Release Notes for Synclavier® Release 4.3,
Synclavier® PowerPC™ 1.3
and
InterChange™ 1.3 and 2.0
June 1, 1999

What's In These New Releases?

This integrated software release provides a comprehensive update to all Synclavier® software, both for the original "Model D" and PowerPC hardware platforms.

Synclavier® Release 4.3 5¼" Diskettes

A series of 8 5¼" SuperFloppy diskettes provides a copy of all 4.3 System and Real-Time software for the Model D hardware platform. These diskettes are also used to install the Release 4.3 operating software on a Synclavier® hard drive that is used with Synclavier® PowerPC. You may not need the 5¼" diskettes if you use Synclavier® PowerPC™ with Disk Image Files or can update your W0: via InterChange™.

2 diskettes - System Software
2 diskettes - Real Time Software (SYN-4.3)
2 diskettes - Real Time Software with Guitar (SYN-4.3G)
1 diskette - Music Printing and XPL Compiler
1 diskette - Winchester Bootload Diskette

! Rather than inundate everyone with unnecessary diskettes, we only send the Guitar and Music Printing/XPL modules to those of you who have requested them. Give us a shout if we forgot yours!

Synclavier® Release 4.3 Macintosh Diskettes

A series of 2 Macintosh HD Diskettes installs the basic Macintosh applications, including Termulator, EditView®, AutoConform, MIDINet®, TransferMation™ and InterChange™ 1.3. The MixMap™ cue sheet printing software for use with EditView™ is also included on these diskettes.

Synclavier® PowerPC™ 1.3 CD-ROM

The Synclavier® PowerPC™ 1.3 CD-ROM installs all Macintosh software, including Synclavier® PowerPC™ 1.3 plus an introductory copy of a completely new version of InterChange™ called InterChange™ 2.0.

! InterChange™ 2.0 may be of interest to (courageous?) Model D users who connect their Synclavier® and Macintosh SCSI ports together, or if you use removable-media or drive-bay style hard drives. Let us know if you are interested!

What's New?

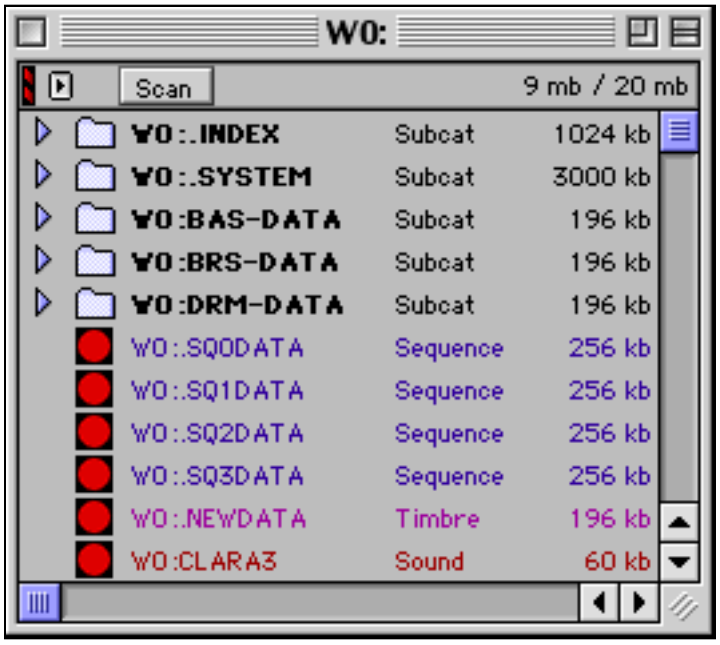
The Real Time Software includes some additional user-definable defaults, fixes to MIDINet® MIDI-file export, a significant re-working and debugging of the tempo- and meter-map software, plus numerous other useful changes. Here's a quick list:

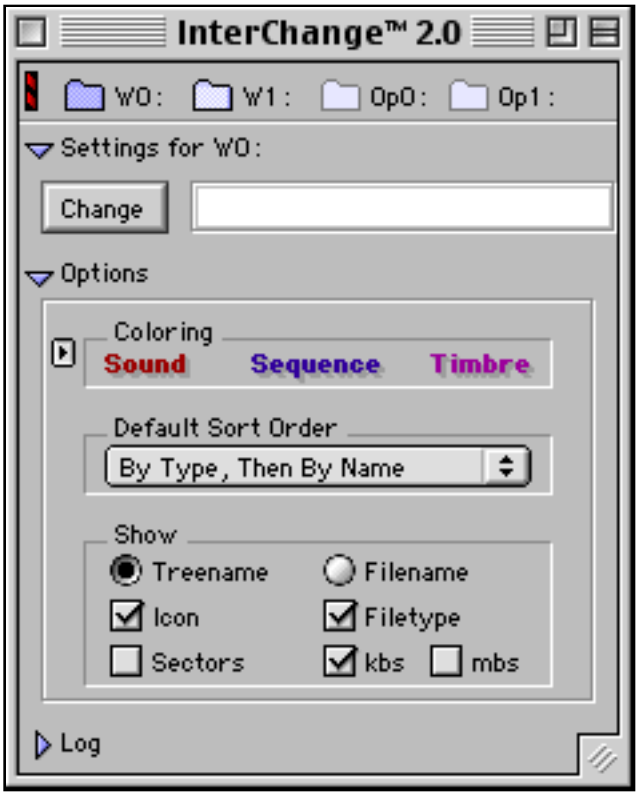
- User definable defaults for MIDI settings, keyboard routing, speed, click, final decay
- Better support for systems with FM voices not connected to the multi-channel outputs
- Fixed the 'time drift' bug in MIDINet
- Tempo/Meter map user interface debugged
- Numerous sequence conversion options to convert mapped to unmapped sequences (etc.)
- Ergonomic improvement to Mark Start

Complete documentation on these and related software fixes follow.

