04/21/06

Synclavier Digital

SynclavierX

April 23, 2006

SynclavierX Release Notes and Documentation:

What follows are release notes and miscellaneous user documentation gathered from software releases N and forward, including Release N published by The Synclavier® Company and Releases 4 and 5 published by Synclavier® Digital Corporation. I have chosen to present the release notes in newest-to-oldest order. This order is handy for readers familiar with the early material, but obviously confusing for readers new to the material. Apologies generously offered.

I'll also apologize in advance for the relatively poor state of Synclavier® documentation in general. Machine-readable copies of the original Synclavier® documentation are not to be found on any working computer system. Perhaps it is time to locate and scan in hard copy documentation left over from N.E.D. days. Any one with access to such materials is welcome to contact me at support @ synclavier dot com if they wish to participate in such an endeavor.

AT THE RISK OF STATING THE OBVIOUS - the following release notes and documentation refer to numerous software features that are not yet available in SynclavierX. Additionally, support for any floppy-based releases is non-existent due to the lack of working hardware.

Cameron Jones
April 23, 2006

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2003/02/14

Synclavier Digital Corporation

Release 5.2 for the Synclavier® Digital Audio System

Dated pproximately February 14, 2003

Bug Fixes:

- Two-octave shift in OMS MIDI input
- VK Panel now works with colors set to “Millions”
- G-page SMPTE time entry bug fixed
- L-Page, Mark End bug fixed
- S-Page, MIDI and non-MIDI controller values corrected in the Edit Filter
- Muted tracks in recalled sequences stay muted
- Fixed missing header data when using Q-Page Optical Transfer Panel
- SyncNet Display Offset bug fixed

Features:

- Journaling feature added to File menu
- New Keyboard transpose feature
- Sum L&R - New modify function on the L-page
- L-page saves to new Directory path
  Alternate intensity added
- S-Page Overhaul
  all 16 dialog panels rewritten to reflect better screen draw, increased accuracy of entered values, and prevention of value overlap errors
  other S-Page enhancements including:
  “Change P itch”, added Transpose, Pitch Inversion, Pitch Scaling
  “Change RTE”, expanded editing options
  “Cut/Paste”, added selection icon
  “Edit Filter”, added Pressure to list
  “MIDI Mapping”, added shortcuts
  “Settings”, new selection icon, added SMPTE Display Offset, new display
  “Sequence Files”, now has warning message before Recall and Unsave
  New “SMT/SKT” panel, with bi-directional “Copy Timbre” function
  New “Track Solos” panel, for identifying various track conditions
- Time Display modes on the Keyboard, G-Page, S-Page, and Q-page have been coordinated
- Mark Start now does not change On/Off state when recalling a sequence
- Improved Multi-Channel assignments when loading to a system with fewer outputs
- Recalling sequences from C-Page no longer affects Q-Page settings
- SMPTE times may now end with a decimal point (. = .0)
- Improved tuning algorithm

Installing Release 5.2

As of this release we are no longer supplying Model D customers with two 3.5 inch floppy disks containing installers for the appropriate Macintosh software components. Instead we have modified the Synclavier PowerPC installer (distributed on CD) to include software components for both Model D and Synclavier PowerPC configurations. Three system extensions are placed in the "Extensions" folder by the installer. They are…

InterChange™SharedLibrary
Synclavier®PCILib
SYNCnet INIT

If you are not using Synclavier PowerPC, you can disable "InterChange™SharedLibrary" and "Synclavier®PCILib" (using the Extensions Manager).
"SYNCnet INIT" is only required if you use the NUBUS RS422 card in the Macintosh.

If you are not using the Model D processor, you can disable "SYNCnet INIT" (using the Extensions Manager).

Changes to the PROFILE

PROFILE is a small text file on the top level of W0: containing MONITOR commands. All commands in PROFILE will be executed automatically every time the system is booted. The primary purpose of PROFILE is to allow users to save their own preferences. Each release ships with a PROFILE containing the "factory" preferences.

With Release 5.2, a few changes have been made to the "factory" preferences. The changes are described here so that you will understand why certain things look or behave differently than before, and so that you will know how to change these preferences if desired. To view and edit PROFILE, break to the MONITOR and type the following command line followed by the RETURN key.

```
set cat w0:; old profile; sed
```

This displays PROFILE in the Screen Editor. You can use the arrow keys to place the cursor for inserting or deleting text. Any line beginning with * will not be executed and is used as a comment.

The three commands that have been changed in this release are as follows…

`set grp off`
: If "grp" is set to "on", then holding a track button for two seconds will initiate the Track Grouping function. Because some users found this to be problematic, we now default this feature to "off". The Track Grouping can be initiated when desired by pressing the Sequence Name button.

`set log on`
: This enables the MONITOR's logging capability. With logging enabled, the last 36 command lines entered (A through Z) will be remembered in a HISTORY file. Previously entered command lines can be easily repeated by typing the letter associated with them or scrolling back to them using the up and down arrow keys. Previous commands can also be placed on the command line for further modification by typing a comma followed by the letter associated with the previous command line. The logging feature is the basis of a very powerful set of command line editing functions. Details can be found in the MONITOR documentation.

`set echo on`
: This causes the command lines in "Do" files to be output to the terminal window when the "Do" files are executed.

