ex.factory Version 6.11.02
User Manual

(C) Derek Cook 2001-2023

www.xfactory-librarians.co.uk

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What's New in ex.factory 6.11.02 (23/12/2023)

- Provided a workaround for the OSX Java file selector bug that reports a non existent directory when you have double clicked a directory to select it.
- Improved registration process. You now no longer have to quit the program to activate the disabled features once registered and activated.
- Application rebuild to stay current with latest version of Java 17, required libraries and build tools.

Previous Versions

V6.11.01 (20/12/2022)

- Fixed a bug in drag and drop (most noticeable in kronos.factory and montage.factory due to file sizes) where drag and drop operations were occasionally failing and providing an error message about copy and paste not being possible.
- Fixed a bug where using the View/Refresh menu option killed drag and drop.
- Updated the status bar's file name display to show a truncated path (with the filename fully visible) if the the full path will not fit in the available space.

V6.11.00 (08/05/2022)

- Updated how the applications are built. The Java Runtime is now embedded and updated to Java 17 as the minimum version. There is no longer a need for a standalone version of Java to be installed
- New installers for OS X (DMG), PC (MSI) and Linux (DEB) and basic ZIP and TAR packages.
- The OS X DMG package is notarized for compatibility with the OS X security model.

V6.10.03 (11/08/2020)

- Updated AN1x importer to support importing AN1x voices for an EX7 and its AN POLY mode.

V6.10.02 (05/07/2020)

- Fixed problem on OS X Mojave and Catalina which was preventing access to protected folders.
- tritonus sample libraries are now provided with the application package, as Java 11 no longer seems to recognise external libraries on OS X in the /Libraries/Java/Extensions path.

V6.10.01 (28/04/2020)

- Fixed a bug with the default library path that was creating a new library under the main library.
- Introduced the Preferences option to allow the library path to be set.

V6.10.00 (18/04/2020)

- If you double click on a voice, it will be sent to the synth's edit buffer. If you use a triple click action instead, the MIDI router is automatically opened after the voice is exported.
- The application now supports MIDI data logging to the application log, which can be enabled in the Preferences/Misc Tab. It is recommended that this is not normally turned on, and it is only needed when required to help me diagnose any MIDI issues that are reported if you are experiencing any such issues.
- The Minimum Java Version is now Java 11, and I have rebuilt the applications with the latest support libraries. The migration to Java 11 is a significant step, as I have been help back from migrating to Java 9 and above due to Java PC MIDI issues that were causing garbled MIDI port names, which made it impossible to select MIDI ports. These issues are now resolved in the recommended JREs. Please see the Java Support page on the website for more details.
- The applications support iMac Retina displays.

V6.9.06 (22/12/2018)

- No functional changes. The Application is now built using new build tools and libraries, as some of the ones I was using were obsolete and no longer supported. I am changing these as part of longer time migration plans to Java 9 and above.
- The Minimum Java Version is now Java 8, as Java 7 as Oracle no longer provide public updates to Java 7.

V6.9.05 (22/10/2017)

- OSX Users - Updates to how devices are named in CoreMIDI4J to provide better device identification, which means that you may need to reselect your devices in MIDI Preferences as they may now be named differently.
- OSX Users - I've finally figured out how to get rid of the confusing default drag image that OS X adds on top of the drag images that I am generating.

- Small GUI update to change background colour of object selections (the default colours since Java 7 are not good).

V6.9.04 (13/08/2017)

- Further improvements to error logging.

V6.9.03 (08/07/2017)

- General improvements in MIDI report handling to report identified port issues to the user.
- When importing many items and MIDI timeouts are being experienced, then you now have the option to abort or continue the transfer
- Fixed bug in the database that prevented the author being correctly displayed when it was being edited, and added context menu options to allow multiple objects to have the Author value edited at the same time.
- Added application error logging to make debugging easier.

V6.9.02 (24/12/2016)

- Improved database access performance when editing information.

V6.9.01 (16/12/2016)

- Updated sample playback to work with Java 7 and later.
- Updated Help and Manual screenshots to replace the boring old Windows look with that of OS X. I had to add some new screenshots, and it looked odd having a mix!

V6.9.00 (25/07/2016)

- CoreMidi4J is now embedded in the application for OS X Users. So there is no longer a need to download and install a MIDI Service Provider extension for OS X.

V6.8.00 (28/03/2016)

- Updated all x.factory Librarians to use CoreMID4J on Mac OSX.
- Updated all x.factory Librarians to use Launch4J application launcher on PC.
- The minimum JRE version is now Java 7.

V6.7.00 (28/06/2014)

- Updated all x.factory Librarians to use a new automated licensing system.

V6.6.00 (07/10/2012)

- Updated VL70m import options to allow VL70m Edit Buffer SYSEX files to be loaded (in addition to VL LIB and VL MID files already supported.

V6.5.00 (27/08/2012)

- Updated MIDI Router to allow the MIDI Channel to be either the channel sent by the source device, or to be the channel specified in the **MIDI Options Dialog**.

V6.4.00 (23/08/2012)

- Updated application to work with MMJ on OS X to provide access to external MIDI devices. The move to MMJ is required because the Mandolane MIDI SPI is no longer supported and doesn't work on OS X Lion and above.
- The MIDI Router is now available on the MIDI Menu.

V6.3.00 (19/01/12)

- Updated Java Launcher to work on OSX Snow Leopard and OSX Lion.

V6.2.03 (04/12/2011)

- Fixed a bug, where the Channel Number in the MIDI Preferences page was being ignored, so that bank and patch changes were only ever sent on MIDI Channel 1.

V6.2.02 (07/11/2011)

- Updated Windows Installer to detect 32 or 64 Java Runtime Environments (JREs) and to configure the application launcher to make use of a 64 bit JRE if available.

- Fixed bug in Librarian batch importer, which was preventing the use of the Library Import Settings made in the import Wizard
- Fixed bug that was preventing the selection of Table Views if the application was not registered
- Fixed bug that was preventing the showing if MIDI import options on the context sensitive menus in Tree and Table Views

V6.2.01 (29/10/2011)

- Fixed bug in the File/Save As... function, which was causing a null pointer exception when saving a file as a different type.

V6.2 (11/08/2011)

- Added a new feature to recreate files from the library (note this will only work with Libraries created in V6.2. onwards)
- Added File and Author views to the Database.
- Added an context menu option to the Database views to allow you to see what files are using an object.
- File/Save As now allows you to change the file type when saving the file.

V6.1 (14/05/2011)

- Library Statistics dialog added, allowing you to see how big the Library is!
- Batch importer for importing Motif files into the Library

V6.0.02 (05/04/10)

- Added ability to show a flag in the tree view if a voice is using custom elements.

V6.0.01 (24/12/09)

- Corrected problem where file data paths on non-English locales were not being found.
- Updated license code to allow ex.factory to unpack a license.zip if it is found in the license folder, which simplifies installation particularly for Mac OSX users, where the standard zip extractors were causing problems with the license file. ex.factory can also now detect a license.lic file if this has been inadvertantly extracted

V6.0 (23/11/2009)

- Library support has been added, which allows you to keep all of your favourite items (Voices, Performances, Waves, etc.) in one Library database, and then sort and filter them to find the patch that you want. This feature is only available for [registered users](). All the features of ex.factory, such as copying referenced Waves and Samples with a Voice, work when copying items to and from the Library.
- You can now open VL70m MIDI files (as well as VLL LIB files) to access custom VL elements and transfer them to the EX5.
- Corrected problem that was preventing VL70m files from being opened in Table view, and also sorted out issues with showing the synth window as a table view
- If Waves and Samples in an S1M file are referenced by Voices in S1A, S1V or S1Y files (using the File Association function), then you can now use the [List References]() function the same way as for Waves/Samples in an S1A file.
- If S1A, S1V or S1Y files have an S1M file associated with them (for a RAM or a FLASH bank), then when you copy Voices to a new file, the Waves/Samples are also copied if there is a corresponding RAM or FLASH bank in the destination.
- Improved Apple Macintosh OSX integration. ex.factory now provides an application bundle and it also integrates with the OSX Screen Menu Bar's Application menu

V5.0 (29/08/2006)

No new features, but a major rewrite using Java 5, and a few minor bug fixes

V4.1.01 (26/10/2005)

- The EX5/EX7 device type setting is now used in generating the titles for patch script files (to address a comment made by Laurent).
- The documentation has been updated to provide more information on installing Cubase Patch scripts in Cubase SX (to incorporate the information I gave on the thread in the Voices forum started by klezmer41 on how to install the patch scripts).

V4.1 (30/09/2005)

- The Table View now supports Waves, Samples, Arpeggios, Patterns and Keymaps.
- The Tree View now supports a "goto keymap" option in the goto Dialog.

- An S1A, S1V or S1Y file can have an S1M file associated with it as a FLASH memory bank.
- An S1V or S1Y file can have an S1M file associated with it as a RAM memory bank.
- Voices and Performances from selected S1A, S1V and S1Y files can be exported to a single, master Cubase Patch Script, which means you can have a single Cubase script file containing all your patch names, including preset voice definitions.
- Voices and Performances from S1A, S1V and S1Y files can be exported in Sonar Patch Script format.
- Data within all file types can be exported to SpreadsheetML format, which is a great aid for documenting your projects.
- As well as Initialising a voice, there is now a popup menu option to create a new specific voice type (e.g. a Drum Voice).
- The default directory control in the preferences selection now provides a directory selector to allow you to pick a directory instead of having to type in a name.
- A Refresh option has been added to the View Menu.
- Screen updates when copying many objects have been optimised.
- Fixed problem that prevented S1M files created by ex.factory from being loaded into FLASH.
- Fixed problem with transfers of VL70m custom elements via MIDI (registered user feature)
- When checking SMDI settings, ex.factory checks to see if the device is any of the following: "EX5", "EX5R" or "EX7". Previously the only device ID checked was "EX5".

V4.0 (17/10/2004)

- MIDI support, allowing you to transfer Voices and Performances between ex.factory and the EX5 edit buffers and memory locations (registered users only).
- You can now open VL70m lib files and transfer VL70m Custom VL Elements via MIDI to the EX's Custom VL Wave Slots (registered users only).
- Cut, Copy and Paste clipboard support on all EX data types.
- Wave Layer Parameter Editor.
- Sample Parameter Editor, which includes the ability to audition Samples within ex.factory.
- Online Context Sensitive Help within ex.factory, and comprehensive indexed and linked PDF manual.
- Tips and Tricks that can be viewed one at a time (including an option to display tips on startup) or as a list in the help pages.
- Arpeggios, Patterns, Waves and Samples can now be sorted by name.
- Waves and Samples can now be sorted by category.
- The Performance Arpeggiator Unit settings are now shown in the Tree View, and preset and user Arpeggios can be dragged onto the Performance arpeggiator, the same way as for Voices.
- Arpeggiator Unit parameters can now be copied between Voices and Performances.
- The Find facility now works in the EX Synthesizer Window.
- The EX Synthesizer Window now supports split screen and table views.
- When the EX Synthesizer Window is selected, the status bar now shows the amount of Sample Memory in use.
- The Category parameter of a Wave is now shown in the tree view, and can be edited.
- The Category parameter of a Sample is now shown in the tree view, and can be edited.
- When importing Waves and Samples via the "import" context sensitive menus, multiple files can now be selected in one go.
- When adding Wave Layers to Waves, or Drum Elements to a drum Element Collection, you can call up a dialog box to add more than one item in one go, by holding down the ALT key whilst selecting the command from the context sensitive menu.
- When moving/copying Wave Layers, you can drop a Wave Layer directly onto a Wave.
- When moving/copying Drum Elements, you can drop a Drum Element directly onto a Drum Element Collection.
- More keyboard shortcuts have been added (all are listed in the manual).

V3.2 (08/09/2003)

- Multiple selection drag and drop is now supported for many data types.
- Multiple selection now supported in Voice and Performance tables, to allow multiple selection drags, and multiple selection edits.
- The Voice and Performance Table views now behave the same as the Tree View when dragging Voices and Performances (e.g. the automatic update of Performances Parts in an S1A or S1Y file when a Voice is moved within the file)
- SMDI sample data transfer between ex.factory and the EX synth is now supported via drag and drop between file windows and a new EX Synthesiser Window (which has expanded and replaced the "preset data window" in earlier versions). This feature is OS specific and we currently have drivers for Windows and MAC OSX
- The import of WAV files now supports the import of centre key and loop point information from the WAV file if this information is embedded in the WAV file.
- Support added for display of scene data and scene editing, including:
  - ♦ Drag and drop of scene branch and scenes;
  - ♦ Initialise scene branch and scenes;
  - ♦ Insert and delete scenes;
  - ♦ Scene editor for editing scene values (quite a neat feature as there is no way to precisely edit scene data on the EX).
- Export of voice information to Protools MIDMAN format.
- The size and position of the main ex.factory window is remembered between sessions.

- Workspaces can be saved and loaded, which allows you to save an arrangement of open files for later reuse. The files, their window size and position and split arrangements are remembered along with tree and table selection status. The tree expansion state is also remembered along with column sizing for tables.
- Goto support added to allow easier navigation to objects.

V3.1 (21/12/2002)

- A warning is provided if an object is being copied to a file and it already exists in the destination file (NB: This currently works by only checking the name of the object).
- A warning is provided if an object is being deleted from a file (or being overwitten by a copy operation) and another object is referencing that object (e.g. a Voice being used by a Performance).
- Objects that are referenced by another object (e.g. a Voice being used by a Performance) are shown in the tree view in blue text.
- The ability to view a list of Objects that are referencing an Object (e.g. to see what Performances are using a Voice).
- Find Object by Name or Category, including the ability to find items using Perl pattern matching.
- The export of Cubase VST patch name scripts from S1A, S1Y and S1V files.
- The export of salient file parameters to an XML file.
- The ability to rename Voices, Performances, Waves, Samples, Songs, Arpeggios and Patterns from the tree view.
- When pasting text whilst renaming objects, the name of the object is now truncated to the right length.
- You can set the "Voice Copy with Performance" feature to only copy voices to bank I2.
- When dragging a user Voice onto a Performance Part, you can set the Performance Part up so that it sounds identical to the source Voice in Voice Mode.
- You can save off sub files from the different file types. E.g. you can save an S1V, S1Y, S1P, S1R, S1S or S1M file out from an S1A file or an S1V from an S1Y file.
- You can export the samples in S1M and S1A files to WAV file format.
- You can import mono or stereo WAV files into S1M and S1A files, either by the popup menus or by drag and drop (e.g. from Windows Explorer).

V3.0 (25/06/2002)

- Support for S1A (Synth All) files.
- Support for S1Y (Synth) files.
- Support for S1M (Sample) files.
- Support for S1S (Song) files.
- Support for S1P (Pattern) files.
- Support for S1R (Arpeggio) files.
- Support for importing AN1 (AN1x Voice format) files.
- EX Preset Voices, Waves, VL Waves, Samples and Arpeggios are available in a special Window and can be used in drag operations.
- The status bar has been extended to show status on free/used Waves, Layers and the amount of Sample memory used in S1A and S1M files.
- EX5 System Settings can be moved copied between files, and can be saved to disk for reloading later.
- Drum Elements can be listed and manipulated by note groupings.
- Extension of print to HTML for all file types, and selection of what is listed for S1A, S1Y and S1M file types.
- Voices now display Arpeggio data, and Apreggios can be dragged onto a Voice.
- Performance Part links to User Voices are adjusted when Voices are moved, inserted or deleted within S1A or S1Y files.
- Wave Layer links to User Samples are adjusted when Samples are moved, inserted or deleted within S1A or S1M files.
- Drum Voice Element links to User Samples are adjusted when Samples are moved, inserted or deleted within S1A files.
- Keymap links to User Samples are adjusted when Samples are moved, inserted or deleted within S1A files.
- Voice Element links to User Waves are adjusted when Waves are moved, inserted or deleted within S1A files.
- Voice links to User Arpeggios are adjusted when Arpeggios are moved, inserted or deleted within S1A files.
- Keymap links to User Patterns are adjusted when Patterns are moved, inserted or deleted within S1A files.
- When Voices are moved within an S1A or S1Y file then Performance Links to User Voices are updated.
- When Samples are moved within an S1M file then Wave Layer Links to User Samples are updated.
- When Samples are moved within an S1A file then Wave Layer, Drum Element and Keymap Note links to User Samples are updated.
- When Patterns are moved within an S1A file then Keymap Note links to User Patterns are updated.
- When Arpeggios are moved within an S1A file then Voice links to User Arpeggios are updated.
- When Performances/Parts are dragged to a different S1A or S1Y file then referenced User Voices are also moved/copied as well.
- When Waves/Wave Layers are dragged to a different S1A or S1M file then referenced User Samples are also moved/copied as well.

- When Voices/AWM Elements are dragged to a different S1A file then referenced User Waves and Arpeggios are also moved/copied as well.
- When Drum Voices/Elements are dragged to a different S1A file then referenced User Samples are also moved/copied as well.
- When Keymaps/Keymap Notes are dragged to a different S1A file then referenced User Samples and Patterns are also moved/copied as well.
- Fixed a "feature" in Java. Java child windows usually only become active when you click the title bar of the Window. I've added some code that activates the Window if you click anywhere inside it (this is to emulate Windows operation).

V2.0 (03/01/2002)

- Multiple Document Interface (MDI), allowing more than one file at a time to be open.
- Multi level Undo/Redo facility on all edits (that sentence does not do justice to the effort it took to get this in).
- The File Menu now supports a list of recently opened files.
- Drag and Drop supports the new MDI, allowing data to be moved/copied between files.
- Drag and drop move/copy of voices between files.
- Drag and drop move/copy of Elements(either single elements or the element branch).
- Drag and drop move/copy of Controller Sets (either single controller sets or the controller branch).
- Drag and drop move/copy of Effects Settings (either single effects or the effects branch).
- Drag and drop move/copy of the Voice Branches.
- Drag and drop move/copy of the Synth Root (all data - not much use at present, but will be once more features are added).
- Improved Drag/Drop feedback graphics show the drop location as either a box, or an "insert" line when moving data such as voices in the same file.
- If dragging an object onto a tree view over a valid parent node (e.g. an element over a voice) and the parent tree node is collapsed, if you hold the cursor over the parent for a few seconds it will expand.
- Voices can be inserted and deleted.
- Controller Sets can be inserted and deleted.
- Elements can be deleted, and drum elements can be inserted into a drum voice
- Controller Sets can now be viewed by either controller set or controller source (Version 1.0 only supported view by controller source).
- Drum elements can be sorted into note order.
- The Drum element display now shows the allocated note of an element.
- Effects and Controller Sets can be initialised via context sensitive menus.
- In the Table view, clicking on the Category, Voice Name or Type column headers will sort the voices accordingly.
- The splash screen is now "smarter". It stays open for a preset time after the application is open, and can be dismissed at any time by simply clicking on it.
- Various parameters can now be set as persistent options, which are recalled when ex.factory starts up (default views, look and feel, start directory, load last used file on start).
- The tool bar can now be hidden.
- The status bar can now be hidden

V1.0 (26/11/2001)

- First release of ex.factory

Installation and Configuration of ex.factory

IMPORTANT NOTE: Please ensure that you read the section on the use of the EX5 MIDI ports, and which ones to use. Use of the correct MIDI Ports and their configuration is essential for the correct operation of ex.factory's MIDI support.

IMPORTANT NOTE: If you are using ex.factory on Windows 7 and above, then there is an issue with the EX5's default configuration of the MIDI A Output Port which can prevent the reception of Voice and Performance bulk dumps over MIDI. This issue is covered in the EX5 MIDI ports section.

ex.factory is downloaded as a self installing file, so installation is automatic, and for most users little else, if anything, needs to be done to get up and running.

A native installer for Windows is also available.

This section is only relevant to installing additional items not included as part of the ex.factory installer.

Installing MIDI Extensions for MacOS X

If you wish to use the MIDI support provided on Mac OSX, then a Java MIDI Service Provider extension is required.

The extensions provide MacOS X Java programs access to all CoreMIDI devices

An extension is required because, historically, the Java implementation on OS X is not able to access external MIDI devices. Apple/Oracle claim to have fixed the external MIDI device access problem in its Java implementation. However, it appears that only "simple" MIDI messages are now supported. SYSEX data transfer (essential for transferring synth data) is not supported.

ex.factory now embeds CoreMIDI4J in the application package, so you no longer need to download and install it separately. However, if you still require an SPI for other Java MIDI software then you will need to ensure that you have the latest compatible version of CoreMIDI4J, as if an SPI is installed in the /Library/Java/Extensions folder then this will override the version of CoreMIDI4J embedded in ex.factory.

If you are not using any other Java software that requires MIDI access, it is best to remove any existing version of CoreMIDI4J from the /Library/Java/Extensions folder so that ex.factory can access the CoreMIDI4J version embedded in the package. That way you can ensure that ex.factory is always using the latest compatible version of CoreMIDI4J.

ex.factory will warn you if it detects an earlier version of CoreMIDI4J. It will still function, but will not benefit from recent CoreMIDI4J bug fixes or enhancements.

If you need to retain a version of CoreMIDI4J in the /Library/Java/Extensions folder then you can always download the latest version of CoreMIDI4J.jar from CoreMIDI4J Releases

Once you have downloaded CoreMIDI4J.jar it needs to be copied to the /Library/Java/Extensions folder. You will need to provide administrator permissions to copy the files.

Once installed, when running the librarians and selecting the MIDI ports to use, select the ports prefixed with **CoreMIDI4J -**. For example my Edirol UA-25 interface that I use for testing on OS X is listed as **CoreMIDI4J - UA-25**. The latest version of ex.factory will only list CoreMIDI4J devices.

Installing Tritonus Java Sound Extensions

If you make use of sy.factory's Sample/Wave manipulation facilities then I recommend that you download and install the Tritonus extensions to the standard Java Sound implementation.

The Tritonus extensions provide better support for converting between different audio file types.

If you use the ex.factory Sample Editor to audition Samples whilst adjusting their centre key values then it is essential that you install Tritonus.

You will need the following libraries from the Tritonus Website:

- tritonus_share.jar-0.3.6 for JRE 5.0 and above
- tritonus_remaining.jar-0.3.6 for JRE 5.0 and above

Once you have these files you need to install them into your JRE.

To do this copy the files to the **lib\ext** folder within the folder where you installed your JRE. For example, on my machine the full path where these files need to be installed is:

C:\Program Files\Java\jre1.8.0_73\lib\ext

On MacOS X, these files must be copied to the /**Library**/**Java**/**Extensions** directory. You will need to provide administrator permission when copying the files.

Registering ex.factory

You need to register ex.factory to allow MIDI data to be exported to the EX, for data to be saved to your computer and for Library Support to be enabled.

Please refer to the x.factory Librarian Registration Page for details on how to register ex.factory.

Running ex.factory

Starting up ex.factory is as simple as starting any application, simple double click on the icon and you're away.

If you have [registered](#) ex.factory, then the Library will be created (if it doesn't already exist) and opened.

During start-up, a "Splash Screen" is shown. This stays visible until a few seconds after the program has loaded and is ready for use, but can be dismissed at any time by clicking on the Splash Screen.

ex.factory remembers the size and position of the main window between sessions, so the main window will be sized and positioned as you left it the last time.

PC

Simply double click on the program icon for the program either in an Explorer shell, or from the desktop if you let the installer placed a shortcut there.

You can also select the program from the **Start Menu**. By default, ex.factory can be found under the **x.factory Librarians** Program Group.

IMPORTANT NOTE: If the application is failing to launch on a PC with a 32 bit version of Windows, then please read the Section on adjusting the [JRE Memory Configuration](#), as the failure is more than likely to be due to an out of memory condition.

MAC OS X

Navigate to the **Applications** folder in **Finder** and double click the ex.factory application.

You can also create "**Aliases**" of the application and place them anywhere you wish, such as on the desktop

To make an alias you can choose any one of the following methods:

- Click the ex.factory item you have just identified and hold down the mouse button. Then, while holding down the **Command** and **Option** keys simultaneously, drag the item to where you want the alias to appear then let go of the mouse button and finally release the two keys. This will create an alias at your desired location. While dragging, the 'ghosted' item will display a shortcut arrow which will remain on the aliased icon when it has been created.
- Hold down the **Ctrl** key, and then click the ex.factory item as identified previously. The context menu will be displayed, and one of the choices will be **Make Alias**. Click that option, and then release the key. The ex.factory alias will appear next to the original item and can be dragged to your location of choice.
- Select the ex.factory item you identified previously by clicking it once then press **Command-l** (lowercase L). The ex.factory alias will appear next to the original item and can be dragged to your location of choice.
- Click the ex.factory item once to select it, and then from the **File** menu, select **Make Alias**. The ex.factory alias will appear next to the original item and can be dragged to your location of choice.

Note that if your alias does not have a small arrow in the lower left corner then you have not correctly created an alias and have probably just dragged the application launcher to a new location. If so, drag it back to the Application folder and start again.

Command Line

You can also startup ex.factory from a command shell (e.g. MsDOS). Simply change directory to where ex.factory is located and type the following:

> ***java -jar exfactory.jar***

The ex.factory Window

The main ex.factory window on OS X looks like this
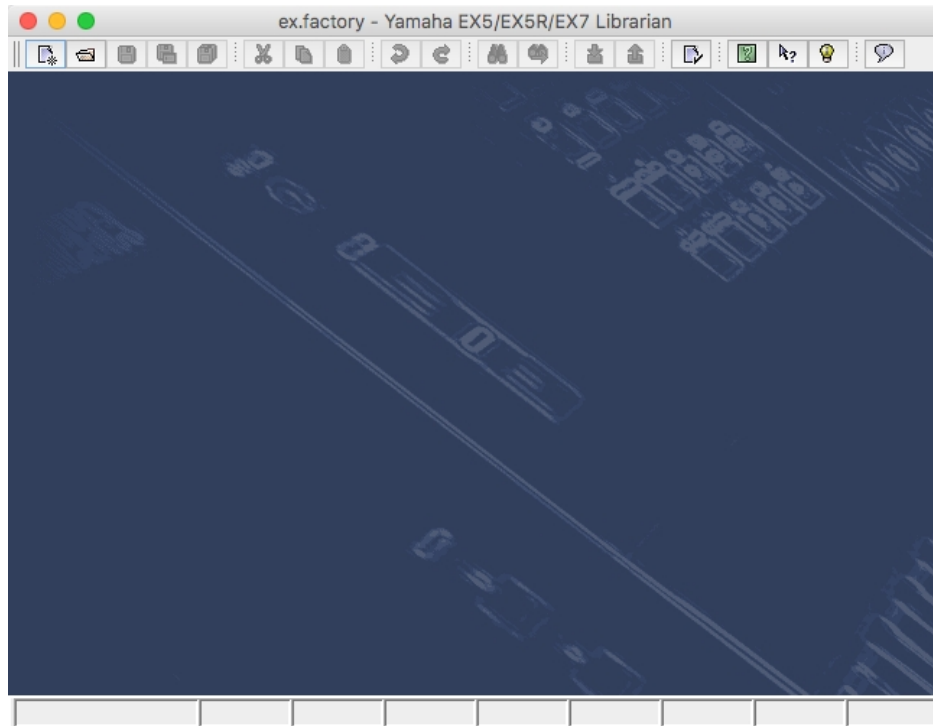
The main ex.factory window on Windows looks like this
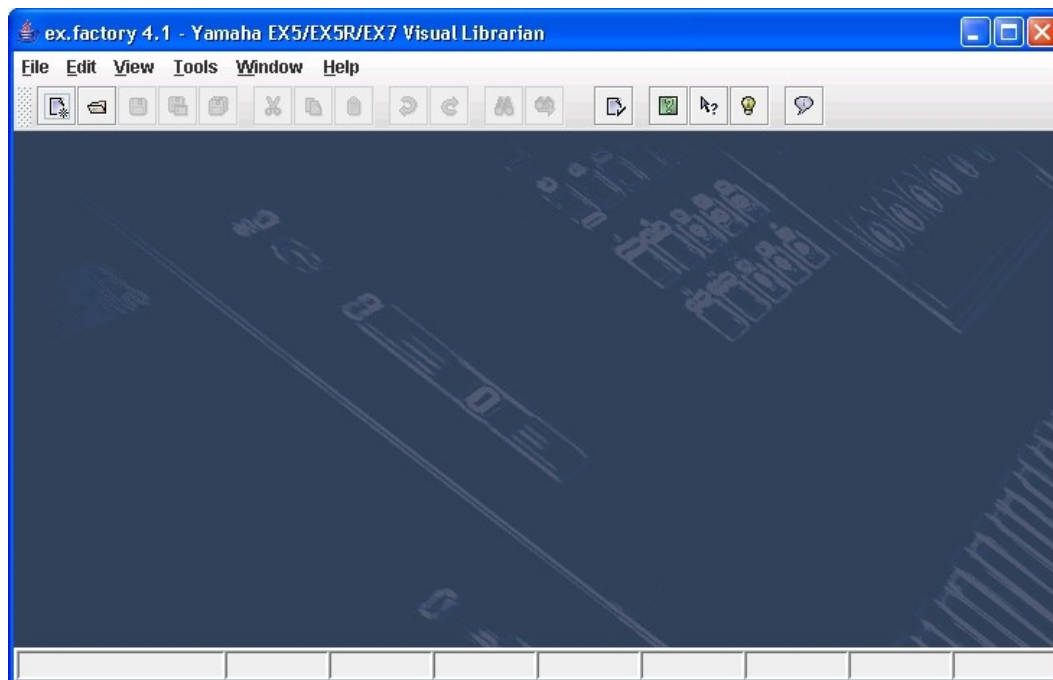
The sy.factory user interface is a Multiple Document Interface (MDI), which allows you to have

The ex.factory user interface is a Multiple Document Interface (MDI), which allows you to have more than one file open at a time.

The interface is divided into the now familiar layout of (from top to bottom):

- The Title Bar
- The Menu Bar (on OS X this appears at the top of the screen)
- The Tool Bar
- The Desktop
- The Status Bar

Menu Bar

The ex.factory menu bar provides a means of selecting common operations; typically those that affect a complete file, or those that don't fit naturally upon a context sensitive popup menu.

Keyboard Shortcuts are provided for common operations.

ex.factory also provides context sensitive popup menus, which are accessible by right clicking over data shown in a Child Window. Naturally the contents of the popup menus varies according to the type of data over which the menu was popped up.

Main Menu Headings

The following menu headings are available.

File   Edit   View   MIDI   SMDI   Tools   Window   Help

- File Menu
- Edit Menu
- View Menu
- MIDI Menu
- SMDI Menu
- Tools Menu
- Window Menu
- Help Menu

The MIDI option is only visible if you have registered ex.factory and enabled MIDI support in the MIDI Preferences Tab in the Preferences Dialog.

The SMDI Menu is only visible if you have enabled SMDI support in the SMDI Preferences Tab in the Preferences Dialog.

The File Menu

The **File** menu provides the following options:

New ...	⌘N
Open ...	⌘O
Close	⌘W
Close All	⇧⌘W
Save	⌘S
Save As ...	⇧⌘S
Save All ...	⌘L
Open Work Space...	⌥⌘O
Save Work Space ...	⌥⌘S
Export to	▶

1: /Development/EX5/Voices/THE_END.S1A
2: /Development/EX5/Voices/AN1x.S1V
3: /Development/EX5/Voices/ML1_FLS.S1V
4: /Development/EX5/Voices/MEL-LABS.s1m
5: /Development/EX5/Voices/MEL_FLS.S1V
6: /Development/EX5/Voices/ML2_FLS.S1V
7: /Us../EX5/H_Ghoul8/EX_Files/HG8.s1v
8: /Development/EX5/Voices/CS80_Brs.s1m
9: /Development/EX5/Voices/OasysDVC.s1m

New ...

