to detect correctly that it is running under Wine, you can explicitly select the baud rate instruction set by selecting *option 1* (Normal mode = Windows) or *option 2* (POSIX/Wine mode = Wine on macOS).

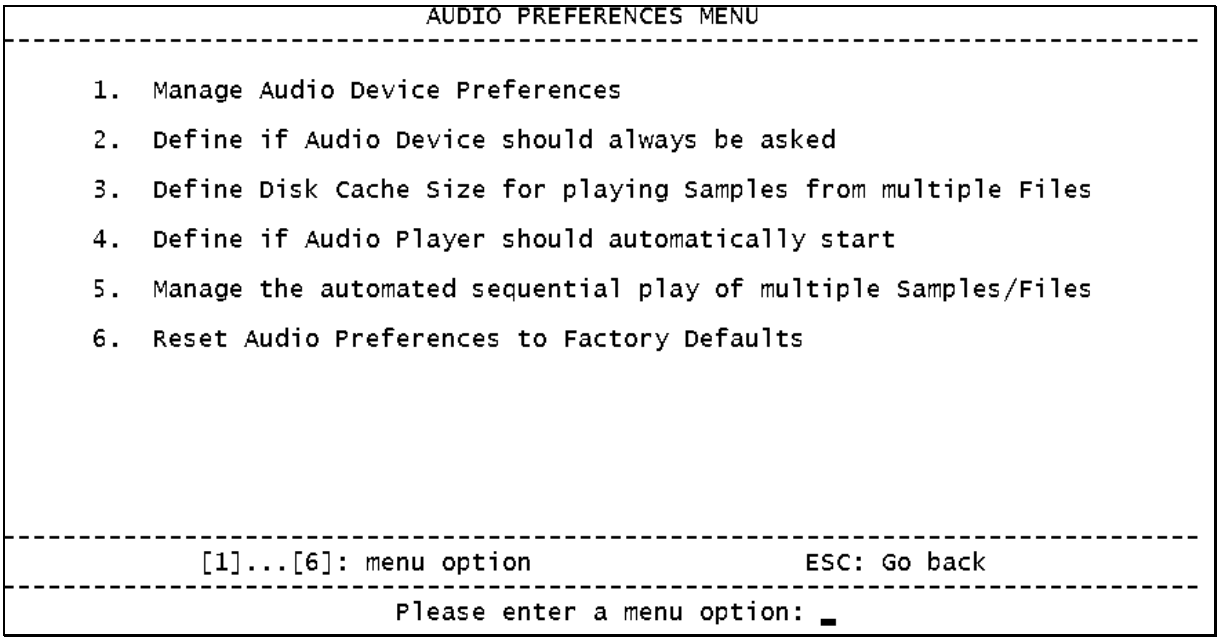
10.7 AUDIO PREFERENCES

To change the preferences related to playing audio in EMXP:
"6. Preferences" → "6. Manage Audio Preferences"

EMXP is configured with audio settings which should allow for a smooth audio play of samples and WAV-files. However, depending on the speed of the computer, the available memory and the processor load during audio playing, the sound play may be interrupted sometimes or may be slightly distorted. If this is the case, the stability of the audio player can be increased by changing some of the audio device configuration parameters.
These parameters are described in *section "10.7.1 Manage audio device preferences"*.
Only WAVE audio compatible audio devices are supported by EMXP.

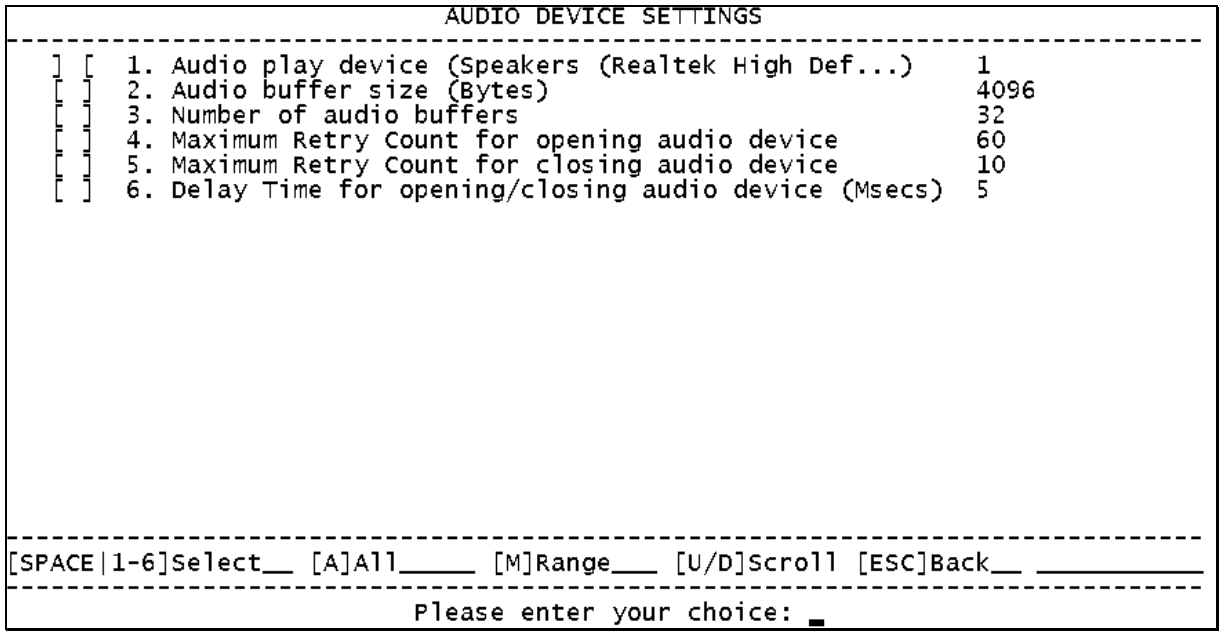
Besides the configuration of the audio device, some other preferences can be defined as well. These are explained in the sections below.

Following options are provided:

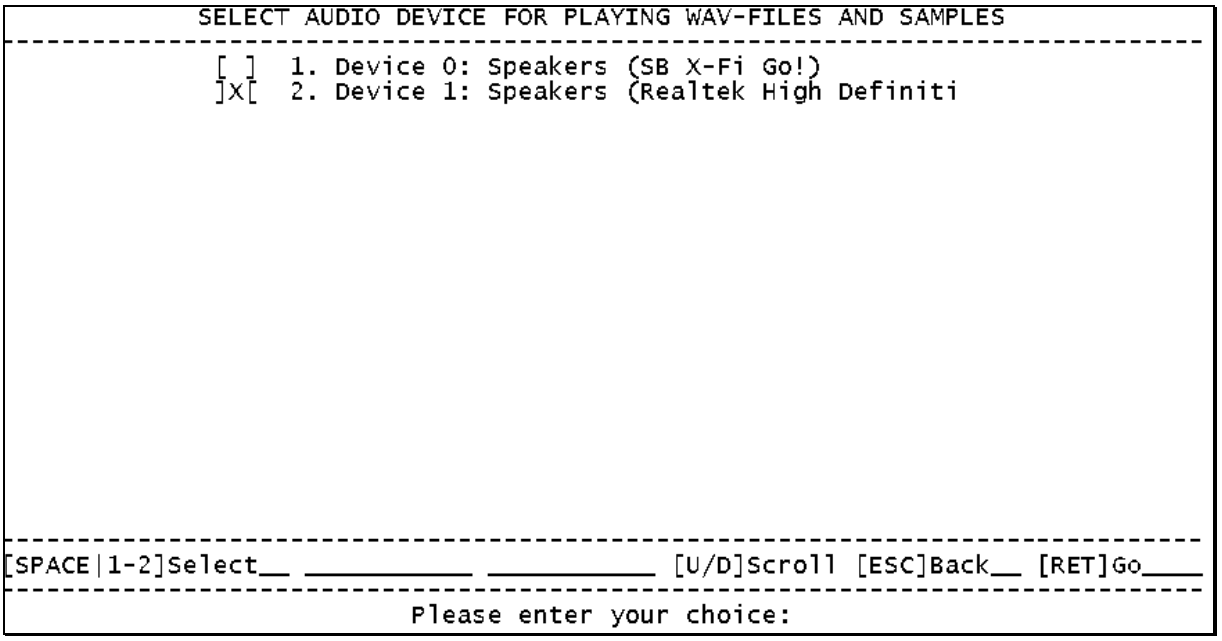


10.7.1 Manage audio device preferences

Following audio device parameters can be changed

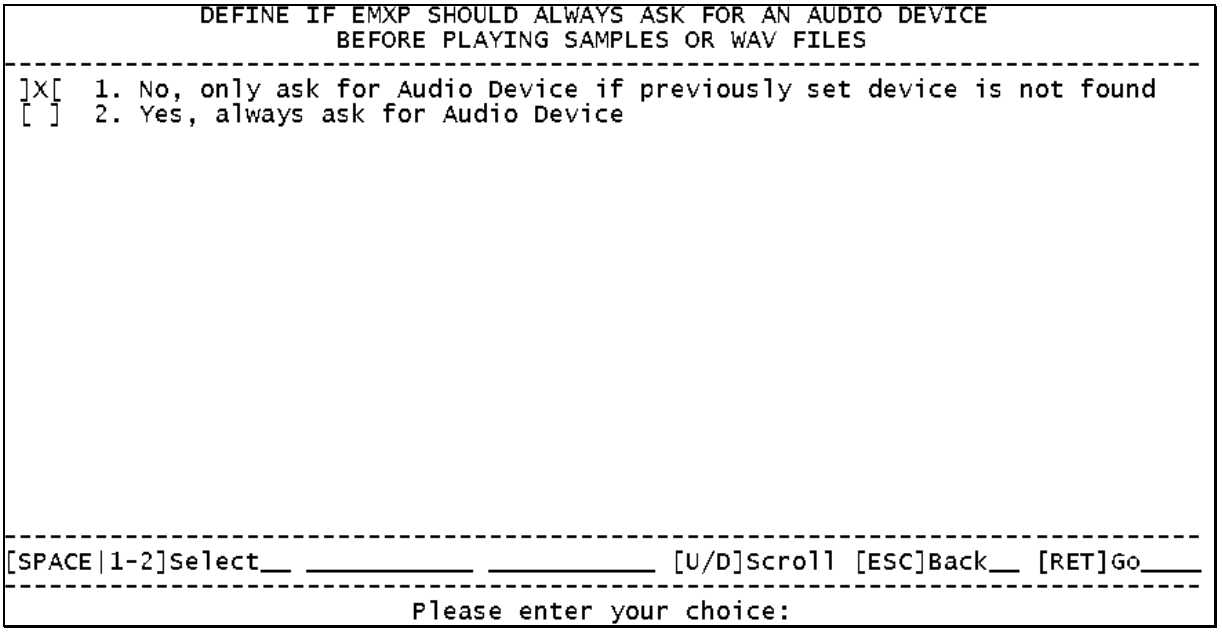


- Audio play device: the audio player device of the computer that should be used by EMXP for playing audio. When selecting this option, a list of available audio devices that are WAVE compliant will appear. See picture at the end of this section.
- **Audio buffer size**: this is the size (in number of bytes) of each audio buffer. When playing audio, EMXP is feeding audio data to a number of buffers (i.e. pre-loading the buffers). The selected audio device will keep playing audio as long as it finds audio data in its buffers. The larger the size of each buffer, the smoother the audio will play, but the more memory will be used. Moreover each buffer is always played to its full extent. If the buffer size is too large, there may be some delay before EMXP can react on a command/instruction from the user.
- **Number of audio buffers**: this is the number of buffers used by the audio player. The larger the number of buffers, the smoother the audio will play. But a higher number of buffers also means that more buffers will be pre-loaded with audio data. Turning on or off "loop" play in the EMXP audio player will only take effect when all buffers that had been filled before the instruction was given have been played by the audio player. As a consequence there may be some delay before EMXP can react on some commands/instructions from the user.
- Maximum Retry Count for opening audio device: it can occur that an attempt to open an audio device does not succeed immediately. To avoid an error due to this problem, EMXP can re-try to open the audio device a few times. This parameter sets the total number of attempts that should be performed by EMXP to open the audio device before raising an error.
- Maximum Retry Count for closing audio device: it can occur that an attempt to close an audio device does not succeed immediately. To avoid an error due to this problem, EMXP can re-try to close the audio device a few times. This parameter sets the total number of attempts that should be performed by EMXP to close the audio device before raising an error.
- Delay time for opening/closing audio device: if opening or closing of an audio device fails and EMXP re-tries opening or closing the audio device (see previous preferences), a short delay can be taken into account in between these attempts. The length of this delay in milliseconds can be defined by means of this parameter.