If you have made any changes you wish to save, place the cursor on the vertical column of letters at the left edge of the screen (known as the command column) and type ".r". Then press the RETURN key twice. To exit the Screen Editor and return to the MONITOR, type ".e" from the command column. From the MONITOR type "boot" and press RETURN to reboot the system, thereby causing your new PROFILE to be executed.

Two-octave shift in OMS MIDI input fixed

A bug which caused incoming MIDI via OMS to be shifted up two octaves has been fixed.

Termulator: Alternate Intensity reinstated

Much of the Able Synclavier code written in the 1980s took advantage of the older Pericom terminal's Alternate Intensity mode which plotted specific text half as bright as normal text. When the Macintosh terminal emulator was written, alternate intensity mode was implemented using the 50% gray pattern (at the time only black and white Macs were available). However it was disabled, probably because the text was unreadable when the display was set at Mid Size or Half Size.

Since the use of alternate intensity helps make certain screens more understandable and since the patterned text is quite readable at Full Size, we have re-enabled it in Termulator when the display is set to Full Size.

Termulator: Journaling feature added to the "File" menu

Until now, Termulator's "Journaling" feature was an undocumented "Easter Egg". This feature captures all terminal input and output to a Microsoft Word text file. Journaling was started by typing Control-Option-Forward Delete, and stopped (or continued with a new file) by typing Control-Option-End. It is now available as a menu item on the File menu because (1) it's very useful; (2) it's functionally similar to the "Capture Printer Output to File" feature and as such ought to be presented along with it; and most importantly (3) PowerBooks lack the Forward Delete key.

Termulator: VK Panel bugs fixed

When the Monitors Control Panel was set to "Millions", the VK Panel was plotted in Black and White. Also much of the behavior related to scroll bars, the size box and the zoom box was not right. For example it wasn't possible to size the window to encompass the entire panel. A few minor cosmetic issues were resolved as well, such as the centering of the text window.

Also there was a functional discrepancy between Termulator's emulation of the VK window and the real VK window. This caused the decimal point to be missing from Termulator's VK panel when Frames/Beat Tempos were displayed.

NEW Keyboard Transpose feature

The keyboard can now be transposed, such that the physical keys can produce pitches other than the usual. This new feature is accessed by pressing the "Cut/Boost" button on the keyboard (located at the bottom of the fourth panel from the left). You can then dial any transposition between -12 and +12 semitones. Press the button a second time to quickly reset the transposition to its default value of zero semitones. Aside from allowing access to the previously inaccessible pitches C0 to G#0, this feature also allows easy transposition of keyboard performance into any sounding key.

Note that the Synclavier can only handle pitches from C0 to C7. Using this feature allows physical keys to be mapped to pitches outside this range. Such keys will effectively be dead keys.

G-Page: Bugs fixed

When typing SMPTE times on the G-Page that were sufficiently far away from the sequence start time (or before it), a system hang was possible. (It was quite easy to do this unintentionally with a simple typo.) This problem has been solved by utilizing the 24-hour SMPTE wrap-around feature. Accordingly, the warning about sequence SPEED settings of 0.020 and below apply. (See the section titled "Remote issue with the 24-hour SMPTE wrap-around feature:" for a description of this.)

When typing "togg" over the type of an RTE on the G-Page, the RTE changed into a note with a pitch of C1. (The use of these "toggle events" is fully implemented on the Q-Page's event editor panel but is largely incomplete on the G-Page.)

L-Page: Sum L & R feature

There is a new feature "Sum L & R" on the "Modify II" menu of the L-Page. This creates a mono version of a stereo soundfile by mixing the two channels together in equal proportions. No scaling is applied unless needed to prevent overflow.

L-Page: Partial Treenames

Since release L, when saving a soundfile on the L-Page, the user could press return when prompted for a filename to use the current soundfile's name. This convenience is now extended to allow the user to type in a directory path first (ending with "**:**"), and then press Return to append the current filename to the directory path.

L-Page: Bug Fix

When typing "K" to set a "Mark End" while in Zoom Mode, a "Mark Offset" was set instead. This has been corrected.

S-Page: General

- The S-Page has been extensively overhauled. All of the dialogs (those 16 items listed on the right side of the screen) have been rewritten. This was done primarily because of a multitude of minor problems, far too numerous and unimportant to detail here. These problems were mostly such things as fields where the arrow keys didn't work, leaks causing labels or fields to be missing under certain circumstances, or the wrong labels to be displayed. As one example, the switch in the "Sequence Files" dialog was accessing the same location in memory as the maximum duration field of the "Change Duration" dialog. Consequently using one of these corrupted the other.

  The individual dialogs are listed below. In this section I'll mention changes that are not specific to any one dialog.

- The use of alternate intensity among the dialogs wasn't consistent. This went unnoticed until recently since the use of alternate intensity had been disabled when the Terminal type was "Macintosh". Now on all S-Page dialogs, alternate intensity is used for inert labels whereas normal intensity is used for active content (i.e., switches which can be jogged, or labels which update dynamically).

- Increased the accuracy of computations used by "Fit to Time" as well as the Slope functions of the "Change Duration", "Change RTE" and "Change Velocity" dialogs.