Shows the Create New File Dialog, which allows you to create a new file.

Open ...

Shows the Open File Dialog, which allows you to open a specified file.

Save

Saves a file using its current name.

This option is only enabled if your copy of ex.factory is registered.

If the file in question is a newly created file, then the Save File Dialog is brought up to allow a name to be entered.

Save As ...

Saves the selected file after a name has been entered in the Save File Dialog.

This option is only enabled if your copy of ex.factory is registered.

Save All

Saves all files that have been modified using their current names.

This option is only enabled if your copy of ex.factory is registered.

Open Workspace ...

This option allows you to select a previously saved Workspace, which is a Collection of open windows, and their size and position within the main ex.factory window.

When you select this option, a dialog opens which allows you to select an ex.factory workspace file (EXW).

Save Workspace ...

This option allows you to save the current size and position of the main ex.factory window, and the arrangement of the open windows within ex.factory to a Workspace file.

This option is only enabled if your copy of ex.factory is registered.

Export to

This option brings up the following sub menu:
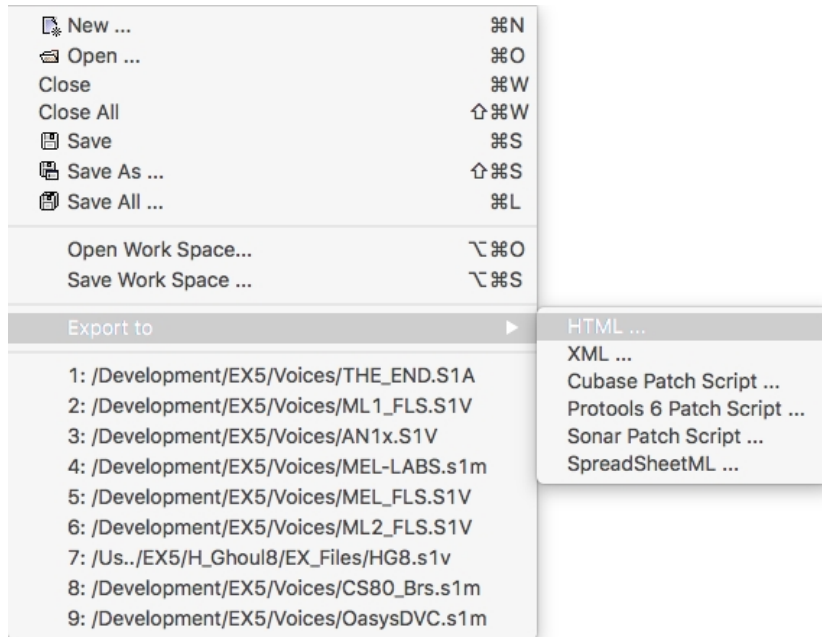
These options allow you to [Export](#) the data in the currently selected file to a variety of different formats.

Exit

Exits the ex.factory application.

If any files have been modified and have not been saved, you will be given the option of saving them.

Recently Opened Files

The file menu also contains a list of recently opened files to allow easy access to files that you are currently working upon. The recently open files list appears at the bottom of the file menu.

The Edit Menu

The **Edit** menu provides the following options:

⟲ Undo	⌘Z
⟳ Redo	⌘Y
Clear Undo Buffer	
✂ Cut	⌘X
⎘ Copy	⌘C
📋 Paste	⌘V
🔍 Find ...	⌘F
🔍 Find Next	F3
Find Category ...	⇧⌘F
Find Next Category	⇧F3
Goto ...	⌘G

Undo

Undos the previous edit stored in the Undo Buffer.

Redo

Redos the next edit stored in the Undo Buffer.

Clear Undo Buffer

Clears the Undo Buffer.

Cut

Places a copy of the selected Object(s) onto the Clipboard and deletes the selected Object(s) from the file.

Copy

Places a copy of the selected Object(s) onto the Clipboard.

Paste

Copies the Object(s) on the Clipboard into the highlighted location within the current file.

Find ...

ex.factory supports the ability to find Objects either by name or by category (where an Object supports categories, such as Voices).

Searches start from the currently selected Object.

Selecting the **Find ...** option brings up the Find dialog, that allows you to specify the string to search for, along with options that can be used to refine the search.

Find Next

If you have defined the **Find** criteria within the **Find** dialog, then this option will repeat the search using the same criteria.

Find Category ...

You can also search by category be selecting **Find Category ...** option, which brings up the Find Category Dialog.

Find Next Category

If you have defined the **Find Category** criteria within the **Find Category** dialog, then this option will repeat the search using the same criteria.

Goto ...

Selecting this option brings up the Goto Dialog, which allows you to quickly navigate to a numbered Object.

The View Menu

The **View** menu provides the following options:

Note how some of the options change depending on whether or not the Child Window is split.

When the Child Window is split the **Left/Top Pane** and **Right/Bottom Pane** menu options have the following sub menu.

Tool Bar

When checked the ex.factory Tool Bar is visible.

Status Bar

When checked the ex.factory Status Bar is visible.

No Split

When checked the current Child Window is not split.

Horizontal Split

When checked the current Child Window is split horizontally.

Vertical Split

When checked the current Child Window is split vertically.

Tree

When checked the main/left/top pane in a Child Window displays data in a Tree View.

Table

When checked the main/right/bottom pane in a Child Window displays data in a Table View.

Refresh

Refreshes all open Child Windows.

This command is provided in case the screen is not properly updated following an edit operation. There are a couple of odd bugs I cannot track down on screen updates. So if you come across them as well, then this command will force a redraw of the windows.

Preferences ...

Opens the ex.factory Preferences Dialog.

The MIDI Menu

Note: The **MIDI** menu is only visible if you have registered ex.factory and enabled MIDI support in the MIDI Preferences Tab in the Preferences Dialog.

The **MIDI** menu provides the following options:

🖳 Import EX Synthesizer Data from MIDI	
🖳 Export EX Synthesizer Data to MIDI	
Get VL Element Names	⇧⌘V
EX MIDI Router...	F12
MIDI Preferences ...	
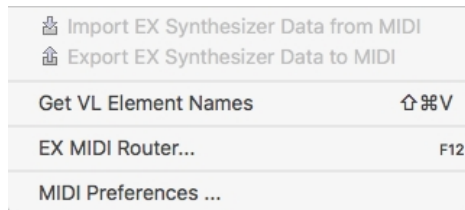
Import From MIDI

Imports Voices and Performances from the EX via MIDI to the currently selected Window.

Export to MIDI

Exports Voices and Performances to the EX via MIDI from the currently selected Window.

Get VL Element Names

MIDI Router ...

Opens the MIDI Router Dialog which allows you to use another keyboard to audition EX Data.

Reads the VL Custom Element Names from the EX5 (via MIDI) into the EX Synthesizer Window.

MIDI Preferences ...

Opens the Preferences Dialog with the MIDI Preferences Tab active.

The SMDI Menu

Note: The **SMDI** Menu is only visible if you have enabled SMDI support in the [SMDI Preferences](#) Tab in the [Preferences](#) Dialog.

The **SMDI** menu provides the following options:

Get EX Sample Names	⇧⌘S
SMDI Preferences ...	
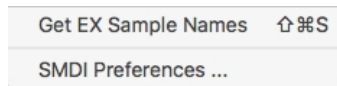
Get EX Sample Names

Reads the Sample headers from the EX5 (via SMDI) into the [EX Synthesizer Window](#).

SMDI Preferences ...

Opens the [Preferences](#) dialog with the [SMDI Preferences](#) Tab active.

The Tools Menu

The **Tools** menu provides the following options:
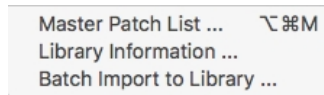
Master Patch List ...

Opens the Master Patch List dialog.

Library Information ...

Opens the Library Statistics dialog.

This option is only enabled if your copy of ex.factory is registered.

Batch Import to Library ...

Opens the Batch Import To Library dialog.

This option is only enabled if your copy of ex.factory is registered.

The Window Menu

The **Window** menu provides the following options:

Tile Horizontal	
Tile Vertical	⌥⌘V
Maximise Windows	⌘M
Restore Windows	⌘R
Minimise Windows	⌘I
View EX Synthesizer Data	
View EX Library	
ML1_FLS.S1V	
MEL-LABS.s1m	
THE_END.S1A	

In the example given above, you'll see that after the predefined menu options there are menu options that allow you to select the windows currently open within ex.factory (ML1_FLS.S1V, MEL-LABS.s1m and THE_END.S1A in our example menu).

Tile Horizontal

Arranges all non-minimised Child Windows along the horizontal axis.

Tile Vertical

Arranges all non-minimised Child Windows along the vertical axis.

Maximise Windows

Maximises all Child Windows so that they all occupy the size defined by the desktop.

Restore Windows

Restores all maximised/minimised Child Windows to their normal state.

Minimise Windows

Reduces all Child Windows to their iconised state.

View EX Synthesizer Data

Opens or closes the EX Synthesizer Window which provides a view on preset and user EX synth data.

View EX Library

Note: This menu option is only visible if you have registered ex.factory.

Opens or closes the EX Library Window which provides a view on the EX Library.

The Help Menu

The **Help** menu provides the following options (OS X and Windows versions are shown):
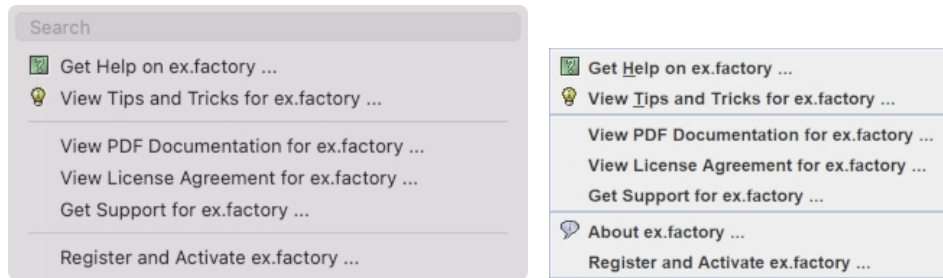
Search

OS X only. This is a standard OS X Menu function currently not working with ex.factory. One day....

Get Help on ex.factory ...

Displays the ex.factory Online Help system.

View Tips and Tricks for ex.factory ...

Displays the ex.factory Tips and Tricks Dialog.

View PDF Documentation for ex.factory ...

Displays the PDF documentation for ex.factory. Note that there needs to be a registered viewer for PDF files on your system for this command to work

View License Agreement for ex.factory ...

Displays the ex.factory License Agreement in a dialog box.

View License Agreement for ex.factory ...

Provides a link to the x.Librarian's Support Page.

About ex.factory ...

This menu option is not available if the host operating system is OS X. On OSX there is an **About ex.factory** menu option in the ex.factory Application Menu.

Displays the ex.factory About Dialog, which provides some basic information about the program, such as the version number.

Register and Activate ex.factory ...

Displays the ex.factory registration and activation Dialog.

See the Registration Section for details of how to register ex.factory.

Tool Bar

The Tool Bar contains buttons for common operations, such as opening and saving files.

Displays the [New File](#) Dialog to allow you to select the type of file to create
Displays the [Open File](#) Dialog to allow you to select a file to open
[Saves](#) the currently selected file
Displays the [Save As](#) Dialog to allow you to select a different name for the currently selected file
[Saves](#) all the open files to disk
Cuts the selected Objects and places them on the [Clipboard](#)
Copies the selected Objects and places them on the [Clipboard](#)
Pastes the contents of the [Clipboard](#) to the current selection
[Undos](#) the previous edit
[Redos](#) the previous edit
Displays the [Find](#) Dialog to allow you to define the search criteria and then search for the first occurence
Searches for the next occurence of the search criteria defined in the [Find](#) Dialog
Imports Voices/Performances from the EX via the [MIDI](#) interface
Exports Voices/Performances to the EX via the [MIDI](#) interface
Displays the [Preferences](#) dialog where you can configure ex.factory
Displays the ex.factory [Online Help](#) index page
Enables [Context Sensitive](#) Help
Displays the [Tips and Tricks](#) Dialog
Displays the [About](#) Dialog

The Save and MIDI export buttons are only enabled if ex.factory is [Registered](#).

If the SHIFT key is held down when clicking on the 🔍 (Find) button, then the [Find Category](#) Dialog is displayed instead.

If the SHIFT key is held down when clicking on the 🔍 (Find Next) button, then a Find Category search is performed instead.

The Tool Bar can be dragged and made a floating toolbar by clicking and dragging the handle to the left of the Tool Bar.

The Tool Bar can also be dragged to a different window border other than the top border.

The Tool Bar can be hidden/unhidden by the **Tool Bar** menu option on the [View](#) menu.

The Tool Bar whilst floating can be docked once more by closing it.

Desktop

The Desktop portion of the window is where the EX data is portrayed. Several files may be opened and shown within Child Windows upon the Desktop portion of the window. The following example shows three Child Windows open on the Desktop.
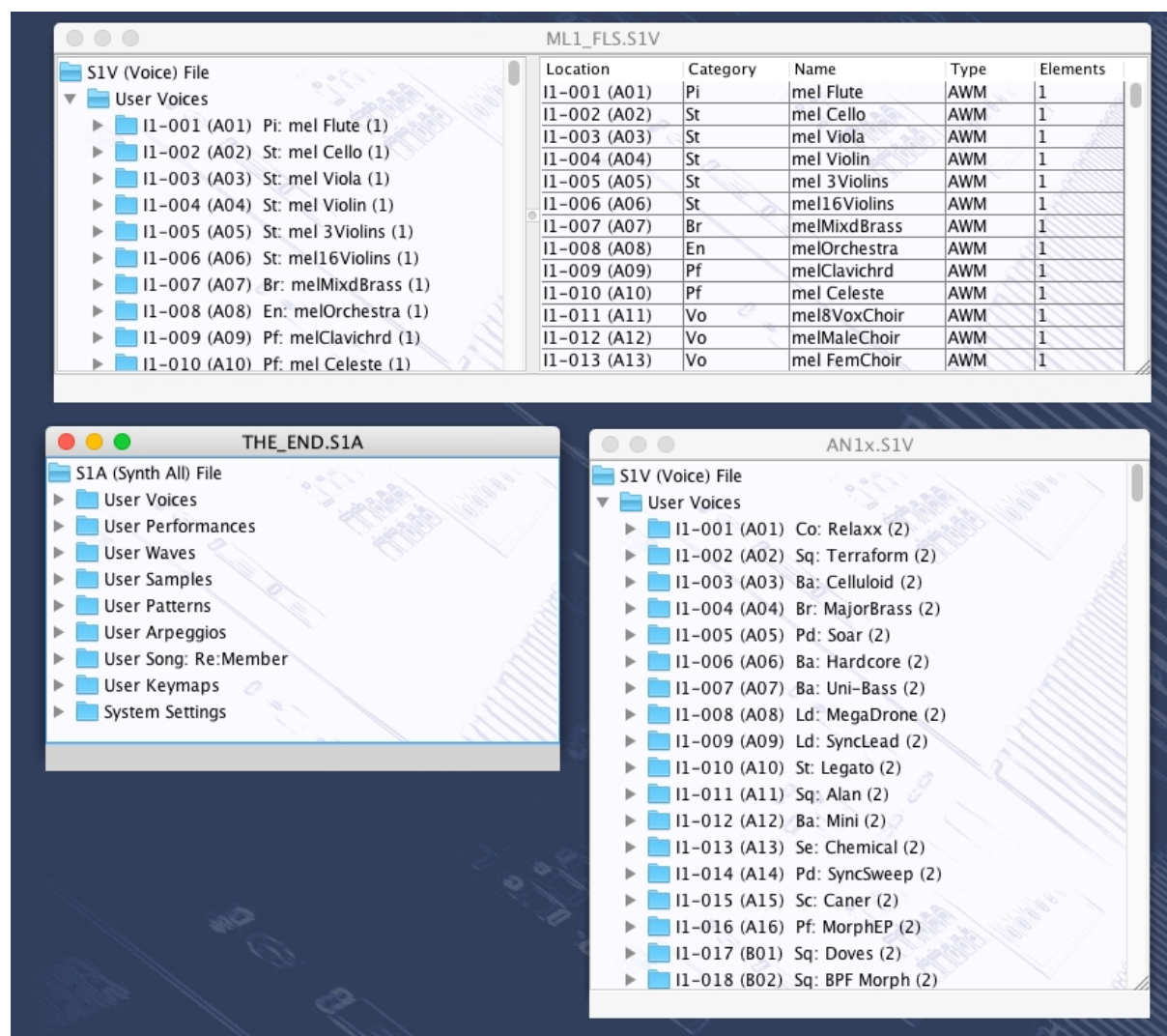
The Window Menu provides menu options to:

- Tile (either vertically or horizontally) all Child Windows that are not iconised
- Minimise all Child Windows
- Maximise all Child Windows
- Restore all Child Windows
- Select a specific Child Window
- Open the EX Synthesizer Window
- Open the EX Library Window

When a file is opened, a Child Window is added to the Desktop Area.

Child Window

The Child Window provides the **View** upon the data within the file it is associated with.

The Child Window is maximised by default when it is opened, and can be minimised, restored or closed by the buttons to the right of the Child Window's title bar.

The menu options on the View menu can be used to change the View between a Tree view and a Table view, and a Child Window can be either split horizontally or vertically split to show any of the following combinations:

- A Tree and a Table
- A Table and a Tree
- Two Trees
- Two Tables

The default Child Window View applied when a file is opened is set in the Default View Tab of the Preferences Dialog.

The following example shows a Child Window that is split and showing both a Tree View and a Table View on the same data.
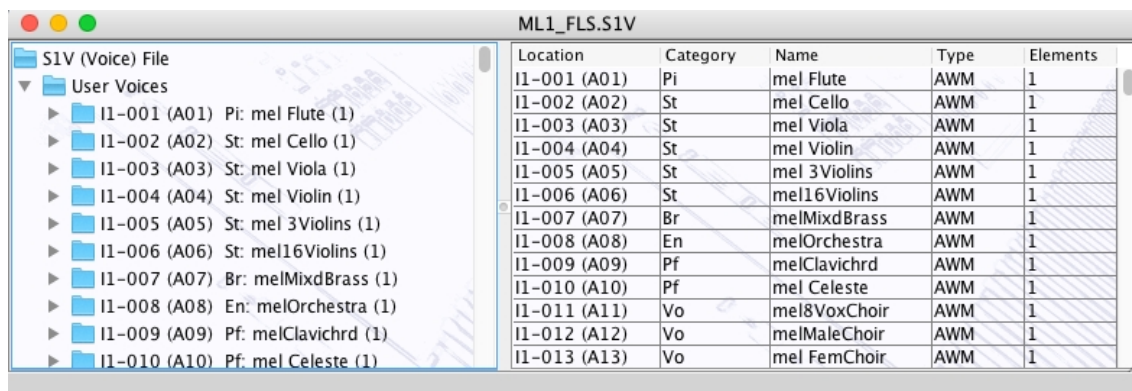
The Tree and Table views support drag move and drag copy operations, and the views will automatically scroll whilst drag operations are in progress.

ex.factory also provides two special Child Windows:

- The EX Synthesizer Window.
- The EX Library Window (This Window is only available if you have registered ex.factory).

Tree View

The **Tree View** shows the EX data as a hierarchical tree, and can show more information than the [Table View](#). The following example shows a split [Child Window](#) with two Tree Views, one collapsed showing the top level **Collections** and one showing a Voice (I1-014) that has been expanded to show more information on the Voice.
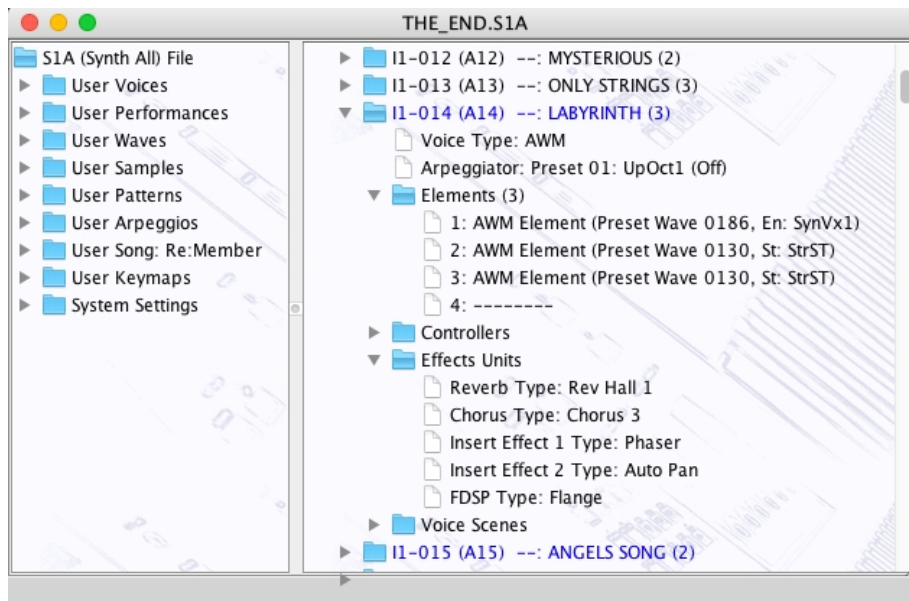
Basically, information is shown as a set of hierarchical **Objects**. Objects may have children attached to them, and they themselves may have further child Objects (e.g. a Voice Object, has a child Object for its Elements, and this Object groups all the Elements of the Voice).

The basic tree structure is a **Root Object** at the top of the tree under which are various Object **Collections** which themselves contain further data. The top level Collections that can be found under the root node varies upon the file type:

- File Type - this is the root of the data currently loaded and a container for all data held in the EX Synthesizer data file which has been loaded. This root is always present and indicates the type of file loaded (S1A, S1Y, S1V, S1M, S1P, S1R or S1S)
- User Voices - The Voices from an EX S1V, S1Y or S1A data file
- User Performances - The Performances from an EX S1Y or S1A data file
- User Samples - The Samples present in an S1A or S1M file
- User Waves - The Waves present in an S1A or S1M file
- User Patterns - The Patterns present in an S1A or S1P file
- User Arpeggios - The Arpeggios present in an S1A or S1R file
- User Song - The Song present in an S1A or S1S file
- User Keymaps - The Keymaps present in an S1A file
- System Settings - The system settings present in an S1A or S1Y file

You can double click on an item, and if the item is a voice, it will be exported to the synth's Edit buffer

You can also triple click on an item, and if the item is a voice, it will be exported to the synth's Edit buffer and the [MIDI Router](#) will also be opened

Objects are displayed in one of three colours:

- Black if the Object is not referenced by another Object
- Blue if an Object is referenced by another Object (e.g. a Voice being used within a Performance, or a Sample being used by a Wave)
- Red if the Object is a Sample and it is "empty"

The Tree View allows multiple Objects to be selected, which is useful for performing operations only upon certain Objects. You can only perform operations upon Objects of the same type.

If you wish to perform an operation upon all Objects in a Collection, simply select the Collection containing the Objects.
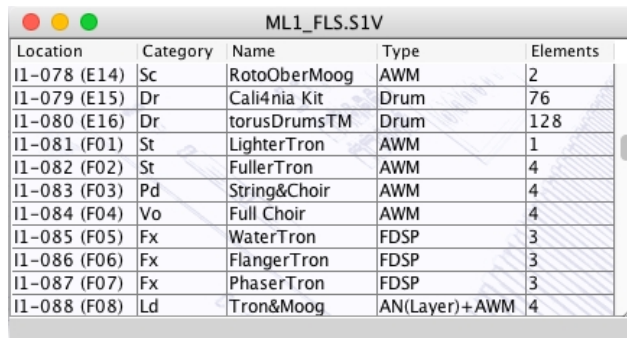
If you right click over an object or selection of objects within the Tree View, a context sensitive popup menu will appear that provides the editing operations that can be performed upon the object(s).

Objects can be [Copied and Moved](#) either within or between Child Window Views using **Drag and Drop**.

Table View

The Table View provides a more high level overview of the data than the [Tree View](#), and the representation of the data is more compact. The following example shows a [Child Window](#) with a single Table View providing information on a file's Voices.

The Table View can only show one Collection of Objects at a time.

You can select what a Table View shows in S1A, S1Y or S1M files by right clicking within the table to access the context sensitive menu, upon which can be found menu options to select the different data types available in a file. S1P, S1R and S1V files by their nature only have one type of data.

Each row within the table shows one Object.

You can double click on a row, and if the item is a voice, it will be exported to the synth's Edit buffer

You can also triple click on an row, and if the item is a voice, it will be exported to the synth's Edit buffer and the [MIDI Router](#) will also be opened

If you right click over an object or selection of objects within the Table View, a context sensitive popup menu will appear that provides the editing operations that can be performed upon the object(s). The cells in a Row that contain the Object **Category** and Object **Name** (if available) can be directly edited by clicking in them.

Objects can be [Copied and Moved](#) either within or between Child Window Views using **Drag and Drop**.

EX Synthesizer Window

The EX Synthesizer Data Window is made visible by ensuring the **View EX Synthesizer Data** option in the Window Menu is checked.
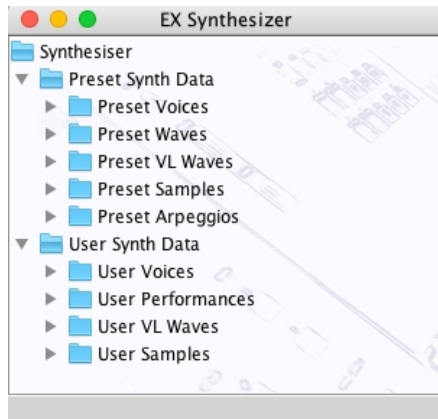
This Child Window is a special View that shows the following EX Preset and User Data **Collections**:

- Preset Synth Data
- User Synth Data

Preset Synth Data

This Collection contains Collections for the EX preset data, including:

- Preset Voices (Banks P1 and P2)
- Preset Waves
- Preset VL Waves
- Preset Samples
- Preset Arpeggios

This data can be used to set Objects within the EX data files to point to preset data. For example if you drag a Preset Wave onto an AWM Element within an S1V, S1Y or S1A file, then the Element will be updated to reference the Preset Wave.

ex.factory supports the following drag operations upon preset data:

- Preset Voices can be dragged onto Performance Parts
- Preset Waves can be dragged onto AWM Elements
- Preset VL Waves can be dragged onto VL Elements
- Preset Samples can be dragged onto Drum Elements, Wave Layers and Keymap Notes
- Preset Arpeggios can be dragged onto Voice and Performance Arpeggiator Units

Note: only drag copy operations are supported where preset data is a drag source, as it does not make sense to try and move preset data.

User Synth Data

This Collection contains Collections for user data within the EX, including:

- User Voices
- User Performances
- User VL Waves
- User Samples

User Voices, User Performances and User VL Waves are only shown if ex.factory has been registered and MIDI Support is enabled.

User Samples are only shown if SMDI Support is enabled.

The purpose of showing these User Data Collections is to:

- Allow drag and drop transfers of User Voices, User Performances and User VL Waves between ex.factory and the EX via the MIDI Interface
- Allow drag and drop transfers of User Samples between ex.factory and the EX via the SMDI Interface

EX Library Window

Note: This Window can only be opened if you have [registered](#) ex.factory.

The EX Library Data Window is made visible by ensuring that the **View EX Library** option in the [Window Menu](#) is checked.

Category	Name	Type	Rating	Comment	Author	Source
Fx	DARK CLOUDS	AWM	☆☆☆☆☆		Unknown	MARCE1.S1A
--	DARK SIDE	AWM	☆☆☆☆☆		Unknown	MARCE.S1Y
Fx	DARK SUN	AWM	☆☆☆☆☆		Unknown	Exvd1-3.s1y
Gt	Dark & Grey	AWM	★★★★★	Another Great Torus Voice!	EX5Tech	ML1_DRAM.S1V
Sc	Dark & Sad	AWM	☆☆☆☆☆		Unknown	FlumSounds.S1V
Fx	Dark Angel	AWM	☆☆☆☆☆		Unknown	H_Ghoul4.s1v
Pd	Dark Despair	AWM	☆☆☆☆☆		Unknown	5am_Dark.s1v
Fx	Dark Forest	AWM	☆☆☆☆☆		Unknown	ML1_DRAM.S1V
Pf	Dark Grand #1	AWM	☆☆☆☆☆		Unknown	LoDSP.s1v
Pf	Dark Grand #2	AWM	☆☆☆☆☆		Unknown	PRST1_03.S1V
Pd	Dark Pad	AWM	☆☆☆☆☆		Unknown	AUTOLOAD.S1A
Fx	DarkGlitter	FDSP	☆☆☆☆☆		Unknown	FlumSounds.S1V
Se	DarkOrb	AN(Layer)+AWM	☆☆☆☆☆		Unknown	FlumSounds.S1V
Se	DarkSide #1	FDSP	☆☆☆☆☆		Unknown	ANA-STR.S1V
Se	DarkSide #2	FDSP	☆☆☆☆☆		Unknown	VXHUMANA.S1V
Sc	Rasp/Dark #1	AWM	☆☆☆☆☆		Unknown	EX5BRIAN.S1A
Sc	Rasp/Dark #2	AWM	☆☆☆☆☆		Unknown	MARCE.S1Y
Pf	SkiDarkSide	AWM	☆☆☆☆☆		Unknown	SKIANOS7.S1V

☑ Enable Filter   Configure Filter...   Reset Filter   Showing 18 out of 6481 Voices

This Child Window is a special View that shows the contents of the EX Library.

Like the standard [Table View](#), you can select the view of type of objects that you wish to view (e.g. Voices, Performances, etc.), which includes Files and Authors that are stored in the Database.

The window can be configured to be either a [Tree](#) or a [Table](#) view. The [Table](#) view is recommended because filtering capabilities are available, which are described below.

EX Library Table View Columns

The following columns can be found in the Library table. Not all columns are available in a table view, depending on the type of data being viewed. For example, only Voices have the **Type** Column.

Category	The Category of an Object. Not all Objects have a defined Category
Name	The Name of an Object. Note that this name can be up to 50 characters long, so you can provide a more meaningful name for an object within the Library (the original name is preserved for when the object is copied from the Library).
Type	The type of the object (e.g. the type of voice). Not all Objects have a defined Type.
Rating	Each Object object can be assigned a rating, from unrated to five stars. Filtering on this column will allow you to quickly find you favourite items.
Comment	Each object can have a comment associated with it of up to 100 characters. For example, you could use this field to contain keywords that you use to describe a sound's character in more detail. This could help you to define a filter to search for a sound.
Author	You can define the Author for each Object. This field defaults to "Unknown" when objects are added to the Library. You can setup ex.factory to prompt you for an Author name when a new file is being added to the database.
Source	The name of the source file that an Object was copied from when it was added to the Library.

Table Sorting

You can sort a table by a column by clicking on a column heading in the table header. for example to sort voices by name, then click on the **Name** column heading. The sorting will cycle through the following states each time you click a column header:

- Unsorted
- Sort Ascending
- Sort Descending

Data Export

If you check the **Automatically Export Selected Item** option, then when you select a Voice it is automatically exported to the Voice Edit Buffer.

This, for example, allows you use the cursor keys to move though the library Voices and have them automatically exported to the Edit Buffer without having to do anything else. Please note however, that with this option enabled, then the scrolling is slowed down. Don't forget that you can double click on a Voice to export it.