10.7.2 Define if audio device should always be asked

Once you have selected a default audio device (either by setting the preference, or when playing a sample for the first time after installation of EMXP), EMXP will not ask for an audio device anymore, unless the default audio device is not found anymore.
If you want to select the audio device *every time* you start the audio player, you should select option 2 in the screen below.



10.7.3 Define disk cache size for playing samples from multiple files

The audio player in EMXP supports the successive playing of samples from multiple selected input sound banks or files at once. You can play all samples from

- multiple selected EMAX-I, EMAX-II, Emulator-I, Emulator-II, Emulator-III, Emulator-IIIX, ESI-v3 and SoundFont2 banks (either from file(s) or from disk(s))
- multiple individual Akai S1000 samples files, Akai S1000 floppy disk image files and Akai S1000 HxC floppy disk image files
- multiple WAV files

successively at once.

Except for WAV-files that are compatible with the audio device, EMXP will always extract and convert the audio data of each selected sound bank (or file) into temporary WAV-files before playing the samples.
These temporary WAV-files are stored in the default folder for temporary files.

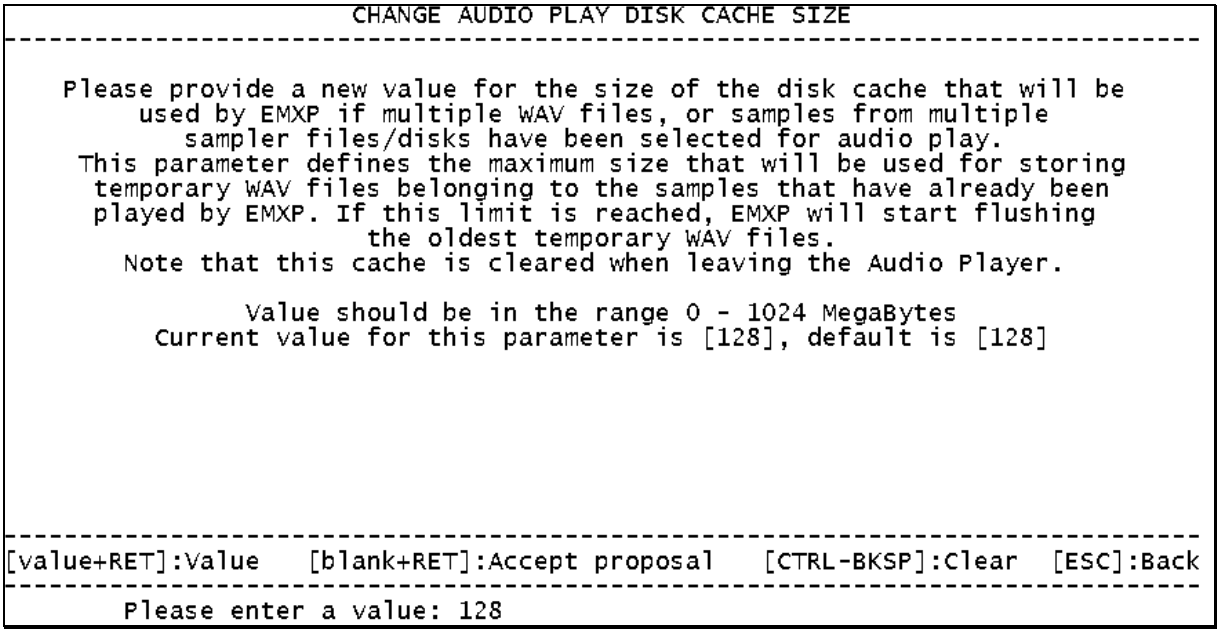
This is not done for all sound banks at once, but rather on a file-by-file basis.

However, if you request to re-play the samples from a sound bank/file that has already been played by EMXP before, the extract/convert process is not done again. EMXP will rather re-use the temporary WAV-files that were created when playing the sound bank for the first time. This is even true for *floppy disks* that have been read before (so EMXP will not ask for those floppy disks again).
This approach results in much faster response times.

The temporary WAV-files from previously played sound banks are retained until:

- *you leave the audio player*; in that case all temporary WAV-files are removed
- the maximum size of the *disk cache* (i.e. the maximum disk size that can be used for storing temporary WAV-files) is reached; in that case the temporary WAV-files from the "oldest" sound banks/files are removed until there's sufficient space in the disk cache again.

E.g. if 3 EMAX-II sound banks have been selected for audio play on an EMAX-II CDROM, EMXP will convert all samples from the *first* selected bank into temporary WAV files and play these samples one after another.
When proceeding with the *next* selected bank (either automatically or on user request), EMXP will convert all samples from that *second* bank into temporary WAV files and play the samples from the second bank.
If you instruct the audio player to return to the first sound bank, EMXP will *not* convert the samples from that bank again. It will simply play the temporary WAV-files that have been created before.
If you instruct the audio player to proceed with the third sound bank, and the disk cache is full, the temporary WAV-files from the first sound bank are removed when creating the temporary WAV-files for the third bank.

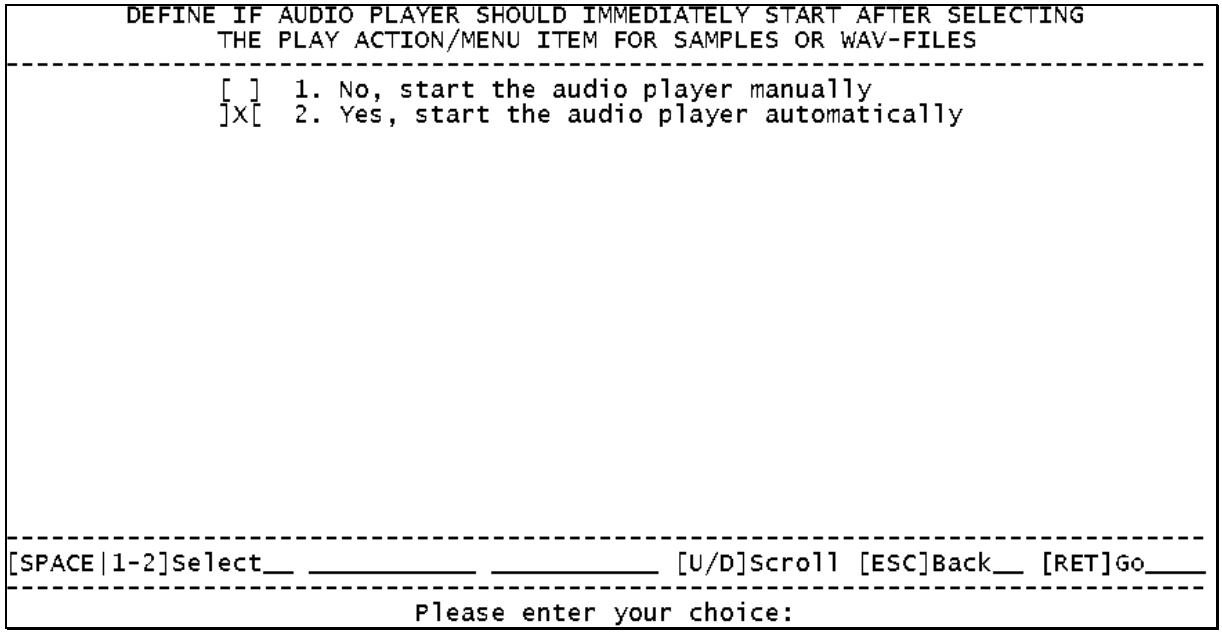


In the screen shown above you can define the size of the temporary files folder that can be used for storing temporary WAV-files during audio play.

The minimum supported size is 0 MB, the maximum supported size is 1 GB.

10.7.4 Define if audio player should automatically start

When launching the audio player after having selected one or more samples or WAV-files, EMXP will automatically start playing the first selected sample.
If you don't want EMXP to automatically start playing samples or WAV-files, you should select option 2 in the screen below.



Next to the first selected sample, EMXP can automatically start playing all remaining selected samples or WAV-files as well. This mode can be defined by means of another preference, see *section "10.7.5 Manage the automated sequential play of multiple samples/files"*.

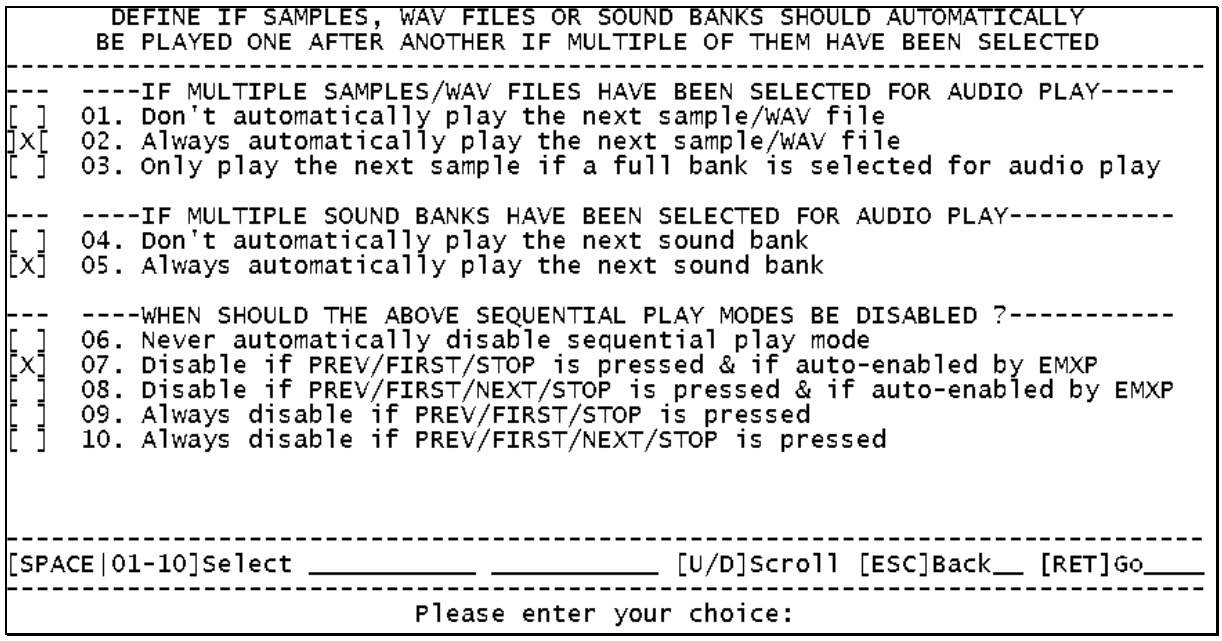
10.7.5 Manage the automated sequential play of multiple samples/files

The audio player of EMXP can play multiple selected samples one after another without having to press the "start" control key ("R" or SPACE) for each sample.
At any time, this sequential play can be enabled or disabled in the audio player (by means of control keys "A" and "B").

But the sequential play can also be enabled automatically by means of this preference menu.
This *automated* sequential play can be enabled or disabled on two levels:

- *level 1*: sequential play of *multiple samples of the same sound bank* or sequential play of multiple WAV-files or Akai S1000 sample files.
  E.g. if you select 6 samples from an Emulator-II bank file, EMXP can play these 6 samples automatically one after another.
- *level 2*: sequential play of *all samples of multiple selected sound bank (or Akai S1000 volumes)*.
  E.g. if you select 6 Emulator-II bank files, EMXP can play all samples of these 6 bank files automatically one after another.

If the automated sequential play on level 2 is enabled, the automated sequential play on level 1 will be enabled as well.