- To prevent Minimum/Maximum limits from crossing each other, the following behavior has been implemented in all dialogs which allow the user to specify such limits: (This includes the Change Duration, Change RTE, Change Velocity and Edit Filter dialogs.)

  When entering a Minimum value exceeding the current Maximum value, the Maximum will now automatically reset to the highest possible value. Similarly, when entering a Maximum value less than the current Minimum value, the Minimum will automatically reset to the lowest possible value. In the past, both values became the same in such scenarios, which wasn't at all helpful.

- Many of the dialogs have new defaults. See below for specific details.

S-Page: Bounce

(No functional change.)

S-Page: Change Duration

In previous releases, the From/To durations used by the Slope function were stored in the same memory as the Minimum/Maximum durations used with the Set, Scale and Add functions. This created the possibility for the user to enter valid durations for From/To, which were then out of order as Minimum/Maximum durations after switching to Set, Scale or Add. Now the From/To durations are maintained separately from the Minimum/Maximum durations.

This dialog now limits entered durations to the range of values that a Synclavier sequence can accommodate.

S-Page: NEW Change Pitch dialog

The former "Transpose" dialog has been redesigned to include other types of pitch transformations. Accordingly it has been renamed "Change Pitch" and its position in the submenu list has changed to maintain alphabetical order. In addition to Transpositions, this new dialog can also create pitch inversions, augmentations and diminutions.

The new dialog has three sub-dialogs selected by jogging the field after "Action:". These three sub-dialogs are "Transpose", "Pitch Inversion" and "Pitch Scaling".

The Transpose sub-dialog now includes a Semitones field, making it possible to specify a desired transposition simply by typing the number of semitones into one field, instead of having to type pitches into two fields.

The Invert Pitches sub-dialog should be self-explanatory.

The Scale Pitches sub-dialog is a generalized linear transformation tool. It can perform a simple transposition or inversion like the previous two sub-dialogs. But you can also use it for more esoteric effects. The intervals between notes can be expanded or compressed to create radically different harmonic and melodic content. As far as we know, this is a feature offered on no other sequencer.

S-Page: Change RTE

- The "Change RTE" dialog can now be used in conjunction with the Edit Filter. This will allow much more complex edits to be performed. Since the "Change RTE" dialog already specifies which RTE to edit, the three controllers specified at the upper right of the Edit Filter will be ignored.
- "Pressure" has been added to the list of RTEs that can be edited. Since pressure is pitch-specific, when editing pressure with the Edit filter enabled, the pitch switch at the upper left of the Edit Filter can be used. This makes it possible finally to extract a range of notes along with their associated pressure RTEs. Note that the switch setting "No Pitches" really means "don't edit notes (i.e., non-RTEs)" and thus has no effect on pressure RTEs. This switch setting will function the same for Pressure RTEs as if the switch were set to "All Pitches".
- Many problems have been resolved relating to a failure of earlier software to distinguish between fundamentally different types of RTEs. Some background information will be useful here:

  In terms of range and resolution, there are three different types of RTEs in the Synclavier:

(1) Monopolar RTEs (Pedal 1, Pedal 2, Mod Wheel, Breath Controller, Pressure)
Although these are represented on screen as values from 0.0 to 100.0, they are actually the 226 discrete integers from 0 to 225.

(2) Bipolar RTEs (Pitch Wheel, Ribbon)
Although Pitch Wheel is usually represented on screen in terms of semitones, these are actually the 201 discrete integers from -100 to +100.

(3) MIDI Controllers
These are the 128 discrete integers from 0 to 127.

The problems alluded to earlier stemmed from the fact that given the differing ranges and resolutions of these three types of RTEs, each type needs to be handled differently. Yet many parts of the old S-Page failed to do this. (More on this under "S-Page: Edit Filter" below.)

For example, when the RTE type is set to Pitch Bend it might be appropriate to enter a minimum value of –2.00 semitones and a maximum value of +2.00 semitones. But then when switching the RTE type to Mod Wheel, these values become inappropriate.

To solve such problems, separate Minimum/Maximum and From/To values are now maintained for the three different types of RTEs, and appropriate limits are applied for each type. This also provides a convenience for the user, since the last set of values used for a particular type of RTE will still be there when returning to that type from another.

S-Page: Change Velocity

Bugs related to ill-behaved fields have been fixed.

S-Page: Cut/Paste

This dialog can now be brought up by clicking the "splice block" icon in the upper right panel on the screen.

The cursor stays on the dialog now after jogging a switch, instead of jumping to the global sequence time field in the upper right corner of the screen.

The "COUNT:" field will no longer accept unusable values.

S-Page: Edit Filter

"Pressure" has been added to the list of RTEs that can be filtered with the Edit Filter.

Bug fix: Previously the Edit Filter did not apply the proper range limits to MIDI controllers during edits. Even though the user could enter a separate range for MIDI controllers on screen, the range pertaining to non-MIDI controllers was applied when doing an edit, thereby producing unexpected results.

Furthermore, the previously mentioned non-MIDI controller range (0 to 225) was inappropriately applied to bipolar RTEs, thereby causing very unexpected results. Negative limits could not even be entered in the fields. The new Edit Filter dialog features three separate sets of ranges – one for each type of RTE. During edits, the Edit Filter now distinguishes between the different types of RTEs and applies the appropriate range to each.