Table Filtering

The database table provides a very comprehensive filtering capability, which allows you to filter on any column or combination of columns. For example, you can filter on voices with a name that contains the phrase "Fred", combined with a category filter for "pads", combined with a type filter for AWM voices, and finally filter for those which have a three star rating.

You can enter a filter for each column using the filter header that is above the table column names.

Table filtering works in conjunction with table sorting

A filter with a grey background is restricted to filtering by items that you can select from the drop down list. For example, a rating value can only be unrated or rated between 1 and 5 stars

A filter with a yellow background allows you to enter a [PERL Regular Expression string](#) that acts as a filter. Consider the following PERL examples for filtering by name:

- **drum** will match all names containing the phrase **drum** (anywhere in the name);
- **^t** will match all names beginning with the letter **T** ('^' anchors the search to the start of the name);
- **[0-9]$** will match all names ending with a number character between **0** and **9**. ('$' anchors the search to the end of the name);
- **^M[0-9]** will match all names starting with letter **M** followed by a numeric character.

That is just an overview of how you can use regular expressions for filtering. More details for how you can form regular expression pattons can be found on the [PERL Regular Expression Page](#)

The drop down list for a Perl Regular Expression filter provides a history of the search terms entered during the session.

Table Filter Controls

At the bottom of the table is a toolbar with the following controls:

Enable Filter	Turns the filter on or off.
Configure Filter	Brings up the Configure Filter dialog box allowing you to control the default behaviour of how the Rating, Comment, Author and Source File columns are filtered.
Reset Filter	Resets the filter.

Table Filter Configuration

When the **Configure Filter Dialog** button is selected, the following dialog appears that allows you to control the behaviour of the filter for specific columns.
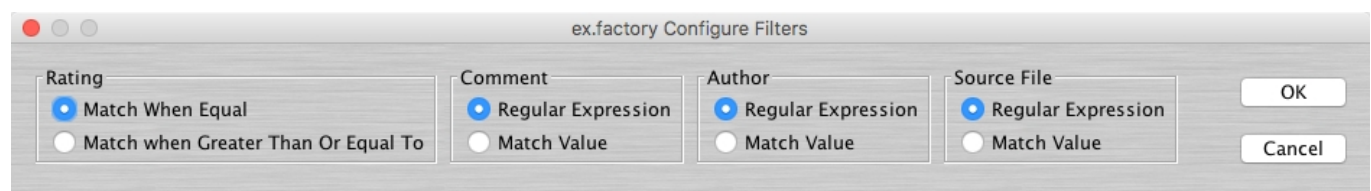
- Rating - allows you to select whether or not an exact match is required, or if the filter is to allow ratings greater than or equal to the one shown.
- Comment - allows you to select if a PERL Regular Expression can be entered, or if choices are restricted to the choices provided in the drop down dialog.
- Author - allows you to select if a PERL Regular Expression can be entered, or if choices are restricted to the choices provided in the drop down dialog.
- Source File - allows you to select if a PERL Regular Expression can be entered, or if choices are restricted to the choices provided in the drop down dialog.

Status Bar

/Development/EX5/Voices/THE_END.S1A	S1A File	Modified	E = 672/352	W = 23/1001	L = 31/993

The Status Bar provides the following pieces of information (from left to right) for the Child Window which is currently selected:

- The name of the file currently open, if any. If no file has been selected then this field is blank
- The type of the file
- Whether or not the file has been modified
- The number of Elements used within the file, and the number of Elements which are free, displayed in the form E=used/free
- The number of Waves used within the file, and the number of Waves which are free, displayed in the form W=used/free
- The number of Layers used within the file, and the number of Layers which are free, displayed in the form L=used/free
- The amount of Sample Memory used within the file in words (bytes/2) in the form M=used
- If the left/top split pane is a table this indicator identifies what the table is showing (Voices, Performances, etc.)
- If the right/bottom split pane is a table this indicator identifies what the table is showing (Voices, Performances, etc.)

Notes:

- The EX5 supports up to 1024 Waves and 1024 Wave Layers
- Each Wave may only have a maximum of 128 Layers
- ex.factory shows all available 1024 Waves that the EX can use
- The Wave Used/Free count is calculated by looking at Waves that have no Layers in them, and which are identical to the state of a Wave when the EX is turned on. Thus the Wave Used count is the number of Waves with data in
- The Status Bar can be hidden/unhidden by the **Status Bar** menu option on the View menu

Program Features

ex.factory provides the following features:

- File Operarations
- Undo/Redo Support
- Clipboard Support
- MIDI Support
- SMDI Support
- Library Support
- Find and Goto Support
- Editing Features
- Tools

File Operations

ex.factory supports the following file operations:

- Create New Files
- Open Existing Files
- Import Non EX Data Files
- Save Files
- Open and Save Workspaces
- Export Data

Create New File

When the **New File ...** option from the [File](#) Menu or the ⬚ button on the [Toolbar](#) is selected, the following dialog is shown:
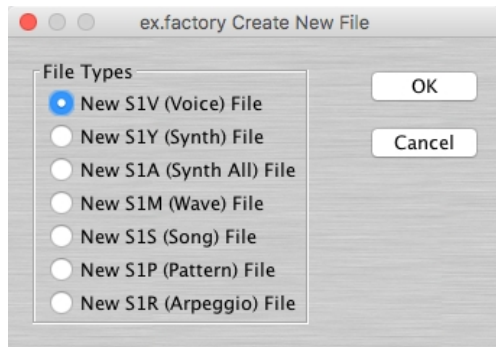
This dialog allows you to select the type of file to create from the following:

- S1V (Voice) File
- S1Y (Voice/Performance) File
- S1A (Synth All) File
- S1M (Wave) File
- S1S (Song) File
- S1P (Pattern) File
- S1R (Arpeggio) File

The new data file is given a name in the form of "exFactory_n", where **n** is a number that increments every time a file is created.

Note, this is different from initialising data in a file, as a totally new file is created.

Open Existing File

When the **Open ...** option from the File menu or the ⬚ button on the Toolbar is selected, the following dialog will appear allowing a file to be selected.
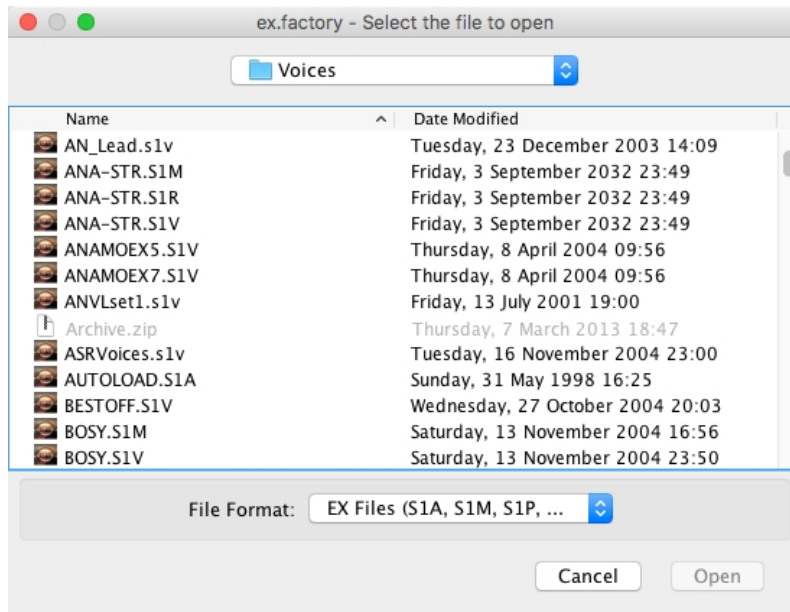
ex.factory checks to ensure that the selected file is a valid Yamaha format file, and an error dialog will appear if the file is not valid.

The following file types can be loaded:

- EX S1A Synth All
- EX S1Y Synth
- EX S1V Voice
- EX S1M Wave
- EX S1S Song
- EX S1P Pattern
- EX S1R Arpeggio
- AN1x AN1 Voice Bank
- VL70m LIB File.
- VL70m MIDI File.

If a file selected for opening is already open, ex.factory will ask if you want to replace the file that is in memory.

If an S1A, S1V or S1Y file is opened at it has file references to S1M files, then the associated S1M files are also opened.

If an S1M file is opened and it is referenced by any S1A, S1Y or S1V files then the referencing files are also opened.

Save Open Files

When you save a file to disk using: the **Save As ...** command from the File Menu, or when a file created using the **New ...** command from the File Menu is saved for the first time, the following dialog appears to allow you to select a name for the file
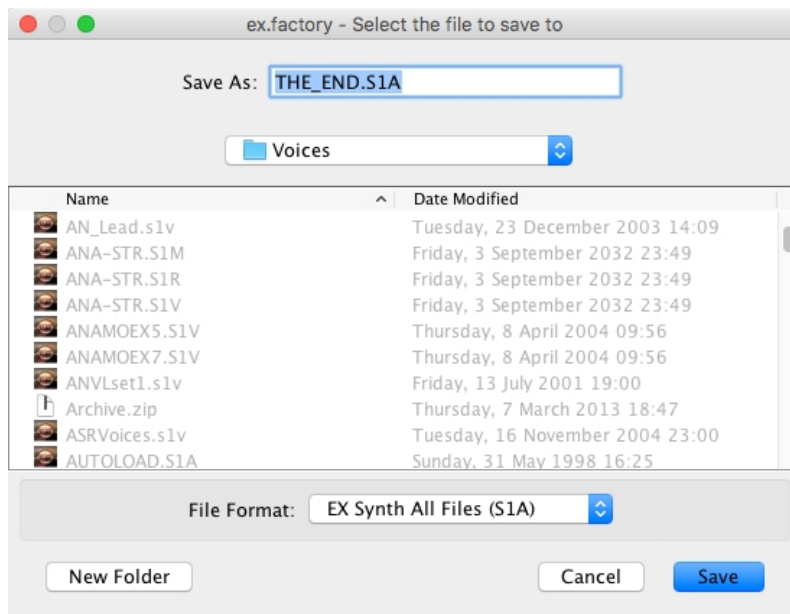
Separating Data in S1A and S1Y Files

The Tree View also supports options on its **Context Sensitive Menu** to save data from S1A and S1Y files into seperate files.

S1A Files	Collections that can be separately saved • Voices and Performances can be saved to an S1Y file by right clicking over the **Performances** Collection and selecting the **Save as S1Y File** option • Voices can be saved to an S1V file by right clicking over the **Voices** Collection and selecting the **Save as S1V File** option • Waves and Samples can be saved to an S1M file by right clicking over the **Waves** or **Samples** Collection and selecting the **Save as S1M File** option • Arpeggios can be saved to an S1R file by right clicking over the **Arpeggios** Collection and selecting the **Save as S1R File** option • Patterns can be saved to an S1P file by right clicking over the **Patterns** Collection and selecting the **Save as S1P File** option • The Song can be saved to an S1S file by right clicking over the **Song** and selecting the **Save as S1S File** option
S1Y Files	Collections that can be separately saved • Voices can be saved to an S1V file by right clicking over the **Voices** Collection and selecting the **Save as S1V File** option

Workspaces

ex.factory allows you to save the current size and position of the main ex.factory window, and the arrangement of the open Child Windows within ex.factory to a file known as a **Workspace**.

This allows you to save a **Workspace** you are using for future recall at a later date.

The following parameters for each Child Window are remembered:

- Window size, position and status (normal, maximised or minimised)
- Horizontal/Vertical Splits, including split position
- Pane type(s) (e.g. Tree, Voice Table or Performance Table)
- Tree node expansion status
- Table column widths
- Scroll position of the pane(s)
- Selection state of the tree nodes, or table rows

File Import Support

ex.factory allows you to import the following non-native EX file types.

AN1x Voice Bank Import

ex.factory has the ability to import AN1x Voice banks and create an S1V file from an AN1 format file.

Please note, although the EX5 and AN1x share the same basic sound engine, they differ greatly in the Effects and Controller departments. ex.factory attempts to replicate the sound as close as possible, but it is not possible to create exact matches. To my ears the majority of results are good, and provide a useful alternative for patches, as a starting point for your own AN patches.

If the Device Type Preferences is set to EX5/EX5R then ex.factory creates AN(Layer) Voices, in Bank I-1 (Voices 1-128) as they provide the closest match to the AN1x "Dual Scene" Voice structure. Bank I2 is empty

If the Device Type Preferences is set to EX7 then ex.factory creates AN(Poly) Voices, with the first scenes from each AN1x voice in Bank I1 (Voices 1-128) and the second scenes from each AN1x voice in Bank I2 (Voices 1-128). Depending on the original AN1x voice mode, you might not get a sound in an I2 voice.

VL70m LIB and MIDI File Import

You can open VL70m LIB and MIDI files and export VL70m custom VL Elements to the EX's sixteen Custom VL Element Slots (VL Elements 257 thru to 272).

If you open the EX Synthesizer Window, you can drag VL Elements from the VL70m file over to the Custom VL Elements shown in the EX Synthesizer Window

Please note you can only **Drag Copy** VL70m voices/elements to the EX Custom VL Wave Slots; you cannot **Drag Move** them.

Export Data

ex.factory allows you to export the data in the currently selected file to a variety of different formats.

- [HTML](#)
- [XML](#)
- [Cubase Patch List](#)
- [ProTools Patch List](#)
- [Sonar Patch List](#)
- [SpreadSheetML](#)

HTML ...

This option allows you to export a listing of the data in HTML format.

If the file being exported is either an S1A, S1Y or S1M file, the following dialog will appear allowing you to select the features to be exported:

E.g. for an S1Y file you will have the option of exporting Voices and/or Performances.

The saved HTML file contains as a minimum an index to the main listings (e.g. Voices/Performances) in the file, and a section giving information on the file (such as the file type and the number of used and free Elements).

For Voices, Performances and Waves, the tables provide hyperlinks to entries where more detail is provided on the Objects.

XML ...

This option allows you to export a listing of the data in XML format.

If the file being printed is either an S1A, S1Y or S1M file, the following dialog will appear allowing you to select the features to be exported.

E.g. for an S1Y file you will have the option of exporting Voices and/or Performances.

This export option is intended to provide a means of importing EX data into other programmes, e.g. a database.

Cubase Patch Script ...

This option allows you to export a listing of the Voice/Performance data in S1A, S1Y and S1V files in Cubase patch script format. The patch script format exported by ex.factory is compatible with both Cubase VST and Cubase SX/SL/SE.

This allows you to create patch scripts for use within Cubase to ease the selection of patches within the Cubase environment.

Note: There appears to be an EX5 bug which means that you cannot switch between Voice and Performance modes via external MIDI commands. Thus, although exporting an S1A or S1Y file to a patch script provides both Voice and Performance menus within Cubase, you still need to select the right mode on the EX. Shame!

See the Master Patch List dialog documentation for details on how to install patch scripts within Cubase SX.

Protools Patch Script ...

This option allows you to export a listing of the Voice/Performance data in S1A, S1Y and S1V files in Protools patch script format (MIDMAN files).

This allows you to create patch scripts for use within Protools to ease the selection of patches within the Protools environment.

Note: There appears to be an EX5 bug which means that you cannot switch between Voice and Performance modes via external MIDI commands. Thus, although exporting an S1A or S1Y file to a patch script provides both Voice and Performance menus within Protools, you still need to select the right mode on the EX. Shame!

Consult your sequencer documentation for details on how to install the patch scripts within your sequencer.

Sonar Patch Script ...

This option allows you to export a listing of the Voice/Performance data in S1A, S1Y and S1V files in Sonar patch script format (MIDMAN files).

This allows you to create patch scripts for use within Sonar to ease the selection of patches within the Sonar environment.

Note: There appears to be an EX5 bug which means that you cannot switch between Voice and Performance modes via external MIDI commands. Thus, although exporting an S1A or S1Y file to a patch script provides both Voice and Performance menus within Sonar, you still need to select the right mode on the EX. Shame!

Consult your sequencer documentation for details on how to install the patch scripts within your sequencer.

SpreadSheetML ...

This option allows you to export a listing of the data in Microsoft SpreadSheetML format.

If the file being printed is either an S1A, S1Y or S1M file, the following dialog will appear allowing you to select the features to be exported.

E.g. for an S1Y file you will have the option of exporting Voices and/or Performances.

This export option is intended to provide a means of importing EX data into either Microsoft Word or Excel, which is a great way to start documenting your patch collections

Undo Buffer

ex.factory supports a multi-level Undo/Redo Buffer facility on all edits.

The number of edits which can be stored is 100.

The Undo/Redo commands can be found both within the [Edit Menu](), and on the [Toolbar]().

Please note that the undo buffer is global across all open files, and is cleared when any file is closed. This may be improved in later releases.

The undo buffer can be cleared by the selecting the **Clear Undo Buffer** option on the [Edit Menu](). The intention of this feature is to help cope with low memory situations, as it will free up the memory used by stored edits.

Clipboard Support

The ex.factory clipboard works just like the clipboard in other applications. It allows you to place an Object or a copy of an Object upon the clipboard and then paste that Object elsewhere within a file or another file.

You can Cut/Copy either a single Object or a Collection of Objects onto the clipboard.

You can only paste from the clipboard to the current location in a file if it makes sense to do so. For example:

- You cannot paste a Voice onto a Performance
- You cannot paste ten Voices at the end of a Voice Collection if the selection is at Voice 246 or higher

The ex.factory clipboard is "local" to the application, and only ex.factory Objects can be placed upon it.

ex.factory does not support the system clipboard so it is not possible to cut and paste between ex.factory and other applications. I don't think this is a major drawback because I cannot think of any circumstances where you would wish to do this!

MIDI Support

To use ex.factory MIDI support, your copy of ex.factory needs to be registered.

Before you use the ex.factory's MIDI support, I recommend that it is worth you reading the section on MIDI Issues. The EX MIDI SYSEX implementation has a few serious bugs in it that can corrupt your data when you transfer Voices in either direction if you use an application that does not take the bugs into account.

The MIDI support of ex.factory has been designed to work around these bugs, but it is worth you being aware of the bugs and what ex.factory has to do to work around them. I say this because the ex.factory MIDI support, whilst being perfectly usable, cannot get rid of the bugs but has to live with them.

Connecting the EX5 MIDI Ports

The EX5 has two sets of MIDI Ports, and which ones you use are quite important for ex.factory to work correctly. The EX7 and EX5R only have the MIDI A output ports.

You **MUST** always use the EX5 MIDI A Input Port to receive commands from ex.factory.

CAUTION: Failure to use the EX5 MIDI A Input port may cause data corruption when receiving voices from the EX5.

This is because for ex.factory to work around the EX5 MIDI Issues, it needs to send bank select and patch changes for any voice that has element four active, so that it can get an uncorrupted copy of the fourth element from the voice edit buffer. The EX5 only receives bank and patch changes on the MIDI A Input Port. So if you use the MIDI B Input port, the bank and patch change commands that ex.factory send are ignored, and Element four will come from whatever voices happens to be in the Voice Edit buffer.

NOTE: The ex.factory **Channel Number** setting in the MIDI Preferences dialog tab **MUST** match the EX5's **Global Recv Ch** setting.

Page 14 of the EX5 manual states that MIDI B In only receives System Realtime messages and MIDI time code messages.

If you are running ex.factory on Windows 7, there appears to be a Windows 7 issue which stops Windows from receiving SYSEX data when the same MIDI source is providing MIDI Clock data, which the EX5 does by default on the MIDI A Output port. This is a Windows 7 problem not present on earlier versions of Windows, and it occurs even when using a low level tool like MIDI-OX, which verifies that it is not an ex.factory or Java MIDI bug.

If you are running ex.factory on Windows 7, you must choose one of the following:

- Use the EX5 MIDI B Output Port, which does not send MIDI Clock.
- Use the EX5 MIDI A Output Port, but disable the sequencer's internal **Sync** option, which will stop the generation of MIDI Clock on the MIDI A Output port. Details on the **Sync** option can be found on page 273 of the EX5 Manual.

The EX5 MIDI A output has an echo option which echoes the data on the MIDI A Input Port to the MIDI A Output Port. I use this feature in my Live rig to merge data from a MIDI Foot Controller connected to the EX5 MIDI A Input Port with the EX5 MIDI data, so both the foot controller MIDI data and the EX5 MIDI data are sent on the EX5 MIDI Output Port.

If MIDI Echo is active, you must either turn it off, or use the MIDI B Output port for send data to ex.factory. Details of the **MIDI-A Echo Back** option can be found on Page 275 of the EX5 Manual.

For this reason and because I am running on Windows 7, I always connect my PC to the EX5 using the MIDI A Input Port and the MIDI B Output Port.

Configuring MIDI Support

To configure MIDI support, go to the MIDI Preferences tab in the Preferences Dialog, and set up the following:

- **Enable MIDI Support** should be checked
- **Input MIDI Port** and **Output MIDI Port** should be set to the MIDI port(s) to which the EX is connected
- **SYSEX Device Number** should match the **Device Number** setting in the EX UTILITY MIDI page
- **Channel Number** should match the **Global Recv Channel** setting in the EX UTILITY MIDI page

Notes:

- If the Device Number on the EX is set to **ALL** then it will accept data for any SYSEX Device.
- If the Global Recv Channel on the EX is set to **OMN** then it will accept data from any MIDI channel

You can check that these settings work by pressing the **Test EX MIDI Settings** button. When you press this button a test message is sent to the EX and the subsequent Dialog will tell you if communication was

successful or if there was a problem.

The above steps set up the basic communication mechanism for MIDI support, and you then can set up the remaining options according to your preferences:

- If you never work with Performances then you can exclude them from the bulk transfers by clearing the **Include Performances in Bulk Transfer** checkbox
- If you wish for ex.factory to always read the EX Voice/Performances on startup then check the **Read EX MIDI Data on Startup** checkbox
- If you wish for changes made to the EX Synthesizer Window to be automatically written to the EX then check the **Automatically Update EX after Synth Window Edit** checkbox

Finally, it is important that you set up the **Edit Confirm during Transfer to EX Memory** to match the **Edit Confirm** Setting in the **EX Utility Other** tab, otherwise the exports to EX Memory locations may not work correctly.

If you change this setting in the EX then you should also update the setting within ex.factory.

Caution: When you load an S1A or S1Y file then the following values can change!

- SYSEX Device Number
- Global Recv Channel
- Edit Confirm

All these values need to match those in ex.factory for correct MIDI operation, so you should always be careful that loading S1A or S1Y files that have not come from your system (e.g. a download from AMPFEA) do not disturb these settings.

If they do you have two options:

- Change the settings in either ex.factory or the EX so they match up again
- Use the facilities of ex.factory to imprint your EX settings upon the files before loading them into the EX.

Finally, you may also wish to tune the options found in the Advanced MIDI Preferences tab of the Preferences Dialog to speed up the MIDI transfers to EX Memory locations. The default values used by ex.factory are conservative and set so they should work hopefully on all systems. With careful tuning, I've had transfers working on my system at 5 seconds per Voice, which is roughly double the speed achieved by using the default values. If you do tune these values you should do so with care to ensure that your Voices are reliably transferred.

Copying/Moving Voices and Performances

In operation, using MIDI is quite straightforward.

You can get all the EX Voices/Performances into any Child Window (including the EX Synthesizer Window) by selecting the **Import from MIDI** option on the MIDI Menu, or the 🖳 button on the Tool Bar.

This imports all Voices, and all Performances if you have set the MIDI Preferences options to include Performances during the bulk transfers.

Similarly you can also export all Voices and Performances using the **Export MIDI** option on the MIDI Menu, or the 🖳 button on the Tool Bar.

Note if you import or export MIDI data to/from a Child Window which is opened from a data file, then the EX Synthesizer Window is also updated with the Voices/Performances being imported/exported.

You can also import/export individual Voices/Performances or a selection of Voices/Performances by selecting the Import/Export memory options upon the Voice's or Performance's Context Sensitive Menu. You can also use the keyboard shortcuts for doing this.

And you can also move/copy Voices/Performances between the EX Synthesizer Window and Child Window using drag and drop.

You can also import/export a Voice or Performance to/from the EX Edit Buffer by selecting a single Voice/Performance and selecting the import/export to/from EX Edit Buffer options from the Voice's or Performance's Context Sensitive Menu. You can also use the keyboard shortcuts for doing this

Exporting Voices from ex.factory to the EX Edit Buffer is really handy, for example, when trying to find a particular Voice in a file and you don't wish to load the file into the EX.

Finally you can also perform all the operations on Voices/Performances in the EX Synthesizer Window that you can upon Voices/Performances in a normal Child Window.

If you have the **Automatically Update EX after Synth Window Edit** option active, when you change data the EX Synthesizer Window then the changes are automatically exported to the EX. If you are making a lot of changes, you may find yourself waiting quite a lot during the time it takes to do these exports.

So you may wish to turn the **Automatically Update EX after Synth Window Edit** option off during intensive editing sessions. Once you've made all your changes you then select the **Export MIDI** option on the MIDI Menu, or the ⬆ button on the Tool Bar Export option to manually export the changes.

If you quit ex.factory with changes still present in the EX Synthesizer Window that have not been exported, then you will be asked if you wish to export the data or not.

Voice/Performance MIDI Limitations

You need to be aware that MIDI SYSEX transfers were designed in the days when a synth patch could be expressed in a few hundred bytes worth of data. EX Voices and Performances are quite large in comparison to synths from those early days. Therefore, transferring Voices/Performances from the EX via MIDI is no faster than saving them via floppy disk.

As such I believe the MIDI transfers complement the disk/load save operations but they don't replace them. However they are great to have, and I wouldn't like to be without them now!

And as mentioned above you need to ensure that the settings in ex.factory match those in the EX5, paying particular care when you load new S1A or S1Y files.

And finally if you make a lot of Drum Voices you need to be aware of the MIDI Issues associated with Drum Voices, which I haven't been able to find workarounds for.

MIDI Keyboard Routing

ex.factory has a facility to allow MIDI data from an additional MIDI input port, defined in the MIDI Preferences dialog, to be routed to the port you have selected for ex.factory to output MIDI data on. This allows, for example, you to use a master keyboard (which may be closer to your computer) to be used when auditioning EX sounds that you've sent from ex.factory to the EX edit buffer.

You access this feature by selecting the **EX MIDI Router ...** option in the MIDI Menu or by pressing the **F12** function key whenever you need it, which activates the following dialog.
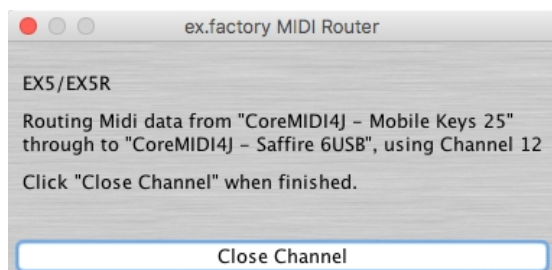
The router uses the MIDI channel defined in the MIDI Preferences dialog This can either be the channel transmitted by the source device, or the specified channel.

The routing is active until you close the dialog by selecting the **Close Channel** button or by pressing the **ESC** key.

VL Custom Wave Support

The EX has sixteen writable memory locations for Custom VL Waves (the last 16 VL Waves - numbers 257 through to 272).

You can read the names of the Custom VL Waves currently in the EX by selecting **Get VL Wave Names** Option on the MIDI Menu. The VL Wave names can be viewed in the EX Synthesizer Window.

You can also copy open VL70m LIB and MIDI files and drag copy the VL Waves in the file to the User VL Wave slots in the EX Synthesizer Window. You can copy single Waves or a Selection of Waves.

Please note you can only **Drag Copy** VL70m voices/elements to the EX Custom VL Wave Slots; you cannot **Drag Move** them.

Default Advanced MIDI Timing Settings

The following table lists the default settings for the options found in the <u>Advanced MIDI Preferences</u> tab of the <u>Preferences</u> Dialog.

Ping Delay	50ms
Bank Change Delay	50ms
Patch Change Delay	300ms
Voice Transmit Delay	4,000ms
Voice Store Delay	4,000ms
Remote Switch Delay	50ms

If you have adjusted these values and are experiencing problems when writing Voices to EX Memory via MIDI then I would recommend resetting these values back to these settings.

You can diagnose the transferring of Voices to EX Memory via MIDI by using the switches given in the <u>Advanced MIDI Preferences</u> tab of the <u>Preferences</u> Dialog. These switches are all set during normal operations, but being able to switch thse options on/off can be a useful debugging aid.

Sample Advanced MIDI Timing Settings

The following table lists the values I am using on my system for the options found in the <u>Advanced MIDI Preferences</u> tab of the <u>Preferences</u> Dialog. This should give you an idea of how the values can be adapted to provide faster transfers. Note: I cannot guarantee that these values will work on your system. If you do change the timing values be sure to test them out thoroughly for reliability.

Ping Delay	50ms
Bank Change Delay	50ms
Patch Change Delay	300ms
Voice Transmit Delay	600ms
Voice Store Delay	3,000ms
Remote Switch Delay	50ms

SMDI Support

If you have a SCSI connection between the EX and your computer you can drag and drop Samples between the EX Synth Data Window and other Child Windows.

Configuring SMDI Support

To use the ex.factory SMDI support you need the ex.factory SMDI software interface installed.

You configure SMDI support by setting up the following in the SMDI Preferences Tab of the Preferences Dialog.

- Checking the **Enable SMDI Support** button
- Setting the **SCSI Host ID** field to match the ID of your system's Host Adapter (usually this is 0 unless you have multiple host adapters, and have your EX5 connected to an adaptor which is not the first)
- Setting the **SCSI Unit ID** to match the SCSI ID value set in the EX5 Utility Mode/Other tab (see page 276 of the EX5 manual for details)

Sample Names in the EX Synthesizer Window

The Samples shown in the EX Synthesizer Window are coloured to indicate whether or not a Sample exists at that slot. If there is no Sample at a particular slot, then the slot is coloured red, otherwise it is coloured black.

When ex.factory starts up, it does not know the names of the Samples installed in the EX, so all Sample slots are assumed to be empty and are thus coloured red within the EX Synthesizer Window.

If a Sample slot is empty, then it cannot be used as a drag source.

Getting Sample Names from the EX

You can get the names of the Samples currently loaded within the EX by selecting the **Get EX Sample Names** menu option from the SMDI Menu. Alternatively you if you right click over the **User Sample Collection** in the EX Synthesizer Window you can use the **Get EX Sample Names** menu option found upon the Context Sensitive Menu.

While the Sample names are loading a dialog window shows you the progress.

Reading 1024 Sample headers takes a few minutes, but you can cancel the operation at any time whilst retaining the Sample headers that have already been read. So for example if you only have 50 Samples in the EX, you can abort the operation after they have been read.

You can limit the maximum number of Samples to be read by the **Import Limit** field in the SMDI Preferences Tab of the Preferences Dialog.

You can also set ex.factory to automatically import the Sample names when it starts up by setting the **Read EX SMDI Data on ex.factory Startup** and **Startup Import Limit** parameters in the SMDI Preferences Tab of the Preferences Dialog.

Copying Samples Via SMDI

Once the Sample names have been imported then they are available within the EX Synthesizer Window as both sources and destinations for drag operations.

You can use drag and drop to:

- Copy Samples from S1A and S1M Child Windows to the EX Synthesizer Window
- Copy Samples from the EX Synthesizer Window to S1A and S1M Child Windows

Either single Samples or multiple Samples can be copied. Note: you can only copy Samples via SMDI, you cannot move them. This means you must hold down the **DRAG MODIFIER** key during the drag and drop operation to ensure the operation is a copy operation.

A dialog window will show the progress of a SMDI data transfer. If you are copying multiple Samples then you can cancel the operation, and ex.factory will abort the transfer once the transfer of the current Sample being transferred is completed.