Options 1 → 3 should be used for defining the automated sequential play on level 1:

- *Option 1*: the audio player will never automatically start playing the next selected sample of a sound bank, or the next selected WAV-file/Akai S1000 sample file.
- *Option 2*: the audio player will always automatically start playing the next selected sample of a sound bank, or the next selected WAV-file/Akai S1000 sample file. This is the default setting.
- *Option 3*: the audio player will only automatically start playing the next selected sample of a sound bank if you have started the audio player from a sound bank/file overview screen or from a sound bank/file menu (as opposed to from a sample overview screen or from a sample menu)

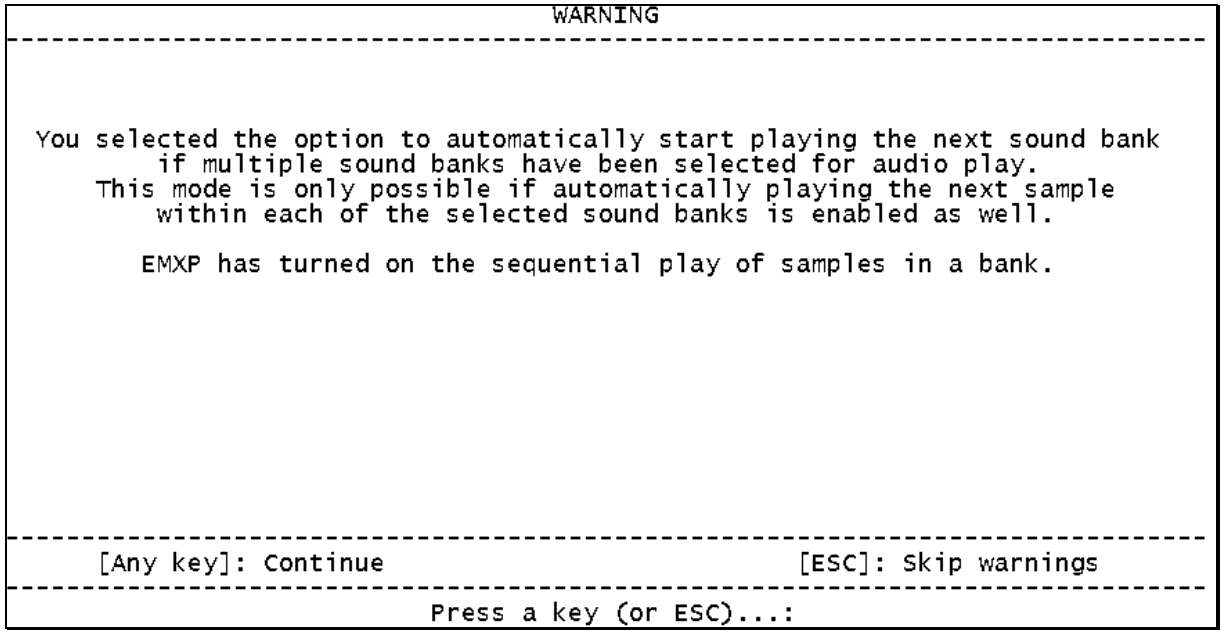
Options 4 → 5 should be used for defining the automated sequential play on level 2:

- *Option 4*: the audio player will never automatically start playing the samples of the next selected sound bank/file/Akai S1000 volume
- *Option 5*: the audio player will always automatically start playing the samples of the next selected sound bank/file/Akai S1000 volume, except if the sound bank is read from floppy disks(s).

Options 6 → 10 can be used to define under which conditions the sequential play of samples or sound banks/files should be *automatically turned off* in the audio player.

- *Option 6*: sequential play is never automatically turned off. If you want to disable the sequential play mode, you will have to use the "A" and/or "B" control keys in the audio player.
- *Option 7*: sequential play will be turned off only if it was automatically turned on by EMXP (due to options 2, 3 or 5 being set) and only if you use instruct the audio player to stop playing the current sample or if you instruct the audio player to go back to a previous or the first sample or sound bank/file. This is the default setting. It allows for quickly browsing through the selected samples/files while listening only partially to them.
- *Option 8*: this option is similar to option 7, but the sequential play will also be disabled if you instruct the audio player to proceed with the next sample or sound bank/file.
- *Option 9*: this option is similar to option 7, but the sequential play will also be disabled if you manually enabled it yourself in the audio player.
- *Option 10*: this option is similar to option 8, but the sequential play will also be disabled if you manually enabled it yourself in the audio player.

If you select option 5 while option 1 has been chosen, EMXP will automatically activate option 3 instead of option 1. Indeed, the automated sequential play of sound banks is only possible if at least option 3 is enabled as well. The screen below will inform you of this automatic activation of option 3:

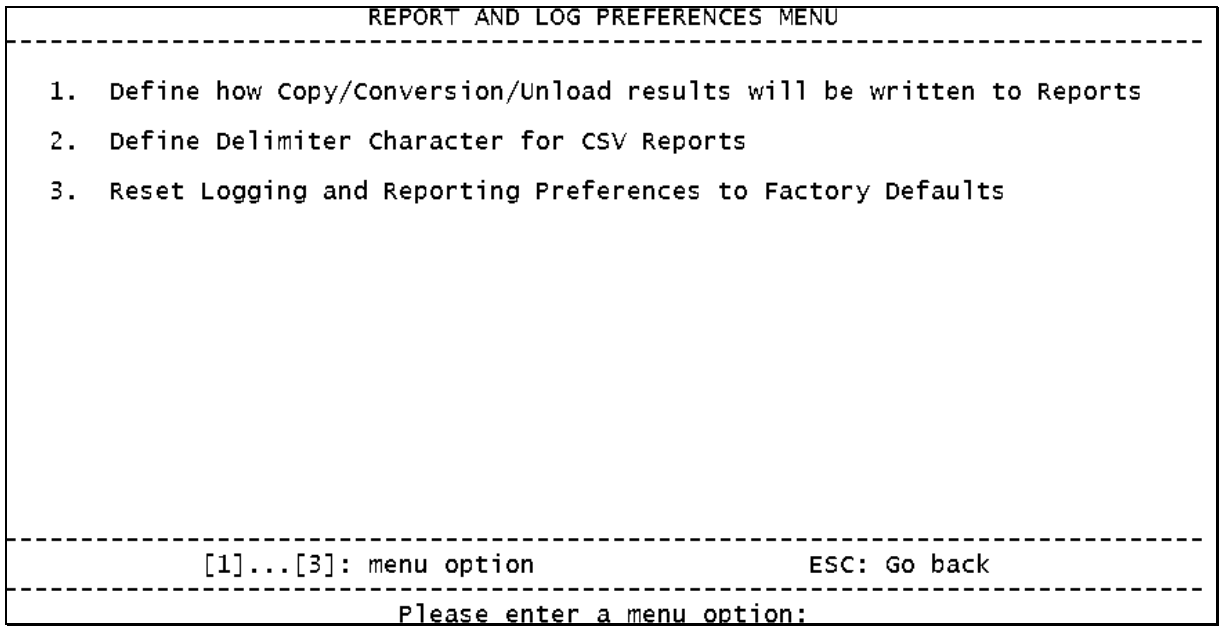


Whether the audio player will automatically start playing the very first selected sample (as opposed to the next samples) can be defined by means of another preference. See *section "10.7.4 Define if audio player should automatically start"*.

10.8 LOG AND REPORTING PREFERENCES

To change the preferences related to log and report files:
"6. Preferences" → "7. Manage Report and Log Preferences"

Following options are provided:



10.8.1 Define how copy/conversion/unload results will be written to reports

As explained in

- *chapter "6. USING EMXP: COPYING SOUND BANKS AND FILES"*
- *chapter "7. USING EMXP: CONVERSIONS"*
- *chapter "8. USING EMXP: CONSTRUCTIONS"*
- *chapter "9. USING EMXP: OTHER FEATURES"*

every copy, conversion and sample unload process is concluded with generating a *report* containing the results of the copy, conversions or unload process.

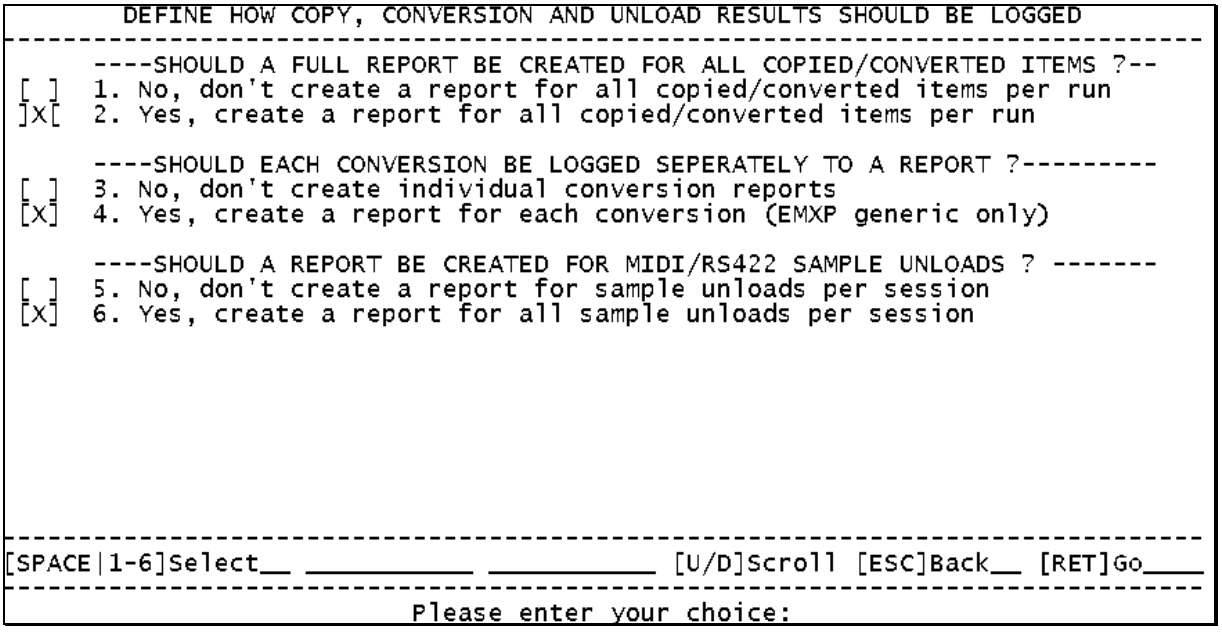
These reports are *always* generated in EMXP's memory and will *always* be displayed in an EMXP screen at the end of the process.
In addition you have also the possibility to *save these reports* to a folder on your computer.

This can be defined in this preference screen shown below.

For *conversions* EMXP generates a *full report*:

- which summarizes to which target files/banks each converted source item (file, bank, ...) has been written, and any error which may have occurred during the conversion process
- which contains *for each converted item* a *conversion subreport*, containing all conversion details on the level of individual presets and samples

Besides saving these full reports to a report file, you can also save *each* of the *conversion subreports* to seperate subreport files. The full report will contain the subreports anyway, but you might like to have the subreports separately as well, and perhaps even not keep the overall full report.



Options 1 and 2 are used to select whether the full copy/conversion reports should be permanently saved to disk.
Options 3 and 4 are used to select whether the individual conversion reports should be permanently saved to disk as well (as individual files)
Options 5 and 6 are used to select whether all sample unloads performed during a communication session with either the EMAX-I, EMAX-II or Emulator-II should be written to a report which is permanently saved to disk.