A PowerPC-Native version of TransferMation is available which works extremely well with Synclavier® PowerPC™. That version will also likely work on NU-Bus PowerPC Macintoshes, or PowerPC Macintoshes with NU-Bus expansion bus adapters. It is included on the Synclavier® PowerPC™ 1.3 CD-ROM, or is available on Macintosh floppy by request.

InterChange™ 2.0





InterChange™ 1.3 combines with Synclavier® PowerPC™ 1.3 to provide a limited (but useful!) ability to change device selection (e.g. Disk and Optical Image Files) on the fly. This capability can be used to manage a number of large Optical Image Files without having to leave Synclavier® PowerPC™.

An entire re-write of InterChange™ called InterChange™ 2.0 is introduced on the Synclavier® PowerPC™ 1.3 CD-ROM. InterChange™ 2.0 provides a complete graphical user interface for navigating Synclavier® hard drives. When used with Synclavier® PowerPC™, InterChange™ 2.0 provides the ability to call up sound files, sequences, and timbre files by double-clicking in the browser windows.

Additionally, InterChange™ 2.0 provides complete drag-and-drop Synclavier® file management support. Subcatalogs can be created and *automatically* resized as needed, Files can be duplicated or renamed. Files and subcatalogs can be unsaved by dragging to the Macintosh trash, or they can be copied by dragging and dropping at will. This preliminary version of InterChange™ 2.0 doesn't include the Macintosh import and export functions, although the user interface for performing these operations by drag-and-drop is complete. Additionally, InterChange™ 1.3 must be used to change the device configuration, as the setup Change button is not yet implemented in InterChange™ 2.0.

Look for a fleshed-out InterChange™ 2.0 to be available shortly.

Macintosh Application Summary

Some bug fixes to the Macintosh applications were included in an intermediate version of Synclavier® PowerPC™ released earlier this spring. Documentation on these fixes is included here for completeness.

Editview 4.3 (from 4.2.2)

In certain cases the track names would not appear correctly. This has been fixed. When running on extremely fast Macintosh computers, EditView would sometimes hang up when scrubbing when communicating with Synclavier® PowerPC™. This has been fixed.

Autoconform 4.3 (from 4.2.2)

Autoconform includes some additional error diagnostics to help track down serial port communication problems observed on faster Macintosh computers.

MIDINet 4.3 (from 4.2.2)

Earlier version of MIDINet would accumulate round-off error when importing or exporting long MIDI files. This round-off error showed up when using certain click rates (actually most of them!). This has been fixed.

Termulator 4.3 (from 4.2.2)

Changing the BAUD rate on some PowerPC Macintoshes would sometimes crash if the 'Use Polled I/O' selection was not selected. This problem only showed up with certain Mac O/S versions. This problem has been fixed.

Utility Software Summary

FORMCOPY

This version of FORMCOPY allows reading of Kennedy backup tapes.

Screen Editor

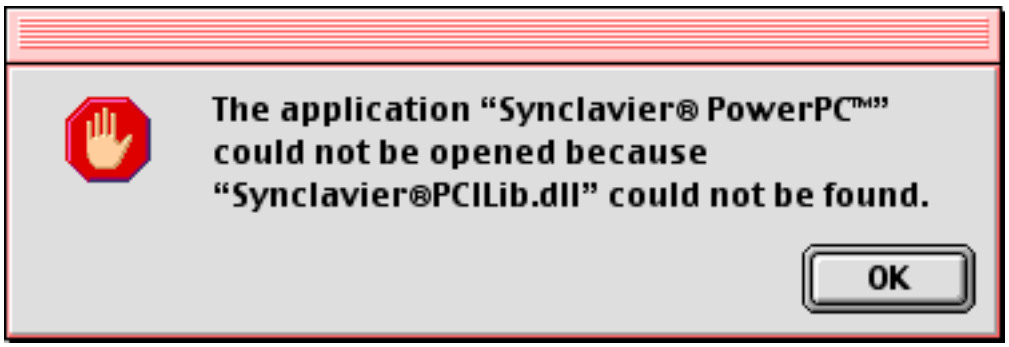
The Quit command now works when running the Screen Editor under Synclavier® PowerPC™.

MONITOR

Pasting of characters into MONITOR from that Macintosh now works in many cases. Additionally, the MONITOR now properly recognizes tempo-mapped sequences with its RECALL command.

Installation Notes

InterChange™ 2.0 and Synclavier® PowerPC™ 1.3 communicate using a Macintosh Shared Library called "Synclavier®PCILib.dll" which must be installed in the Extensions folder in the System folder of the Macintosh you are using. If you see the following dialog:



it means the shared library is not installed correctly, or it is of the wrong version, or your Macintosh has not been restarted since a new Synclavier®PCILib.dll was installed. While the installation software is supposed to require a Restart if the shared library changes, I have seen the installation warning fail on numerous occasions for unknown reasons. The best way to avoid encountering this error is to install Synclavier® PowerPC™ and InterChange™ at the same time from the same installation diskettes, and then restart you Macintosh after installation is complete.

Thanks for your continued support.

Cameron Jones and the Synclavier® Team.

Technical Note - Changing InterChange™ Image Files on the Fly

The updated version of InterChange™ (1.3) included on the new Synclavier® PowerPC™ CD-ROM provides the ability to change your device selection without having to quit and relaunch Synclavier® PowerPC™. This capability makes it easier to manage multiple "Optical Image Files" or "Disk Image Files".

This feature is particularly useful for large facilities that keep multiple Optical Image Files on a central networked file server.

Note: this feature is only available in InterChange™ 1.3 (or later) and Synclavier® PowerPC™ 1.3 (or later). This mechanism does not work in earlier versions of either module.

Changing Optical Image Files

- Without quitting Synclavier® PowerPC™, launch InterChange™ 1.3.
- Choose the desired Optical Image File for Op0.
- Click "Save Setup"
- Return to Synclavier® PowerPC™
- Mount the new optical volume by viewing the contents of the optical disk, for example from the B screen, or using the 'Load Volume' button on the R screen.