If you load a new S1M file into the EX, then you will need to repeat the **Get EX Sample Names** command to ensure that ex.factory's Sample list is consistent with that within the EX.

Library Support

To use the ex.factory Library, your copy of ex.factory needs to be [registered](#).

Configuring the Library

To configure the Library, go to the [Library Preferences](#) tab in the [Preferences](#) Dialog, and set up the preferences for the Library.

Adding Objects to The Library

The following Objects can be added to the Library.

- Synthesizer
- Voices
- Performances
- Waves
- Samples
- Arpeggios
- Patterns
- Song

You can add Objects to the Library using the following methods:

- Use the **Add To Library** function that can be found in an Object's context menu;
- [Drag Copy](#) an Object or Selection of Objects over the [EX Library Window](#).
- Using the copy and paste functions of the [Clipboard](#).

Please note that you can only **Drag Copy** Objects to the [EX Library Window](#); you cannot **Drag Move** them.

Referenced objects are also copied to the Library if they are not already present in the Library. For example, if you copy a Performance and it references Voices then they are also copied if required.

If an object is copied to the Library and it is already present in the library (either a complete match or just a match in name), then the actions you have configured in the [Library Preferences](#) tab in the [Preferences](#) Dialog are taken.

You can also [Batch Import](#) files to the library

Copying Objects From The Library

You can copy Objects from the Library to a file using the following methods:

- [Drag Copy](#) an Object or Selection of Objects from the the [EX Library Window](#) to a file.
- Using the copy and paste functions of the [Clipboard](#) to copy an object from the [EX Library Window](#) and paste it to a destination file.

Referenced objects are also copied from the Library if they are not already present in the destination file and if the destination file supports them. For example, if you copy a Performance and it references Voices then they are also copied if required.

Deleting Objects From The Library

To delete an object from the library, right click over the Object or selection of Objects and select the **Delete** option from the context menu

Exporting Voices and Performances From The Library to the EX

You can send Voices and Performances from the Library to the EX edit buffer by right clicking over a selected object and selecting the **Export to EX Edit Buffer** option from the context menu.

You can also [Drag Copy](#) an Object or Selection of Objects from the the [EX Library Window](#) to the [EX Synth Window](#)

Extracting Files from the Library

If you set the Library Table View to show Files, you can right click over a file and select the **Extract File** menu option, which will recreate the original file from all the source data held in the database. The file can then be saved. This option is also available for Files shown in the Library Tree View

List File Usage

If you right click over an object in the Library, and select the **List File Usage...** menu option, a dialog will be displayed which shows all the files in the Library that make use of that object.

Several files may refer to a single object based on the setting on the Library import preferences if they are set not to add identical objects. If this is set only a single copy is stored, and all files that contained the identical object only refer to that single object within the Library

New Author

If you set the Library Table View to show Authors, you can right click in the Table and select the **New Author** menu option, which displays a dialog that allows you to create a new Author. This option is also available in the Library Tree View by right clicking over the **Author** branch

Library Information ...

Opens the [Library Statistics](#) dialog.

Find and Goto Facilities

Find Dialog

ex.factory supports the ability to find Objects either by name or by category (where an Object supports categories, such as Voices).

Searches start from the currently selected Object.

Selecting the **Find ...** option on the Edit Menu brings up the **Find** dialog, that allows you to specify the string to search for. In addition there are several options that can be selected

Find What	The text string to search for.
Match Case	If this option is checked then the search is case sensitive. If this option is not checked then the search is case insensitive.
Match Whole Name	If this option is checked then the search string must match the entire name of an Object. E.g. "pan" would match a Voice called "pan", but not a Voice called "pandora". If this option is not checked then the search can match a sub string within a name. E.g. "dor" would match a Voice named "dor" and a Voice called "pandora".
Use Wild Cards	If checked ex.factory will treat the "Find What" text as a "regular expression" to allow you more control over the search, such as matching text at the start of a name, or the end of a name, words with numbers in, etc.

The regular expression language used for ex.factory wild card support is the Perl Regular Expression Syntax. Rather than try and write up this powerful syntax myself into the ex.factory documents, I'll direct you to the Perl Regular Expression Syntax page for a description of how to use this powerful feature.

Find Category Dialog

You can also search by category be selecting **Find Category ...** option on the Edit Menu, which brings up the **Find Category** Dialog.

This option allows you to search, for example, for all string Voices in a file (assuming all Voices have been assigned a category). Note: only some Objects (such as Voices and Performances) have a category value.
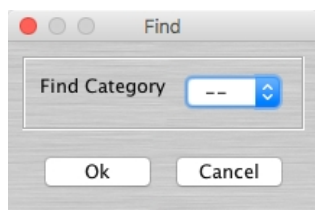
Simply select the Category from the "Find Category" combo box that you wish to search for, and that's all there is to it.

Goto Dialog

Selecting this option on the on the [Edit Menu](#) brings up the **Goto** Dialog
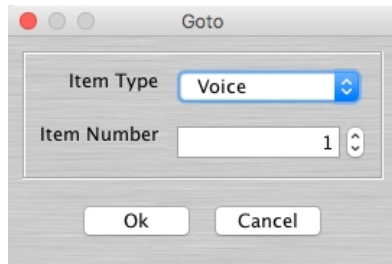
Item Type	The type of Object to go to • The types of Objects that can be selected depends upon the type of file • If a Table View is selected then you can only go the type of objects shown by the Table
Item Number	The number of the Object to go to. • Note: At present Voice numbers can only be expressed in the range (0-256). The dialog does not understand the concept of Voice banks

Note that **Goto** is not support in the [EX Library Window](#).

Editing Features

ex.factory supports the following editing features:

- [General Editing Features](#)
- [Synth Editing Features](#)
- [Voice Editing Features](#)
- [Performance Editing Features](#)
- [Wave Editing Features](#)
- [Sample Editing Features](#)
- [Pattern Editing Features](#)
- [Arpeggio Editing Features](#)
- [Song Editing Features](#)
- [Keymap Editing Features](#)
- [System Settings](#)

General Editing Features

ex.factory supports many editing features, some of which are classed as general features that are applicable to all or most Objects.

The general features are described here in one place for convenience:

- Copy/Move Object
- Initialise Object
- Rename Object
- Insert Object
- Delete Object
- List Object References
- Sort Objects
- Export Objects
- Remap Objects
- Add Objects to Library

The following table shows whether or not a general edit operation can be applied to a particular type of Object:

Object Type	Move	Copy	Initialise	Rename	Insert	Delete	List	Sort	Export	Remap	Add To Library	in File Type(s)
Synth Object	Y	Y	Y	N	N	N	N	N	N	Y	Y	S1A, S1Y, S1V
Voice Collection	Y	Y	Y	N	N	N	N	Y	Y	Y	Y	S1A, S1Y, S1V
Voice	Y	Y	Y	Y	Y	Y	Y	N	N	Y	Y	S1A, S1Y, S1V
Voice Arpeggiator Unit	Y	Y	Y	N	N	N	N	N	N	N	N	S1A, S1Y, S1V
Voice Element Collection	Y	Y	Y	N	N	N	N	N	N	N	Y	S1A, S1Y, S1V
Voice Element	Y	Y	Y	N	Y	Y	N	N	N	N	Y	S1A, S1Y, S1V
Voice Drum Note	Y	Y	Y	N	Y	Y	N	N	N	N	Y	S1A, S1Y, S1V
Voice Controller Collection	Y	Y	Y	N	N	N	N	N	N	N	N	S1A, S1Y, S1V
Voice Controller	Y	Y	Y	N	Y	Y	N	N	N	N	N	S1A, S1Y, S1V
Voice Effects Unit	Y	Y	Y	N	N	N	N	N	N	N	N	S1A, S1Y, S1V
Voice Reverb Effect Unit	Y	Y	Y	N	N	N	N	N	N	N	N	S1A, S1Y, S1V
Voice Chorus Unit	Y	Y	Y	N	N	N	N	N	N	N	N	S1A, S1Y, S1V
Voice Insert Effect Unit 1	Y	Y	Y	N	N	N	N	N	N	N	N	S1A, S1Y, S1V
Voice Insert Effect Unit 2	Y	Y	Y	N	N	N	N	N	N	N	N	S1A, S1Y, S1V
Voice Scene Collection	Y	Y	Y	N	N	N	N	N	N	N	N	S1A, S1Y, S1V
Voice Scene	Y	Y	Y	N	Y	Y	N	N	N	N	N	S1A, S1Y, S1V
Performance Collection	Y	Y	Y	N	N	N	N	Y	Y	N	Y	S1A, S1Y
Performance	Y	Y	Y	Y	Y	Y	N	N	N	N	Y	S1A, S1Y
Performance Arpeggiator Unit	Y	Y	Y	N	N	N	N	N	N	N	N	S1A, S1Y
Performance Part Collection	Y	Y	Y	N	N	N	N	N	N	N	N	S1A, S1Y
Performance Part	Y	Y	Y	N	Y	Y	N	N	N	N	N	S1A, S1Y
Performance Effects Unit	Y	Y	Y	N	N	N	N	N	N	N	N	S1A, S1Y
Performance Reverb Unit	Y	Y	Y	N	N	N	N	N	N	N	N	S1A, S1Y
Performance Chorus Unit	Y	Y	Y	N	N	N	N	N	N	N	N	S1A, S1Y
Performance Scene Collection	Y	Y	Y	N	N	N	N	N	N	N	N	S1A, S1Y
Performance Scene	Y	Y	Y	N	Y	Y	N	N	N	N	N	S1A, S1Y
Wave Collection	Y	Y	Y	N	N	N	N	Y	Y	N	Y	S1A, S1M
Wave	Y	Y	Y	Y	Y	Y	N	N	N	N	Y	S1A, S1M
Wave Layer	Y	Y	Y	N	Y	Y	N	N	N	N	N	S1A, S1M
Sample Collection	Y	Y	Y	N	N	N	N	Y	Y	N	Y	S1A, S1M
Sample	Y	Y	Y	Y	Y	Y	Y	N	N	N	Y	S1A, S1M

Pattern Collection	Y	Y	Y	N	N	N	N	Y	Y	N	Y	S1A, S1P
Pattern	Y	Y	Y	Y	Y	Y	Y	N	N	N	Y	S1A, S1P
Pattern Track	Y	Y	Y	N	Y	Y	N	N	N	N	N	S1A, S1P
Arpeggio Collection	Y	Y	Y	N	N	N	N	Y	Y	N	Y	S1A, S1R
Arpeggio	Y	Y	Y	Y	Y	Y	Y	N	N	N	Y	S1A, S1R
Arpeggio Track	Y	Y	Y	N	Y	Y	N	N	N	N	N	S1A, S1R
Song	Y	Y	Y	Y	N	N	N	N	Y	N	Y	S1A, S1S
Song Track	Y	Y	Y	N	Y	Y	N	N	N	N	N	S1A, S1S
Keymap Collection	Y	Y	Y	N	N	N	N	N	N	N	N	S1A
Keymap	Y	Y	Y	N	Y	Y	N	N	N	N	N	S1A
System Settings	Y	Y	Y	N	N	N	N	N	N	N	N	S1A, S1Y

Copy/Move Object

ex.factory makes extensive use of drag and drop for copying and moving Objects.

You can drag copy or move Objects within a file or between files, and you can drag single items or multiple items.

The default drag operation is to move an Object, and there are two types of move operations:

- Moving an Object within its Parent Collection (e.g. moving a Voice from location 1 to location 4)
- Moving an Object to a new Parent Collection (e.g. moving a Voice from one file to another file)

When you move an Object to a new Parent Collection then the original Object is removed and replaced with an initialised Object of the same type.

To copy an Object using drag and drop, you must have the **DRAG MODIFIER** key held down during the operation. The **DRAG MODIFIER** key is platform dependent. On the PC platform it is the **CTRL** key.

You can tell that a copy operation is in progress as the drag image icon has a **+** sign visible.

When you drag multiple items they must be of the same type. For example you can drag several Voices, but not Voices and Performances together.

ex.factory provides the following drag/drop feedback to assist in determining the effects of a drag/drop operation:

- Cursor: Indicates if the move is either a copy or a move, or if the drop is invalid (e.g. trying to drag a Voice onto an Element)
- Drag image: A simple pictorial representation of what is being dragged
- Drop Point: ex.factory shows the drop point as either a cue line drawn between Objects if an Object is being moved within its parent (e.g. an Element within a Voice), or a cue rectangle drawn around the drop location for all other moves and copy operations which are valid

When a Child Window is split, Objects can be dragged and dropped between either side of the split point. This is handy, for example, for dragging Objects between the start of a Collection and the end of a Collection.

The Tree and Table views will auto-scroll in drag and drop operations, when you move the cursor to either the top or the bottom of the pane and hold it there.

If you drag an Object onto a Tree View and over a valid parent Object (e.g. an Element over a Voice) and the parent Object is collapsed within the Tree, and you hold the cursor over the Parent Object for a few seconds it will automatically expand.

ex.factory will maintain the references to Objects in a Collection when moving Objects within a file, as follows:

Collection Type	in File Type	Objects Updated
Voice	S1A, S1Y	Performance Parts
Wave	S1A	Voice Elements (AWM Elements using RAM Waves)
Sample	S1A	Voice Elements (Drum Elements using RAM Samples) Wave Layers (using RAM Samples) Sample Keymaps (using RAM Samples)
Pattern	S1A	Pattern Keymaps
Arpeggio	S1A	Voice Arpeggiator Units (using User Arpeggios) Performance Arpeggiator Units (using User Arpeggios)

For example if you move a Voice within an S1A file from Location 2 to Location 10, then any Performance Parts which are referencing Voices at Locations 2 and above will be updated to ensure they still reference the same Voices after the move operation as they were before the move operation.

The ability to update references following a move or to copy referenced Objects during a move to a new file can be selectively turned on or off within the Preferences Dialog.

When you are dragging certain Objects that can only be copied and not moved, don't forget that you need to hold down the **DRAG MODIFIER** key for the drag to be valid. For example, if you are dragging a preset Voice from the EX Synthesizer Window onto a Performance Part then you must be performing a copy operation.

Here is a list of items that can only be copied and not moved

- Preset Voices
- Preset Waves
- Preset VL Waves
- Preset Samples
- Preset Arpeggios
- User Voices when dragged onto Performance Parts
- User Waves when dragged onto Voice Elements

- User Samples when dragged onto Voice Drum Elements, Wave Layers or Keymaps, or when copied between ex.factory and the EX via SMDI
- User Patterns when dragged onto Keymaps
- User Arpeggios when dragged onto Voice Arpeggiator Units and Performance Arpeggiator Units

Initialise Object

Initialises the selected Object to its default state.

Multiple Objects of the same type can be selected for initialisation.

The **Initialise** command is found upon the **Context Sensitive Menu** in both the Tree View and the Table View.

Rename Object

Renames the selected Object using the following dialog:

Only one Object can be selected for renaming.

The dialog will provide a drop down list for selecting a Category value for Objects that support it:

Object Type	Category?
Voice	Yes
Performance	Yes
Wave	Yes
Sample	Yes
Pattern	No
Arpeggio	No
Song	No

The **Rename** command is found upon the **Context Sensitive Menu** in the Tree View

To rename Objects in the Table View, simply click in **Category Cell** of the required Object to select the Category value from a drop down list, or double click in the **Name Cell** of the required Object to edit the name.

Insert Object

Inserts an Object into a Collection at the current location.

The **Insert** command is found upon the **Context Sensitive Menu** in both the Tree View and the Table View.

You can insert more than one Object at a time by selecting multiple Objects prior to executing the **Insert** command.

For example if you wish to insert three Performances at location 10, select Performances 10, 11 and 12 and then execute the **Insert** command.

Note that when you insert one or more Objects, then the commensurate number of Objects at the end of the Parent Collection are removed if required. This is necessary to maintain the correct number of Objects in a Collection.

For example, a Voice Collection in an S1V file can only contain 256 Voices, so if two Voices are inserted into the Collection then two Voices must be removed from the end of the Collection to maintain the correct size.

ex.factory will maintain the references to Objects in a Collection when inserting Objects, as follows:

Collection Type	in File Type	Objects Updated
Voice	S1A, S1Y	Performance Parts
Wave	S1A	Voice Elements (AWM Elements using RAM Waves)
Sample	S1A	Voice Elements (Drum Elements using RAM Samples) Wave Layers (using RAM Samples) Sample Keymaps (using RAM Samples)
Pattern	S1A	Pattern Keymaps
Arpeggio	S1A	Voice Arpeggiator Units (using User Arpeggios) Performance Arpeggiator Units (using User Arpeggios)

For example if you insert a Voice into an S1A file at Location 10, then any Performance Parts which are referencing Voices at Locations 10 and above will be updated to ensure they still reference the same Voices after the insert operation as they were before the insert operation.

Delete Object

Deletes an Object at the current location.

The **Delete** command is found upon the **Context Sensitive Menu** in both the Tree View and the Table View.

You can delete more than one Object at a time by selecting multiple Objects prior to executing the **Delete** command.

For example if you wish to delete three Performances at location 10, select Performances 10, 11 and 12 and then execute the **Delete** command.

Note that when you delete one or more Objects, then a commensurate number of Objects at the end of the Parent Collection are added if required. This is necessary to maintain the correct number of Objects in a Collection.

For example, a Voice Collection in an S1V file must contain 256 Voices, so if two Voices are deleted from the Collection then two Voices must be added to the end of the Collection to maintain the correct size.

ex.factory will maintain the references to Objects in a Collection when deleting Objects, as follows:

Collection Type	in File Type	Objects Updated
Voice	S1A, S1Y	Performance Parts
Wave	S1A	Voice Elements (AWM Elements using RAM Waves)
Sample	S1A	Voice Elements (Drum Elements using RAM Samples) Wave Layers (using RAM Samples) Sample Keymaps (using RAM Samples)
Pattern	S1A	Pattern Keymaps
Arpeggio	S1A	Voice Arpeggiator Units (using User Arpeggios) Performance Arpeggiator Units (using User Arpeggios)

For example if you delete a Voice from an S1A file at Location 10, then any Performance Parts which are referencing Voices at Locations 10 and above will be updated to ensure they still reference the same Voices after the delete operation as they were before the delete operation.

List Object References

The **List References** command is found upon the **Context Sensitive Menu** in both the Tree View and the Table View.

The **List References** command is only available if:

- Only one Object is selected
- The Object selected is referenced by another Object, which is indicated by the Object being coloured blue

The references are shown as follows:
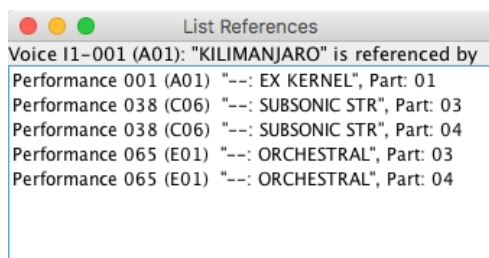
The Object being referenced is shown at the top of the Dialog followed by the Objects referencing it.

Sort Objects

The **Sort** command is found upon the **Context Sensitive Menu** in both the Tree View and the Table View.

The type of sort operations available depend upon the types of Object being sorted:

Object Type	Sort by Name	Sort By Category	Sort By Type
Voices	Yes	Yes	Yes
Performances	Yes	Yes	No
Waves	Yes	Yes	No
Samples	Yes	Yes	No
Patterns	Yes	No	No
Arpeggios	Yes	No	No

In the Tree View the sort options are accessed via the **Context Sensitive Menu** for the Collection that you wish to sort (e.g. the Voice Collection to sort Voices).

In the Table View the sort options are accessed via the **Context Sensitive Menu** for any Object. The sort can also be initiated by clicking in the **Category**, **Name** or **Type** column headers.

Note: Sorting Voices by Voice Type places all the AWM Voices at the start of a file, thus this is handy for avoiding those annoying "DSP Resource Full" errors upon the EX when scrolling through Voices whilst in Performance Edit Mode.

Remap Object Elements

Remaps Element Objects as appropriate.

There are two remapping commands:

> • Remap RAM AWM and Drum Elements to FLASH
> • Remap FLASH AWM and Drum Elements to RAM

The **Map to FLASH** and **Map to RAM** commands are found upon the **Context Sensitive Menu** in both the Tree View and the Table View.

Element remapping is useful for creating a new file that points to FLASH Waves as opposed to RAM Waves and vice versa.

The following types of Elements within the selected Objects or their Child Objects are not affected by the remapping commands:

> • Preset AWM Elements
> • Preset Drum Elements
> • AN Elements
> • VL Elements

The following Objects support the remapping commands:

> • Synth Objects
> • Voice Collection Objects
> • Voice Objects
> • Voice Element Collections
> • Drum Note Objects
> • Voice Element Objects

This gives you considerable flexibility regarding how to remap Elements within a file.

Synth Editing Features

ex.factory supports the following editing operations upon the **Synth Object** within the [Tree View](#) of a [Child Window](#):

- [Move](#)
- [Copy](#)
- [Initialise](#)
- [Map to Flash](#)
- [Map to RAM](#)
- [Add To Library](#)
- [Cut to Clipboard](#)
- [Copy to Clipboard](#)
- [Paste from Clipboard](#)

To access these features, right click over the **Synth Object** to activate the **Synth Object's** Context Sensitive Menu.

The **Synth Object** is only shown within a [Tree View](#) and is the first Object in the [Tree View](#). Its name identifies the type of file.

For example, a **Synth Object** representing an S1A file is labelled:

S1A (Synth All) File

Voice Editing Features

ex.factory supports the following editing operations upon the **Voice Collection** shown within the [Tree View](#) of a [Child Window](#):

- [Copy/Move](#)
- [Initialise](#)
- [Map to Flash](#)
- [Map to RAM](#)
- [Add To Library](#)
- [Sort by Name](#)
- [Sort by Category](#)
- [Sort by Type](#)
- [Save As S1V File](#)
- [Import from EX Memory](#) (only available if ex.factory is [registered](#) and MIDI support is enabled)
- [Export to EX Memory](#) (only available if ex.factory is [registered](#) and MIDI support is enabled)
- [Cut to Clipboard](#)
- [Copy to Clipboard](#)
- [Paste from Clipboard](#)

The **Voice Collection** Object in an S1A, S1Y or S1V file is only shown within a [Tree View](#) and is called **User Voices**.

To access all features other than Move and Copy (which you do via "Drag and Drop"), right click over the **Voice Collection** to activate the **Voice Collection's** Context Sensitive Menu.

ex.factory supports the following editing operations upon the **Voice Objects** within the [Tree View](#) or [Table View](#) of a [Child Window](#):

- [Copy/Move](#)
- [Initialise](#)
- [Rename](#)
- [Insert](#)
- [Delete](#)
- [New](#)
- [Map to Flash](#)
- [Map to RAM](#)
- [List References](#)
- [Add To Library](#)
- [Import from EX Memory](#) (only available if ex.factory is [registered](#) and MIDI support is enabled)
- [Export to EX Memory](#) (only available if ex.factory is [registered](#) and MIDI support is enabled)
- [Import from EX Edit Buffer](#) (only available if ex.factory is [registered](#) and MIDI support is enabled)
- [Export to EX Edit Buffer](#) (only if available ex.factory is [registered](#) and MIDI support is enabled)
- [Cut to Clipboard](#)
- [Copy to Clipboard](#)
- [Paste from Clipboard](#)

To access all features other than Move and Copy (which you do via "Drag and Drop"), right click over a **Voice** or selection of **Voices** to activate the **Voice's** Context Sensitive Menu.

Within the [Tree View](#) of a [Child Window](#) you can also directly edit the following Objects that make up a Voice :

- [Voice Arpeggiator Unit](#)
- [Voice Elements](#)
- [Voice Controllers](#)
- [Voice Effects](#)
- [Voice Scenes](#)

New

Allows you to create a new voice at the selected location from one of the following EX voice types.

- AWM
- VL + AWM
- FDSP
- AN(POLY)
- AN(LAYER)
- AN + FDSP
- Drum

This is different to initialising a voice, which always creates a default AWM voice.

If you have set the [Device Type Preferences](#) option to EX7 then only the AWM, FDSP, AN and Drum options are presented; VL+AWM, AN(LAYER) and AN+FDSP Voices are only available upon the EX5/EX5R.

Import from EX Memory

Imports Voices from the EX Memory locations into the currently selected Child Window.

You can import:

- A Single Voice
- A Selection of Voices
- All Voices by selecting the Voice Collection

Export to EX Memory

Exports Voices from the currently selected Child Window to the EX Memory locations.

You can export:

- A Single Voice
- A Selection of Voices
- All Voices by selecting the Voice Collection

Import from EX Edit Buffer

Imports the Voice currently in the EX Edit Buffer (i.e. the currently selected Voice on the EX) into the Voice currently selected within the active Child Window.

Note if you have more than one Voice selected then this operation is not available.

Export to EX Edit Buffer

Exports the Voice currently selected within the active Child Window to the EX Edit Buffer.

Note if you have more than one Voice selected then this operation is not available.

Voice Arpeggiator Editing Features

ex.factory supports the following editing operations upon the **Voice Arpeggiator** Object shown within the Tree View of a Child Window:

- Copy/Move
- Set Arpeggio
- Initialise
- Cut to Clipboard
- Copy to Clipboard
- Paste from Clipboard

To access all features other than Move, Copy and Set (which you do via "Drag and Drop"), right click over the **Voice Arpeggiator** to activate the **Voice Arpeggiator's** Context Sensitive Menu.

You can Copy/Move **Voice Arpeggiators** to/from **Performance Arpeggiators** as well as **Voice Arpeggiators**.

Set Arpeggio

If the Voice resides in an S1A file, then a User Arpeggio from the same file can be dragged onto a Voice's Arpeggiator to set the Arpeggio used by the Voice.

Preset Arpeggios from the EX Synthesizer Window can be dragged onto a Voice's Arpeggiator as well.

Please note, the drag operation for this is **COPY** only. You cannot **MOVE** an Arpeggio onto an Arpeggiator.

Voice Element Editing Features

ex.factory supports the following editing operations upon the **Voice Element Collection** shown within the Tree View of a Child Window:

- Copy/Move
- Initialise
- Add Drum Element (Drum Voices only)
- Sort Drum Elements (Drum Voices only)
- Map to Flash
- Map to RAM
- List By Element (Drum Voices only)
- List By Drum Key (Drum Voices only)
- Cut to Clipboard
- Copy to Clipboard

- Paste from Clipboard

To access all features other than Move and Copy (which you do via "Drag and Drop"), right click over the **Voice Element Collection** to activate the **Voice Element Collection's** Context Sensitive Menu.

ex.factory supports the following editing operations upon the **Voice Element Objects** within the Tree View of a Child Window:

- Copy/Move
- Set Wave/Sample
- Initialise
- Insert (Drum Voices only)
- Add Drum Element (Drum Voices only)
- Delete
- Map to Flash
- Map to RAM
- List By Element (Drum Voices only)
- List By Drum Key (Drum Voices only)
- Cut to Clipboard
- Copy to Clipboard
- Paste from Clipboard

To access all features other than Move, Copy and Set (which you do via "Drag and Drop"), right click over a **Voice Element** or selection of **Voices Elements** to activate the **Voice Element's** Context Sensitive Menu.

Set Wave/Sample

The Wave for an AWM Element and Sample for a Drum Element can be set by drag copying a Wave/Sample onto the Element.

The following **Drag Copy** Operations are supported:

- Preset Waves from the EX Synthesizer Window can be dragged onto any AWM Element
- A RAM Wave from an S1A file can be dragged onto any AWM Element within the same file
- A Wave in an S1M that is referenced as a FLASH or RAM bank can be dragged onto any AWM Element within a file that references the S1M file
- Preset Samples from the EX Synthesizer Window can be dragged onto any Drum Element
- A RAM Sample from an S1A file can be dragged onto any Drum Element within the same file
- A Sample in an S1M that is referenced as a FLASH or RAM bank can be dragged onto any Drum Element within a file that references the S1M file
- Preset/User VL Waves from the EX Synthesizer Window can be dragged onto VL Elements

Please note, the drag operation for this is **COPY** only. You cannot **MOVE** a Sample or Wave onto an Element.

Add Drum Elements

Adds Drum Elements to a Drum Voice's Element Collection.

If you exceed the limit of 128 Drum Elements per Drum Voice (128) or if you exceed the total number of Elements allowed in a file (1024) then ex.factory will report the error to you.

You can add more than one Drum Element at a time if you wish by holding down the **ALT** key when you select the **Add Drum Elements** option from the Context Sensitive Menu. Holding down the **ALT** key will bring up the following Dialog Box which allows you to specify the number of Drum Elements to add:

Sort Drum Elements

Sorts the Drum Elements according to their Note number.

List By Element or Drum Key

For Drum Voices, Drum Elements can be grouped and displayed by the key to which they are assigned.

In ex.factory, Drum Elements grouped by their assigned key are called **Drum Keys**.

The default option is to list Drum Elements by the order in which they were defined (**List by Element**), however grouping them by Drum Key (**List By Drum Key**), allows a more intuitive way of working with Drum Elements.

All Element editing features also work for Drum Keys, i.e. you can initialise/insert/delete/move/copy and remap Drum Keys within a Drum Voice.

Voice Controller Editing Features

ex.factory supports the following editing operations upon the **Voice Controllers Collection** shown within the Tree View of a Child Window:

- Copy/Move
- Initialise
- Cut to Clipboard
- Copy to Clipboard
- Paste from Clipboard

The **Voice Controllers Collection** Object in an S1A, S1Y or S1V file is only shown within a Tree View and is called **User Voices**.

To access all features other than Move and Copy (which you do via "Drag and Drop"), right click over the **Voice Controllers Collection** to activate the **Voice Controllers Collection's** Context Sensitive Menu.

ex.factory supports the following editing operations upon the **Voice Controller Objects** within the Tree View or Table View of a Child Window:

- Copy/Move
- Initialise
- Insert
- Delete
- Cut to Clipboard
- Copy to Clipboard
- Paste from Clipboard

To access all features other than Move and Copy (which you do via "Drag and Drop"), right click over a **Voice Controller** or selection of **Voice Controllers** to activate the **Voice Controller's** Context Sensitive Menu.

Voice Effects Editing Features

ex.factory supports the following editing operations upon the **Voice Effects Units Collection** shown within the Tree View of a Child Window:

- Copy/Move
- Initialise
- Cut to Clipboard
- Copy to Clipboard
- Paste from Clipboard

To access all features other than Move and Copy (which you do via "Drag and Drop"), right click over the **Voice Effects Units Collection** to activate the **Voice Effects Units Collection's** Context Sensitive Menu.

ex.factory supports the following editing operations upon the individual **Voice Effects Objects** (FDSP, Reverb, Chorus, INS1 and INS2 effects units) within the Tree View of a Child Window:

- Copy/Move
- Initialise
- Cut to Clipboard
- Copy to Clipboard
- Paste from Clipboard

To access all features other than Move and Copy (which you do via "Drag and Drop"), right click over a **Voice Effect** or selection of **Voice Effects** to activate the **Voice Effects's** Context Sensitive Menu.

Voice Reverb and Chorus Effects can be copied/moved to a Performance.

You copy/move the Voice Reverb and Chorus Effects to a Performance in one operation by dragging the **Voice Effects Units Collection** (the FDSP, INS1 and INS2 effects are ignored).