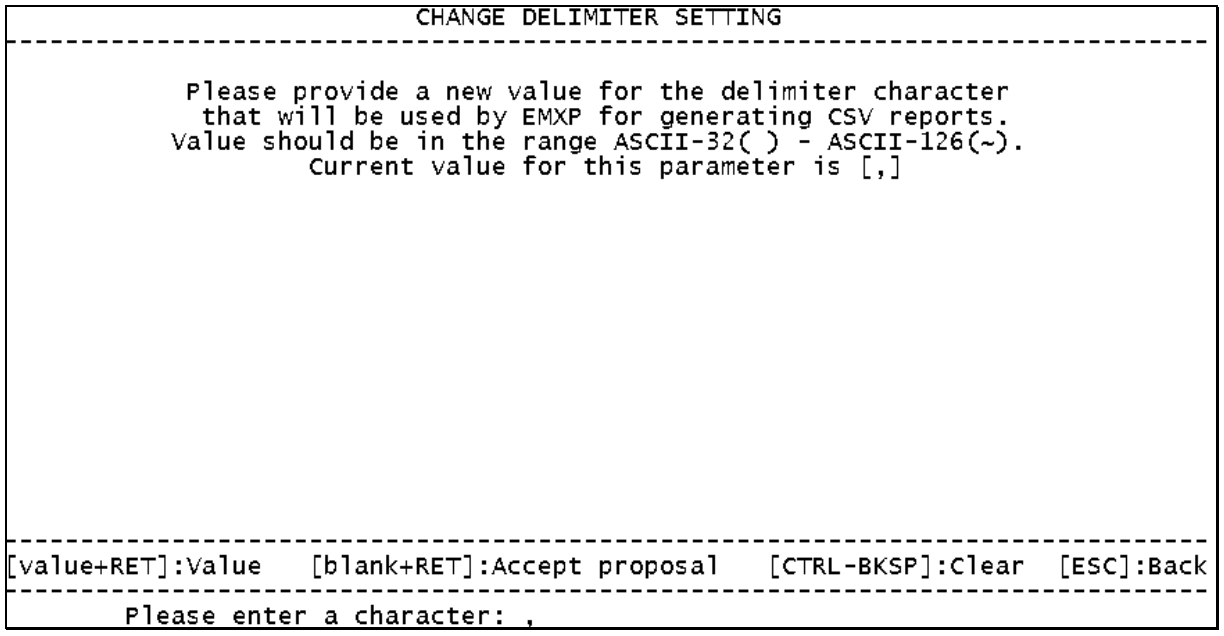
- The *folder* in which the reports will be saved can be defined in the File and Drive Location Preferences. See *section "10.5.1 Define file and drive location preferences"*
- The *file name* of the reports will automatically be determined by EMXP. Both the file name and the folder in which the report has been saved are mentioned at the end of the report which is displayed on the screen.

10.8.2 Define delimiter character for CSV files

When EMXP is generating CSV reports with bank/preset overviews, it uses a delimiter character to separate each data element (like the bank number, bank name, preset number, preset name, and so on).
CSV stands for “comma separated values”, which indicates that the most common delimiter character is a comma “,”.

EMXP uses the comma as the default delimiter, but you can override this value with any allowed normal ASCII character. Using another character than a comma may be necessary if one of the data elements would contain a comma itself.

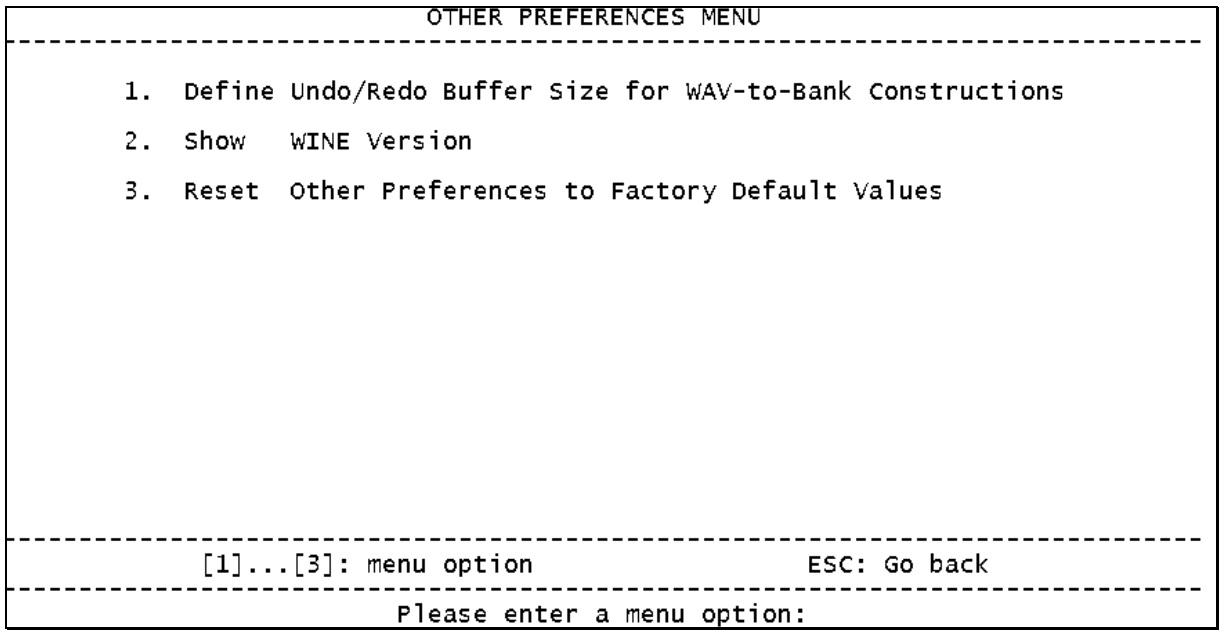
Another common delimiter character which is typically supported by office tools like Microsoft Excel, is “;”.



10.9 OTHER PREFERENCES

To manage some other preferences
"6. Preferences" → "8. Manage Other Preferences"

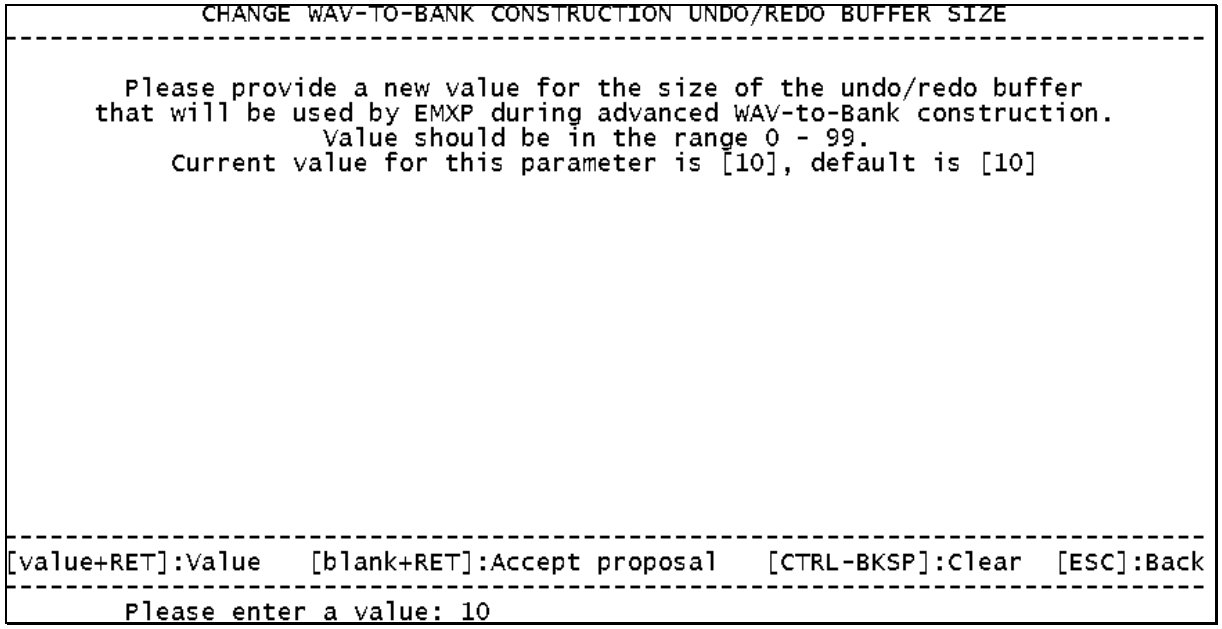
Following options are provided:



10.9.1 Define undo/redo buffer size for WAV-to-Bank constructions

The WAV-to-sampler construction feature of EMXP has a buffer which can hold a number of user actions. Thanks to this buffer the user can undo one or more actions if he/she doesn't like the outcome or makes a mistake. Un-done actions can also be re-done.

The maximum buffer size is 99, the minimum is 0 (no buffer). 10 is the default.



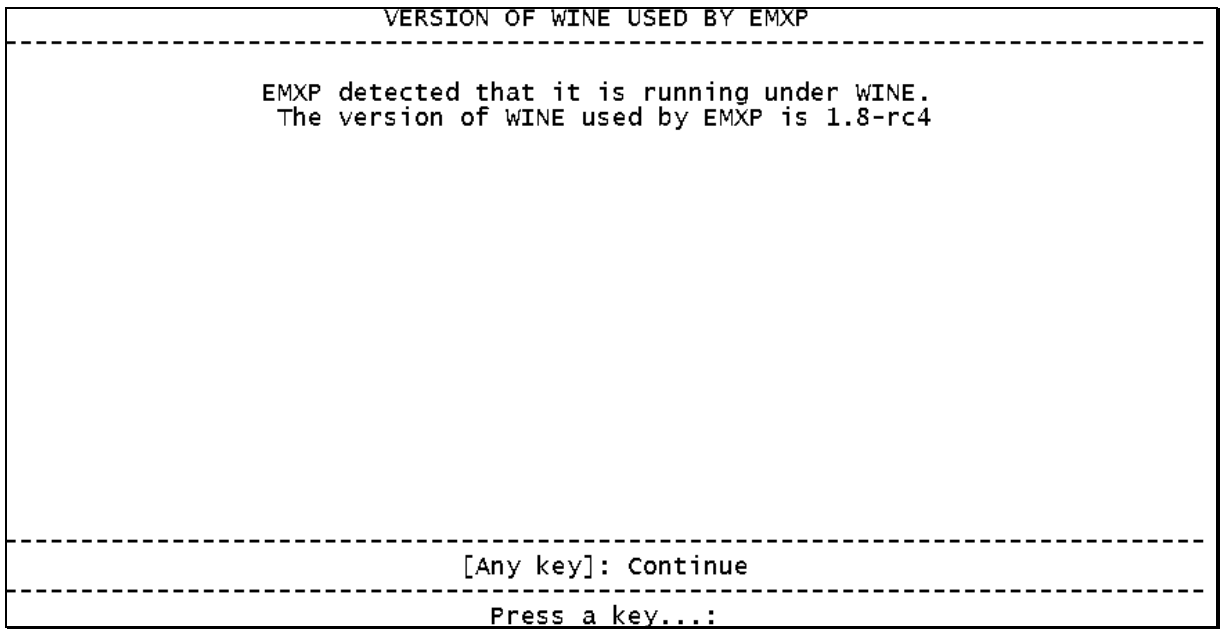
10.9.2 Show WINE version

Starting with version 3.05, EMXP can be run on macOS by means of the Wine application. In order to have acceptable MIDI support, it is recommended to use Wine 1.8-rc4 or higher.