- NOTE: You must "Save Setup" in InterChange™ 1.3 before the new setup will be available to Synclavier® PowerPC™!!!!!

It's really embarrassing to change the configuration, forget to save it, and then wonder why it doesn't show up in Synclavier® PowerPC™. I expect that the situation will resolve itself once InterChange™ 2.0 has the ability to change the device configuration. In the mean time, let me know if you want a warning dialog to help you remember!!

Changing W1

The device setting for W1 can also be changed on the fly. After selecting the new W1 (either a hard drive or a disk image file), use the "Update" button on the B screen to update the Sound File Directory.

Precautions

- Do not try to change the W0 selection on the fly. It likely will not work.
- You cannot add or remove devices on the fly. That is, if you launch the Real Time Software with no Optical Disk configured, it will not be properly recognized if you add an Optical device to the configuration on the fly. If you do add or remove a device, breaking to MONITOR and relaunching the Real Time Software with PLAY will likely allow the Real Time Software to recognize the new drive.
- Don't forget to "Save Setup" in InterChange™ 1.3 before return to Synclavier® PowerPC™ to use the new setup. The new setup is not available to Synclavier® PowerPC™ until it is saved.
- Remember that the Real Time Software can only call up sound files from Op0:. Op1: is only available to FORMCOPY and OPCOPY.
- Obviously do not change the device configuration on the fly while the device is being read from or written to, or while files are being copied from or to it using InterChange™.

Technical Note - Creating Optical Image Files

Optical Image Files can be created up to 2 gigabytes in size using the **Create** button in InterChange™ 1.3. Optical Image Files can be created for either Op0: or Op1:, but remember that Op1: is only available to FORMCOPY and OPCOPY; it is not available to the Real Time Software.

Here's a handy recipe for copying (or combining) Optical Media into an Optical Image File:

Before beginning, be sure that the index files for any source volumes to be copied has been properly updated in the Synclavier by inserting into drive and selecting 'Load Volume' on the R-Page.

1. From the Real-Time program (RTP), 'break' to the READY prompt. Use the OPVOLUME utility to check the amount of used space on each source volume. Use this information to compute the size of the Optical Image File that you will need.

2. Launch InterChange™ 1.3. Set the Op0: or Op1: device selection to Disk Image. You must use Op0: if you will be writing to the Optical Image File from the Real Time Software. You may use either Op0: or Op1: if you will be writing to the image file using OPCOPY.

3. Click on CREATE button. When the window opens enter the size you wish to make the Optical Image.

> **Note** - The size should be at least 2% greater than the total space used on the source media to be copied to it. More than one source volume can be copied to a single Optical Image as long as the total size does not exceed the Mac limit of 2 gigabytes per file.
> You will now be prompted for a name and location to store the file following the standard Macintosh convention.

4. After the Image File is created **Save Setup.**

5. Return to S/PPC. Use FORMCOPY to Format Op0: or Op1: as appropriate. This will take about 15 min./GByte.

6. If you will be writing to the new Optical Image File from the Real Time Software, use the R-Page to Initialize (name) the new volume. Be sure **NOT** to name it exactly the same as any other optical volume you have or indexing problems will occur.

7. If you will be writing to the new Optical Image File using OPCOPY, OPCOPY will ask you to name the volume when it is first written to. Be sure to pick a unique name to avoid index file conflicts!!!

Technical Note - Introduction to InterChange™ 2.0

Launch InterChange™ 2.0 by double clicking on its Icon.

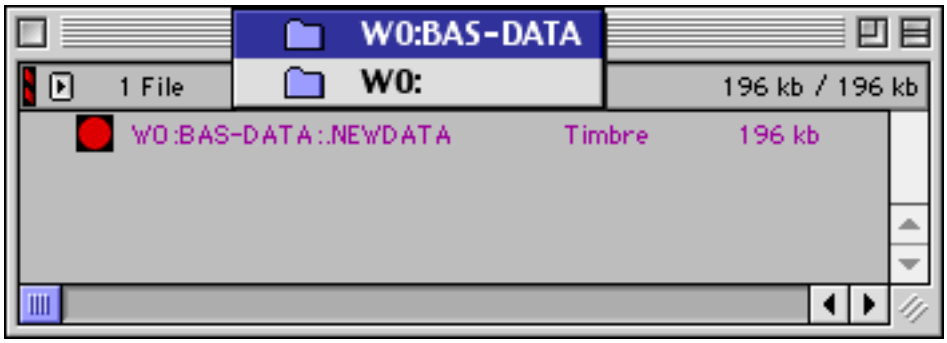
InterChange™ 2.0 uses the device configuration from InterChange™ 1.3.

Double-click on the W0: or W1: folder icon to open up a browser window.

Option-double-click will scan the entire device right away. The Icon activates a pull-down menu with numerous additional commands.

Rows can be opened or closed by clicking on the or Icon. Option-clicking the or Icons will open or close all enclosed subcatalogs.

Command-clicking in a browser window title bar allows you to navigate up the catalog hierarchy, as shown:



Files or subcatalogs can be selected by clicking, shift-clicking or select-dragging a region. Shift-clicking also allows items to be added or removed from the current selection by sweeping.

The **File** menu provides basic file management functions

Files and subcatalogs can be copied by dragging them and then dropping them onto the W0: or W1 folder icon, dropping them into another browser window, or another subcatalog. Subcatalogs can be easily resized as files are copied into it.

Double-clicking on a sound file, a sequence, or a timbre file will call up that file to Synclavier® PowerPC™. Sound files are called up to the keyboard, and to the current line of the Sound File Patch Screen if that screen is active. Sound files can be auditioned if the **Audition Sound Files Upon Recall** menu option is checked.

Sequences are called up to the memory recorder, and a warning dialog is presented if the current sequence is not saved.

Timbre files are called up directly to the bank and entry buttons and may be viewed from the Timbre Directory screen. This feature allows any names to be assigned to timbre files, obsoleting the archaic .NEWDATA nomenclature.