Arrow Keys previously didn't work on this dialog. This has been corrected.

S-Page: Fit to Time

(No functional change.)

S-Page: Justify

(No functional change.)

S-Page: MIDI Mapping

Single-keystroke shortcuts added: The MIDI Mapping dialog will now accept "0" (zero) instead of requiring the user to type "Off". Also the keys "k" or "K" can be typed instead of requiring the user to type "Kbd".

S-Page: Settings

The Settings dialog has been totally redesigned. This dialog can now be brought up by clicking the "sliders" icon in the upper right panel on the screen.

The SMPTE Display Offset, formerly only available on the Q-Page, has been added to the Settings dialog. To avoid confusing this new Display Offset with the SMPTE Sync Offset (formerly labeled simply as "Offset"), we now use the more descriptive labels "Sync Offset" and "Displ Offset". Note that the Feet:Frame Offset (which also used to be labeled simply as "Offset") is actually a Display offset. The fact that the SMPTE Sync Offset and the Feet:Frame Display Offset were both formerly labeled as "Offset", when one pertained to synchronization whereas the other pertained only to display, was a bit confusing.

In the past, the SMPTE parameters where only displayed when synchronized to SMPTE or when the time display format was set to SMPTE. Similarly the "FEET" parameters (now renamed as "FILM" parameters) where only displayed when the time display mode was set to FEET:FRA. This created an inconvenience since there may be times when the user will want to view or edit these parameters without having to first change the time display mode, or lock the sequence to SMPTE. Now all the parameters are displayed all the time. This has been done at the expense of making the dialog rather crowded.

If the click rate field is displayed as "Sec/Beat", the number of digits after the decimal point will now properly represent whether the sequence is mapped or not. As with the click rate displayed on the Keyboard's window, if the sequence is mapped there will be six digits after the decimal yielding microsecond resolution. If the sequence is unmapped there will be three digits yielding millisecond resolution.

Arrow keys now work in the Settings dialog. There are still three fields that won't "jog" (the two SMPTE fields and the Film display offset field). This cannot easily be fixed at this time.

S-Page: Sequence Files

As you may know, the SAVE SEQUENCE button has a safety mechanism whereby if an existing sequence would be overwritten, a warning is issued and the button changes to a confirmation state. Since the RECALL and UNSAVE functions are also potentially destructive, similar warning and confirmation mechanisms have been implemented for them as well. It was just too easy to wipe out hours of work when one was tired.

Longer Treenames are now possible. The treename field width has been increased from 40 to 46 characters.

S-Page: NEW Joint SMT/SKT dialog

The former SMT and SKT dialogs have been replaced by a joint SMT/SKT dialog. The new dialog features a more flexible bi-directional "Copy Timbre" function. Possible sources include the Keyboard, any Track, any Timbre Bank and Entry or the "Null Timbre". Possible destinations include the Keyboard or any Track. (The ability to specify a Timbre Bank and Entry as a destination has been partially developed but is withheld from this release. This represents no loss of functionality as this feature was never available in the old SMT or SKT dialogs.)

An "Exchange" button is provided to make it easy to reverse the direction of a copy without having to re-enter source and destination parameters. This will be convenient in the common scenario of copying a timbre to the keyboard to make an adjustment, and then copying it back to the source.

Note that when a Timbre Bank or Entry field is selected, you can click on the track buttons as if they were Banks of Timbre Entries to place the corresponding number in the field. For example, Track 13 would correspond to Bank 2, Entry 5. So if a Bank field is current, clicking Track 13 would place 2 in the Bank field and automatically increment to the Entry field. Clicking Track 13 again would place 5 in the Entry field.

One more ergonomic bonus: When the screen is first opened, the fields will default to the most recently selected track, bank and entry.

S-Page: New Track Solos dialog

This dialog offers several tools for soloing and un-soloing tracks based on various conditions. These can be useful in clearing away unused tracks from a sequence that started from a template or underwent edits that could leave tracks with no sounding notes, etc. Some composers routinely spend a significant amount of time doing such chores in preparation for mix sessions. The functions are as follows:

Solo all non-blank tracks
Solo all tracks with events
Solo all tracks with sounding notes
Toggle all Solos
Clear all Solos

To avoid possible misunderstanding, the following explanations may be helpful:

Solo all non-blank tracks:
By "non-blank track" we mean a track that has *any* data associated with it (not necessarily notelist data). This could simply mean that a channel assignment was typed on the H-Page or a null timbre was SMTed onto the track. The criteria used here is the same as that used by the INFO button.

Solo all tracks with events:
By "events" we mean any notelist data. This can be notes, cues, RTEs, MIDI SysEx, loops… if you can see it on the G-Page it's an event. (Be aware that a track may contain events that you might not see on the G-Page if Show Real Time Effects is set to NO.)

Solo all tracks with sounding notes:

By "sounding notes" we mean notes and cue events that can trigger audio. Often after cut and paste edits, a track may only contain some stray RTEs. This feature will leave such tracks un-soloed. This is usually desired. However there are some scenarios where you may want to retain such tracks. (If a track is routed to a MIDI output, the RTEs may have an effect on an instrument triggered by another track.)

There is currently one exception to our "sounding notes" definition. A track containing only an empty loop will still be soloed by this feature.