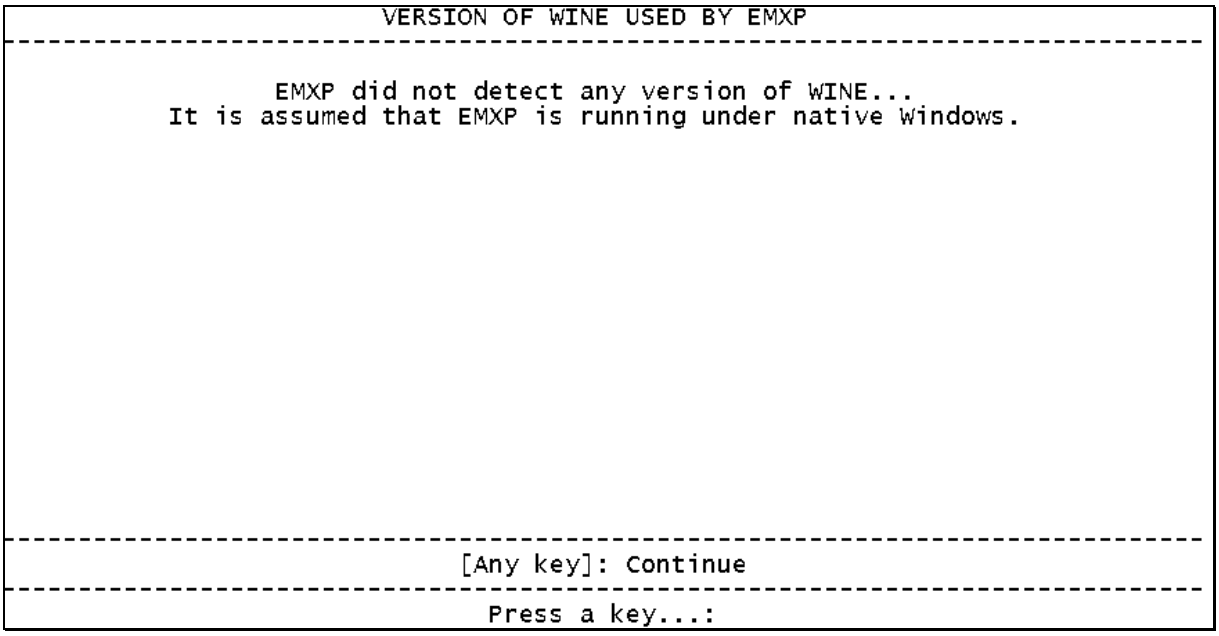
If EMXP is running under Wine, this menu option can be used to:

- verify if EMXP has correctly detected that it is running under Wine
- verify what version of Wine is used for running EMXP.

In that case, the screen would look like this:



If EMXP is running in a "native" Windows environment (including virtual desktops and virtual machines), the screen will simply state that no Wine version has been detected:


VERSION OF WINE USED BY EMXP
EMXP did not detect any version of WINE...
It is assumed that EMXP is running under native Windows.
[Any key]: Continue
Press a key...:

11. TRANSFERRING BANKS WITH SOUND DESIGNER

11.1 TRANSFERRING BANKS FROM EMULATOR-II TO COMPUTER WITH SOUND DESIGNER

11.1.1 Introduction

If you are not able to use the RS422 communication features of EMXP (see previous chapters), there are other ways to get bank data out of the Emulator-II or into the Emulator-II, e.g.:

- *Use Emulator-II formatted floppy disks*. Besides the Emulator-II and the Oberheim DPX-1sampler player, a computer with a KryoFlux floppy controller and a 5.25" drive is capable of *reading* and *writing* Emulator-II floppy disks as well. This is explained in *chapter "13. USING HXC AND KRYOFLUX"*.
- *Use a floppy emulator device which replaces the Emulator-II floppy drive.* One of the floppy drives of the Emulator-II can be replaced by an SD HxC device, which uses an SD card to store digital copies of floppy disks. In this way, the Emulator-II can read and write sound banks from/to the SD card, and the files on the SD card can be transferred to/from a computer. EMXP supports the (HxC) Emulator-II disk images which are also being used by the HxC. More details can be found in *chapter "13. USING HXC AND KRYOFLUX"*.
- *Use a DREM hard disk emulator.* This method only works if you have an Emulator-II+HD. The DREM uses an SD card which can contain multiple Emulator-II hard disk image files (.DSK files). By instructing the DREM which DSK file is the active one, the selected DSK file will be used as a virtual hard disk by the Emulator-II+HD. EMXP supports DREM .DSK files (which are a specific variant of Emulator-II hard disk image files) and can save banks to them.
- *Use RS422 digital communication on a Mac*. EMXP is able to communicate with the Emulator-II via RS422 just like the old Digidesign Sound Designer for EmuII for Mac can do. You'll need a Mac computer running OS 7.6 or lower to run this old software package. This is explained in the next paragraphs.

11.1.2 Downloading / uploading Emulator-II bank files using Sound Designer for Emulator-II

To download a bank loaded in your Emulator-II:

- Make sure the Emulator-II is connected to your Mac using a serial cable to the printer or modem port
- The serial port within the Calibration menu of Sound Designer must match the actual port to which the serial cable is connected
- Make sure that no MIDI jacks are connected to your Emulator-II
- The AppleTalk listener should be either on or off (depending on the Mac type – see the MAC compatibility list on the Emulator-II Yahoo Group for more details)
- Select Mode *E-2 Front Panel*
- Choose *Extras → Get Bank from EmuII*

The file created by Sound Designer for Emu II has following characteristics:

- Size = 485887 Bytes
- Mac Filetype = E2BK
- Mac Creator = XFER.

To upload a bank file to the Emulator-II, the same procedure should be used, but of course you have to select *Extras → Send Bank to EmuII* instead of *Extras → Get Bank from EmuII.*

11.1.3 Transferring files between the Mac and the Windows computer

Once you've downloaded a file from the Emulator-II to the Mac using Sound Designer for Emulator-II, you have to find a way to copy this file to your Windows computer.
The same is true in the opposite direction: a file created by EMXP should be copied to your Mac computer.

There are a few options here:

- Use *PC Exchange* by *Claris* on the Mac to read/write files from DOS-formatted disks (floppy). This program was (probably) included in the Mac OS 7.5.3 or higher.
- Use *MacDisk* from *Logiciels & Services Duhem.* A demo/trial version is available from their website: http://www.macdisk.com . The only limit of this trial version is the file size limit of 1MB. Fortunately Emulator-II files only take 475KB, so the trial version is perfectly suitable for Emulator-II purposes.
- Use *TransMac* from *Acute Systems / Paul Thompson.* See their website: http://www.acutesystems.com
- Any other Mac←→PC file exchange tool…

Most of these tools support multiple types of disks: floppy disks, ZIP disks, …

When using file exchange tools, it is **VERY IMPORTANT to configure the FILETYPE CONVERSION correctly:**

- Mac Files with **file type E2BK and creator XFER** should be translated to **Windows extension .EII**
- Windows files with **extension .EII** should be translated to **file type E2BK and creator XFER**.

Example: when using MacDisk, use the *Options → Signature Editor* to setup this translation. Don't forget to save the signature file !

If this configuration is not done correctly, files created by EMXP will not be recognized by Sound Designer for Emulator-II !

11.2 TRANSFERRING BANKS FROM EMAX TO COMPUTER WITH SOUND DESIGNER

11.2.1 Introduction

Besides transferring EMAX-I or EMAX-II files by means of floppy disks or (removable) hard disks/cdroms, the EMAX-I also allows bank transfers via *RS422 digital communication*.
EMXP supports RS422 communication with the EMAX-I: see *section "9.6 TRANSFERRING BANKS VIA RS422 WITH EMXP"*.

Besides EMXP, the old Sound Designer for EMAX for Mac created by Digidesign[20] is also able to exchange complete banks with the EMAX via RS422. You'll need a Mac computer running OS 7.6 or lower to run this software package.
Note that EMAX-II bank transfers via RS422 are not supported by Sound Designer for EMAX, except for uploading EMAX-I compressed banks from the Mac to EMAX-II

Moreover you will also need a "hacked" version of one of the following EMAX Operating systems, unless your are using the operating system labelled "EmaxPlus10/16/89":

- EMAX SE 1.1
- EMAX SE HD 1.1
- EMAX Plus 1.0

The hack consists of applying a higher software revision number within the operating system code. Sound Designer for EMAX 1.12 only accepts EMAX OS versions with rev 4.0 or higher, but this revision number has never been used by Emu. Hence a small (but completely innocent) hack is required on most EMAX OS versions. The hacked versions of the above mentioned OS can be downloaded from the EMXP website.

Again, if you are using the EMAX Plus OS labelled "EmaxPlus10/16/89", you don't need one of these hacked OS versions.

11.2.2 Downloading / uploading EMAX bank files using Sound Designer for EMAX version 1.12

To download a bank loaded in your EMAX:

- Make sure the EMAX is connected to your Mac using a serial cable to the printer or modem port
- The serial port within the Calibration menu of Sound Designer must match the actual port to which the serial cable is connected
- The AppleTalk listener should be either on or off (depending on the Mac type – please experiment with this)
- Select Mode *EMAX Front Panel*
- Choose *Bank → Send Bank to Mac*

The file created by Sound Designer for EMAX has following characteristics:

- Size = 553080 Bytes
- Mac Filetype = EMBK
- Mac Creator = XFER.

To upload a bank file to the EMAX, the same procedure should be used, but of course you have to select *Bank → Send Bank to EMAX* instead of *Bank → Send Bank to Mac*.

[20] There are however other software packages available for Mac that support individual sample transfers with the EMAX and EMAX-II, like Alchemy 3.

11.2.3 Transferring files between the Mac and the Windows computer

Once you've downloaded a file from the EMAX to the Mac using Sound Designer for EMAX, you have to find a way to copy this file to your Windows computer.
The same is true in the opposite direction: a file created by EMXP should be copied to your Mac computer.

There are a few options here:

- Use *PC Exchange* by *Claris* on the Mac to read/write files from DOS-formatted disks (floppy). This program was (probably) included in the Mac OS 7.5.3 or higher.
- Use *MacDisk* from *Logiciels & Services Duhem.* A demo/trial version is available from their website: http://www.macdisk.com . The only limit of this trial version is the file size limit of 1MB. Fortunately EMAX files only take 541KB, so the trial version is perfectly suitable for EMAX purposes.
- Use *TransMac* from *Acute Systems / Paul Thompson.* See their website: http://www.acutesystems.com
- Any other Mac←→PC file exchange tool…

Most of these tools support multiple types of disks: floppy disks, ZIP disks, …

When using file exchange tools, it is **VERY IMPORTANT to configure the FILETYPE CONVERSION correctly:**

- Mac Files with **file type EMBK and creator XFER** should be translated to **Windows extension .EMS**
- Windows files with **extension .EMS** should be translated to **file type EMBK and creator XFER**.

Example: when using MacDisk, use the *Options → Signature Editor* to setup this translation. Don't forget to save the signature file !

If this configuration is not done correctly, files created by EMXP will not be recognized by Sound Designer for EMAX !

12. EXCHANGING FILES BETWEEN EMXP AND SP-12 LIBRARIAN

The SP-12 files created by EMXP should be compatible with the SP-12 files created by *SP-12 Librarian*[21] *(by Water's Edge Software)*. This is a librarian and MIDI file transfer software for the SP-12 on the old Mac platform.

- EMXP SP-12 Sound Bank Files (.SP12) should be compatible with SP-12 Librarian Sound Files
- EMXP SP-12 Sequence Files (.SQ12) should be compatible with SP-12 Librarian Sequence Files

We refer to the SP-12 Librarian User's Manual for information how to transfer sounds and sequence between the SP-12 and the Mac computer.

Once you've transferred a sound file or sequence file from the SP-12 to the Mac using SP-12 Librarian, you have to find a way to copy this file to your Windows computer.
The same is true in the opposite direction: a file created by EMXP should be copied to your Mac computer.

There are a few options here:

- Use *PC Exchange* by *Claris* on the Mac to read/write files from DOS-formatted disks (floppy). This program was (probably) included in the Mac OS 7.5.3 or higher.
- Use *MacDisk* from *Logiciels & Services Duhem.* A demo/trial version is available from their website: http://www.macdisk.com . The only limit of this trial version is the file size limit of 1MB. Fortunately SP-12 files take less than 200KB, so the trial version is perfectly suitable for SP-12 purposes.
- Use *TransMac* from *Acute Systems / Paul Thompson.* See their website: http://www.acutesystems.com
- Any other Mac←→PC file exchange tool…

Most of these tools support multiple types of disks: floppy disks, ZIP disks, …

When using file exchange tools, it is **VERY IMPORTANT to configure the FILETYPE CONVERSION correctly:**

- For **sound bank files** this means:
  - Mac Files with **file type SPsd and creator SP12** should be translated to **Windows extension .SP12**
  - Windows files with **extension .SP12** should be translated to **file type SPsd and creator SP12**.
- For **sequence files** this means:
  - Mac Files with **file type SPsq and creator SP12** should be translated to **Windows extension .SQ12**
  - Windows files with **extension .SQ12** should be translated to **file type SPsq and creator SP12**.