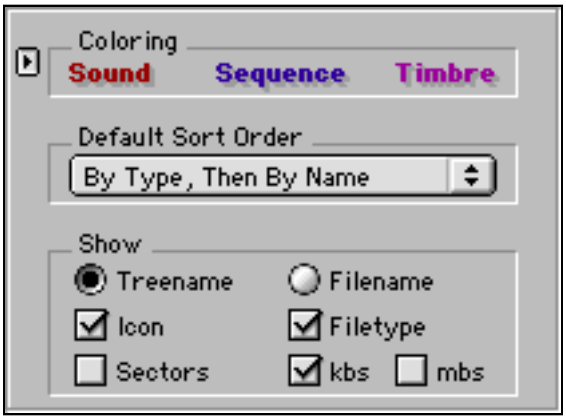
The 

button is not implemented in this version of InterChange™ 2.0. You may use InterChange™ 1.3 to change the device configuration on the fly as needed. Remember to **Save Setup** in InterChange™ 1.3 before returning to InterChange™ 2.0.

Files and Subcatalogs may be unsaved by dragging them to the Macintosh trash, or using the **Unsave** menu command.

A later version of InterChange™ 2 will allow dragging of Synclavier® files and subcatalogs to the Macintosh desktop, and dragging Macintosh files and folders to a Synclavier® hard drive.

Coloring and window layout are controlled from the main InterChange™ 2.0 window.



DETAILS OF 4.3 BUG FIXES AND FEATURES

NEW USER-DEFINABLE DEFAULTS

Users can now define their preferred default values for several commonly used parameters. Basically the way this works is you set the values you want, then click the "Write Defaults" button on the Q-page. From that point on, your Synclavier will not only use these values when it boots up, but will also use the appropriate values whenever you erase your sequence, SKT a null timbre from a blank track, or load a sound file from the B- or R-page.

The parameters who's default values can be set (besides the usual Q-page stuff) are as follows: (The first two existed previously but were undocumented.)

MIDI Input Channel	
MIDI Echo State	
Keyboard Multichannel Routing	(for initialization)
On / Off status of the click	(for initialization)
Click Display Mode (BPM or ms)	(for initialization)
Click Rate	(for null sequence)
Sequence Speed	(for null sequence)
Enabled MIDI Real Time Effects	(for null timbre)
Velocity Sensitivity & Response	(for null timbre)
Final Decay	(for loading sound files)

(Just set the final decay of partial 1 before writing your defaults. The partial can be null - there is no need to bother loading a sound file first.)

There are many advantages to be gained from these defaults, some of which may not be immediately apparent. A few noteworthy examples follow:

<u>Enabled MIDI Real Time Effects:</u>

A few longstanding problems resulted from the fact that nearly all of the MIDI Real Time Effects controllers defaulted to ON. Since the on / off status of these controllers is not visible unless you press and hold the MIDI button, many users where not aware that these were enabled and would unknowingly fill their sequence up with hundreds of unutilized pressure updates just by playing a few notes. Aside from wasting memory and unnecessarily loading down the processor, this would make subsequent editing more difficult. Another common problem was that since Ped1 is transmitted as MIDI volume, the MIDI devices could easily get a spurious volume of zero (especially when no Pedal was connected) rendering them inaudible. To alleviate these problems, only Velocity, Mod Wheel and Pitch Wheel are enabled by default in this release. Of course the user can now set the defaults to anything he of she chooses.

Click Rate and Sequence Speed:

If you are a sound effects designer, you may want to set the default click rate to 1000 MILLISEC so that it effectively serves as a visual second counter. If you are a film composer and you prefer to work with tempos in frames per beat, you can set the speed to default to 0.960 so that your Synclavier will always show frame rates. If you will be working with MIDI files a lot, it would be a good idea to default your click rate to 480 MILLISEC. This way your sequences will conform to the MIDI standard of 480 divisions per beat. The advantage here is that tracks from imported MIDI files can be selectively recalled into your sequences and will automatically conform to it's tempo map. (Just to avoid any misunderstanding, this does not lock you in to an actual sounding tempo of 480 milliseconds per beat. See the section "A PRIMER ABOUT TEMPO MAPS" for clarification.)

Tip: Your defaults are stored in the file .SDEF-7 in your .SYSTEM subcatalog. Be aware that if you use Interchange's "Export .SYSTEM Files" function as a means of installing software, this file will be paved and you will lose your defaults. Consequently you should copy this file to a safe location before installing in this way. Note that this problem does not occur when installing from the floppy disk set.

THAT HORRIBLE BURST OF NOISE:

Anyone who's system contains FM voices that are not connected to the multichannel distributor (i.e., composite outputs only) is undoubtedly familiar with a dreadful blast of noise which occurs every time you launch the RTP. This noise was only intended to happen at the factory on the first RTP run after voice and multichannel cards were installed. At the time the code was written, it was expected that FM voices would always be connected to the multichannel cards. However, with more recently manufactured systems, this is not always the case.

To put an end to these annoying outbursts, the code has now been modified to take the newer hardware configurations into account. If you have been experiencing this noise, it should only happen the first time you launch this new release, then never happen again. If you change your voice or multichannel hardware in the future, the noise will then re-occur on the first RTP run after the hardware is changed.

Note: If with this release you continue to get the burst of noise every time you launch the RTP, then you probably have genuine multichannel errors. You can use the MULTICHN utility on the diagnostic disk (D-processor only) to identify such errors.

EXPORTING MIDI FILES WITH MIDINET®

The exportation of MIDI files using MIDINet® has never worked correctly except in certain circumstances. This situation is now corrected. Details follow:

"Time Drift" Bug:

Previous versions of MIDINet® only generated MIDI files correctly if the Synclavier sequence had one of the following 11 click rates in milliseconds per beat:

30, 32, 40, 48, 60, 80, 96, 120, 160, 240, 480.