Voice Scene Editing Features

ex.factory supports the following editing operations upon the **Voice Scene Collection** shown within the Tree View of a Child Window:

- Copy/Move

- [Initialise](#)
- [Edit](#)
- [Cut to Clipboard](#)
- [Copy to Clipboard](#)
- [Paste from Clipboard](#)

To access all features other than Move and Copy (which you do via "Drag and Drop"), right click over the **Voice Scene Collection** to activate the **Voice Scene Collection's** Context Sensitive Menu.

ex.factory supports the following editing operations upon the **Voice Scene Objects** within the [Tree View](#) of a [Child Window](#):

- [Copy/Move](#)
- [Initialise](#)
- [Insert](#)
- [Delete](#)
- [Edit](#)
- [Cut to Clipboard](#)
- [Copy to Clipboard](#)
- [Paste from Clipboard](#)

To access all features other than Move and Copy (which you do via "Drag and Drop"), right click over a **Voice Scene** or selection of **Voice Scenes** to activate the **Voice Scene's** Context Sensitive Menu.

Edit Scenes

ex.factory provides the ability to precisely edit Voice Scenes, which is something you cannot do precisely upon the EX.

You edit Scenes using the following dialog:
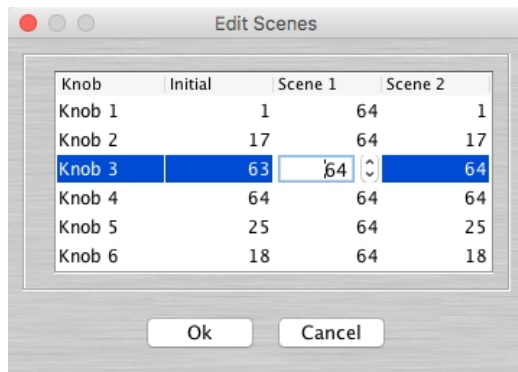
The dialog is pretty self explanatory. To edit a "cell" simply double click in it and you can either enter a numeric value or use the up/down arrows (visible only when editing a cell, as shown in the above example for Scene 1 of Knob 3) to increment/decrement the values.

Performance Editing Features

ex.factory supports the following editing operations upon the **Performance Collection** shown within the [Tree View](#) of a [Child Window](#):

- [Copy/Move](#)
- [Initialise](#)
- [Sort by Name](#)
- [Sort by Category](#)
- [Save As S1Y File](#)
- [Add To Library](#)
- [Import from EX Memory](#) (only available if ex.factory is [registered](#) and MIDI support is enabled)
- [Export to EX Memory](#) (only available if ex.factory is [registered](#) and MIDI support is enabled)
- [Cut to Clipboard](#)
- [Copy to Clipboard](#)
- [Paste from Clipboard](#)

The **Performance Collection** Object in an S1A or S1Y file is only shown within a [Tree View](#) and is called **User Performances**.

To access all features other than Move and Copy (which you do via "Drag and Drop"), right click over the **Performance Collection** to activate the **Performance Collection's** Context Sensitive Menu.

ex.factory supports the following editing operations upon the **Performance Objects** within the [Tree View](#) or [Table View](#) of a [Child Window](#):

- [Copy/Move](#)
- [Initialise](#)
- [Rename](#)
- [Insert](#)
- [Delete](#)
- [Add To Library](#)
- [Import from EX Memory](#) (only available if ex.factory is [registered](#) and MIDI support is enabled)
- [Export to EX Memory](#) (only available if ex.factory is [registered](#) and MIDI support is enabled)
- [Import from EX Edit Buffer](#) (only available if ex.factory is [registered](#) and MIDI support is enabled)
- [Export to EX Edit Buffer](#) (only if available ex.factory is [registered](#) and MIDI support is enabled)
- [Cut to Clipboard](#)
- [Copy to Clipboard](#)
- [Paste from Clipboard](#)

To access all features other than Move and Copy (which you do via "Drag and Drop"), right click over a **Performance** or selection of **Performance** to activate the **Performance's** Context Sensitive Menu.

Within the [Tree View](#) of a [Child Window](#) you can also directly edit the following Objects that make up a **Performance**:

- [Performance Arpeggiator Unit](#)
- [Performance Parts](#)
- [Performance Effects](#)
- [Performance Scenes](#)

Import from EX Memory

Imports Performances from the EX Memory locations into the currently selected [Child Window](#).

You can import:

- A Single Performance
- A Selection of Performances
- All Performances by selecting the Performance Collection

Export to EX Memory

Exports Performances from the currently selected [Child Window](#) to the EX Memory locations.

You can export:

- A Single Performance
- A Selection of Performances
- All Performances by selecting the Performance Collection

Import from EX Edit Buffer

Imports the Performance currently in the EX Edit Buffer (i.e. the currently selected Performance on the EX) to the Performance currently selected within the active [Child Window](#).

Note if you have more than one Performance selected then this operation is not available.

Export to EX Edit Buffer

Exports the Performance currently selected within the active Child Window to the EX Edit Buffer.

Note if you have more than one Performance selected then this operation is not available.

Performance Arpeggiator Unit Editing Features

ex.factory supports the following editing operations upon the **Performance Arpeggiator** Object shown within the Tree View of a Child Window:

- Copy/Move
- Set Arpeggio
- Initialise
- Cut to Clipboard
- Copy to Clipboard
- Paste from Clipboard

To access all features other than Move, Copy and Set (which you do via "Drag and Drop"), right click over the **Performance Arpeggiator** to activate the **Performance Arpeggiator's** Context Sensitive Menu.

You can Copy/Move **Performance Arpeggiators** to/from **Voice Arpeggiators** as well as **Performance Arpeggiators**.

Set Arpeggio

If the Performance resides in an S1A file, then a User Arpeggio from the same file can be dragged onto a Performance's Arpeggiator to set the Arpeggio used by the Performance.

Preset Arpeggios from the EX Synthesizer Window can be dragged onto a Performance's Arpeggiator as well.

Please note, the drag operation for this is **COPY** only. You cannot **MOVE** an Arpeggio onto an Arpeggiator.

Performance Part Editing Features

ex.factory supports the following editing operations upon the **Performance Part Collection** shown within the Tree View of a Child Window:

- Copy/Move
- Initialise
- Cut to Clipboard
- Copy to Clipboard
- Paste from Clipboard

To access all features other than Move and Copy (which you do via "Drag and Drop"), right click over the **Performance PartCollection** to activate the **Performance PartCollection's** Context Sensitive Menu.

ex.factory supports the following editing operations upon the **Performance Part Objects** within the Tree View of a Child Window:

- Copy/Move
- Set Voice
- Initialise
- Insert
- Delete
- Set/Clear Layer Switch
- Set/Clear Insert Switch
- Cut to Clipboard
- Copy to Clipboard
- Paste from Clipboard

To access all features other than Move, Copy and Set (which you do via "Drag and Drop"), right click over a **Performance Part** or selection of **Performance Parts** to activate the **Performance Part's** Context Sensitive Menu.

Set Voice

If the Performance resides in an S1A or S1Y file, then a User Voice from the same file can be dragged onto a Performance Part to set the Voice used by the Performance Part.

Preset Voices from the EX Synthesizer Window can be dragged onto Performance Parts as well.

Note: A Voice cannot be dropped onto a Part if in doing so it would cause a "DSP Resource Full Error".

If you drop a User Voice on a Part then ex.factory will ask you if you wish to set up the Part so that the Voice sounds identical to the way the Voice would in Voice mode, and if you wish the Performance effects settings to be set from this Voice. Note the reason for the two part question is because the Reverb and Chorus effects are shared between all Parts in a Performance, so you can only choose one!

The parameters that are affected in the Part if you elect to set the Part up to sound like the source Voice are:

- Part Volume
- Chorus Send Level
- Reverb Send Level
- Portamento switch (on/off), mode (fingered/full) and time
- Key Assign (single/multi)
- Key Mode (mono/poly)
- Pitchbend upper and lower depth
- All modification parameters in the Part's "Sound" Tab are reset to their default values

Please note, the drag operation for this is **COPY** only. You cannot **MOVE** a Voice onto a Performance Part.

Set/Clear Layer Switch

The Set/Clear Layer Switch options can be found on the **Performance Part's** Context Sensitive Menu.

Using the available options you can:

- Set the Layer Switch for the Part, as long as the maximum number of allowed Layer Switches is not exceeded
- Clear the Layer Switch for the Part

Note: this command is not available if more than one **Performance Part** is selected.

Set Clear Insert Switch

The Set/Clear Layer Switch options can be found on the **Performance Part's** Context Sensitive Menu.

Using the available options you can:

- Set the Insert Switch for the Part, as long as the maximum number of allowed Insert Switches is not exceeded
- Clear the Insert Switch for the Part

Note: this command is not available if more than one **Performance Part** is selected.

Performance Effects Editing Features

ex.factory supports the following editing operations upon the **Performance Effects Units Collection** shown within the Tree View of Child Window:

- Copy/Move
- Initialise
- Cut to Clipboard
- Copy to Clipboard
- Paste from Clipboard

To access all features other than Move and Copy (which you do via "Drag and Drop"), right click over the **Performance Effects Units Collection** to activate the **Performance Effects Units Collection's** Context Sensitive Menu.

ex.factory supports the following editing operations upon the individual **Performance Effects Objects** (Reverb and Chorus effects units) within the Tree View of a Child Window:

- Copy/Move
- Initialise
- Cut to Clipboard
- Copy to Clipboard
- Paste from Clipboard

To access all features other than Move and Copy (which you do via "Drag and Drop"), right click over a **Performance Effect** or selection of **Performance Effects** to activate the **Performance Effects's** Context Sensitive Menu.

Performance Reverb and Chorus Effects can be copied/moved to a Voice.

You copy/move the Performance Reverb and Chorus Effects to a Voice in one operation by dragging the **Performance Effects Units Collection** .

Performance Scene Editing Features

ex.factory supports the following editing operations upon the **Performance Scene Collection** shown within the Tree View of a Child Window:

- Copy/Move
- Initialise
- Edit
- Cut to Clipboard
- Copy to Clipboard
- Paste from Clipboard

To access all features other than Move and Copy (which you do via "Drag and Drop"), right click over the **Performance Scene Collection** to activate the **Performance Scene Collection's** Context Sensitive Menu.

ex.factory supports the following editing operations upon the **Performance Scene Objects** within the Tree View of a Child Window:

- Copy/Move
- Initialise
- Insert
- Delete
- Edit
- Cut to Clipboard
- Copy to Clipboard
- Paste from Clipboard

To access all features other than Move and Copy (which you do via "Drag and Drop"), right click over a **Performance Scene** or selection of **Performance Scenes** to activate the **Performance Scene's** Context Sensitive Menu.

Edit Scenes

ex.factory provides the ability to precisely edit Performance Scenes, which is something you cannot do precisely upon the EX.

You edit Scenes using the following dialog:
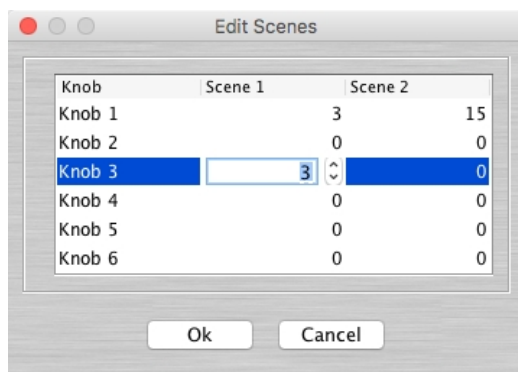
The dialog is pretty self explanatory. To edit a "cell" simply double click in it and you can either enter a numeric value or use the up/down arrows (visible only when editing a cell, as shown in the above example for Scene 1 of Knob 3) to increment/decrement the values.

Wave Editing Features

ex.factory supports the following editing operations upon the **Wave Collection** shown within the Tree View of a Child Window:

- Copy/Move
- Initialise
- Sort by Name
- Sort by Category
- Save As S1M File
- Add To Library
- Cut to Clipboard
- Copy to Clipboard
- Paste from Clipboard

The **Wave Collection** Object in an S1A or S1M file is only shown within a Tree View and is called **User Waves**.

To access all features other than Move and Copy (which you do via "Drag and Drop"), right click over the **Wave Collection** to activate the **Wave Collection's** Context Sensitive Menu.

ex.factory supports the following editing operations upon the **Wave Objects** within the Tree View or Table View of a Child Window:

- Copy/Move
- Initialise
- Rename
- Insert
- Delete
- Add Wave Layer
- Import
- List References
- Add To Library
- Cut to Clipboard
- Copy to Clipboard
- Paste from Clipboard

To access all features other than Move and Copy (which you do via "Drag and Drop"), right click over a **Wave** or selection of **Waves** to activate the **Wave's** Context Sensitive Menu.

Within the Tree View of a Child Window you can also directly edit the Wave's Wave Layers.

Import Wave

When you select this option, ex.factory will prompt for the file to load. You can select more than one file to import if you wish.

The rules for importing Samples are applied to determine whether or not a Wave can be imported.

ex.factory mimics the EX behaviour for importing stereo Samples by creating two Samples and a Wave which references the Samples. The Wave has two Layers one panned hard left referencing the left Sample and the other panned hard right referencing the right Sample.

This creation of Waves and Samples is a sensible behaviour, as an AWM Voice cannot reference a Sample (although a drum Voice can). Both the Wave and Sample share the same name up to the first six characters. After that name of the Left Sample is appended with "-L" and name of the right Sample is appended with "-R".

ex.factory also supports the import of Samples via drag and drop. For example on the PC, WAV files shown in Windows Explorer can be dragged onto an S1A or S1M file open in ex.factory.

Note, due to a Java limitation ex.factory can only detect if a valid file is being dragged once the drop occurs.

More than one file can be dropped into ex.factory, which allows for the rapid import of a Sample set.

Wave Layer Editing Features

ex.factory supports the following editing operations upon the **Wave Layer Objects** within the Tree View of a Child Window:

- Copy/Move
- Set Sample
- Initialise
- Insert
- Delete
- Add Wave Layers

- Edit
- Cut to Clipboard
- Copy to Clipboard
- Paste from Clipboard

To access all features other than Move, Copy and Set (which you do via "Drag and Drop"), right click over a **Wave Layer** or selection of **Wave Layers** to activate the **Wave Layer's** Context Sensitive Menu.

Set Sample

If the Wave resides in an S1A file, then a RAM Sample from the same file can be dragged onto a Wave Layer to set the Sample used by the Wave Layer.

Preset Samples from the EX Synthesizer Window can be dragged onto Wave Layers as well.

Please note, the drag operation for this is **COPY** only. You cannot **MOVE** a Sample onto a Wave Layer.

Add Wave Layer

Adds Wave Layers to a Wave.

If you exceed the limit of 128 Wave Layers per Wave (128) or if you exceed the total number of Wave Layers allowed in a file (1024) then ex.factory will report the error to you.

You can add more than one Wave Layer at a time if you wish by holding down the **ALT** key when you select the **Add Wave Layer** option from the Context Sensitive Menu. Holding down the **ALT** key will bring up the following Dialog Box which allows you to specify the number of Wave Layers to add:
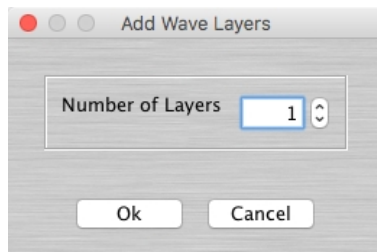
Edit Wave Layer

The Edit Wave Layer Dialog allows you to edit the Wave Layer parameters:
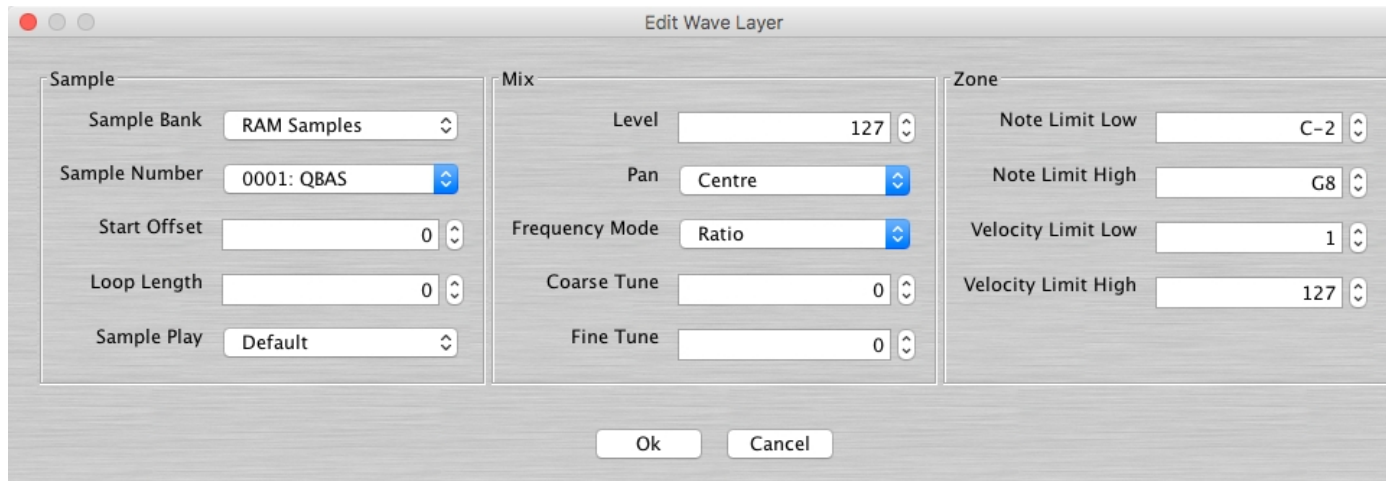
The three "panes" within the Dialog represent the three main TABS within the EX5 editing screens for Wave Layers.

Please refer to the following sections of the EX5 User Manual for descriptions of the parameters within the ex.factory Edit Wave Layer Dialog:

- **[F6]: SMPL (Sample)** on Page 152 of the EX5 User Manual.
- **[F7]: MIX** on Page 153 of the EX5 User Manual.
- **[F8]: ZONE** on Page 153 of the EX5 User Manual.

Sample Editing Features

ex.factory supports the following editing operations upon the **Sample Collection** shown within the Tree View of a Child Window:

- Copy/Move
- Initialise
- Export
- Sort by Name
- Sort by Category
- Save As S1M File
- Add To Library
- Cut to Clipboard
- Copy to Clipboard
- Paste from Clipboard

The **Sample Collection** Object in an S1A or S1M file is only shown within a Tree View and is called **User Samples**.

To access all features other than Move and Copy (which you do via "Drag and Drop"), right click over the **Sample Collection** to activate the **Sample Collection's** Context Sensitive Menu.

ex.factory supports the following editing operations upon the **Sample Objects** within the Tree View or Table View of a Child Window:

- Copy/Move
- Initialise
- Rename
- Insert
- Delete
- Edit
- Import
- Export
- List References
- Add To Library
- Cut to Clipboard
- Copy to Clipboard
- Paste from Clipboard

To access all features other than Move and Copy (which you do via "Drag and Drop"), right click over a **Sample** or selection of **Samples** to activate the **Sample's** Context Sensitive Menu.

Edit Sample

The Edit Sample Dialog allows you to edit the Sample parameters. You can also audition thse Sample using a keyboard connected to the Keyboard Input MIDI Port defined in the MIDI Preferences options dialog to play notes. Please note that the MIDI support is "simplistic" mono note detection, don't try and play chords!
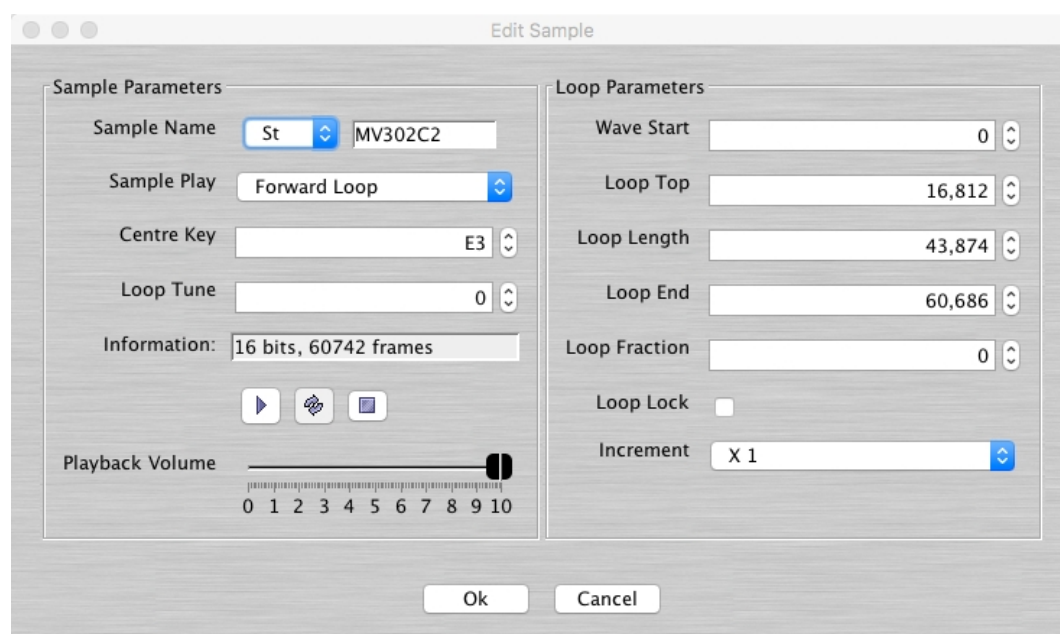
The Edit Sample Dialog provides all the controls available in the EX5 Sample Edit Mode. Rather than repeat the descriptions for these parameters given in the EX5 User Manual, please refer to Pages 179 to 182 of the

EX5 User Manual.

The Edit Sample Dialog provides three additional controls to allow Samples to be played back within ex.factory:

- ▶ Plays the Sample
- ♨ Breaks out of the Sample loop (if the Sample is looped)
- ◻ Stops playback of the Sample

Use the Playback Volume slide to adjust the level that samples are played back at (this is not an editing feature and is not saved).

Note: Java has a maximum Sample playback rate of 48KHz. When shifting the centre key, the adjustment is achieved by changing the Sample rate (as on the EX). If changing the centre key causes the Java sample rate to be exceeded, ex.factory will sample rate convert the Sample to maintain the Sample rate within limits. When this happens the playback button is coloured orange (as shown above). When no sample rate conversion has taken place the button is its normal colour.

Note you must have the [Tritonus] Java Sound extension libraries installed for ex.factory to be able to perform the sample rate conversion. If the Playback button is coloured orange and there is no sound when you press the play button, then the most likely problem is you are missing the Tritonus Sample Libraries.

If the Sample is looped then the Sample playback will remain in the loop untill either:

- The ♨ button is pressed, following which Sample playback will continue to the end of the Sample
- The ◻ button is pressed, following which Sample playback is halted
- If you are playing a note on the keyboard, then until the note is released.

Import Sample

When you select this option, ex.factory will prompt for the file to import.You can select more than one file to import if you wish

ex.factory will attempt to import the file as follows:

- If the Sample is an eight bit sample, then the data is assumed to be unsigned data
- If the Sample is a sixteen bit sample, then the data is assumed to be signed data
- The first step is to convert the Sample to PCM format if it is not a PCM sample
- The next step is to convert from little endian data to big endian data if required
- The final step is to convert the sample rate if required.

If the Sample rate is not 44.1KHz, you have the option of sample rate converting to 44.1KHz or leaving the sample unconverted, which is what the EX does (it adjusts the centre key to compensate) or you can attempt to sample rate convert to 44.1KHz

If you wish to be able to perform the sample rate conversion then you will need the [Tritonus] Java Sound extension libraries installed.

Please note that even with these libraries installed, sample rate conversion still seems to be limited to integer multiples (e.g. 22.05 to 44.1 KHz), but it's an improvement over the default Java Sound implementation that does not allow sample rate conversion.

If the file is not a valid audio file, or if the type of audio file cannot be converted to the required format, then ex.factory will put up an error message indicating what the problem is.

ex.factory mimics the EX behaviour by creating a Sample and a Wave that references the Sample. Both the Wave and Sample share the same name. This is a sensible behaviour as an AWM Voice cannot reference a Sample (although a drum Voice can).

ex.factory also supports the import of Samples via drag and drop. For example on the PC, WAV files shown in Windows Explorer can be dragged onto an S1A or S1M file open in ex.factory. Note, due to a Java limitation ex.factory can only detect if a valid file is being dragged once the drop occurs.

More than one file can be dropped into ex.factory, which allows for the rapid import of a Sample set.

Export Sample

The Export To Wav option allows you to export:

- All Samples by selecting the Samples Branch
- Individual Samples, by selecting the required Samples

When you select this option, ex.factory will prompt for the directory within which to save the WAV files. The filename for each WAV file is taken from the Sample Name, so be sure your Sample names are unique, otherwise a Sample file may get overwritten by another.

Note: the following characters that are legitimate within Sample Names are not allowed within Filenames (at least on a PC). If these characters are used in a Sample name then they are replaced with an underscore character in the WAV filename.

< > ? * " | \ / :

< > ? * " | \ / :

Pattern Editing Features

ex.factory supports the following editing operations upon the **Pattern Collection** shown within the Tree View of a Child Window:

- Copy/Move
- Initialise
- Sort by Name
- Save As S1P File
- Add To Library
- Cut to Clipboard
- Copy to Clipboard
- Paste from Clipboard

The **Pattern Collection** Object in an S1A or S1P file is only shown within a Tree View and is called **User Patterns**.

To access all features other than Move and Copy (which you do via "Drag and Drop"), right click over the **Pattern Collection** to activate the **Pattern Collection's** Context Sensitive Menu.

ex.factory supports the following editing operations upon the **Pattern Objects** within the Tree View or Table View of a Child Window:

- Copy/Move
- Initialise
- Rename
- Insert
- Delete
- List References
- Add To Library
- Cut to Clipboard
- Copy to Clipboard
- Paste from Clipboard

To access all features other than Move and Copy (which you do via "Drag and Drop"), right click over a **Pattern** or selection of **Patterns** to activate the **Pattern's** Context Sensitive Menu.

Within the Tree View of a Child Window you can also directly edit the Tracks that make up a **Pattern** .

Pattern Track Editing Features

ex.factory supports the following editing operations upon **Pattern Tracks** shown within the Tree View of a Child Window:

- Copy/Move
- Initialise
- Cut to Clipboard
- Copy to Clipboard
- Paste from Clipboard

To access all features other than Move and Copy (which you do via "Drag and Drop"), right click over a **Pattern Track** to activate the **Pattern Track's** Context Sensitive Menu.

Arpeggio Editing Features

ex.factory supports the following editing operations upon the **Arpeggio Collection** shown within the [Tree View](#) of a [Child Window](#):

- [Copy/Move](#)
- [Initialise](#)
- [Sort by Name](#)
- [Save As S1R File](#)
- [Add To Library](#)
- [Cut to Clipboard](#)
- [Copy to Clipboard](#)
- [Paste from Clipboard](#)

The **Arpeggio Collection** Object in an S1A or S1R file is only shown within a [Tree View](#) and is called **User Arpeggios**.

To access all features other than Move and Copy (which you do via "Drag and Drop"), right click over the **Arpeggio Collection** to activate the **Arpeggio Collection's** Context Sensitive Menu.

ex.factory supports the following editing operations upon the **Arpeggio Objects** within the [Tree View](#) or [Table View](#) of a [Child Window](#):

- [Copy/Move](#)
- [Initialise](#)
- [Rename](#)
- [Insert](#)
- [Delete](#)
- [List References](#)
- [Add To Library](#)
- [Cut to Clipboard](#)
- [Copy to Clipboard](#)
- [Paste from Clipboard](#)

To access all features other than Move and Copy (which you do via "Drag and Drop"), right click over a **Arpeggio** or selection of **Arpeggios** to activate the **Arpeggio's** Context Sensitive Menu.

Within the [Tree View](#) of a [Child Window](#) you can also directly edit the [Tracks](#) that make up a **Arpeggio**.

Arpeggio Track Editing Features

ex.factory supports the following editing operations upon **Arpeggio Tracks** shown within the [Tree View](#) of a [Child Window](#):

- [Copy/Move](#)
- [Initialise](#)
- [Cut to Clipboard](#)
- [Copy to Clipboard](#)
- [Paste from Clipboard](#)

To access all features other than Move and Copy (which you do via "Drag and Drop"), right click over a **Arpeggio Track** to activate the **Arpeggio Track's** Context Sensitive Menu.

Song Editing Features

ex.factory supports the following editing operations upon the **Song** shown within the [Tree View](#) of a [Child Window](#):

- [Copy/Move](#)
- [Initialise](#)
- [Rename](#)
- [Save As S1S File](#)
- [Add To Library](#)
- [Cut to Clipboard](#)
- [Copy to Clipboard](#)
- [Paste from Clipboard](#)

The **Song** Object in an S1A or S1S file is only shown within a [Tree View](#) and is called **User Song:Name** where **Name** is the actual name of the song.

To access all features other than Move and Copy (which you do via "Drag and Drop"), right click over the **Song** to activate the **Song's** Context Sensitive Menu.

You can also directly edit the [Tracks](#) that make up a **Song**.

Song Track Editing Features

ex.factory supports the following editing operations upon **Song Tracks** shown within the [Tree View](#) of a [Child Window](#):

- [Copy/Move](#)
- [Initialise](#)
- [Cut to Clipboard](#)
- [Copy to Clipboard](#)
- [Paste from Clipboard](#)

To access all features other than Move and Copy (which you do via "Drag and Drop"), right click over a **Song Track** to activate the **Song Track's** Context Sensitive Menu.

Keymap Editing Features

ex.factory supports the following editing operations upon the **Keymap Collection** shown within the [Tree View](#) of a [Child Window](#):

- [Copy/Move](#)
- [Initialise](#)
- [Cut to Clipboard](#)
- [Copy to Clipboard](#)
- [Paste from Clipboard](#)

The **Keymap Collection** Object in an S1A file is only shown within a [Tree View](#) and is called **User Keymaps**.

To access all features other than Move and Copy (which you do via "Drag and Drop"), right click over the **Keymap Collection** to activate the **Keymap Collection's** Context Sensitive Menu.

ex.factory supports the following editing operations upon the **Keymap Objects** within the [Tree View](#) or [Table View](#) of a [Child Window](#):

- [Copy/Move](#)
- [Initialise](#)
- [Set Sample/Pattern](#)
- [Insert](#)
- [Delete](#)
- [Cut to Clipboard](#)
- [Copy to Clipboard](#)
- [Paste from Clipboard](#)

To access all features other than Move, Copy and Set (which you do via "Drag and Drop"), right click over a **Keymap** or a selection of **Keymaps** to activate the **Keymap's** Context Sensitive Menu.

Set Sample/Pattern

The Sample or Pattern for a Keymap can be set by drag copying a Sample, Pattern or Pattern Track onto the Keymap.

The following **Drag Copy** Operations are supported:

- Preset Samples from the [EX Synthesizer Window](#) can be dragged onto any Keymap
- A RAM Sample from an S1A file can be dragged onto any Keymap within the same file
- A Sample in an S1M file that is referenced as a FLASH bank can be dragged onto any AWM Element within a file that references the S1M file
- A Pattern from an S1A file can be dragged onto any Keymap within the same file
- A Pattern Track from an S1A file can be dragged onto any Keymap within the same file

Please note, the drag operation for this is **COPY** only. You cannot **MOVE** a Sample or Pattern onto a Keymap.

Undocumented EX5 Feature

The EX5 only allows you to assign either RAM or FLASH Samples to Keymap Notes.