Example: when using MacDisk, use the *Options → Signature Editor* to setup this translation. Don't forget to save the signature file !

If this configuration is not done correctly, files created by EMXP will not be recognized by SP-12 Libraria

[21] This software can be obtained on http://www.watersedgesoftware.com

13. USING HXC AND KRYOFLUX

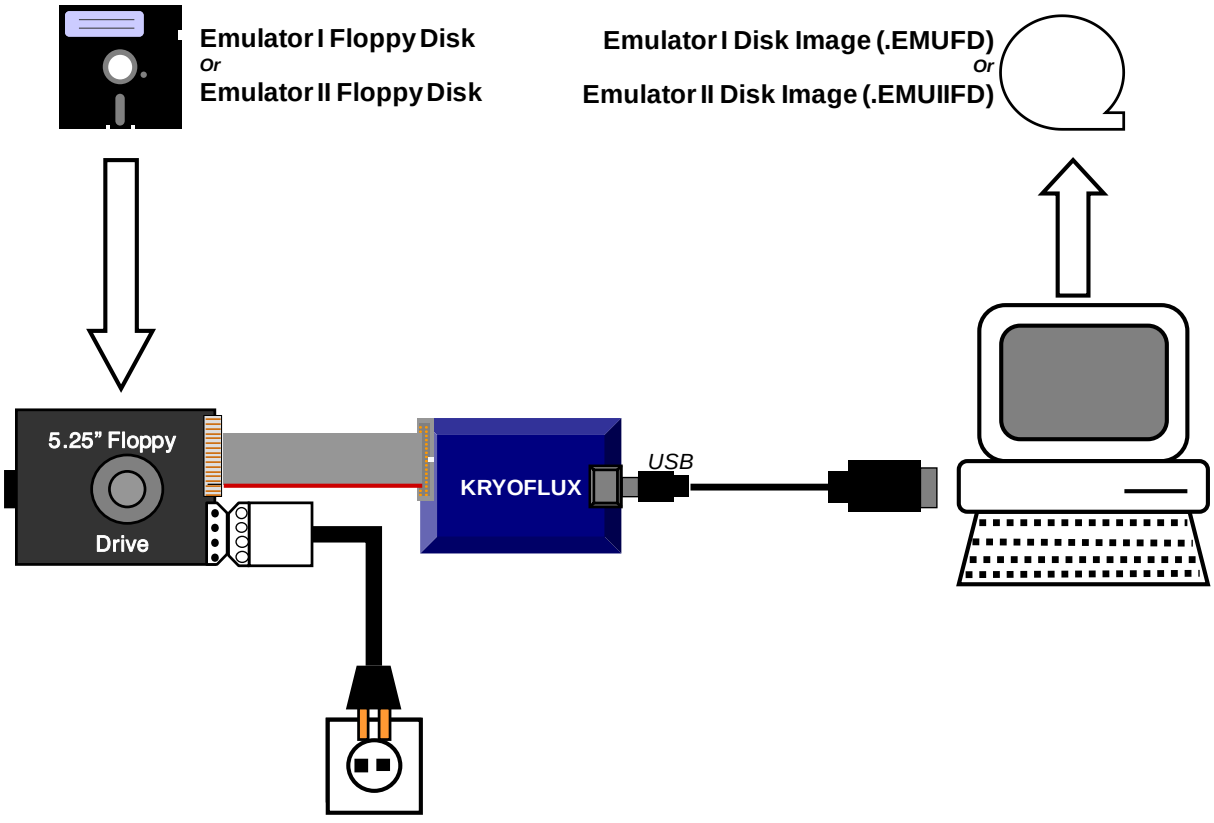
13.1 KRYOFLUX FLOPPY DISK CONTROLLER

As already mentioned - as opposed to EMAX-I, EMAX-II and Akai S1000 floppy disks - Emulator-I and Emulator-II floppy disks can not be accessed by EMXP. This is due to the "exotic" physical disk format which is used by the Emulator-I and Emulator-II samplers.
Standard floppy disk controllers in a PC don't support this format.

There is however a special floppy disk controller available that *is capable of* reading and writing these floppy disks. This controller is called KryoFlux from the Software Preservation Society[22].

13.1.1 Reading Emulator-I and Emulator-II floppy disks

The floppy disks can be read and copied to files on the computer (macOS, Linux and Windows) with the DTC command line tool or the GUI provided with the KryoFlux. The image types that have to be used with DTC are 10 (Emulator-I) and 11 (Emulator-II).
Please consult the DTC / KryoFlux manual for more details about how to copy floppy disks.



The files created by KryoFlux are fully compatible with EMXP:

- Copying Emulator-I floppy disks results in **Emulator-I Floppy Disk Image Files**. Make sure to use **.EMUFD** or **.IMG** as the file name extension when creating files with the KryoFlux.
- Copying Emulator-II floppy disks results in **Emulator-II Floppy Disk Image Files.** Make sure to use **.EMUIIFD** or **.IMG** as the file name extension when creating files with the KryoFlux.

[22] See http://www.kryoflux.com

If you didn't use the correct file extension, you can always change the extension of the files afterwards with the RENAME MSDOS command or (preferably) with a free software which adds this possibility to the Windows Explorer environment [23]

Once you have the disk images, you can simply process them with EMXP.

Process the files (e.g. convert them) by starting EMXP and selecting:
for Emulator-I:
"1. Manage EMU Files and Disks" → "3. Manage EMU EMULATOR-I Files" → "3. Manage EMULATOR-I Floppy Disk Images" → (select one or more image files) → (select one of the actions that can be done with a floppy disk image, e.g. "2. Convert to Other Sampler Format")

for Emulator-II:
"1. Manage EMU Files and Disks" → "4. Manage EMU EMULATOR-II Files and Disks" → "2. Manage EMULATOR-II Floppy Disk Images" → (select one or more image files) → (select one of the actions that can be done with a floppy disk image, e.g. "2. Convert to Other Sampler Format" or "1. Copy Bank to other EMULATOR-II File or Disk" to convert the file to a Sound Designer for EII compatible file)

13.1.2 Writing Emulator-I and Emulator-II floppy disks

As opposed to *reading* floppy disks, it's not possible to write normal (raw) Emulator-I and Emulator-II floppy disk images (.EMUFD, .EMUIIFD) to floppy disks with KryoFlux.

But raw KryoFlux Stream files *can* be written to floppy disks by KryoFlux.
EMXP does not support these raw stream files, but the HxCFloppyEmulator[24] software does.

To *write* normal (raw) Emulator-I and Emulator-II floppy disk images (.EMUFD, .EMUIIFD) to floppy disks:

- Convert the .EMUFD or .EMUIIFD files to KryoFlux stream files with HxCFloppyEmulator (export format "KF stream (.raw)"
- Write these stream files to floppy disk with the the DTC tool of KryoFlux

It is of course also possible to *copy* Emulator-I and Emulator-II floppy disks to other Emulator-I and Emulator-II floppy disks. This can be achieved by

- first *reading* the source floppy disk with the DTC tool into a Kryoflux Stream file
- then *writing* this KryoFlux Stream file to another (empty) floppy disk with the DTC tool

13.2 HXC FLOPPY EMULATOR DEVICE

The HxC is a device which is capable of emulating the floppy drive of many vintage computers and electronic musical instruments. It has been designed by the HxC2001 project, which is initiated and lead by Jean-Francois Del Nero [25].
The HxC also supports the EMAX-I, EMAX-II, Emulator-I, Emulator-II and Akai S1000 samplers.
The Emulator-III/IIIX/ESI samplers are not officially supported, but the HxC seems to work fine with these samplers as well (although writing floppy disks is unstable). To use the HxC with the Emulator-III/IIIX/ESI, use the EMAX loader/format in the HxCFloppyEmulator software.

In order to use the HxC, the original floppy drive in the sampler must be replaced by the HxC. In practice it means that the power and data cables in the EMAX-I, EMAX-II,Emulator-I, Emulator-II, Emulator-III/IIIX/ESI and Akai S1000 should be connected to the HxC instead of to the original floppy drive. (for Akai S1000, an additional resistor should be soldered on the HxC board though...)

[23] E.g. the free Change File Extension Shell Menu from T800 Productions, which adds the file extension changing option to the Windows Explorer's file right click menu
[24] For more information: http://hxc2001.free.fr/floppy_drive_emulator/
[25] For more information: http://hxc2001.free.fr/floppy_drive_emulator/

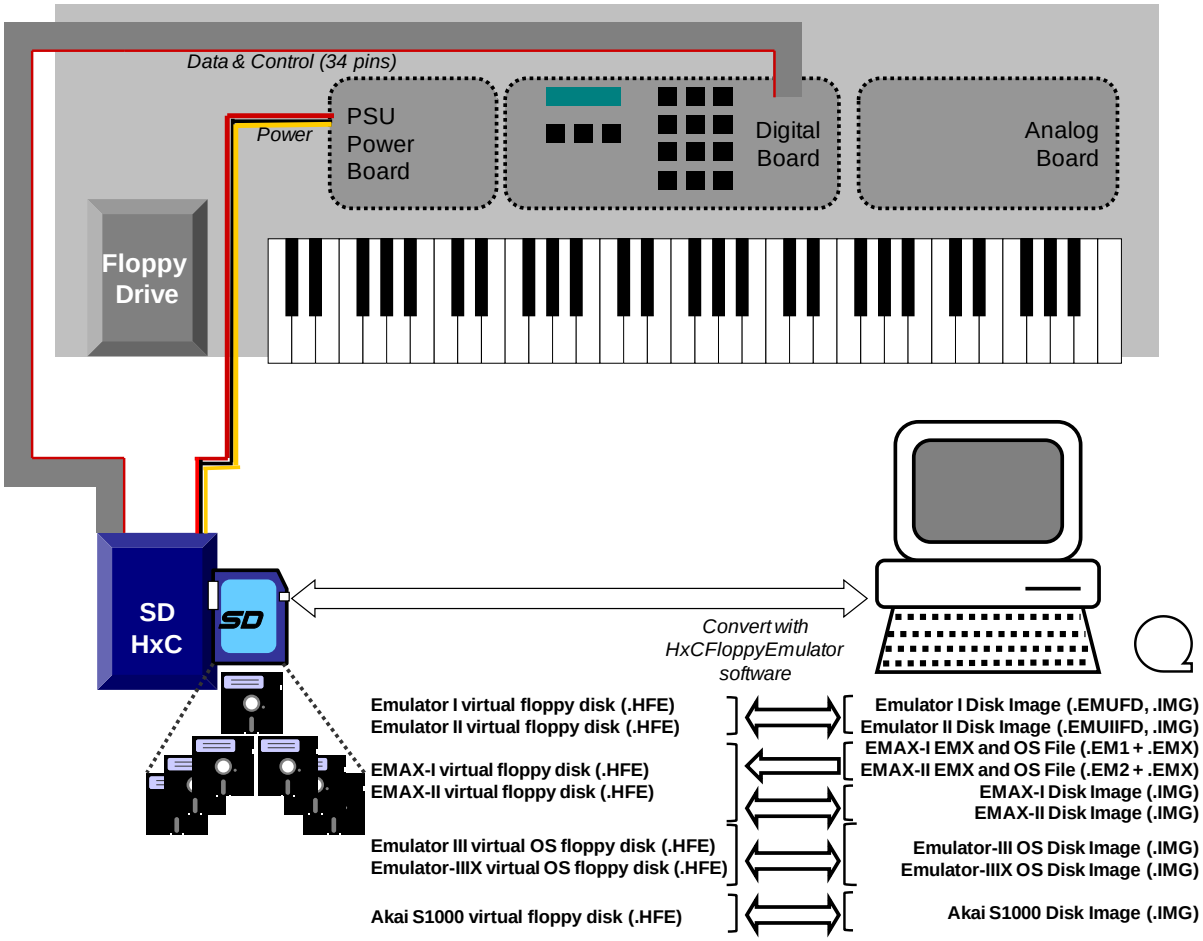
There are two types of the HxC: a stand-alone SD HxC that uses an SD card to read/write “floppy disks”, and the USB HxC which must be connected to a computer in order to read “floppy disks”.
The most popular choice is the SD HxC.