If the Synclavier sequence was a tempo/meter-mapped sequence, then MIDINet® only generated MIDI files correctly if the Synclavier sequence was set to one of those 11 click rates at the time the map was activated.

At any other click rate, notes and other events would drift off the click, and in the case of tempo/meter-mapped sequences, the tempos would be wrong.

The version of MIDINet® included with this release will generate MIDI files correctly for all Synclavier sequences.

Tempo/Meter Events Derailed:

Another problem related to exporting MIDI files was that only the first 23 tempo events and the first 8 meter events were exported. This was actually caused by data that the Synclavier's RTP didn't properly maintain. This problem has been repaired. Also when loading previously saved sequences, which may contain improperly maintained data from an older RTP, Release 4.3 will automatically rebuild the data.

Note: The "Export MIDI File..." feature in MIDINet® version 4.12a2 (issued with release 4.12) didn't work at all. If running the Synclavier® on a D-processor with an RS422 interface, MIDINet® would export tracks with hopelessly corrupted notes. If running the Synclavier® on the PowerPC processor, MIDINet® version 4.12a2 and earlier would only export empty tracks.

TEMPO/METER MAP USER INTERFACE DEBUGGED

Tempo and meter maps have always played fine when imported from a MIDI file or when created from a click track. But the tools provided circa 1991 for navigating and editing the maps were in dire need of debugging, particularly in the case of meter events. Typically after inserting, deleting or changing just a few events, one would end up with a corrupted sequence or a system crash. The forward-step and reverse-step functions were very unresponsive, only seeming to move about half the time and often skipping over events. Often when inserting an event and then changing it, an event other than the one inserted was changed instead. All in all, using it was frustrating and risky, and many users simply became conditioned to avoid using it if at all possible.

This entire subsystem has been overhauled. The user interface for creating, navigating and editing tempo and meter maps now works as documented in the Release 2.7 manual. For those who don't have access to this manual, a brief summary follows:

CLICK-SPEED-START activates map if none, otherwise inserts meter event at nearest measure boundary unless one is already there.
CLICK-SPEED-STOP deletes the currently displayed meter event

CLICK-SPEED-F.F. steps forward through your meter event list
CLICK-SPEED-REWIND steps backward through your meter event list

Equivalent tempo functions are activated by leaving out the SPEED button.

CLICK-TRANSPOSE accesses the click note parameter. You can use this to make your audible click play a note value other than that shown by the visual beat counter.
CLICK-SPEED accesses the time signature. Press SPEED repeatedly while holding CLICK RATE to switch between the numerator and denominator.

Tip: After inserting or stepping to an event, you can set the Start Mark to the location of that event by pressing Continue while holding Mark.

A note about justification and placement of tempo and meter events:

A tempo event can occur at any time. You will probably want them to occur on even beats in most cases. To accomplish this, the Justify button should be lit when inserting the tempo event. Meter events on the other hand can only occur at measure boundaries. Consequently, when you insert a meter event, it will always be justified to the nearest measure boundary. When you change the meter of a segment, the length of that segment in measures is kept constant in order to keep all subsequent segments on measure boundaries. Therefore, changing the meter of a segment will alter the times of all subsequent meter events.

Note: Currently, when displaying a tempo event, only the integer part of the beat where it occurs is shown. For example, a tempo event at Beat 4.917 will be displayed in the velocity keyboard window as "4.000". Clearly the ability to precisely control where a tempo event is placed (other than dead on the beat) and the ability to precisely display it's location, is something that still needs to be developed.

The other main shortcoming is that there is currently no way to insert time or measures into a map thereby rippling the subsequent events out. Hopefully this can be accomplished when the tempo and meter events can be viewed and edited on the G-page.

Inserted meter events justify to nearest measure boundary:

The previous software justified meter events to the prior measure boundary. Users therefore had to take pains to make sure the sequence was at or after their target. Justifying to the nearest measure boundary is more intuitive and makes it easy to place events on the fly as the sequence plays.

Inserted events are automatically made current:

With this release, when you insert a tempo or meter event, the sequencer immediately moves to the precise location that the inserted event justified to. This assures that if you then dial a parameter, it will apply to the inserted event and not the prior event. It also enables the forward skip and reverse skip functions to move directly to the next or prior event when executed.

Activating a tempo/meter map no longer inserts an event.

In prior releases, when activating a tempo/meter map, a tempo or meter event was also placed where-ever the sequencer happened to be parked at that moment. This was problematic because often the user only intended to activate the map and dial in a tempo or meter for the whole sequence, and was unaware that the additional event was inserted thereby breaking the sequence into two tempo or meter segments. Then when dialing in the desired tempo or meter, it would only apply to one of the two segments. To prevent the placement of unintended events, only the initial events will be placed when activating the maps.

The sequencer start mark and the "song pointer" are now preserved when activating the maps.

Several bugs have been fixed in the routines that delete meter and tempo events. Under certain circumstances they would irreparably corrupt the maps.

Fixed some serious bugs that usually corrupted the meter map when changing meters in sequences containing more than eight meter events.

Fixed bugs that caused intermittent display in the velocity keyboard window when forward stepping or reverse stepping through events.

Since the Click Note parameter is not available with unmapped sequences, pressing Transpose while holding Click Rate no longer has any effect when the sequence is unmapped. Similarly, the Erase Tempo/Meter Map functions have been disabled when no maps are present.

When perusing tempo/meter event parameters, it is now possible to switch from the Click Note or Meter displays to the Click Rate display without having to release and re-press the Click Rate button. Just press Continue while the Click Rate button is down.

How can I tell if a sequence is mapped or not?

A few easy ways are as follows:

If your click rate is displayed in BEATS/MIN then toggle the display mode (hold Click Rate while pressing Continue.) Now if it's displayed in MILLISEC then the sequence is unmapped. If it's displayed in USEC (microseconds) then the sequence is mapped.