By happy circumstance, ex.factory allows you to also use Preset Samples, as when developing the Keymap support I assumed the EX allowed all three Sample sources for Keymaps. Anyway, the EX will happily use Preset Samples on Keymaps but there are a few things to be aware of:

- This is an undocumented EX5 feature, so I'm not certain if there could be any side effects. Use with Caution!
- The EX will not allow Preset Samples above 1024; if a higher preset Sample is used, you get Preset Sample 1024. (1024 is the limit for the number of RAM and FLASH Samples). This is a bit of a pain as all the drum Samples are above 1024.
- The Sample number shown for a preset Sample on the EX5 Keymap display is "off by one". E.g. if you enter Sample 333 in ex.factory, once loaded into the EX5 it is displayed as Sample number 334, but the right Sample is used and played (as can be checked by examining the Sample name, which will be the same in both ex.factory and the EX5).

System Settings Editing Features

ex.factory supports the following editing operations upon the **System Settings** Object shown within the [Tree View](#) of a [Child Window](#):

- [Copy/Move](#)
- [Initialise](#)
- [Save/Load Default Settings](#)
- [Cut to Clipboard](#)
- [Copy to Clipboard](#)
- [Paste from Clipboard](#)

The **System Settings** Object in an S1A file is only shown within a [Tree View](#) and is called **System Settings**.

To access all features other than Move and Copy (which you do via "Drag and Drop"), right click over the **System Settings** Object to activate its Context Sensitive Menu.

Save/Load Default Settings

The Save/Load Default Settings options can be found on the System Settings contex sensitive menu.

The idea behind this facility is to preserve your System Settings when you are loading S1A and S1Y files that have come from other user's EX5s.

You should always load S1A and S1Y files that have not come from your EX with caution as they contain all the system settings defined within the **EX UTILITY Mode** with the exception of (I believe) the EX SCSI ID.

To help prevent your EX **System Settings** from being lost when you are loading S1A and S1Y files then perform the following:

- If you haven't already done so, set up your UTILITY mode settings on the EX as you want them
- Save off an S1A or S1Y file from the EX to disk. This file will now contain your **System Settings**
- Load the file into ex.factory
- Right click over the **System Settings** Object and select the **Save As Default Settings** menu option

You preferred System Settings are now saved for future recall.

When you next receive an S1A or S1Y file that has not come from your machine (e.g. most of MarcE's excellent downloads are S1A files) then perform the following to "imprint" your preferred **System Settings** upon the file:

- Load the new S1A or S1Y file into ex.factory
- Right click over the **System Settings** Object and select the **Load Default Settings** menu option
- Save the file back to disk

You can now load the file into the EX and your **System Settings** will be as per your preferred values that you saved off.

Master Patch List

The Master Patch List Dialog is found on the Tools menu.

The Master Patch List Dialog provides a means for you to generate a single patch list from a list of files. Currently only Cubase Patch Scripts can be generated, but future versions may support other sequencers.

The Master Patch List dialog is shown below:

This dialog has the following options:

File List	The list of files to incorporate into a single patch list.
	If you click on one of the lines then you can edit the file either by typing or by using the **[...]** button to the right of the line to bring up a file selector dialog.
	Note, if you are editing a line, and you are finished, you need to select another line, or press the **RETURN** key for the changes to be stored.
New	Inserts a new line in the file list.
Delete	Deletes the currently selected line in the file list. If no line is selected this control is disabled.
Move Up	Moves the currently selected line in the file list up one line. If no line is selected or the selected line is the first in the list then this control is disabled.
Move Down	Moves the currently selected line in the file list down one line. If no line is selected or the selected line is the last in the list then this control is disabled.
Sort	Sorts the lines into ascending alphabetical order
Cubase	Exports the files identified in the file list to a Cubase format patch script file, which is compatible with Cubase VST/SX/SL/SE.
Include Preset Data	When this option is checked, the EX Preset Voices are exported at the start of the patch list.
OK	Closes the dialog.

Generating The Cubase Master Patch List

When you generate a Cubase Patch Script, it is written to the directory specified by the **Cubase Patch Script Directory** field in the Misc Preferences Tab of the Preferences Dialog. You can set this field up to export the master patch list directly to the directory read by Cubase upon startup. This directory on my system is **C:\Documents and Settings\Derek\Application Data\Steinberg\Cubase SX 3\Scripts\Patchnames\inactive\yamaha** where **"C:"** is the root drive that Cubase is installed on, **"Derek"** is my Windows user name, aand **"Cubase SX 3"** is my version of Cubase. You will need to vary these according to your system drive and of course your own user name and version of Cubase.

By default the **Application Data** folder is hidden in Windows Explorer, so you may not see this folder first of all. If you cannot see the folder:

    1. In Windows Explorer select **Folder Options** from the **Tools** menu and click the **View** tab.

2. Look down the **Advanced Settings** list and find the **Hidden Files and Folders** option.
3. Select the **Show Hidden Files and Folders** sub option.
4. Select **OK** to close the dialog.

Cubase only looks for and reads patch scripts when it starts up, so if you're in Cubase after generating the patch script then exit Cubase and start it up again.

Configuring Cubase to Use the Master Patch List

The patch scipts generated by ex.factory should be compatible with Cubase VST/SX/SL/SE. The instructions given below are for Cubase SX, which is the version I use. Consult your Cubase documentation for how to install patch scripts if you have a different version.

Within Cubase:

1. Select **Midi Device Manager** from the **Devices** Menu.
2. Click on the **Install Device** button.
3. Click on the **EX5 - Master Patch List** option (this is the ex.factory generated file). At the bottom of this dialog, select your output MIDI port that the EX is connected to. You can now close this dialog. If you cannot see the **EX5 - Master Patch List** then you have not placed it in the right folder.

This installs the patch list within Cubase and allows you to use it elsewhere within the application.

In the main Cubase screen, select or create a MIDI track that you wish to be used with the EX. In the **Inspector** window (the panel to the left of the main window) click on the **out** control and you should now be able to see and select the **EX5 - Master Patch List** option in amongst the MIDI ports. Also ensure the MIDI channel number for the track matches the EX channel number.

Now when you click in the **Programs** control, just below the **out** control, you'll see a drop down list containing all of the EX Voices names generated by ex.factory.

You can now scroll through the lists to find a Voice, an you can also type in filter text to quickly look for a Voice.

Library Statistics

The Library Statistics menu option is found on the [Tools](#) menu.

This feature is only available if your copy of ex.factory is [registered](#).

The Library Statistics Dialog provides a means for you to see a summary of the contents of the Library.
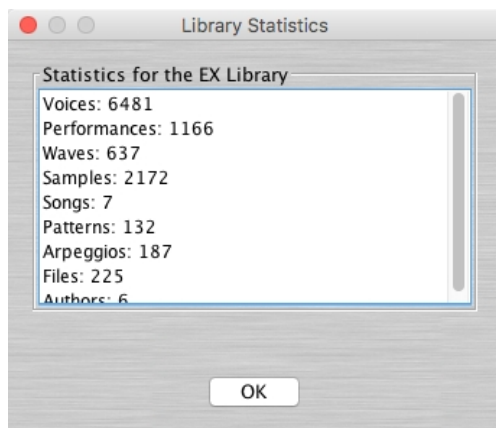
Batch Import To Library

The Batch Import To Library Wizard is found on the [Tools](#) menu.

This feature is only available if your copy of ex.factory is [registered](#).

The Batch Import To Library Wizard provides a means for you to import several EX files to the library in one go.

The Batch Import To Library Wizard has two pages to navigate through:

- The Select Source Directory Page
- The Select Destination Directory Page

Select Source Directory Page

The Select Source Directory Page is shown below
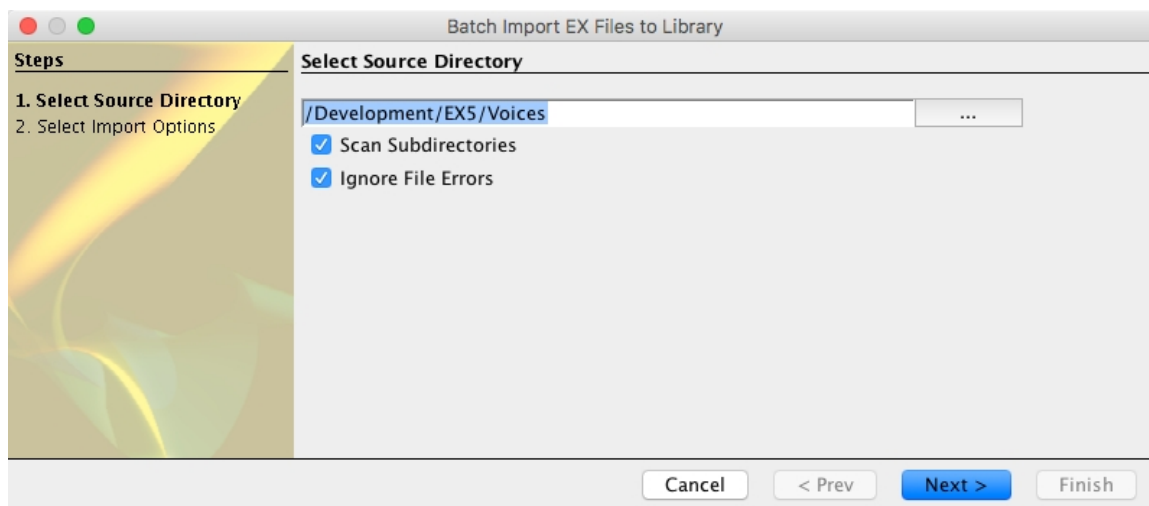
This page has the following options

Source Directory	You can type the name of the source directory in this control. Or if you click the **[...]** button to the right of the line, this will bring up a file selector dialog.
Scan Subdirectories	If this control is checked, then the Batch Converter will also include any subdirectories that it finds within the source directory when looking for files to convert. If this control is not checked then any subdirectories in the source directory will be ignored.
Ignore File Errors	If this control is not checked then any errors detected during file loading will halt the conversion process. If this control is checked then these errors are ignored, but are logged if logging is enabled.

Select Destination Directory Page

The Select Destination Directory Page is shown below

This page has the following options

When an Object being added is already in the Library	Provides the action to do if an Object is added to the Library and there is already an identical Object in the library. The choices are:
	
	    • Add to Library (with a new name)
	    • Do not add to Library
	    • Overwrite Object in the Library

When an Object being added already has the same name as an Object in the Library	Provides the action to do if an Object is added to the Library and there is already an Object in the library with the same name. The choices are: • Add to Library (with a new name) • Do not add to Library • Overwrite Object in the Library
Create Log File	If this control is checked then a log file is created in the destination directory. This log file is called "Log File.txt", and can be opened with any text editor

Using the Batch Importer

Using the importer is quite simple.

Importing an EX file takes about 20 seconds, so if you have a lot of files to import, be prepared to leave the importer running for a while! The import of a file will be slower if you have a large library as ex.factory needs to check to duplicate data, so the larger the library the more data the batch importer has to search.

The importer is a simple "Wizard" and you can step through the choice pages using the **Prev** and **Next** buttons, or exit the Wizard using the **Cancel** Button

Select the source and destination directory options and once that is done click on the **Finish** button to start the Batch Import Wizard.

The Wizard will not allow you to select a directory that doesn't exist.

Once the Wizard starts the progress of importing files is shown in the information pane.
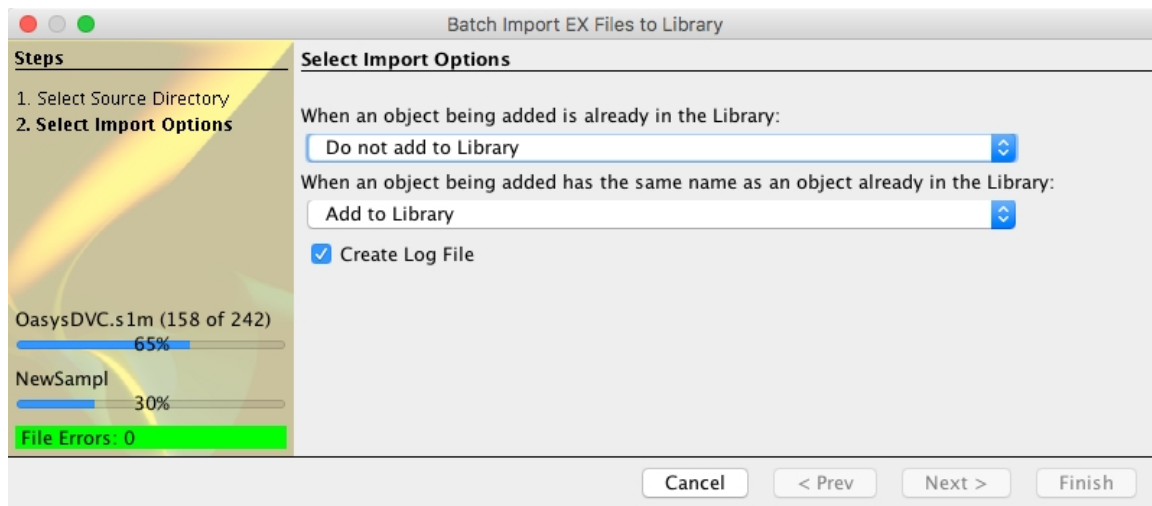
There is a progress bar that shows the progress for all the files that the importer has detected, and a progress bar for the objects in the file currently being imported.

The Wizard also shows how many file errors have been encountered (assuming you have set the options to ignore File errors).

You can cancel the import at any time by pressing the **Cancel** button, but you may need to wait for ex.factory to finish the current file import before the batch conversion is cancelled.

Once completed, a summary results page is shown that summarises the import.
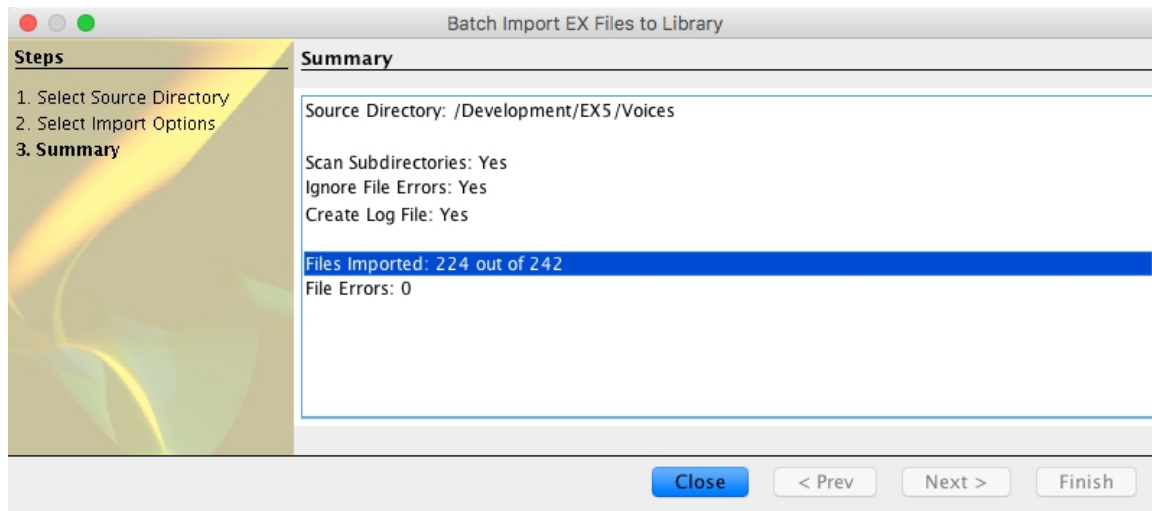
The Wizard can be dismissed by clicking the **Close** button.

You can check the results of the import by opening the **Log File.txt** file (assuming you left logging enabled).

The log file is a simple text file that lists each source file and whether any errors were detected.

All errors are preceded by ****** (two stars), so you can use your text editor's find/search facilities to look for ****** to quickly find any errors.

Preferences

The ex.factory preferences are accessed via the [View](#) menu **Preferences ...** option.

Selecting this option opens a Tabbed dialog with the following tabs which group related parameters:

- [Device Type Preferences](#)
- [Voice/Element Preferences](#)
- [Performance/Part Preferences](#)
- [Wave/Layer Preferences](#)
- [Keymap Preferences](#)
- [Check Preferences](#)
- [Default View Preferences](#)
- [MIDI Preferences](#)
- [SMDI Preferences](#)
- [File References Preferences](#)
- [Library Preferences](#)
- [Miscellaneous Preferences](#)
- [Advanced MIDI Preferences](#)

To view and modify a set of parameters, click on the relevant tab.

Note: The options to update Objects following an Object move within the same file (e.g. **Update Voices/Elements after Wave Move**) also apply when Objects that can be referenced are inserted, deleted and sorted.

Note: The options to copy referenced Objects with "parent" Objects (e.g. moving Voices with Performances) work by:

- Checking the destination file to see if the referenced Object exists
- If it does then the parent Object is updated after being moved to point to the existing Object in the destination file
- If not then ex.factory checks to see if a blank or empty child Object is present in the destination file (e.g. in the case of moving a Voice, a blank "INIT VOICE" is looked for)
- If a blank Object is found then the child Object is moved or copied and the parent Object is updated after being moved to point to the new Object in the destination file
- If no blank Object is found the ex.factory gives up. Note this may result in a Partial edit (e.g. it may have only been possible to copy a subset of Objects due to the amount of free Objects in the destination file)
- The child Objects are only ever copied irrespective of whether the parent Object is being moved or copied. This is to avoid the problem that would occur when a child Object is moved (say a Voice with Performance 1), where the source child Object (which would have been initialised after the move) is also referenced by other Parent Objects (e.g. another Performance)

All the above options are sensitive to what is being dragged. For example a Performance Part, Performance Part Branch, Performance or Performance Branch can be dragged and the necessary Objects will be copied

Finally, it's worth noting that if the options are all set then everything needed is copied. For example if you drag a Performance to a new file, then potentially, User Voices used by the Performance, Arpeggios Used by the Voices, Waves used by the Voices and Samples used by the Waves/Voices are all automatically copied. This is a feature I've long been desperate for!

Device Type Preferences

The Device Type Preferences tab is shown below:

This tab has the following options:

EX Device Type	Allows you to select the type of EX you have from the following options:
	• EX5/EX5R • EX7 This parameter is used by ex.factory to: • Check for the expected device type during startup • When testing the MIDI interface. • Restricting options based on the device type. For example, if you select the device type to be an EX7 then the voice types not supported by the EX7 will not be available in the menu options to create a new voice.

Voice Preferences

The Voice/Element Preferences tab is shown below:
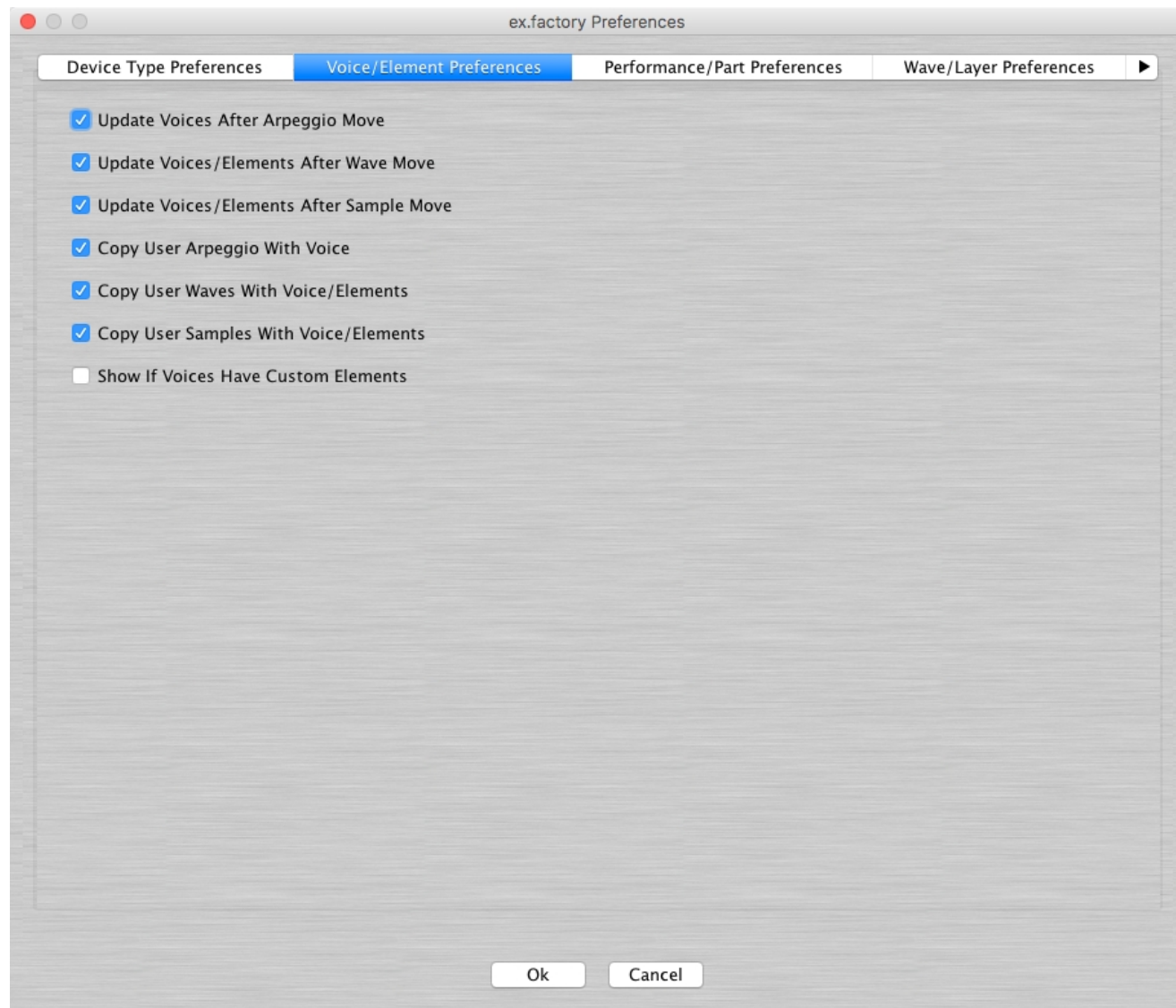
This tab has the following options:

Update Voices After Arpeggio Move	If you move an Arpeggio within an S1A file then the Voices that use User Arpeggios are updated to ensure that the correct references to User Arpeggios are maintained.
Update Voices/Elements After Wave Move	If you move a Wave within an S1A file then the Voices and their AWM Elements that point to RAM Waves are updated to ensure that the correct references to User Waves are maintained.
Update Voices/Elements After Sample Move	If you move a Sample within an S1A file then the Drum Voices and their Elements that point to RAM Samples are updated to ensure that the correct references to User Samples are maintained.
Copy User Arpeggio With Voice	If you move or copy a Voice from an S1A file to another S1A file, then the User Arpeggio (if any) referenced by the Voice is also copied to the destination file if the Arpeggio is not already present in the destination file.
Copy User Waves With Voice/Element	If you move or copy a Voice from an S1A file to another S1A file, then any User RAM Waves referenced by the Voice and its Elements are also copied to the destination file if the Waves are not already present in the destination file.
Copy User Samples With Voice/Element	If you move or copy a Voice from an S1A file to another S1A file, then any User RAM Samples referenced by the Voice and its Elements are also copied to the destination file if the Samples are not already present in the destination file.
Show If Voices Use Have Custom Elements	If this box is checked then if a voice has custom RAM or FLASH elements then the voice name in the Tree View is appended with a "C" (for Custom) This is useful if you wish to quickly see if voices only have

preset elements.

Performance Preferences

The Performance/Part Preferences tab is shown below:

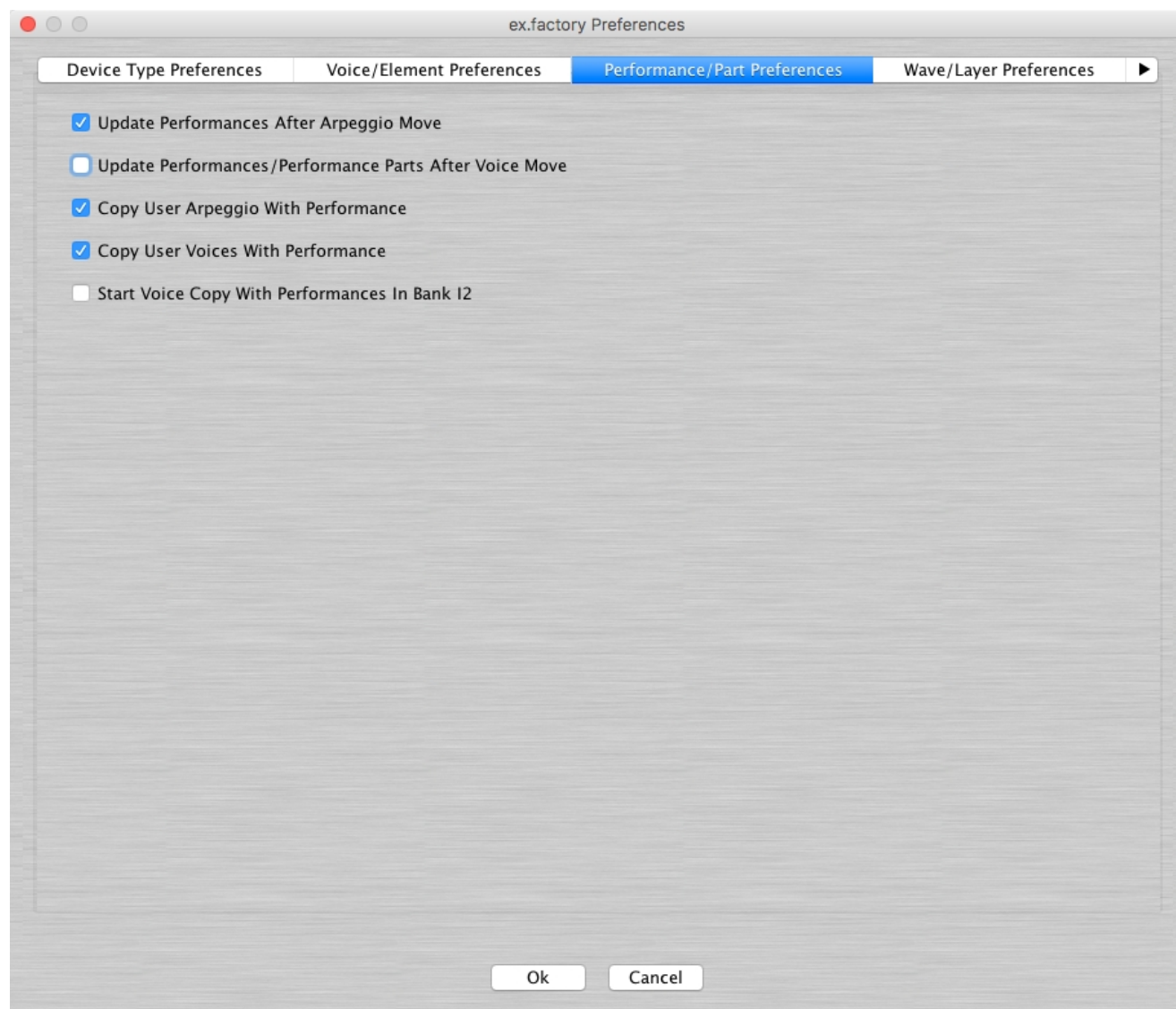

This tab has the following options:

Update Performances After Arpeggio Move	If you move an Arpeggio within an S1A file then the Performances that use User Arpeggios are updated to ensure that the correct references to User Arpeggios are maintained.
Update Performances/Parts After Voice Move	If you move a Voice within an S1A or S1Y file then the Performances and their Parts are updated to ensure that the correct references to User Voices are maintained.
Copy User Arpeggio With Performance	If you move or copy a Performance from an S1A file to another S1A file, then the User Arpeggio (if any) referenced by the Voice is also copied to the destination file if the Arpeggio is not already present in the destination file.
Copy User Voices With Performance	If you move or copy a Performance from an S1A or S1Y file to another S1A or S1Y file, then any User Voices referenced by the Performance and its Parts are also copied to the destination file if the Voices are not already present in the destination file.
Start Voice Copy With Performances In Bank I2	If this option is selected then when Voices are copied to a new file along with Performances the Voices are copied into bank I2 only. Hint: this option was requested by a user who wished to have Voice Bank I1 free for his Voices not used by Performances with Bank I2 used for storing Voices that are used by Performances.

Wave Preferences

The Wave/Layer Preferences tab is shown below:

This tab has the following options:

Update Waves/Layers After Sample Move	If you move a Sample within an S1A or S1M file then the Waves and their Layers are updated to ensure that the correct references to User Samples are maintained.
Copy User Samples With Wave/Layer	If you move or copy a Wave or Wave Layer from an S1A or S1M file to another S1A or S1M file, then any User RAM Samples referenced by the Wave and its Layers are also copied to the destination file if the Samples are not already present in the destination file.