Floppy disks are represented by HFE files on the SD card of the SD HxC – HFE files should be considered to be “virtual floppy disks”.
EMXP can create, read and write HFE files for the EMAX-I, EMAX-II, Emulator-I, Emulator-II and Akai S1000. HFE files for the Emulator-III/IIIX are supported only for *operating system* floppy disks.
While it's also possible to use the HxCFloppyEmulator software which accompanies the SD HxC, that software can not interprete *the sampler-specific contents* of these HFE files.

Once the SD HxC has been installed in the sampler, it is possible to read from and write to these HFE files on the samplers themselves in the very same way as you would previously have done with floppy disks in the sampler’s floppy drive.

- The same functions/modules on the sampler must be used – the sampler is simply not aware of the fact that the floppy drive has been replaced by the SD HxC ! The only important thing to remember is that you *always* have to select an HFE file on the SD HxC before you can use it on the sampler; this is not only true for loading “disks” but also for “saving” to these disks (HFE files).

A detailed document about installing and using the HxC with the Emulator-I and Emulator-II is available on http://www.emxp.net
Please consult this document and the HxC user manual for more information.



It's perfectly possible to use EMXP to copy or convert any disk or file supported by EMXP to an HxC floppy disk image file (.HFE).

EMXP can process existing .HFE files as follows:

for EMAX-I:
"1. Manage EMU Files and Disks" → "1. Manage EMU EMAX-I Files and Disks" → "7. Manage EMAX-I HxC Floppy Disk Images" → (select one or more image files) → (select one of the actions that can be done with an HxC floppy disk image, e.g. "2. Convert to Other Sampler Format")

for EMAX-II:
"1. Manage EMU Files and Disks" → "2. Manage EMU EMAX-II Files and Disks" → "7. Manage EMAX-II HxC Floppy Disk Images" → (select one or more image files) → (select one of the actions that can be done with an HxC floppy disk image, e.g. "2. Convert to Other Sampler Format")

for Emulator-I:
"1. Manage EMU Files and Disks" → "3. Manage EMU EMULATOR-I Files" → "4. Manage EMULATOR-I HxC Floppy Disk Images" → (select one or more image files) → (select one of the actions that can be done with an HxC floppy disk image, e.g. "2. Convert to Other Sampler Format")

for Emulator-II:
"1. Manage EMU Files and Disks" → "4. Manage EMU EMULATOR-II Files and Disks" → "3. Manage EMULATOR-II HxC Floppy Disk Images" → (select one or more image files) → (select one of the actions that can be done with an HxC floppy disk image, e.g. "2. Convert to Other Sampler Format" or "1. Copy Bank to other EMULATOR-II File or Disk" to convert the file to a Sound Designer for EII compatible file)

for Emulator-III:
"1. Manage EMU Files and Disks" → "5. Manage EMU EMULATOR-III/X/ESI Files and Disks" → "6. Manage EMU EMULATOR-III Operating System Files and Disks" → "3. Manage EMULATOR-III Operating System HxC Floppy Disk Images" → (select one or more image files) → (select one of the actions that can be done with an HxC floppy disk image, e.g. "5. Copy Operating System to EMULATOR-III/X/ESI Hard Disk")

for Emulator-IIIX:
"1. Manage EMU Files and Disks" → "5. Manage EMU EMULATOR-III/X/ESI Files and Disks" → "7. Manage EMU EMULATOR-IIIX Operating System Files and Disks" → "3. Manage EMULATOR-IIIX Operating System HxC Floppy Disk Images" → (select one or more image files) → (select one of the actions that can be done with an HxC floppy disk image, e.g. "5. Copy Operating System to EMULATOR-III/X/ESI Hard Disk")

for Akai S1000:
"2. Manage AKAI S1000 Files and Disks" → "7. Manage AKAI S1000 HxC Floppy Disk Images" → "1. Manage existing AKAI S1000 HxC Floppy Disk Images" → (select one or more image files) → (select one of the actions that can be done with an HxC floppy disk image)

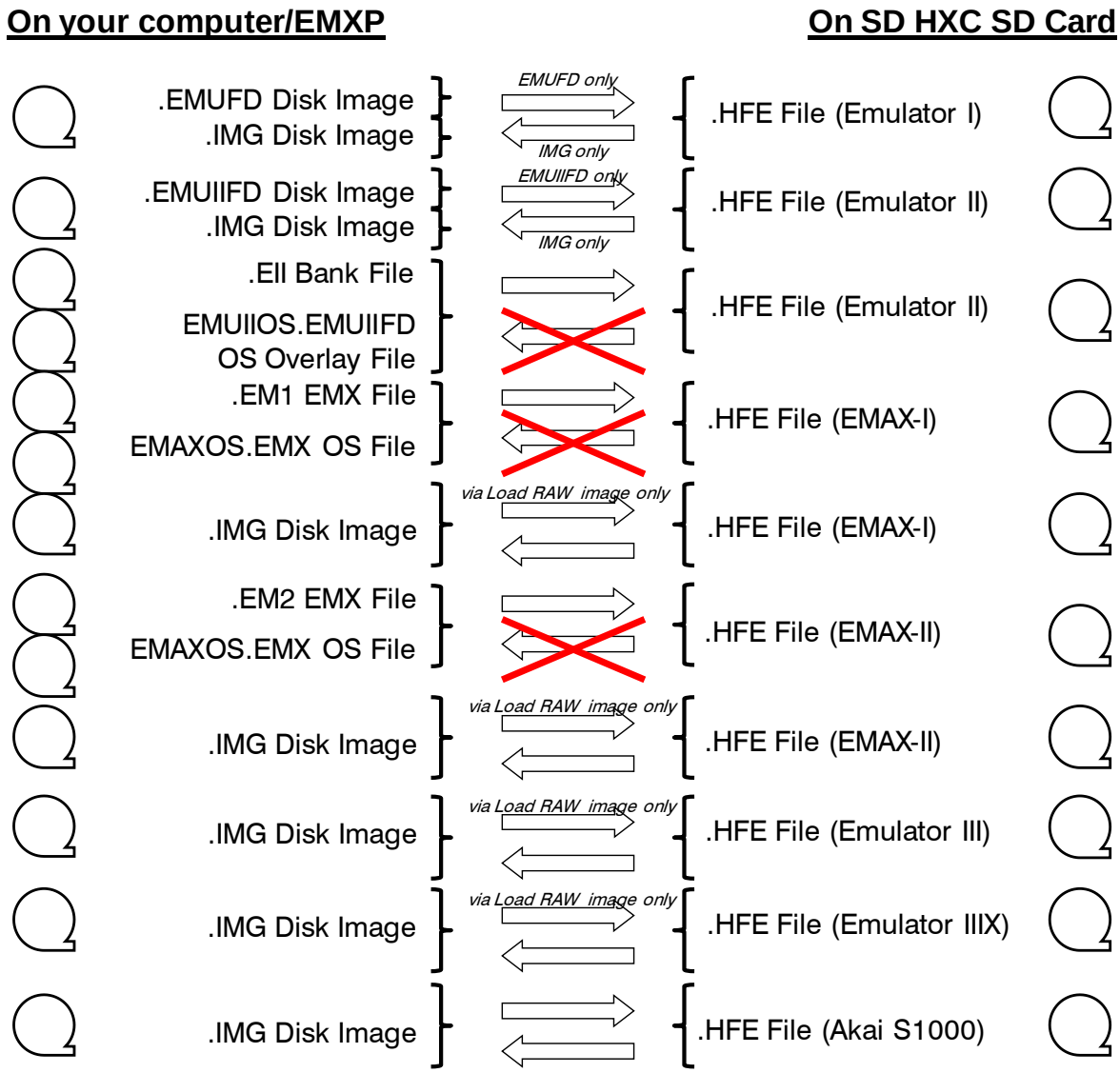
As an alternative you can also use the HxCFloppyEmulator software to create EMAX-I, EMAX-II, Emulator-I, Emulator-II, Emulator-III, Emulator-IIIX and Akai S1000 HFE files.

As input for generating these files, HxCFloppyEmulator supports:

- .EMUFD Floppy Disk Image files for Emulator-I
- .EMUIIFD Floppy Disk Image files for Emulator-II
- .EM1 EMX files for EMAX-I, on condition that an EMAX operating system file EMAXOS.EMX is present in the same folder on your computer's disk as the one in which the .EM1 files reside. HxCFloppyEmulator will merge the .EM1 and .EMX OS files when it generates the HFE files.
- .EM1FD (or.IMG) files for EMAX-I; you'll have to use the "Load RAW Image" function instead of the normal "Load" function to import the .EM1FD (.IMG) file. Use the "Emax 3.5 DD" predefined disk layout.
- .EM2 EMX files for EMAX-II, on condition that an EMAX operating system file EMAXOS.EMX is present in the same folder on your computer's disk as the one in which the .EM2 files reside. HxCFloppyEmulator will merge the .EM2 and .EMX OS files when it generates the HFE files.
- .EM2FD (or.IMG) files for EMAX-II; you'll have to use the "Load RAW Image" function instead of the normal "Load" function to import the .EM2FD (.IMG) file. Use the "Emax II 3.5 DD" predefined disk layout.

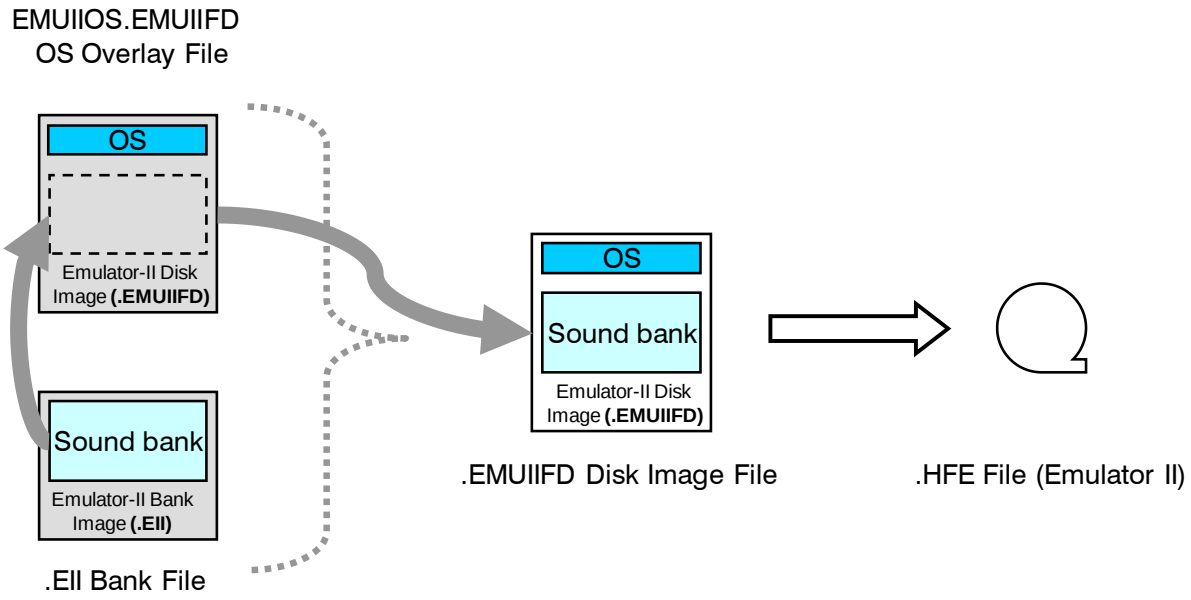
- .E3OFD (or.IMG) files for Emulator-III or Emulator-IIIX OS floppy disk images; you'll have to use the "Load RAW Image" function instead of the normal "Load" function to import the .E3OFD (.IMG) file. Use the "Emax 3.5 DD" predefined disk layout (it's compatible with the Emulator-III/IIIX disk format)
- .EII Bank files for Emulator-II, on condition that an OS Overlay file called EMUIIOS.EMUIIFD is present in the same folder on your computer's disk as the one in which the .EII files reside[26]. HxCFloppyEmulator will merge the .EII files with the EMUIIOS.EMUIIFD file when it generates the HFE files.
- .IMG Floppy Disk Image files for Akai S1000

Using the HxCFloppyEmulator software



The picture below illustrates the "merging" process use by HxCFloppyEmulator when generating Emulator-II .HFE files.