Toggle all Solos:

This simply reverses each track's on/off state. After you've soloed all the tracks you want to keep, you can use this to quickly solo all other tracks for erasure. After erasing them you can press this again to re-solo the tracks you kept.

Clear all Solos:

This is the same function that is always accessible from the CLR SOLOS button at the top of the S-Page.

S-Page: Track Volume

(No functional change.)

S-Page: Unwrap Loops

(No functional change.)

Initialization of time display modes

There are three separate time display modes maintained by the Synclavier RTP. They are…

- the Velocity Keyboard's time display mode
- the time display mode shared by the G-Page and the S-Page
- the Q-Page's time display mode

The Q-Page's time display mode is the one that can be saved in the .SDEF-7 file using the Write Defaults feature. To prevent users who prefer to work in a particular time display mode from having to repeatedly set up their preference as they go from screen to screen, the following initialization scheme has been implemented:

V/P Keyboard:

If a default time display format has been saved using the Q-Page's "Write Defaults" feature, then whenever the RTP is launched, the keyboard's time display mode will be initialized to that mode. Otherwise it will default to BEATS as before.

When the G-Page is first entered:

If the S-Page has previously been entered then the time display mode shared by the G-Page and S-Page has already been set and will be used. Otherwise if the Q-Page's time display mode has already been set, then that mode will be used. (Note that the Q-Page's time display mode will have been set either by the Q-Page having already been entered, or automatically at RTP launch if a default was written to the .SDEF-7 file.) Otherwise the time display mode currently set on the Keyboard will be used.

When the S-Page is first entered:

If the G-Page has previously been entered then the time display mode shared by the G-Page and S-Page has already been set and will be used. Otherwise the mode is set according to the same rules described above for the G-Page.

When the Q-Page is first entered:

If a default time display mode was ever written to the .SDEF-7 file, then the Q-Page's time display mode was already set at RTP launch. Otherwise if the time display mode shared by the G-Page and S-Page has already been set, then that mode will be used. Otherwise the time display mode currently set on the Keyboard will be used.

Mark Start no longer reset to OFF when recalling a sequence

With previous versions of the RTP, whenever a sequence was recalled, the Mark Start was automatically turned OFF. This behavior presented an inconvenience under several circumstances, particularly when undoing S-Page edits. When clicking the UNDO button on the S-Page, the system recalls ".UNDOSEQ", thereby resetting Mark Start to OFF. When using Mark Start to locate the sequence to an Edit we are focusing our attention on, having to manually turn Mark Start back on every time we clicked UNDO was very distracting. Additionally, if the Mark Start was ON when we did the edit, there's no logic in restoring the sequence with it OFF.

Consequently the Mark Start will now only change its ON/OFF status when you manually change it.

Muted Multichannel Assignments

Release 5.1 introduced the ability to assign 0 to multichannel outputs as a means of muting the channel (i.e., routing it to nowhere). After the release it was noted that when sequences with zeroed channels where recalled, the zeroed channels were interpreted as un-routed and thus automatically assigned default values. That problem has now been fixed.

The Script compiler and reverse compiler also misinterpreted zeroed channels as un-routed. They are now updated to handle muted channels as well.

Automatic Multichannel Assignments

If you were to create a sequence on a 16-channel system and later load it into an 8-channel system, you would find that all channels above 8 were automatically reset to 1. While it is necessary for out-of-range output assignments to be brought into range in order to be heard, simply setting them all to 1 was an exceedingly unhelpful way of handling it. Particularly because the user then had no way of knowing whether any of the reset tracks were originally routed in stereo or not.

To solve this problem, any out-of-range output assignments will now be transposed into range, thereby maintaining the relative settings between stereo pairs and to other tracks having out-of-range channels. Using the example of a 16-channel sequence loaded into an 8-channel system, a track originally assigned to outputs 9,10 will be reassigned to outputs 1,2; a track originally assigned to outputs 11,12 will be reassigned to outputs 3,4; and so on.

Safety feature: Sequence name in Audio Event Editor

An ergonomic booby-trap that has occasionally caused users to overwrite the wrong sequence has been resolved. In the past, when selectively recalling a track from a sequence on the C-Page, the sequence name on the Q-Page changed to that of the sequence the track was recalled from. This made it easy for users who thought they were saving over the original sequence on the Q-Page, to accidentally save over the sequence they had recalled the track from.

To avoid this pitfall, the C-Page will no longer change the Q-Page's sequence name when selective track recall is performed.

Retroactive bug fix: Soundfiles with incomplete headers written to Optical from Q-Page

There was a bug in the Q-Page's Optical Transfer Panel which was introduced in Release 5.0 and repaired in Release 5.1. It has been found that cues written to optical disk from Release 5.0's Q-Page have some data missing from the soundfile header. This missing data is not used when loading the soundfile from the optical disk back onto the Direct to Disk. However when loading the soundfile from the optical disk to polymemory, it causes the soundfile to be unplayable on the keyboard.

This release checks for the missing data when loading from optical into polymemory and manufactures the missing data as needed.