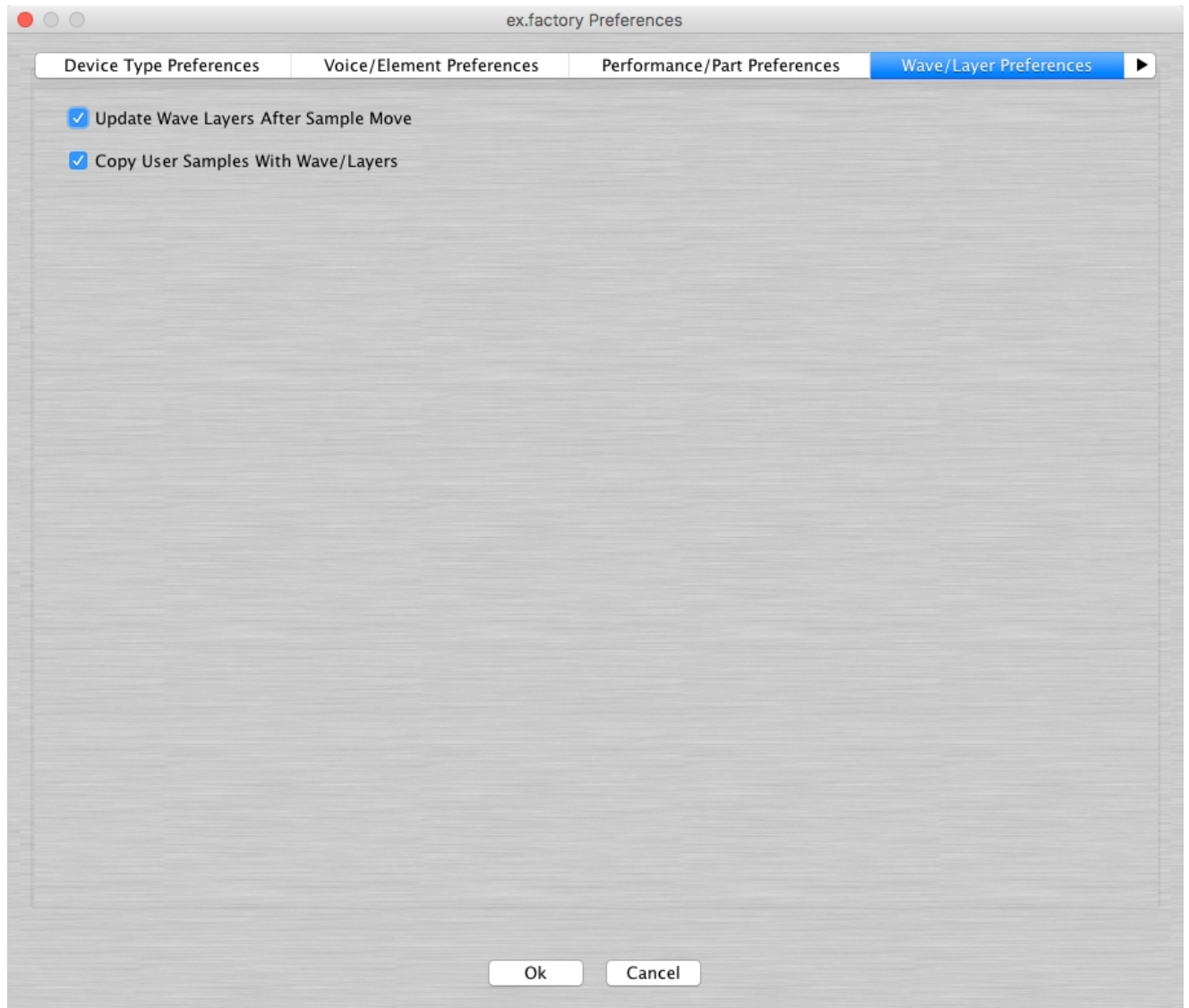# Keymap Preferences

The Keymap Preferences tab is shown below:
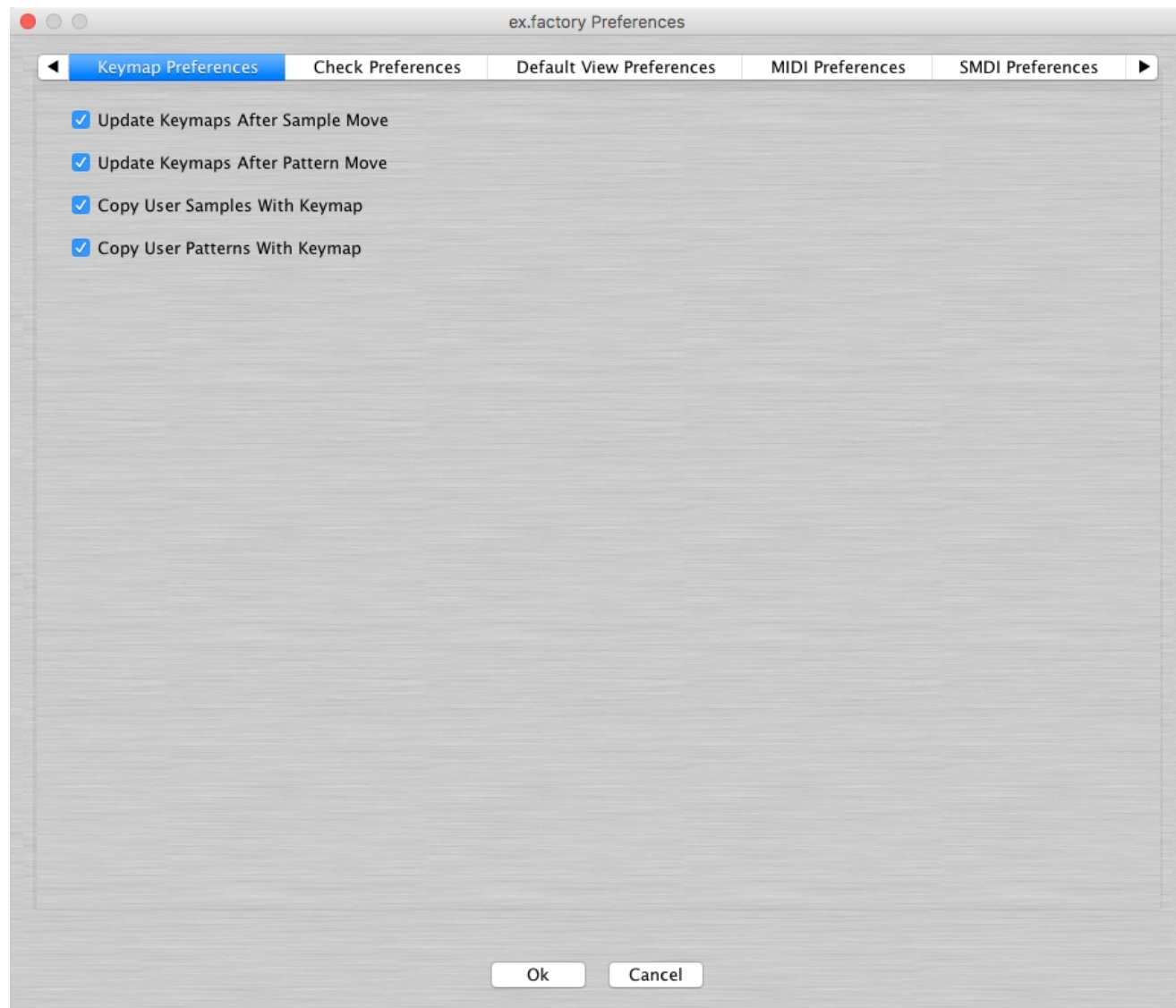
This tab has the following options:

Update Keymap After Sample Move	If you move a Sample within an S1A file then the Keymap is updated to ensure that the correct references to User Samples are maintained.
Update Keymap After Pattern Move	If you move a Pattern within an S1A file then the Keymap is updated to ensure that the correct references to User Patterns are maintained.
Copy User Samples With Keymap	If you move or copy the Keymap from an S1A file to another S1A file, then any User Samples referenced by the Keymap are also copied to the destination file if the Samples are not already present in the destination file.
Copy User Patterns With Keymap	If you move or copy the Keymap from an S1A file to another S1A file, then any User Patterns referenced by the Keymap are also copied to the destination file if the Patterns are not already present in the destination file.

Check Preferences

The Check Preferences tab is shown below:
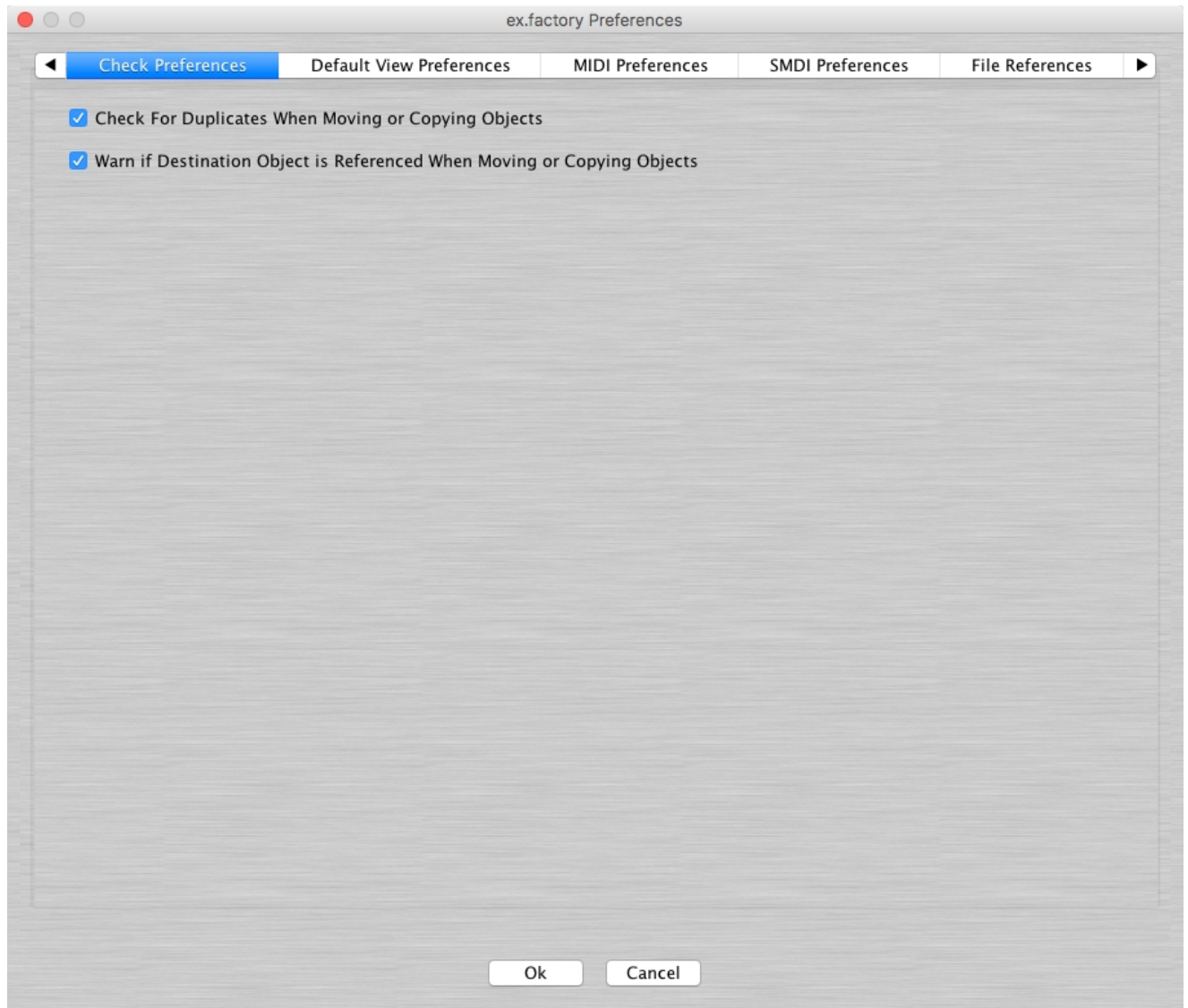
This tab has the following options:

Check For Duplicates When Moving or Copying Objects	If you move or copy an Object to a destination file and the Object already exists then a warning is presented giving you the option to continue or cancel the operation.
Warn if Destination Object is Referenced When Moving or Copying Objects	If you move or copy an Object and it is overwriting an Object that is being referenced, or you are deleting a referenced Object, then a warning is presented giving you the option to continue or cancel the operation.

Default View Preferences

The Default View Preferences tab is shown below:

Default View	Defines the type of view that is applied to a Child Window when it is first opened.
	
	The following options are available:
	
	    • No Split
	    • Horizontal Split
	    • Vertical Split

Pane/Left Pane/Top Pane	Defines the type of view shown in the single pane of an unsplit view, the left pane of a horizontally split view or the top pane of a vertically split view.
	
	The following options are available:
	
	    • Tree View
	    • Table View

Right Pane/Bottom Pane	This control is only visible if the **Default View** option is set to either **Horizontal Split** or **Vertical Split**.
	
	Defines the type of view shown in the right pane of a horizontally split view or the bottom pane of a vertically split view.
	
	The following options are available:
	
	    • Tree View
	    • Table View

Default Library View	Defines the type of view that is applied to the [EX Library Window](#) when it is first opened.
	
	The following options are available:
	
	    • No Split
	    • Horizontal Split
	    • Vertical Split

Library Pane/Library Left Pane/Library Top Pane	Defines the type of view shown in the single pane of an unsplit view, the left pane of a horizontally split view or the top pane of a vertically split view.
	
	The following options are available:
	
	    • Tree View
	    • Table View

Library Right Pane/Library Bottom Pane	This control is only visible if the **Default Library View** option is set to either **Horizontal Split** or **Vertical Split**.
	
	Defines the type of view shown in the right pane of a horizontally split view or the bottom pane of a vertically split view.
	
	The following options are available:
	
	    • Tree View
	    • Table View

View Tool Bar	Controls if the toolbar is visible at startup.
View Status Bar	Controls if the status bar is visible at startup.
View Backdrop In Child Window	This option controls if the image backdrop is displayed in Child Windows. You may wish to turn off this option if you find the scrolling of the Child Window is slow on your machine.

MIDI Preferences

The controls in this tab are only available if ex.factory is registered. If ex.factory is unregistered a text message is displayed instead.

The MIDI Preferences tab is shown below:

This tab has the following options:

Enable MIDI Support	If checked then ex.factory MIDI support is enabled.
Keyboard Input MIDI Port	Sets the port used for accepting MIDI data from a keyboard and routing it to the output MIDI port using the MIDI Router Dialog.
Keyboard Input MIDI Channel	Sets the channel to be used for transmitting MIDI data using the MIDI Router Dialog. The first option **Use Source Channel** in the drop down list, means that the MIDI channel from the source device is not altered.
Input MIDI Port	Sets the port used for MIDI input from the available ports.
Output MIDI Port	Sets the port used for MIDI output from the available ports.
SYSEX Device Number	Sets the SYSEX device number used for SYSEX transfers. This must match the **Device No** value set in the EX's **Utility** Mode **MIDI** tab. If the EX **Device No** is set to **all** then it will receive all EX SYSEX messages irrespective of the device number in the message.
Channel Number	Sets the MIDI Channel number used in MIDI SYSEX transfers. This must match the **Global Recv Ch** value set in the EX's **Utility** Mode **MIDI** tab. Note: SYSEX transfers themselves do not use a channel number, as SYSEX messages are sent to **Devices**. However the workarounds I have developed for the EX MIDI issues require patch changes to be sent, and thus the channel number is required for these.
Timeout Delay	

| | Sets the time that ex.factory waits for a response from the EX before timing out and reporting an error. The value is specified in milliseconds. |

Transmit Buffer Size	Sets the size of the transmit buffer used for sending data to the EX. Some MIDI interfaces don't like data coming in big chunks and you may need to set this to get a reliable transfer of data. The value is specified in milliseconds.
Transmit Delay Between Buffers	This sets the delay that ex.factory waits for between sending buffer sized data packets. The value is specificied in milliseconds.
Transmit Delay Between Objects	This sets the delay that ex.factory waits for after sending a complete object. The value is specificied in milliseconds.
Automatically Update EX after Synth Window Edit	When this option is checked, if the EX Synthesizer Window is edited then the edited data will be automatically sent to the EX.
Read EX MIDI Data On ex.factory Startup	When this option is checked the Voices and Performances (if enabled) are read from the EX during the ex.factory startup phase.
Include Performances In Bulk Transfer	When this option is checked, the Performances are included in bulk transers. You may wish to uncheck this option if you don't use Performances.
Edit Confirm During Transfer To EX Memory	If the **Edit Confirm** parameter in the EX's **Utility** Mode **OTHER** tab is set to **ON** then this parameter should be checked. If the **Edit Confirm** parameter in the EX's **Utility** Mode **OTHER** tab is set to **OFF** then this parameter should be cleared. This is necessary for when Voices/Performances are transferred from ex.factory to the EX Memory. This is achieved by simulating a Store operation, which needs to know if the **Edit Confirm** parameter is on. Unfortunately there is no way to read this value from the EX.
Test MIDI Settings	Tests to see if MIDI comms is working using the specified values. The test: 1. Send a Device ID Request message on the specified MIDI output port 2. Waits for a response on the specified MIDI input port. If the response times out an error message is displayed 3. Checks to see if the reported Device ID matches the setting specified in the Device Type Preferences tab. If the device type does not match then an error message is displayed

SMDI Preferences

The SMDI Preferences tab is shown below:

This tab has the following options:

Enable SMDI Support	When checked, the SMDI support of ex.factory is enabled. All other controls in this tab are disabled if this control is not checked.
SCSI Host Id	This value identifies the number of the SCSI host adapter that is used to connect the EX5. Unless you have more than one SCSI adapter installed in your computer then this value is usually 0.
SCSI Unit Id	This is the SCSI logical unit number which the EX5 is set to use. This value must match the value set in the EX5 Utility Mode/Other tab (see page 276 of the EX5 manual for details.
Import Limit	Setting this value allows you to limit the number of Sample Headers that are read when you use the **Get Sample Headers** command from the SMDI Menu. For example, if you ever use more than a 100 Samples then by setting the **Import Limit** to 100 you will only need to read a tenth of the Sample headers.
Read EX SMDI Data on ex.factory Startup	If checked then ex.factory will automatically upon startup read the Sample headers from the EX (from the first Sample up to the Sample specified by the **Startup Import Limit**.
Startup Import Limit	This has the same affect as the **Import Limit** value, but applies to when Sample headers are imported upon ex.factory startup.

Test EX SMDI Settings	Tests the SMDI settings entered in the dialog to see if communication can be established with the EX. The test checks the following: 1. That the JniSMDI interface is installed 2. That the device specified by the HostId and UnitId values is a SMDI compatible device 3. That the device specified by the HostId and UnitId values is a Yamaha EX synth 4. That a Sample header can be read from the EX If any of these checks fail, an error dialog is displayed informing you of the problem.

File References Preferences

This tab allows you to associate S1M files with either S1A, S1Y or S1V files as the contents of the EX FLASH memory bank, or S1Y or S1V files as the contents of the EX DRAM memory bank.

The File References Preferences tab is shown below:
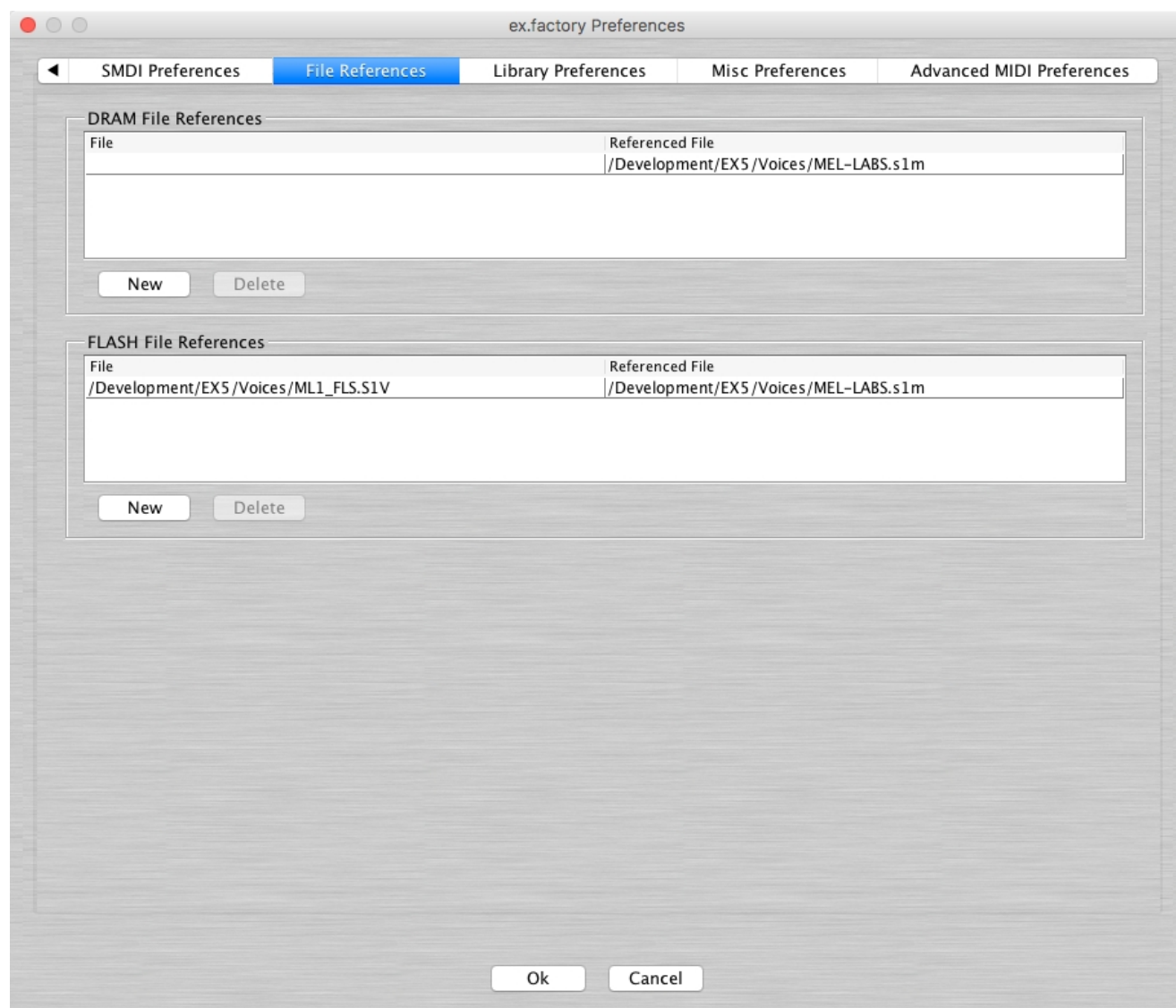
This tab has the following panels:

DRAM File References	Provides a list that allows you to associate an S1Y or S1V file with an S1M file that represents the EX DRAM memory bank.
	
	The **New** button adds a new line to the list, whilst the **Delete** button deletes the currently selected line.
	
	Each line is split into two halves:
	
	    • The left hand side stores the path of the the file referencing the S1M file
	    • The right hand side stores the path of the S1M file.
	
	The **[...]** button to the right of each path field brings up a dialog that allows you to select the filename instead of typing it in.

FLASH File References	Provides a list that allows you to associate an S1A, S1Y or S1V file with an S1M file that represents the EX FLASH memory bank. The operation of the panel is identical to the DRAM File References panel.

Library Preferences

The Library Preferences tab is shown below:

This tab has the following options:

When an Object being added is already in the Library	Provides the action to do if an Object is added to the Library and there is already an identical Object in the library. The choices are: • Add to Library (with a new name) • Do not add to Library • Overwrite Object in the Library • Ask What To Do
When an Object being added already has the same name as an Object in the Library	Provides the action to do if an Object is added to the Library and there is already an Object in the library with the same name. The choices are: • Add to Library (with a new name) • Do not add to Library • Overwrite Object in the Library • Ask What To Do
Copy Referenced Objects to Library	If this Option is checked, then any Objects being referenced by an Object being added to the Library are also added to the Library.
Prompt for Author of File When Adding a File	If this Option is checked then ex.factory will ask for the Author of the file if one has not already been entered.
Default Filter for Rating Column	Sets the default filter type for the **Rating** column. The choices are: • Regular Expression (can contain Perl Regular Expressions) • Match Value (can only be selected using an existing value)

Default Filter for the Comment Column	Sets the default filter type for the **Comment** column. The choices are: • Regular Expression (can contain Perl Regular Expressions) • Match Value (can only be selected using an existing value)
Default Filter for the Author Column	Sets the default filter type for the **Author** column. The choices are: • Regular Expression (can contain Perl Regular Expressions) • Match Value (can only be selected using an existing value)
Default Filter for the Source Column	Sets the default filter type for the **Source** column. The choices are: • Regular Expression (can contain Perl Regular Expressions) • Match Value (can only be selected using an existing value)

Miscellaneous Preferences

The Miscellaneous Preferences tab is shown below:

This tab has the following options:

Startup Directory	Allows the startup directory to be specified. Note: no validation is performed on this pathname, so please ensure it is valid. I may add validation later. The **[...]** button to the right of the field brings up a dialog that allows you to select the directory instead of typing it in.
Cubase Patch Script Directory	Specifies the directory where Cubase patch scripts are written. Note: no validation is performed on this pathname, so please ensure it is valid. I may add validation later. The **[...]** button to the right of the field brings up a dialog that allows you to select the directory instead of typing it in.
Load Last File On Startup	Controls if the last file opened in the previous session is automatically loaded when ex.factory is next invoked.
Audio Output for Sample Playback	Allows you to select the audio device used for playback of EX5 samples.
Show Advanced Preferences	This option is currently only available if ex.factory has been registered. If this option is checked then the Advanced MIDI Preferences tab is made visible.

Advanced MIDI Preferences

The **Advanced MIDI Preferences** tab is only shown if the **Show Advanced Preferences** option in the [Misc Preferences](#) tab is checked.

The **Advanced MIDI Preferences** tab is shown below:
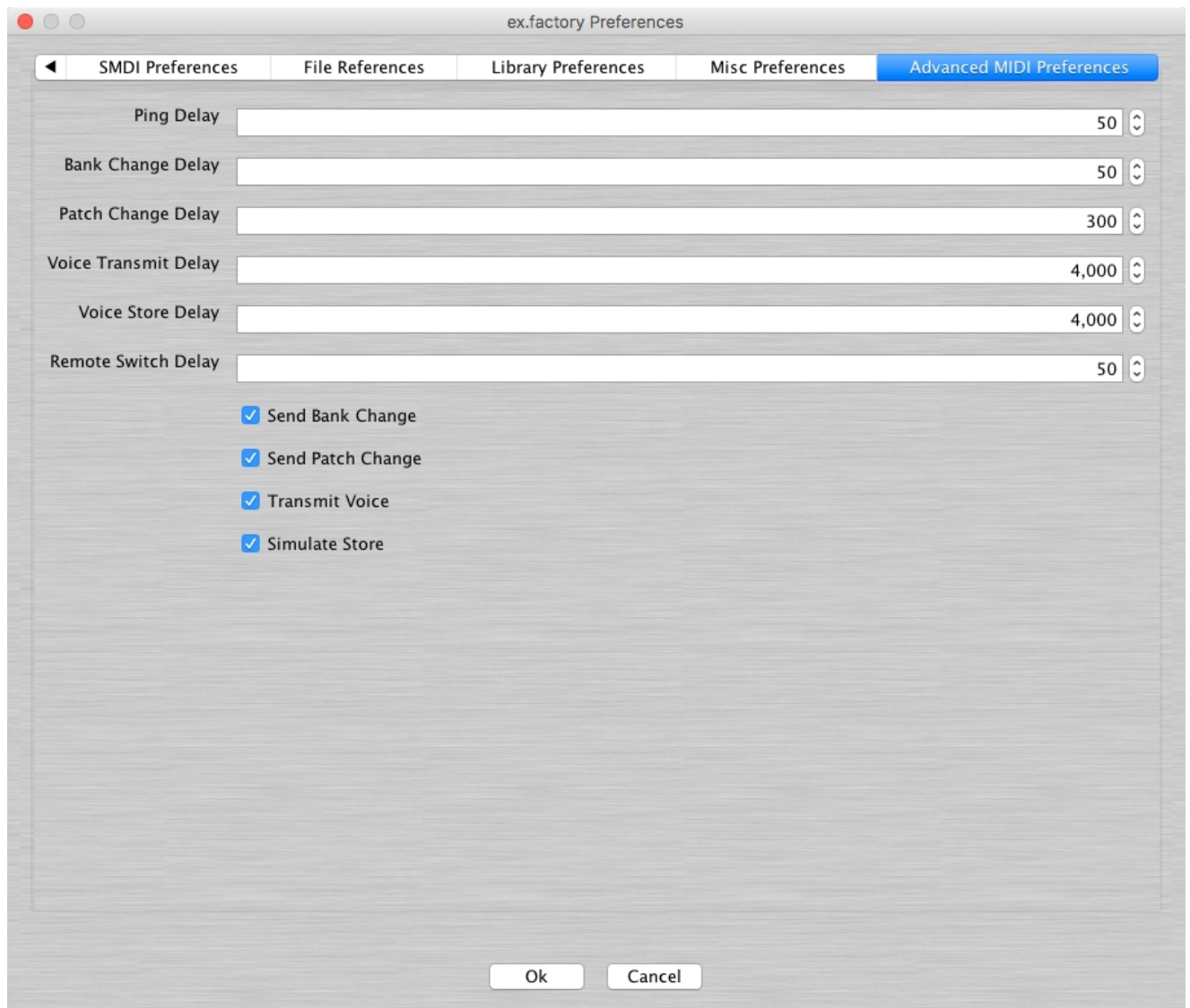
Apart from the **Timout** value (which specifies the time ex.factory waits before it times out on received data) all the other options in this tab relate solely to the **Simulated Store** operation that is used to write Voices to EX memory in a manner that avoids one of the EX's MIDI bugs.

You can adjust these values to optimise the transfer speed of the **Simulated Store** operation. If you wish to do this you should adjust the values with care and be sure to test that the transfer is reliable, ensuring that you test bulk transfers of Voices and not just single Voice transfers.

The default ex.factory timing values are "conservative" values that should work on all systems. I've adjusted the parameters on my own system and have gotten reliable transfers down to around five seconds per Voice transfer. Below 4.5 seconds the transfer becomes unreliable on my system, as you are coming up against inherent time delays in the MIDI transfer and the time it takes the EX to store a Voice.

This tab has the following timing options (all of which are expressed in milliseconds):

Ping Delay	This is the amount of time that ex.factory waits for when "pinging" the EX for a response if the **MIDI Handshake** option is set between executing the steps in the **Simulated Store** sequence.
Bank Change Delay	This is the amount of time from ex.factory sending the bank change command before it sends the next message in the **Simulated Store** sequence.
Patch Change Delay	This is the amount of time from ex.factory sending the patch change command before it sends the next message in the **Simulated Store** sequence.

Voice Transmit Delay	This is the amount of time from ex.factory sending the Voice before it sends the next message in the **Simulated Store** sequence.

Voice Store Delay	This is the amount of time from ex.factory simulating the store operation and waiting for the store operation to complete.
Remote Switch Delay	This is the amount of time that a remote switch command is active for (on and then off).

The following options should normally be left checked, but are there to allow you to turn off the steps used in the simulated store to EX memory operation. This may assist you in diagnosing any problems that could potentially exist on your setup with this operation. If you are having problems, it is recommended that you turn off all steps and then turn them back on one by one to verify that each step yeilds the intended result.

The simulated store operation works by:

- Sending a bank change message to ensure the correct bank is selected (I1 or I2)
- Sending a patch change message to select the destination Voice (1-256)
- Transmitting the Voice to the EX Edit Buffer
- Using **Remote Switch** MIDI commands to simulate a Voice edit buffer store operation as if it was actioned by you pressing the required key sequence on the EX control panel.

MIDI Handshake	If checked, ex.factory attempts to "ping" the EX and will not send data until it gets a response or timeout. If this option is cleared then ex.factory will not "ping" the EX, but will just wait for the specified time before performing the next operation. The default is for this option to be cleared, as the transfer appears to work best without this ping taking place.

Send Bank Change	If checked the bank change command is sent. To check the bank change command is received by the EX:
	
	    • Manually select a Voice bank (I1 or I2)
	    • Send a Voice from ex.factory that is in a different bank to the EX memory
	
	You should see on the EX that bank has changed.

Send Patch Change	If checked the patch change command is sent. To check that the patch change command is received by the EX:
	
	    • Manually select a Voice on the EX
	    • Send a Voice from ex.factory that is different to the one selected in the EX
	
	You should see on the EX that the selected patch changes to be the same number as the patch sent from ex.factory.

Transmit Voice	If checked the patch is sent to the EX Edit Buffer. To check that the patch is received by the EX:
	
	    • Manually select any Voice on the EX to get it in the edit buffer
	    • Send a Voice from ex.factory that is different to the one selected in the EX edit buffer
	
	You should see on the EX that the selected patch changes to be the same as the patch sent from ex.factory.

Simulate Store	If checked the patch is written to the EX memory. Assuming all is well with the above sequences, the simulated store will deposit the transmitted patch into memory.

Online Help

ex.factory provides a full online version of the ex.factory manual.