[26] These OS Overlay files can be downloaded from http://www.emxp.net or can be generated by EMXP if you already have OS files available (also available from http://www.emxp.net)



The HxCFloppyEmulator software is also capable of converting HFE files back to EMAX-I, EMAX-II, Emulator-I, Emulator-II, Emulator-III, Emulator-IIIX and Akai S1000 *Floppy Disk image files*. Converting Emulator-II HFE files to .EII Bank files and EMAX-I/EMAX-II HFE files to .EM1/.EM2 files is not supported by HxCFloppyEmulator (although the opposite direction *is* supported) - but this can perfectly be done within EMXP itself.

When converting HFE files to floppy disk image files, the HxCFloppyEmulator software assigns the default file extension .IMG to the resulting files. This file extension is supported by EMXP, but if you like you can also replace these extensions with .EM1FD, .EM2FD, .EMUFD, .EMUIIFD, E3OFD or .AKI. This can be done with the RENAME MSDOS command or (preferably) with a free software which adds this possibility to the Windows Explorer environment [27].

EMXP can process these .IMG, .EM1FD, .EM2FD, .EMUFD, .EMUIIFD, E3OFD and .AKI files.

Process the files (e.g. convert them) by starting EMXP and selecting

for EMAX-I:
"1. Manage EMU Files and Disks" → "1. Manage EMU EMAX-I Files and Disks" → "6. Manage EMAX-I Floppy Disk Images" → (select one or more image files) → (select one of the actions that can be done with a floppy disk image, e.g. "2. Convert to Other Sampler Format")

for EMAX-II:
"1. Manage EMU Files and Disks" → "2. Manage EMU EMAX-II Files and Disks" → "6. Manage EMAX-II Floppy Disk Images" → (select one or more image files) → (select one of the actions that can be done with a floppy disk image, e.g. "2. Convert to Other Sampler Format")

for Emulator-I:
"1. Manage EMU Files and Disks" → "3. Manage EMU EMULATOR-I Files" → "3. Manage EMULATOR-I Floppy Disk Images" → (select one or more image files) → (select one of the actions that can be done with a floppy disk image, e.g. "2. Convert to Other Sampler Format")

for Emulator-II:
"1. Manage EMU Files and Disks" → "4. Manage EMU EMULATOR-II Files and Disks" → "2. Manage EMULATOR-II Floppy Disk Images" → (select one or more image files) → (select one of the actions that can

[27] E.g. the free Change File Extension Shell Menu from T800 Productions, which adds the file extension changing option to the Windows Explorer's file right click menu

be done with a floppy disk image, e.g. “2. Convert to Other Sampler Format” or “1. Copy Bank to other EMULATOR-II File or Disk” to convert the file to a Sound Designer for EII compatible file)

for Emulator-III:
“1. Manage EMU Files and Disks” → “5. Manage EMU EMULATOR-III/X/ESI Files and Disks” → “6. Manage EMU EMULATOR-III Operating System Files and Disks” → “2. Manage EMULATOR-III Operating System Floppy Disk Images” → (select one or more image files) → (select one of the actions that can be done with a floppy disk image, e.g. “5. Copy Operating System to EMULATOR-III/X/ESI Hard Disk”)

for Emulator-IIIX:
“1. Manage EMU Files and Disks” → “5. Manage EMU EMULATOR-III/X/ESI Files and Disks” → “7. Manage EMU EMULATOR-IIIX Operating System Files and Disks” → “2. Manage EMULATOR-IIIX Operating System Floppy Disk Images” → (select one or more image files) → (select one of the actions that can be done with a floppy disk image, e.g. “5. Copy Operating System to EMULATOR-III/X/ESI Hard Disk”)

for Akai S1000:
“2. Manage AKAI S1000 Files and Disks” → “6. Manage AKAI S1000 Floppy Disk Images” → “1. Manage existing AKAI S1000 Floppy Disk Images” → (select one or more image files) → (select one of the actions that can be done with a floppy disk image)

EMXP is also capable of creating .EM1, .EM2, .EMUFD, .EMUIIFD, .EII and .IMG files as input for the HxCFloppyEmulator software in order to make HFE files for the SD HxC.

When converting any sound bank to the EMAX-I, EMAX-II, Emulator-I or Emulator-II format, EMXP will always ask what kind of file you want to generate. While a direct (native) conversion to HxC floppy disk image files is available in EMXP, some of the other available possibilities are: EMAX-I/EMAX-II EMX Files (.EM1, .EM2), Emulator-I Floppy Disk Images (.EMUFD), Emulator-II Floppy Disk Images (.EMUIIFD) and Emulator-II Bank Images (.EII) . See *chapter "7. USING EMXP: CONVERSIONS"*.

If you already have Emulator-I bank files, they can simply be converted to floppy disk image files (.EMUFD) by selecting:
“1. Manage EMU Files and Disks” → “3. Manage EMU EMULATOR-I Files” → “1. Manage EMULATOR-I Bank Files” → (select one or more files) → [press 'Y'] or [select “1. Copy to other EMULATOR-I File”] → “2. Copy to EMULATOR-I Floppy Disk Image File(s)”

If you already have Emulator-I lower/upper sound files, they can simply be converted to floppy disk image files (.EMUFD) by selecting:
“1. Manage EMU Files and Disks” → “3. Manage EMU EMULATOR-I Files” → “2. Manage EMULATOR-I Lower/Upper Sound Files” → (select one or more files) → [press 'Y'] or [select “1. Copy to other EMULATOR-I File”] → “3. Copy to EMULATOR-I Floppy Disk Image File(s)”

If you have SoundDesigner for EII bank files (.EII), you can simply convert them to .EMUIIFD floppy disk image files by selecting:
“1. Manage EMU Files and Disks” → “4. Manage EMU EMULATOR-II Files and Disks” → “1. Manage EMULATOR-II Bank Files” → (select one or more files) → [press 'Y'] or [select “1. Copy Bank to other EMULATOR-II File or Disk”] → “2. Copy to EMULATOR-II Floppy Disk Image File(s)”

On the http://www.emxp.net website some Emulator-I and Emulator-II floppy disk image files are available for download.
These images only contain an operating system. The sound bank part in these files is empty (“NULL PRESET”). The Emulator-II floppy disk images on http://www.emxp.net can also be used as OS Overlay file by the HxCFloppyEmulator software. That’s why these files are named EMUIIOS.EMUIIFD…

If you already have EMAX-I, EMAX-II, Emulator-I, Emulator-II, Emulator-III or Emulator-IIIX operating system files (also available on http://www.emxp.net) , you can also use EMXP to *generate* bootable .EM1FD,

.EM2FD, .EMUFD, .EMUIIFD or E3OFD floppy disk image files as well as bootable .HFE files for use with the HxC.
Again, the generated bootable .EMUIIFD files can also be used as OS Overlay file by the HxCFloppyEmulator software.

To generate a bootable EMAX-I HxC floppy disk image:
"1. Manage EMU Files and Disks" → "1. Manage EMU EMAX-I Files and Disks" → "3. Manage EMAX-I Operating System Files" → (select an OS file) → [press 'J'] or [select "8. Generate Empty Bootable EMAX-I HxC Floppy Disk Image"]

To generate a bootable EMAX-I floppy disk image:
"1. Manage EMU Files and Disks" → "1. Manage EMU EMAX-I Files and Disks" → "3. Manage EMAX-I Operating System Files" → (select an OS file) → [press 'K'] or [select "7. Generate Empty Bootable EMAX-I Floppy Disk Image"]

To generate a bootable EMAX-II HxC floppy disk image:
"1. Manage EMU Files and Disks" → "2. Manage EMU EMAX-II Files and Disks" → "3. Manage EMAX-II Operating System Files" → (select an OS file) → [press 'J'] or [select "8. Generate Empty Bootable EMAX-II HxC Floppy Disk Image"]

To generate a bootable EMAX-II floppy disk image:
"1. Manage EMU Files and Disks" → "2. Manage EMU EMAX-II Files and Disks" → "3. Manage EMAX-II Operating System Files" → (select an OS file) → [press 'K'] or [select "7. Generate Empty Bootable EMAX-II Floppy Disk Image"]

To generate a bootable Emulator-I HxC floppy disk image:
"1. Manage EMU Files and Disks" → "3. Manage EMU EMULATOR-I Files" → "5. Manage EMULATOR-I Operating System Files" → (select an OS file) → [press 'J'] or [select "5. Generate Empty Bootable EMULATOR-I HxC Floppy Disk Image"]

To generate a bootable Emulator-I floppy disk image:
"1. Manage EMU Files and Disks" → "3. Manage EMU EMULATOR-I Files" → "5. Manage EMULATOR-I Operating System Files" → (select an OS file) → [press 'K'] or [select "4. Generate Empty Bootable EMULATOR-I Floppy Disk Image"]

To generate a bootable Emulator-II HxC floppy disk image:
"1. Manage EMU Files and Disks" → "4. Manage EMU EMULATOR-II Files and Disks" → "6. Manage EMULATOR-II Operating System Files" → (select an OS file) → [press 'J'] or [select "7. Generate Empty Bootable EMULATOR-II HxC Floppy Disk Image"]

To generate a bootable Emulator-II floppy disk image:
"1. Manage EMU Files and Disks" → "4. Manage EMU EMULATOR-II Files and Disks" → "6. Manage EMULATOR-II Operating System Files" → (select an OS file) → [press 'K'] or [select "6. Generate Empty Bootable EMULATOR-II Floppy Disk Image (Overlay File)"]

To generate a bootable Emulator-III HxC floppy disk image:
"1. Manage EMU Files and Disks" → "5. Manage EMU EMULATOR-III/X/ESI Files and Disks" → "6. Manage EMU EMULATOR-III Operating System Files and Disks" → "1. Manage EMULATOR-III Operating System Files" → (select an OS file) → [press 'X'] or [select "3. Generate Bootable EMULATOR-III HxC OS Floppy Disk Image"]

To generate a bootable Emulator-III floppy disk image:
"1. Manage EMU Files and Disks" → "5. Manage EMU EMULATOR-III/X/ESI Files and Disks" → "6. Manage EMU EMULATOR-III Operating System Files and Disks" → "1. Manage EMULATOR-III Operating System Files" → (select an OS file) → [press 'I'] or [select "2. Generate Bootable EMULATOR-III OS Floppy Disk Image"]

To generate a bootable Emulator-IIIX HxC floppy disk image:
"1. Manage EMU Files and Disks" → "5. Manage EMU EMULATOR-III/X/ESI Files and Disks" → "7. Manage EMU EMULATOR-IIIX Operating System Files and Disks" → "1. Manage EMULATOR-IIIX Operating System Files" → (select an OS file) → [press 'X'] or [select "3. Generate Bootable EMULATOR-IIIX HxC OS Floppy Disk Image"]

To generate a bootable Emulator-IIIX floppy disk image:
"1. Manage EMU Files and Disks" → "5. Manage EMU EMULATOR-III/X/ESI Files and Disks" → "7. Manage EMU EMULATOR-IIIX Operating System Files and Disks" → "1. Manage EMULATOR-IIIX Operating System Files" → (select an OS file) → [press 'I'] or [select "2. Generate Bootable EMULATOR-IIIX OS Floppy Disk Image"]

It's also possible to generate empty Akai S1000 floppy disk image files and empty Akai S1000 HxC floppy disk image files in EMXP.

To generate an empty Akai S1000 HxC floppy disk image:
"2. Manage AKAI S1000 Files and Disks" → "7. Manage AKAI S1000 HxC Floppy Disk Images" → "2. Create new (blank) AKAI S1000 HxC Floppy Disk Image"

To generate an empty Akai S1000 floppy disk image:
"2. Manage AKAI S1000 Files and Disks" → "6. Manage AKAI S1000 Floppy Disk Images" → "2. Create new (blank) AKAI S1000 Floppy Disk Image"

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