Terminating decimal accepted in SMPTE times

When typing a note time in any format other than SMPTE, it is perfectly valid to end the entry with a decimal point. However the system used to reject SMPTE times ending with a decimal. This was not only needless and inconsistent, but rather maddening considering how much extra effort goes into typing in a SMPTE time. Now, as with all other formats, a terminating decimal point will be interpreted as .0

Increased tuning accuracy for high notes (again)

In release 4.3, we improved the accuracy of an algorithm that handled the tuning of high notes. (Not just high notes produced by the FM and Poly voices, but also high notes interpreted from the strings of the Digital Guitar.) This algorithm has been improved once again. The results now match the equivalent rounded algebraic solution, so it won't get any better than this.

Remote issue with the 24-hour SMPTE wrap-around feature

The 24-hour SMPTE wrap-around feature introduced in Release 5.1 would produce incorrect results if the sequence SPEED is 0.020 or less. It's highly unlikely that anyone would utilize this feature while the SPEED was at such an absurd value. Nevertheless this feature has been modified to do nothing if the SPEED is 0.020 or less.

Note that this doesn't mean it's safe to edit cue times when the SPEED is this low. (This is because the old problems that the 24-hour SMPTE wrap-around feature was designed to avoid will not be avoided.) Consequently it's advisable not to edit cue times when the sequence SPEED is 0.020 or less.

SyncNet Protocol bug fixed

When setting the frame display offset from external applications such as EditView or Transfermation, the intended parameter was not set and instead the SMPTE display offset and its on/off status were corrupted.

Cosmetic Improvement

The aesthetic appearance of the elongated-octagon-shaped buttons (prevalent on the S-Page) has been improved. They are now graphically more symmetrical and the text is nicely centered within them. To see an example, compare the STOP and CONT buttons on the S-page between this and any earlier release. Also see the buttons along the right edge of the Cut/Paste dialog.

Incidentally, an old bug that affects these buttons still persists. The centering of text within them only works correctly if Termulator's display size is set to Full Size. In the other two sizes the text in the buttons will lean toward the left.

Release Notes for Synclavier® Release 5.1

Synclavier® PowerPC™ 5.1
InterChange™ 1.5
and InterChange™ 2.5
March 15, 2001

A New Name for an Old Friend!

Beginning with Release 5.0 we switched to a consistent release numbering across the multiple applications and modules that make up the Synclavier® software base. With the exception of InterChange™, all modules will bear the 5.1 designation for this release. We were unable to make use of that terminology for InterChange™ since InterChange™ is still divided between two independent modules (InterChange™ 1.5 and InterChange™ 2.5). We anticipate that InterChange™ 2.5 will absorb the entire InterChange™ 1.5 feature set within the next 8 months; a renamed InterChange™ 5.0 will be released at that time.

What was introduced in Release 5.0?

Release 5.0 provided a comprehensive update to all Synclavier® software, both for the original "Model D" processor and for the Synclavier® PowerPC™ hardware platform.

Bug fixes and new features introduced in Release 5.0 include:

- The Frames-Per-Beat metronome displays in the Real Time Software were reworked to provide separate film-frames and SMPTE-frames per beat as well as the desired 80th and 800th of a beat resolution.
- MIDINet's 'Export MIDI File' feature has been improved and made more accurate.
- A "Show Loops" option was added to the Sound File screen (B screen).
- A bug that occasionally corrupted sound files when saving files from poly memory to disk was fixed.
- Numerous changes were made in Synclavier® PowerPC™ to provide accurate timing under Mac O/S 9.0.4. These timing errors showed up as Direct-to-Disk dropouts when chasing SMPTE timecode on Macintoshes using Mac O/S 9.0.4.
- Support for AIFF, SoundDesigner® II and .WAVE soundfile formats was added to InterChange™ 1.5
- Many new features were added to InterChange™ 2.5, including the ability to seamlessly browse and manage multiple disk image files located anywhere on your Macintosh or its Local Area Network.

What's New In InterChange™?

InterChange™ includes some important new features for release 5.0. InterChange™ 1.5 now includes native support for AIFF, SoundDesigner® II, and .WAVE soundfiles located on your Macintosh. Those sound files can be easily exported to a Synclavier® hard drive or disk image file. Additionally, Synclavier® sound files can automatically be converted to AIFF, SoundDesigner® II, or .WAVE format as they are imported to your Macintosh.

InterChange™ 2.5 also has many new features, including its ability to

- easily navigate multiple disk image files located anywhere on your Macintosh or it's Local Area Network.
- rename files, create subcatalogs and copy files and subcatalogs between disk image files and Synclavier® hard drives.
- easily change the InterChange™ setup using Macintosh Drag-and-Drop.
- browse, rename files and delete files from optical image files and media.
- copy sound files from optical media or optical image files to a Synclavier® hard drive or disk image file.
- quickly and easily change the current optical platter using Macintosh Drag-and-Drop.

What's New In This Release?

Release 5.1 introduces numerous bug fixes and several feature additions to the Synclavier® Real Time Software. See the detailed notes at the end of this document.

What's Coming Up?

Our big development push over the next 8 months will be to complete a modern user interface and mechanism for the management of Synclavier® sound files, sequences and timbre libraries. This mechanism will include 32-character soundfile names plus the ability to directly call up Macintosh-resident soundfiles to the keyboard. The **Find...** functions in InterChange™ will be completed. The support for AIFF, SoundDesigner® II and .WAVE soundfiles will be migrated from InterChange™ 1.5 to InterChange™ 2.5.