If pressing Speed repeatedly while holding Click Rate toggles an underline cursor between the numerator and denominator of the Time Signature, then the sequence is mapped. If there is no underline cursor, then the sequence is unmapped and you can only change the numerator of the Time Signature.

Hold Click Rate while you press Transpose. If the velocity keyboard window shows "CLICK =" followed by a fraction, then the sequence is mapped. (This parameter determines the note value that the audible click will play.) If the sequence is unmapped, then this parameter is not available.

A PRIMER ABOUT TEMPO MAPS

When using tempo maps, there is an important distinction between the unmapped click rate and the actual sounding tempo. Since this was never documented until now, and since the keyboard interface hides this distinction from the user, it comes as no surprise that this is a highly misunderstood subject. I'm hoping to clear up this issue here.

When you activate a tempo/meter map, whatever your click rate is set to at that moment serves as the number of sequencer divisions per beat. This becomes a locked behind-the-scenes parameter which cannot be displayed or edited. The click rate that you can display and edit when a tempo/meter map is in effect, is actually a separate parameter. When you erase the maps, this separate parameter ceases to exist and the divisions per beat once again serves as the click rate.

Why is this important to understand? When merging tracks from different sequences together, it is this underlying grid of divisions per beat, rather than the actual sounding tempos, that determines how the notes from the various sequences will align relative to each other. By getting in the habit of conforming all your sequences to a standard number of divisions per beat (i.e., 480), you can freely mix and match tracks from all your sequences, including imported MIDI files, regardless of their original tempos. This is accomplished simply by making sure your click rate is set to 480 MILLISEC at the moment you activate the map. After that you can set the actual sounding tempo to anything you want. (The underlying 480 divisions per beat will remain unchanged.) Using the new sequence conversion functions, you can easily convert old sequences with any click rate to conform to this (or any other) standard. A brief tutorial is provided in the section "SEQUENCE CONVERSION OPTIONS:"

SEQUENCE CONVERSION OPTIONS:

Creating a tempo map from a track:

Anyone who has ever created a tempo map from a "click track" (by holding click while pressing a track button) has probably noticed that the durations were not preserved. For example, the legato notes in the sequence would get detached from one another or would bleed over each other, depending on various factors.

With this release, when you create a tempo map from a track, the durations will be preserved.

Note also that the prompts displayed in the velocity keyboard window for the functions which generate tempo maps from a track, have been modified to use nomenclature consistent with the prompts for the new functions described below which erase the maps. The new prompts are as follows:

- Generate Map, Preserve Beats
  (The sequence will sound different in order to keep the relation to beats the same.)
- Generate Map, Preserve Times
  (The sequence will sound the same as before but the relation to beats will likely change.)

Erasing the maps:

When erasing a tempo/meter map, you can now choose whether to preserve your notes relative to the beat, or to preserve their actual times. The prompts and button combinations are as follows:

- Erase Map, Preserve Beats Hold the Click Rate and Speed buttons while erasing.
  (The sequence will sound different but will match the restored original click)
- Erase Map, Preserve Times Hold the Click Rate button while erasing.
  (The sequence will sound the same as before, but will have no relation to the restored original click.)

  (Tip: If you chain quarter notes on a track before performing an "Erase Map, Preserve Times", then you'll have a click track that matches the music. You can use this later to re-create your tempo map.)

As of this release, when erasing the tempo/meter maps, the sequence's original tempo is restored. That is to say, the click rate which was set when the map was created (which the notes will still correspond to if beat relations were preserved) is restored. Previously, the tempo was left at the first tempo in the map, which typically had no relation to the notes once the maps were erased, and hence was counterproductive for the user. Furthermore, unless the user happened to remember what the divisions per beat was (which couldn't be displayed anywhere) the only way to find out was to place two markers in the sequence prior to erasing the map, then measure the number of milliseconds between them after the map was erased. So you see this improvement can save a lot of effort.

Note: Tempo/meter-mapped sequences can now be reverse compiled without requiring the user to first erase the maps and restore the original Click Rate. The tempo/meter-maps are lost in the process but the click rate is left at that which was set when the meter map was created (i.e. the number of divisions per beat). This is a great savings of time and effort for the same reasons described above.

Tip: Since EditView® currently doesn't synchronize properly with mapped sequences, the "Erase Maps, Preserve Times" function will allow you to utilize tempo/meter maps for what they do well, then convert the sequence to an unmapped, identically sounding sequence for use with EditView®.

Tutorial: Converting an old sequence to 480 divisions per beat

Using these new map erasing and map creation functions, you can freely convert sequences back and forth between mapped and unmapped types. You can also change the number of divisions per quarter note without otherwise affecting the sequence. This will enable you to mix and match selectively recalled tracks from any and all sequences regardless of their original tempos. A brief tutorial follows:

1. You will need to create a click track matching your original click rate. First, simply place a note on a blank track at beat 2. If your sequence is not mapped, skip to step 4. If it is mapped but the tempo never changes, then skip to step 3.

2. If you have a mapped sequence containing tempo changes, you must extend your click track to at least one beat beyond the last tempo change. Perhaps the easiest way to accomplish this is to view your click track on the G-page. It currently shows one note at beat 2. Place the cursor on the note and type ~. This places a loop starting at beat 2 and ending one bar later. Place the cursor over the Loop End time and type 3 to create a one-beat loop. Now go to the S-page, select "Unwrap Loops" and enter any end-time beyond one beat after the last tempo change. Then, making sure your click track is soloed or no tracks are soloed, click the "UNWRAP" button. If any other tracks contain independent loops, you'll need to unwrap them as well.

3. Erase the maps, preserving actual times, by holding the Click Rate button while pressing erase twice.

4. Set the click rate to 480 MILLISEC.

5. Hold the Click Rate button while repeatedly pressing the click track's button until you see "Generate Map, Preserve Times" in the velocity keyboard window. Then release the Click Rate button.