If you select **Help ...** from the [Help Menu](#) or the ⬛ button on the [Tool Bar](#), the Help Window is opened.
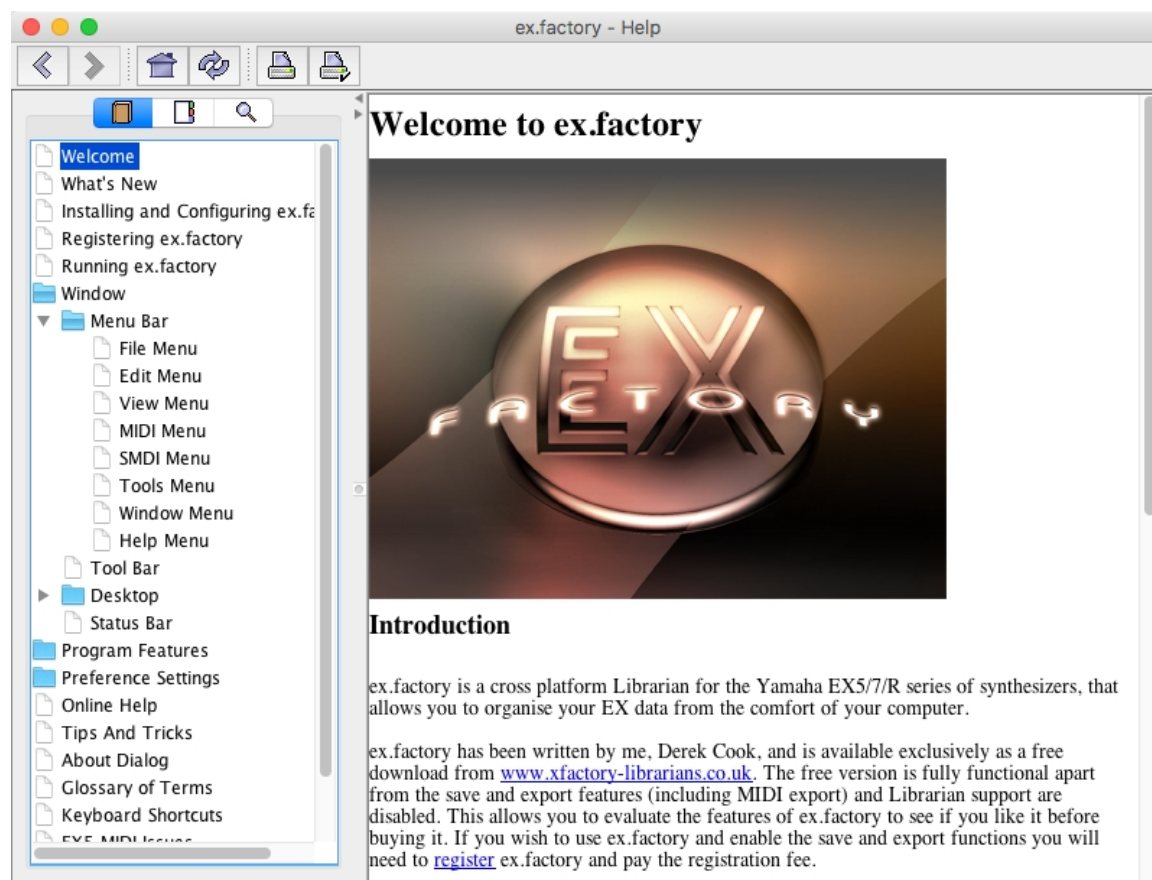
The Help Window works just like a web browser window, so its operation should be quite familiar to you.

The left pane of the Help Window shows a tabbed navigation pane to allow you to quickly navigate to a topic, whilst the right hand pane shows the help topic.

The navigation pane can show three different views, depending on which tab you select:

- ▤ Displays the Table of Contents Navigation Pane, providing a structured list of ex.factory topics
- ▤ Displays the Index Navigation Pane, providing an indexed list of ex.factory topics
- 🔍 Displays the Search Navigation Pane, allowing you to search the help topics for keywords

The Help Window has the following Tool Bar buttons:

- ≪ Navigates backwards to the last page in the access sequence. If you press and hold the mouse button over this button, you will get a list of accessed pages
- ≫ Navigates forwards to the next page in the access sequence. If you press and hold the mouse button over this button, you will get a list of accessed pages
- 🏠 Selects the home page
- ♻ Refreshes the current page
- 🖨 Prints the current page
- 🖨 Displays the print settings dialog

Context Sensitive Help

You can access context sensitive help by:

- pressing the your Computer Platform's **Help Key** (**F1** on the PC platform), which will load the help page associated with the Component within the ex.factory [Window](#) that currently has **Focus** (is responding to the keyboard and mouse).
- pressing the ⃠² button on the [Tool Bar](#) and the clicking over the item of interest

You can press the **Help Key** in any ex.factory Dialog to access the relevant help page for the Dialog.

Tips and Tricks

The ex.factory tips and tricks dialog is shown below:
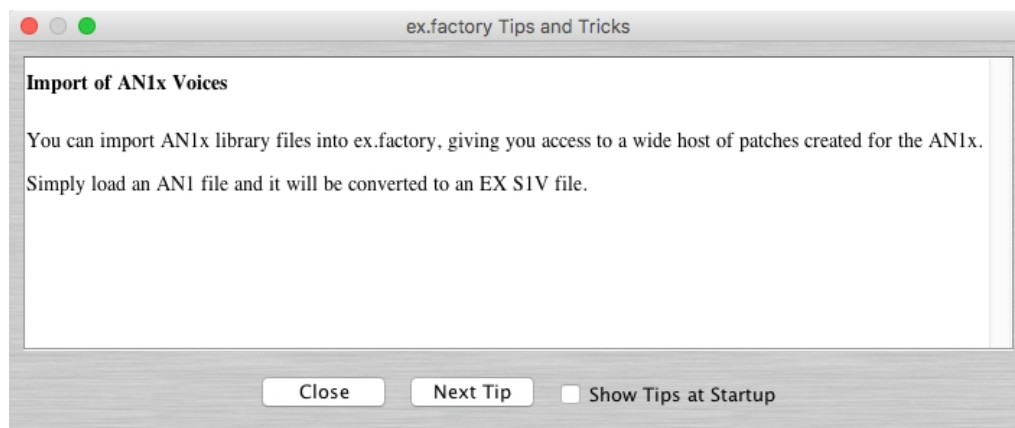
This dialog has the following controls:

Close	Closes the **Tips and Tricks** Dialog
Next Tip	Selects the next tip in sequence
Show Tips at Startup	If checked then when ex.factory starts up, the **Tips and Tricks** Dialog is automatically opened

List of Tips and Tricks

Just in case you want the tips and tricks shown by the dialog as one single list, here they are.

Double Clicking a voice

If you double click a voice in a file or the library, it will be sent to the synth's edit buffer. If you triple click instead, the MIDI Router dialog will be opened after the voice is sent to the synth's edit buffer.

Library Support

ex.factory provides a Library facility that allows you to store all your data in one place, and use filtering and sorting facilities to locate the data that you want.

(NOTE: Library features are available only to registered users).

MIDI Support

ex.factory now supports the transfer of Voices and Performances between ex.factory and the EX5 via MIDI.

The EX MIDI SYSEX implementation has some serious flaws in it that can corrupt data, but ex.factory now includes MIDI support because I have developed workarounds to the MIDI issues.

(NOTE: MIDI features are available only to registered users).

VL70m Files and Custom Elements

You can open VL70m LIB files into ex.factory and export custom VL Elements to the EX by dragging them onto the User VL Wave Elements within the EX Synthesizer Window.

(NOTE: MIDI features are available only to registered users).

Context Sensitive Help

If you press the **Help Key** (**F1** on a PC) then you can get context sensitive help, including within Dialogs.

Keyboard Shortcuts

ex.factory supports numerous keyboard shortcuts as an alternative to using the mouse.

Take a look in the online help or the ex.factory manual for details of the supported keyboard shortcuts

Import of AN1x Voices

You can import AN1x library files into ex.factory, giving you access to a wide host of patches created for the AN1x.

Simply load an AN1 file and it will be converted to an EX S1V file.

Scene Editor

ex.factory has a scene editor for Voices and Performances that allows you to precisely edit scenes.

The EX has no editor for scenes.

Right click over a scene and you'll find an **Edit...** menu item that calls up the scene editor.

File References

The **File References** tab in the **Preferences** dialog allows you to associate S1M files as FLASH or RAM memory banks for S1A, S1Y and S1V files. Updates to referenced files are reflected back in the files that reference them. For example, if you sort Waves in an S1M file then files referencing that file will be updated to ensure that elements maintain the correct references following the sort.

Master Patch List

The **Master Patch List** dialog under the **Tools** menu allows you to define a list of files that are exported, along with preset voice definitions, as a master patch list for use in supported sequencers to select patchs. Currently only Cubase VST/SX/SE/SL patch lists are supported.

New Voice

You can create a new voice using the **New** popup menu item in the tree view and the table view.

Copying Voice and Performance Arpeggiator Units

Within ex.factory you can copy a Voice Arpeggiator Unit to a Performance Arpeggiator unit and vice versa

Adding Several Wave Layers

When you select the **Add ...** option to add a new Wave Layer to a Wave, you can add more than one Wave Layer in one operation by

- Selecting more than one existing Wave Layer before selecting the **Add...** option; e.g. if you select two Wave Layers then two Wave Layers will be added
- holding down the **ALT** key whilst selecting the **Add...** option, which will bring up a Dialog box that allows you to specify the number of Wave Layers to add.

Element Remapping

ex.factory can remap Voice Elements to reference FLASH Waves instead of RAM Waves, and from RAM Waves to FLASH Waves.

Remapping can also be performed on a Elements, Voices and selections of Elements and Voices.

Right click over an Element or Voice to select the Remapping context menu options.

Adding Several Drum Elements

When you select the **Add ...** option to add a new Drum Element to a Drum Voice, you can add more than one Drum Element in one operation by

- Selecting more than one existing Drum Element before selecting the **Add...** option; e.g. if you select two Drum Element then two Drum Element will be added
- holding down the **ALT** key whilst selecting the **Add...** option, which will bring up a Dialog box that allows you to specify the number of Drum Element to add.

Object Colouring

If an Object such as a Wave or Voice is coloured blue, then it is being referenced by another Object.

If you right click over a blue Object you'll find a **"List References"** context menu, which will show you the Objects that reference this one.

Import of WAV files

You can drag and drop WAV files from Windows Explorer into an S1A or S1M file, and ex.factory will import them if it can (subject to them being in a supported format).

If a WAV file has an embedded "smpl" chunk, then the loop point data and centre key info that is contained in this chunk is also read in.

WAV files can also be imported from the context sensitive menus. Multiple files can be selected for import within the dialog box.

Sample Editing and Playback

ex.factory now allows Sample parameters to be directly editing within ex.factory and Samples can also be auditioned within ex.factory.

Simply right click over a Sample and select the **Edit...** option.

Copying Voice and Performance Effects Units

Within ex.factory you can copy Voice Effects Unit (Reverb and Chorus) to Performance Effects units and vice versa.

Wave Layer Editing

Wave layers can now be edited within ex.factory

Simply right click over a Wave Layer and select the **Edit...** option.

Find/Find Next Category Tool Bar Buttons

If you hold the **SHIFT** key down whilst pressing the **Find** or **Find Next** tool bar button the operations performed change from:

- **Find** to **Find Category**
- **Find Next** to **Find Next Category**

Table Sorting

You can sort Voice and Performance Tables by clicking in the Table Column headers.

For example, if you click in the Category Column then the Table will be sorted by Category

Utility Mode Settings

S1A files and **S1Y** files contain **UTILITY** mode settings.

If you load another user's **S1A** or **S1Y** files then you'll overwrite your **UTILITY** mode settings with theirs.

If you save out an **S1A** file from you own EX, load it into ex.factory and right click over the **"System Settings"** branch, you will find an option to save these settings as a default set.

Before loading any newly received **S1A** or **S1Y** files, load them into ex.factory, right click over the settings and load your default settings into the file.

You can now load these files into your EX and they will contain your default **UTILITY** mode settings",

You can only DRAG COPY Certain Objects

If you are trying to perform a drag operation on certain data types and are wondering why ex.factory is not allowing you to perform the drag, try holding down the CTRL key during the drag to see if this is then allowed. Holding down the CTRL key turns the operation from a **Drag Move** operation to a **Drag Copy** operation.

Sometimes during a drag operation, the only sensible operaton that can be undertaken is a copy operation, for example:

- Dragging preset synth data
- Dragging Samples onto the EX Synthesizer Window to initiate a SMDI transfer

In these circumstances a move operation does not make sense so it is not allowed.

Copying/Moving Objects to a Different File

When you copy an Object to a different file then any Objects it references can also be copied at the same time.

For example of you move a Performance to a new File, then the following Objects are also copied:

- The referenced Arpeggio if it is a User Arpeggio
- Any User Voices referenced by the Performance Parts
- Any User Waves referenced by the Voices
- Any User Samples referenced by the Voices/Waves

I think you'll agree this is a cool feature!

This feature can be selectively turned off for different Object types if required within the Preferences Dialog.

Saving Data

If you have a file loaded which holds different types of data (e.g. an S1Y file that holds Voices and Performances) you can save the different data types to simpler (and smaller) file types.

S1A Files	- Voices and Performances can be saved to an S1Y file. - Voices can be saved to an S1V file. - Waves and Samples can be saved to an S1M file. - Arpeggios can be saved to an S1R file. - Patterns can be saved to an S1P file. - The Song can be saved to an S1S file.
S1Y Files	Voices can be saved to an S1V file.

To save off the data types, right click over the Collections in the Tree View and you'll find options in the Context Sensitive Menu to save the Collections.

Workspaces

ex.factory allows you to save a Window arrangement as a **Workspace** which you can then recall at a later date.

Moving Objects within a File

When you move an Object within a file then any Objects that reference the Object type being moved can be updated to ensure they all still reference the correct objects after the move.

For example of you move a Voice within a file then all the Performance Parts are updated

I think you'll agree this is a cool feature!

This feature can be selectively turned off for different Object types if required within the Preferences Dialog.

Tritonus Sound Libraries

You should install the Tritonus Sound libraries to your Java implementation if you work extensively with Samples.

Exporting Patch Lists

You can export Patch lists from S1A, S1Y or S1V files for use within either Cubase, Protools or Sonar.

You can also export file information to HTML, XML or SpreadSheetML formats.

The relevant options can be found on the **File** Menu under the **Export** option.

About ex.factory

The about dialog is shown when the **About ...** option from the [Help Menu](#) or the ⬭ button on the [Tool Bar](#) is selected.
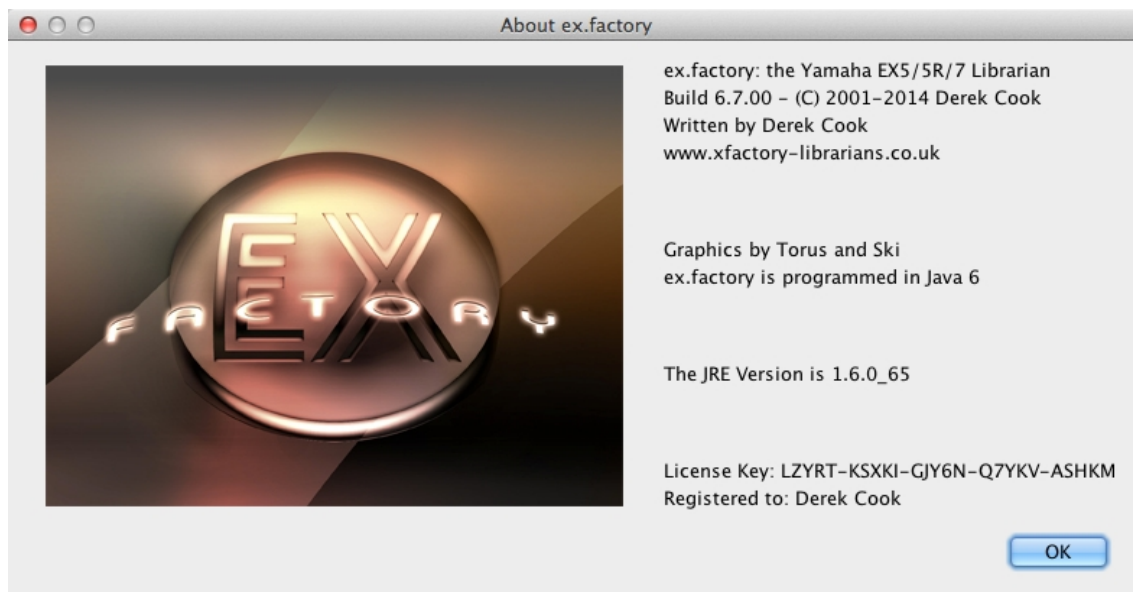
The dialog shows some basic information about the program including the version number and the [License](#) status of ex.factory.

It also shows which Java Run Time Environment that ex.factory is running in.

It's also a chance to take a close look at the excellent Splash Graphic provided by Torus!

Glossary

Term	Definition
ASPI	Adaptec SCSI Programming Interface. A software layer that allows programs such as ex.factory to communicate with SCSI hardware adaptors.
Child Window	A window associated with an EX data file that you have opened that is used to display the contents of the file. Several **Child Windows** can be open within the ex.factory **Desktop**.
Clipboard	A temporary storage area used for transferring data within a **Child Window** or between **Child Windows**.
Collection	A group of similar and related **Objects**. For example a Voice **Collection** stores the 256 Voice **Objects** that an S1A, S1Y or S1V file can contain
Context Sensitive Help	The ability of the help system to tailor the help being displayed according to where the user pressed the Help key.
Context Sensitive Menu	The popup menu that is displayed in either the **Tree View** or **Table View** that provides a set of commands specific to the currently selected **Object**
Desktop	The area within the ex.factory window where **Child Windows** can be opened
Drag and Drop	The name for the mechanism that allows a use to move data by dragging it with a mouse and dropping it at a new location.
DRAG MODIFIER	The keyboard key that is held down to turn a Drag and Drop **move** operation into a **copy** operation. On the PC platform, the **DRAG MODIFIER** key is the **CTRL** (control) key
EX Library Window	A special instance of a **Child Window** that doesn't display data in a file, but which displays the data stored in the EX **Library**.
EX Synthesizer Window	A special instance of a **Child Window** that doesn't display data in a file, but which displays: • Preset data within the EX • User data imported from the EX via MIDI and/or SMDI
JRE	Java Run-time Environment. This provides the Java environment which ex.factory needs in order to run. Sun Microsystems provides the JRE for PC systems, and Apple provide their own JRE for MacOS X
Library	A repository where you can store all of your data.
MDI	Multiple Document Inteface. The type of user interface used by ex.factory which allows several Windows to be open within the main application window.
Menu Bar	The area of the ex.factory Window that contains the set of menus used for accessing the main functions provided by the application.
MIDI	Musical Instrument Digital Interface. The primary means by which digital data is exchanged in a serial form between synthesizers and computers.
MMJ	A MacOS X specific library that provides the means by which external MIDI devices can be accessed with the Java MIDI framework.
Native SMDI Interface	A piece of software required on each supported platform that provides the SMDI interface between ex.factory and the SCSI hardware of the platform.
Object	A piece of EX data such as a Voice or Performance.
Preset Synth Data	The lists of data within the **EX Synthesizer Window** that lists the preset data available within the EX.
Reference	The means by which the EX associates an **Object** (such as a Voice) with another **Object** (such as a Performance Part). The reference provides the link between the two, and in the case of the EX, the link is simply the number of the referenced **Object**.
Regular Expression	A system by which certain character sequences are interpreted not as plain text but as commands that can provide a tailored search for occurences of text
Simulated Store	The sequence of operations that ex.factory excutes to store a Voice into an EX memory location. The MIDI commands to write Voices to EX Memory do not work correctly, and the Simulated Store mechanism is a workaround that allows Voices to be stored into EX memory
SCSI	Small Computer System Interface: A high speed parallel interface used to interface devices (such as mass storage devices and the EX) to a computer.
Status Bar	The area of the ex.factory Window that is used to display status information upon the currently selected **Child Window**.
Table View	A **View** which displays data in a file arranged in tablulated rows of data

Tool Bar	The area of the ex.factory Window that contains a set of buttons to provide easy access to commonly used commands
Tree View	A **View** which displays data in a file arranged in a hierarchical tree structure.
Tritonus	A library of Sample processing tools that fits within the Java Sound system and provides facilities not provided by default, such as sample rate conversion.
View	The means by which the data in a file is viewed. A **Child Window** provides the view upon an EX File that you have opened. The view can be either a **Tree View** or a **Table View**. You can have several views open upno the same data, for example when you have split a **Child Window**.
Workspace	An arrange of the main ex.factory Window and Child Windows which can be saved for subsequent recall.

Keyboard Short Cuts

ex.factory provides many keyboard shortcuts for navigation and performing editing operations.

In general, navigating between components uses these keys:

- **Tab.** Moves keyboard focus to the next component or to the first member of the next group of components.
- **Ctrl-Tab**. Moves keyboard focus to the next component or to the first member of a group of components when the current component accepts a tab (as in text fields, tables, and tabbed panes).
- **Shift-Tab.** Moves keyboard focus to the previous component or to the first component in the previous group of components.
- **Arrow keys.** Move keyboard focus within the individual components of a group of components--for example, within menu items in a menu or within tabs in a tabbed pane.

The shortcuts are divided into the following categories:

- Keyboard shortcuts for the Desktop and Child Wndows
- Keyboard shortcuts for Tree Views
- Keyboard shortcuts for Table Views
- Keyboard shortcuts for Editing within Tree and Table Views
- Keyboard shortcuts for the Preferences Dialog
- Keyboard shortcuts for Text Editing Fields

Keyboard Shortcuts for the Desktop and Child Windows

Action	Keystroke	Notes
New File	Ctrl-N	
Open File	Ctrl-O	
Save File	Ctrl-S	
Save File As	Ctrl-A	
Save All Files	Ctrl-L	
Open Workspace	Ctrl-ALT-O	
Save Workspace	Ctrl-ALT-S	
Tile Horizontally	Ctrl-H	
Tile Vertically	Ctrl-V	
Maximise Windows	Ctrl-M	
Restore Windows	Ctrl-R	
Minimise Windows	Ctrl-I	
Closes Child Window	Ctrl-F4	
Moves Child Window	Ctrl-F7	
Resizes Child Window	Ctrl-F8	
Minimizes Child Window	Ctrl-F9	
Switch to next Child Window on the Desktop	Ctrl-F6	

Keyboard Shortcuts for Tree Views

Action	Keystroke	Notes
Expands current Object	Right arrow	
Collapses current Object, or moves focus to Parent Object	Left arrow	
Moves focus up one Object	Up arrow	
Moves focus down one Object	Down arrow	
Moves focus to first Object in Tree View	Home	
Moves focus to last Object in Tree View	End	
Moves up one view	Page Up	
Moves down one view	Page Down	
Selects all Object in Tree View	Ctrl-A, Ctrl-/	
Deselects all Object in Tree View	Ctrl-\	
Extends selection down	Shift-down arrow	
Extends selection up	Shift-up arrow	
Extends selection to beginning of Tree View	Shift-Home	
Extends selection to end of Tree View	Shift-End	
Extends selection up one view	Shift-PgUp	
Extends selection down one view	Shift-PgDn	

Keyboard Shortcuts for Table Views

Action	Keystroke	Notes
Moves up one row	Up arrow Shift-Return	
Moves down one row	Down arrow Return	
Scrolls up one view	Page Up	
Scrolls down one view	Page Down	
Moves focus and view to first cell in the current row	Home	
Moves focus and view to last cell in the current row	End	
Moves focus and view to first cell in the current column	Ctrl-Home	
Moves focus and view to last cell in the current column	Ctrl-End	
Allows editing in a Category cell	F2, Down Arrow	
Allows editing in a Name cell.	F2	
Resets cell to the state it was in before it was edited	Escape	
Selects entire table	Ctrl-A	
Extends selection up one row	Shift-up arrow	
Extends selection down one row	Shift-down arrow	
Extends selection to beginning of table	Ctrl-Shift-Home	
Extends selection to end of table	Ctrl-Shift-End	
Extends selection up one view	Shift-PgUp	
Extends selection down one view	Shift-PgDn	

Keyboard Editing Short Cuts for both Tree and Table Views

Action	Keystroke	Notes
Undo	Ctrl-Z	
Redo	Ctrl-Y	
Cut	Ctrl-X	
Copy	Ctrl-C	
Paste	Ctrl-V	
Find	Ctrl-F	
Find Next	F3	
Find Category	Ctrl-Shift-F	
Find Next Category	Shift-F3	
Goto	Ctrl-G	
Insert Object	INS	Not allowed on Collections
Delete Object	DEL	Not allowed on Collections
Rename Object	F4	Single Named Object Only
Initialise Object	F5	
List References	F6	Single Named Object Only
Map To Flash	F7	
Map To Ram	Shift-F7	
Export to MIDI Edit Buffer	F8	Single Voice or Performance Only
Export to MIDI Memory	Shift-F8	Voices or Performances Only
Import from MIDI Edit Buffer	F9	Single Voice or Performance Only
Import from MIDI Memory	Shift-F9	Voices or Performances Only

Keyboard Shortcuts for the Preferences Dialog

Action	Keystroke	Notes
Navigates through tabs	Arrow keys	
Moves from tab to its associated content pane	Ctrl-down arrow	
Moves from content pane to its associated tab	Ctrl-up arrow	

Keyboard Shortcuts for Text Editing Fields

Action	Keystroke	Notes
Moves insertion point one character to the right	Right arrow	
Moves insertion point one character to the left	Left arrow	
Moves insertion point to beginning of next word	Ctrl-right arrow	
Moves insertion point to beginning of previous word	Ctrl-left arrow	
Moves insertion point to beginning of field	Home	
Moves insertion point to end of field	End	
Submits text entry	Enter, Return	
Extends selection to beginning of line	Shift-Home	
Extends selection to end of line	Shift-End	
Extends selection one character to the left	Shift-left arrow	
Extends selection one character to the right	Shift-right arrow	
Extends selection to next word	Shift-Ctrl-right arrow	
Extends selection to previous word	Shift-Ctrl-left arrow	

EX5 MIDI Issues

The EX5 MIDI System Exclusive (SYSEX) implementation has a few bugs in it that can cause data corruption both when reading Voices from the EX via MIDI and when writing Voices to the EX via MIDI.

This section describes those issues, and also describes how ex.factory gets around those issues.

These are the EX MIDI SYSEX problems that I am aware of:

1. Corruption of Voices when reading via MIDI SYSEX
2. Corruption of Voices when writing via MIDI SYSEX
3. The EX does not transmit large drum Voices via MIDI SYSEX
4. MIDI buffer overflows when writing large Drum Voices via MIDI SYSEX

Corruption of Voices When Reading Via MIDI SYSEX

When you request a dump of a Voice from either the Edit Buffer or from a Memory Location via MIDI, there is a problem when the Voice being requested has an Element active in Element slot four. Voices that do not have Element 4 active (i.e. they can have any of the other Elements active) are fine.

The symptoms of this problem are that the end of the SYSEX message is corrupted, which manifests itself as corruption in the Static Control Filter settings for Element 4 and corruption of the Element Insert Effect Switches (all Elements).

The problem is in the EX SYSEX data encoding scheme that is used to squeeze eight bit data values into seven bit values (the MIDI standard only allows seven bit data values).

The EX (and some other synths) transfers eight bit data by stripping off the Most Significant Bits (MSBs) from a block of seven bytes and then combines and sends the MSBs in an extra byte (that I call an **MSB Encoding** byte). So for every seven bytes in a Voice an additional byte is sent. If ever you've looked in the EX data list manual and wondered why they talk about Gross and Net sizes in the Sysex dumps, the Net size of a message is for an unencoded message, and the Gross size is for an encoded message inclusive of the MSB Encoding Bytes.

What happens when there is a Voice with Element 4 active being transferred is that a byte is lost from the message, which happens to be the **MSB Encoding** byte from the penultimate seven bit data block.

The impact of this missing byte is that:

- The data bytes in the penultimate seven byte block have lost their correct MSB values
- The data bytes in the final block are "shifted" (i.e. Byte 1 is now Byte 0, Byte 2 is now Byte 1, etc.)
- The first byte of the final data block is now seen as the "MSB encoding byte" for the penultimate data block
- The message checksum is seen as the "encoding byte" for the final block

The message checksum appears to be calculated after this byte is "dropped" as it is correct for the message contents.

The net result is the SCF filter settings for Element four and the Insert Effect switches can become corrupted.

ex.factory Workaround

Whilst the Bulk Voice dump messages from both the EX Edit Buffer and Memory Locations suffer from this bug, the MIDI dumps that read individual Elements from the EX Edit buffer work OK.

So ex.factory ignores the data in a Voice Bulk dump for Element 4 and instead obtains the data for Element 4 from the edit buffer.

When a Voice is read from the EX via MIDI, ex.factory performs the following:

- When a Voice is received from the EX it is first checked to see if it is a Drum Voice
- If the Voice is a Drum Voice then no further action is taken as this bug does not affect Drum Voices (but see the specific bugs that do affect drum Voices!)
- If the Voice is not a Drum Voice then it is checked to see if it has an active Element 4
- If Element 4 is not active then nothing more needs to be done
- If Element 4 is active and the Voice dump is from the Edit Buffer, a request is sent for just Element 4 from the edit buffer, as this message is correctly formatted
- If Element 4 is active and the Voice dump is from a memory location, then a bank/patch select message is sent to the EX, which loads the Voice into the edit buffer, and then a request is sent for just Element 4 from the edit buffer, as this message is correctly formatted

Corruption of Voices When Writing Via MIDI SYSEX

When writing Voices to an EX memory location, if the Voice being replaced does not have the same Elements as the Voice being written then the Voice being written will lose the Elements where there is a mismatch.

For example, assume you wish to write a Voice to EX memory that has Elements 1,2,3 and 4 active:

- If you have a Voice in the destination Memory location with Elements 1, 3 and 4 active, then Element 2 of the Voice being written is lost
- If you have a Voice in the destination Memory location with Elements 1, 2 and 4 active, then Element 3 of the Voice being written is lost
- And so on

As this is an internal problem with the EX I cannot be sure as to what is going on, but I would hazard a guess and say that when the Voice is written, the EX is not checking the active Elements in the new Voice and is thus not "allocating" additional Elements from its supply of free Elements where required.

ex.factory Workaround

Fortunately, sending a Voice to the EX edit buffer works OK, and the EX has MIDI SYSEX commands to represent the front panel buttons. So the workaround is to:

- Send a bank/patch change command to select the destination Voice
- Send the Voice to the EX edit buffer
- Send a command representing the **STORE** button
- Send a command representing the **ENTER** button
- Send a command representing the **INC** button (if you have set the " **Edit Confirm during Transfer to EX Memory**" setting in the MIDI Preferences Tab in the Preferences Dialog)
- Send a command representing the **EXIT** button

Note. This "simulated store" operation needs to wait for periods of time between the steps above to ensure the EX has time to carry them out.

You can tune the time delays by altering the values in the Advanced MIDI Preferences Tab in the Preferences Dialog to get the optimum speed for your system, but it is still faster to load complete Voice sets via disk. Having said that, the ability to transfer Voices via MIDI is a bonus if, for example, you want to load in few Voices from your PC into a Voice set that is already loaded in the EX.

The EX Does Not Transmit Large Drum Voices via MIDI SYSEX

The EX does not transmit Drum Voices with more than 106 Elements via MIDI. Strange but true!

ex.factory Workaround

As this is an internal EX issue there is nothing much I can do about this.

ex.factory will report a MIDI timeout error if it does not receive a Voice within a defined period of time.

So the effect is that such large drum Voices are not received, but all other Voices are correctly received.

MIDI Buffer Overflows When Writing Large Drum Voices via MIDI SYSEX

If you write a drum Voice to the EX via MIDI and it has more than 46 Elements in it then the Voice is not correctly received.

The EX reports a **MIDI Buffer Overflow** error.

ex.factory Workaround

I've been unable to find a workaround for this, so ex.factory does not transmit drum Voices larger than 46 Elements, instead it provides a warning message that the transmission didn't take place.

Credits

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- Yamaha for making such a great range of musical instruments. The EX range may not be perfect, but they sure are awesome in their sonic capabilities!

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