Synclavier® Release 5.1 5$^{1}/_{4}$" Diskettes

A series of 8 5$^{1}/_{4}$" SuperFloppy diskettes provides a copy of all 5.1 System and Real-Time software for the Model D hardware platform. These diskettes can also be used to install the Release 5.1 operating software on a Synclavier® hard drive that is used with Synclavier® PowerPC, although it is typically easier to use InterChange™ for that purpose.

2 diskettes - System Software
2 diskettes - Real Time Software (SYN-5.1)
2 diskettes - Real Time Software with Guitar (SYN-5.1G)
1 diskette - Music Printing and XPL Compiler
1 diskette - Winchester Bootload Diskette

Synclavier® Release 5.1 Macintosh Diskettes

A series of 2 Macintosh HD Diskettes installs the basic Macintosh applications, including Termulator, EditView®, AutoConform, MIDINet®, TransferMation™ and InterChange™ 1.5. The MixMap™ cue sheet printing software for use with EditView™ is also included on these diskettes.

Synclavier® PowerPC™ 5.1 CD-ROM

The Synclavier® PowerPC™ 5.1 CD-ROM installs all Macintosh and operating software, including Synclavier® PowerPC™ 5.1.

Digital STM™ 5.1 CD-ROM

The software to support the Digital STM™ option is packaged on it's own CD-ROM for Release 5.1.

Documentation

User documentation for the new features follows.

MIDINet's "Export MIDI file" feature

The two remaining known flaws in MIDINet's "Export MIDI file" feature have been fixed.

MIDINet now takes the Synclavier's SPEED parameter into account when translating tempos for export to MIDI files. This means you will be able to accurately export Sequences containing "Frames per Beat" tempos. Since "Frames per Beat" tempos required a SPEED setting of 0.960, such sequences didn't export correctly in the past. (Actually any sequence with a SPEED other than 1.000 didn't export correctly in the past.)

Also prior versions of MIDINet exported incorrect tempos if the sequence had a tempo/meter map with divisions per beat not equal to 480. The divisions per beat is determined by the setting of the CLICK RATE parameter (in milliseconds per beat) at the instant the map was activated. This means that if your CLICK RATE was not set at 480 milliseconds per beat when you activated your map, the tempo(s) in your MIDI file would be wrong. This problem is now fixed.

In short, MIDINet's "Export MIDI file" feature simply works now regardless of any ifs, ands or buts.

A technical hedge regarding tempo precision in MIDI files:

Please be aware that unlike Synclavier sequences, MIDI sequences are not capable of producing all standard "Frames per Beat" tempos with exact precision. This is because MIDI tempos must be an integer number of microseconds per beat, whereas the Synclavier's SPEED parameter allows the actual resulting tempos to include fractions of microseconds.

As a worst case example, consider a CLICK RATE of 520 milliseconds per beat scaled by a SPEED of 1.024. This results in an actual sounding tempo of 507812.5 microseconds per beat. MIDINet has to round off the .5, and consequently the MIDI sequence will drift by half a microsecond for each beat. However that's not so bad, because even with this worst case scenario, it will take 2000 beats just to drift 1 millisecond. Furthermore, when using a SPEED of 0.960 for "Frames per Beat" tempos, it turns out that the most you'll ever drift is one third of a microsecond per beat, which translates into 1 millisecond per 3000 beats.

PowerBook Enter Key

It has been noted that when running Termulator or Synclavier® PowerPC™ on a PowerBook, the Enter key did not function as expected. This was because the PowerBook's Enter key emits a different key code than the Enter key found on the numeric keypad of extended keyboards. To avoid this inconvenience, as of this release Termulator and Synclavier® PowerPC™ will recognize the PowerBook's Enter key as well as the numeric keypad Enter key.

FRAMES PER BEAT TEMPOS

Background:

As explained above in the "technical hedge regarding tempo precision in MIDI files", MIDI based sequencers are not capable of accurately producing the film industry standard Frames per Beat tempos (often referred to as the "Knudsen Book" tempos.) By contrast, the Synclavier will produce these tempos if the SPEED is set to any multiple of 0.192. For this purpose a SPEED of 0.960 is typically used because it is the multiple of 0.192 closest to 1.000. Because of this, prior to Release 4.4 the CLICK RATE was automatically displayed as Frames per Beat if the SPEED was set to 0.960. While this feature was useful to film composers needing to conform to the Knudsen book standard, it suffered from a few drawbacks. First of all there was no choice. If we happened to have a SPEED of 0.960 we were forced to view the CLICK RATE in Frames per Beat whether we wished to or not. Also there was no way to see the approximate Frames per Beat resulting from any other SPEED setting. Most troublesome of all, when using a tempo or meter map the Frames per Beat display didn't work at all.

All of these problems were solved with Release 4.4. A new Frames per Beat tempo display mode was added and all tempo display modes worked regardless of the SPEED setting. Unfortunately this implementation suffered from a few drawbacks as well.

- The Film frame rate was used only if the time display mode was set to Feet:Frames. Otherwise the SMPTE frame rate was used. This not only required the user to go to extra effort to view and enter tempos in Film Frames per Beat, but since the frame rate used would revert to the SMPTE frame rate as soon as notes were displayed as Beats or some other format, it was far too easy for us to think we were viewing Film Frames per Beat when in fact we were viewing SMPTE Frames per Beat.