ERGONOMIC IMPROVEMENT TO MARK START: (REVISITED)

In release 4.12, the sequence Start Mark was made to automatically set itself to ON whenever the user changed it's value. It was subsequently reported that this was not happening when setting it's value by holding Mark while pressing Continue. This has now been corrected.

A COUPLE BUGS INTRODUCED IN 4.12 REPAIRED

Keyboard Channel Routing and Keyboard Volume

The "Track Volume" and "Track Routing" pertaining to the keyboard timbre were accidentally disabled. These have been restored.

SKT Blinking Mode

A feature added to 4.12 rendered the SKT blinking mode inoperative. This has been repaired.

MINOR THINGS

If the sequence was set to External Click when first opening the Q-page's Sync panel or S-page's Settings, then those panels failed to default to "Track 1" when the "Click Track" parameter was later selected.

Refinements were made to the tuning accuracy of the Monophonic Sampling voice. It is unknown if anyone will hear the difference but... there you have it.

FORMCOPY WITH KENNEDY TAPES:

Versions of FORMCOPY since release 4.00 have not allowed copying to or from the Kennedy tape drive. This capability has been restored.

Bear in mind that the tape drive is not usable while running the PowerPC processor. If you have the PowerPC processor upgrade and wish to use the tape drive, you can bypass the PowerPC processor by booting from the floppy drive. (This is done automatically whenever you quit the Synclavier® PowerPC™ application.)

MONITOR BUG FIXES

The MONITOR's RECALL command will now work with sequences containing tempo/meter maps and/or track groups.

When pasting text into the monitor running on Synclavier® PowerPC™ (whether manually or via a QuicKeys macro), every other character was discarded. This is now repaired.

SCREEN EDITOR

When the Screen Editor module is active on Synclavier® PowerPC™, command-Q had no effect. The screen editor is now modified to respond to the quit command.

TERMULATOR BUG FIXES

On Macintosh Computers running OS 8.5, Termulator would hang when trying to change the baud rate or port settings while the “Use Polled I/O” option was not set. This resulted from changes to Apple’s serial DMA drivers in OS 8.5. Termulator version 4..3 and after will accommodate the new drivers.

A Termulator bug has been fixed which caused double-height characters to be plotted in the wrong vertical position of the screen. The resulting mess could be seen in the Main Menu of the System Diagnostics disk and when printing from the Music Printing software.

SYNCLAVIER® POWERPC™ BUG FIXES AND FEATURES

It was discovered that when the Velocity Sensitivity was set to 100, all incoming MIDI was interpreted as if the Velocity Sensitivity were set to 0 (all notes played at 100% velocity). The source of this problem, which may have effected other functions as well, has been repaired.

You can now hold the Option key when quitting to quit the Synclavier® PowerPC™ application directly without having to first quit the programs running on it. This can be handy since in some cases, users would have to quit through three levels before the application would quit. This can also be useful if the program running in emulation is hung and therefore can’t be quit. Previously this scenario would have required a “force quit”.

Tip: If it becomes necessary to "force quit" the Synclavier® PowerPC™ application, upon re-launching it you'll typically get a message stating that another process (it's former self) has control of the PCI card. Unfortunately it has been necessary to restart the Macintosh to clear this up. To avoid the need for a time consuming restart, you can instead launch the Reset PCI-1 Application. This will reset the PCI-1 board (and also release the Model D processor to run.)

MUSIC PRINTING Revision G.3

The Music Printing module has been made compatible with Synclavier® PowerPC™.

A little background:

The Music Printing software was originally designed to interact with a limited group of printers which were popular in the late '80s. Even before New England Digital closed, vastly superior laser printers became available which could not always be driven directly by the Music Printing software. In order to utilize these new printers, a group of customers devised a method of capturing Music Printing's Postscript output using terminal emulation software. This could then be downloaded to any Postscript printer from the Macintosh or imported into many graphics applications.

To help streamline this process, a "Capture Printer Output To File" item has been added to the File menu of the Synclavier® PowerPC™ application, and the Music Printing software has been modified to send it's output without requiring interaction with a printer.

Note: If you are currently able to print directly to your printer from Music Printing Revision G.2 or earlier, and you have no interest in capturing the Postscript output for importation into graphics applications, then you should not install Revision G.3.

Managing the prologue:

When you print even the simplest page, a very large block of text called a "prologue" is first downloaded. This contains the font definitions and lots of Postscript routines for drawing staves, etc. Because of it's size, it is typically inconvenient and inefficient to capture this every time. In actual practice, one would download the prologue to the printer in advance. Then any number of documents (not containing the prologue) can be subsequently printed. As long as the printer remains powered up, the music font and routines remain active in it's memory.

To make this easier to manage, the prologue (stored as .SPRO-7 in your .SYSTEM subcatalog) is no longer encrypted. This not only enables you to make modifications to it (if you're a Postscript wiz), but more importantly, you can easily enable and disable the prologue by swapping it with an empty text file.

For example, to create an empty prologue, go to the monitor and type:

```
NEW EMPTYPRO; SAV W0:.SYSTEM:
```

Now you can make the empty prologue active by typing:

```
DRE W0:.SYSTEM:.SPRO-7 PRO; DRE W0.SYSTEM:.EMPTYPRO .SPRO-7
```

Later you can make the original prologue active again by typing:

```
DRE W0:.SYSTEM:.SPRO-7 EMPTYPRO; DRE W0:.SYSTEM:PRO .SPRO-7
```

You'll probably want to set these commands up as macros to save time and effort, and to avoid human error.

No more margin voodoo:

The prologue provided with revision G.1 in 1990 contained internal margin settings (hidden from the user) which pertained to the imagable area of the printers supported at that time. Since the captured output may be downloaded to any printer, we have removed these from the prologue leaving it to the users to specify their own margins on the Page Menu. That is, if you specify a margin of 0.500 inches, the margin will actually be .5 inches from your printer's "origin", rather than .5 inches plus the mysterious internal value. (The fact that the internal margins were unknown forced the user to rely on trial and error to achieve a desired result.)

Minor Change in Defaults:

The default values for Left Margin and Page Width used to be set in such a way that crop marks appeared in the right margin which was three times as wide as the left margin. The defaults are now set such that all margins are equal and the crop marks won't appear on an 8.5 x 11 sheet of paper.

VARIOUS KNOWN BUGS AND WORK-AROUNDS

A bug has been discovered which occurs when storing on optical disk any sound file exceeding 32 Megabytes in length. I wanted to let you know about a work-around in case any of you will be needing to do this.

- WHAT'S GOING WRONG: (skip if you don't care to know)

When you click on a filename displayed on the R-page, then click the “Store” button, the system thinks that the file’s length is its actual length modulo 32 Megabytes (this means the remainder left after dividing it’s actual length by 32). For example:

a 33 Megabyte file will be saved as a 1 Megabyte file
a 63 Megabyte file will be saved as a 31 Megabyte file
a 65 Megabyte file will be saved as a 1 Megabyte file
and so on.

- HOW TO WORK AROUND IT:

Sound files exceeding 32 Megabytes in length will be correctly stored on optical disk if you use the following roundabout method:

Click on the subcatalog’s name rather than the filename, then click the “Store Catalog” button. Use the “VERIFY” mode so that you can skip the files you don’t want to store. Once the intended file is stored, you can click the “Abort” button.

More On The SKT Blinking Mode

We have received recurring reports of difficulty with the SKT function. In nearly all cases the problem was not actually a bug, but a feature which was unknowingly invoked because the SKT button was not fully disengaged before the track button was pressed. This does not necessarily imply that the user did something wrong - on old keyboards, buttons can get arthritic so even when you release it in time, the button may not immediately disengage. In any event, since this issue comes up often enough, I thought it would be worth reviewing here.

If you enter the SKT blinking mode without being aware of it, you can easily get confused and lose the timbre on the track that was SKTed. To avoid this, just be sure the SKT button is fully disengaged before you press a track button. You can tell if you've entered this mode by seeing if the SKT button blinks after the track button was pressed. If you have unintentionally activated this mode, you can deactivate it by pressing Stop while holding the SKT button.

In case you're unfamiliar with the SKT blinking mode, here is a run-down:

> The SKT blinking mode not only places the track's timbre on the keyboard, but also locks the track's timbre to the keyboard's so that any changes made to the keyboard timbre automatically apply to the track as well. This is very useful for tailoring a sound to work best with a recorded performance. You can hear the effect of your changes as the sequence plays.
>
> To exit the SKT blinking mode and retain the changes made to the timbre on the track, press SKT, let go, then press Stop.
>
> To exit the SKT blinking mode and have the track revert to it's original timbre, press Stop while holding SKT.

A networking bug in Interchange 1.2

If you try to "import" a file to a remote folder mounted via EtherNet or AppleTalk, it only works if the folder was mounted by the target Computer's "owner". If the folder was mounted by any other "registered user", Interchange instead creates a folder on the source Macintosh's hard drive (with the same name as the mounted target folder) and places the file there. These early versions of Interchange are not yet equipped to resolve folder aliases. I'm told that Interchange 2.0, which will be a full blown Macintosh Application, should handle this correctly.

MIDINet® and QuickTime

A conflict has been observed in which MIDINet® can't import a MIDI file under OS 8.5 with QuickTime 3.0.2 installed. This apparently doesn't happen on all systems. We're mentioning it here so that if you encounter this conflict, you'll know that the work-around is to disable QuickTime.

After selecting "Import MIDI File..." from MIDINet's File menu and activating the "Import" button, the following error message appears:

The document “Whatever” could not be opened, because the application “MIDINet®” could not be found.

The document cannot be translated because an unexpected problem has occurred (-2048).

PREVIOUSLY UNDOCUMENTED 4.12 BUG FIXES AND FEATURES

CLICK TRACK:

When using a click track with releases from 2.7 through 4.11, the audible click didn't follow the click track. This was corrected in Release 4.12 but was not documented at that time.

FREQUENCY TABLE DISPLAY AND DEFAULT:

We have addressed an ongoing muddle pertaining to the Synclavier's use of it's frequency tables. Owing to the "behind the scenes" nature of this part of the Synclavier's operation, and the lack of documentation explaining it, this has been a rather mysterious issue to most users. Consequently, a brief explanation follows:

When Polyphonic Sampling was first introduced, the poly-voices looked up their frequencies using part of the frequency table which had been designed specifically for the FM voices. As this was certainly less than optimal, Release N featured a dedicated "Poly Frequency Table" which dramatically improved the tuning. In the interest of backward compatibility, the user was provided with a means to select between the new table and the old table. Recalled sequences would automatically select the table that was in effect when saved. Since the new frequency table was considered preferred, it was automatically selected whenever the current sequence was erased.

Unfortunately, due to an oversight, the RTP initialized with the original frequency table selected. This meant that all sequences created between RTP initialization and the first time "Erase" was pressed twice with no tracks soloed, or "New Freq Table" was manually selected, were saved with the old frequency table selected. Recalling such sequences propagates the unintended table selection.

This presumably escaped the attention of most user's because there was no way of seeing which table was in effect (The selection could only be displayed after being manually set).

To solve the aforementioned problems, the Synclavier now initializes with the New Frequency Table in use rather than the Original Frequency Table. Also the user can now see which table is in use without having to change it in the process. As long as no coefficient buttons are active, pressing Pitch Class shows the current Frequency Table. (Pitch Class is the button that is held in order to set the table with the Start and Stop buttons.)

(An unintentional but harmless side effect of this change is that the current Poly Frequency Table is also displayed when the Harmonic Ratio button is pressed when no coefficient buttons are active.)

TUNING-RELATED IMPROVEMENTS:

<u>More accurate tuning for high notes:</u>

A new rounding algorithm has been implemented which will improve the tuning accuracy of high notes both from the Velocity Keyboard and from the Digital Guitar.