  To solve both of these problems, this release features two independent frame tempo display modes "Film Frames per Beat" and "SMPTE Frames per Beat". Now you can simply select the display mode you want, and it will remain in effect regardless of what time display mode you use to view your notes.

- It is conventional to express Frames per Beat tempos with the digit after the decimal point referring to eighths of a Frame. For example, "12.3" means twelve and three eighths of a Frame per Beat. Prior to Release 4.4, the Synclavier conformed to this convention. Due to an oversight, the Release 4.4 implementation did not. Consequently the user would have to dial in 12.375 to achieve twelve and three eighths. This was a further cause of some confusion and difficulty.

  This has been corrected in this release. Note that owing to the microsecond level of precision available when using a tempo or meter map, there are now three digits after the decimal point. You can think of these as 800ths of a frame. Therefore to get a 12.3 tempo (twelve and three eighths), you would dial in 12.300. With mapped sequences you can dial directly to the standard Knudsen book tempos by holding the CLICK RATE button as you dial.

A Note About Accuracy With Mapped Sequences

"Beats per Minute" and "Frames per Beat" are merely modes of display and entry for the convenience of the user. The click rate stored in the sequence is actually always in Microseconds per Beat. When you enter a tempo in any display mode, the nearest equivalent Microseconds per Beat click rate is computed. However, changing the tempo display mode does not alter the underlying click rate. Therefore if you select a different tempo display mode after entering a tempo, the underlying click rate is probably NOT the nearest equivalent to the newly displayed value.

As an example, suppose we have a mapped sequence with the SPEED set to 0.960. We can dial the CLICK RATE to any of the 50 discreet values from 479,975 to 480,024 Microseconds per Beat, and ALL of them will display as 12.000 Frames per Beat. (The CLICK RATE that would result in an exact "12.0" is 480,000 in this case.)

Consequently, if it is important to you that the actual tempo is as close as possible to the value displayed in a given mode, you can assure this by re-entering the tempo while the desired display mode is active.

I know I'm driving this into the ground but…

Please be aware that unless the SPEED is set to 0.960 (or some other multiple of 0.192) any Frames per Beat tempo displayed is likely to be a rounded value. To achieve an exact Knudsen book standard tempo, it is still, as before, necessary to set the SPEED to .960 or a multiple of 0.192.

B-page "SHOW LOOPS" feature

A display mode has been added to the B-page (Sound File Directory) which allows viewing and printing the start times, end times and lengths of sound file loops. The loop times displayed here should not be confused with the "butt-splice patch loops" that can be viewed on the I-page. Rather, these are the SFM or L-page "crossfade loops" embedded in the sound files themselves, which were until now hidden from the user.

This feature has been added primarily to serve the following two purposes:

1. When looped sound files are transferred to another platform via S/link, where the loops may need to be re-created, we will now be able to know what the original loop times were.

2. Consider the common task of pitching a looped rhythm sample such that it matches a particular tempo. The new "show loops" feature enables us to remove the guesswork and perform this task more quickly. We can now simply look up the loop length and calculate the exact tuning needed*, rather than going through the more time-consuming and less accurate method of repeatedly playing the sample against the click track while turning the knob, waiting for the sample to get far enough out of sync with the click, and trying to ascertain whether it's drifting behind or ahead.

* For the algebraically challenged: Following are formulas for determining the tuning needed to make a sound file loop match a `desired_tempo`. Note that `number_of_beats` refers to the number of beats that are actually looped in the sound file.

If you wish to tune using a HERTZ parameter such as PARTIAL TUNING, use the following:

if `desired_tempo` is expressed in seconds per beat…

```
hertz = 440*loop_length/(desired_tempo*number_of_beats)
```

if `desired_tempo` is expressed in beats per minute…

```
hertz = 22*desired_tempo*loop_length/(3*number_of_beats)
```

If you wish to tune using a SEMITONES parameter such as the I-page's tuning field, use the following:
(You will need a calculator that can handle logarithms)

if `desired_tempo` is expressed in seconds per beat…

```
semitones = -12*log(desired_tempo*number_of_beats/loop_length)/log(2)
```

if `desired_tempo` is expressed in beats per minute…

```
semitones = -12*log(60*number_of_beats/(desired_tempo*loop_length))/log(2)
```

L-Page BUG FIXES

Saving Soundfiles From Polymemory To Winchester: Bug #1

Some soundfiles, when being saved from Polymemory to Winchester, were saved with sections of audio erroneously taken from elsewhere in Polymemory.

Saving Soundfiles From Polymemory To Winchester: Bug #2

When prompted to enter a name for the soundfile to be saved, if you pressed RETURN to use the existing name by default, and the existing name had less than eight characters, the system reported "Error: Invalid Character in Filename".

Displaying Very Short Soundfiles

An infinite loop (i.e., system hang) occurred whenever a soundfile containing only one sample was displayed on the L-page. Also, when displaying soundfiles containing only two samples, spurious and meaningless time tick marks were plotted on the Landscape Display.

Functional Consolidation Of The Sequence Stop Buttons

As you probably know, STOP buttons pertaining to the sequencer can be found in several locations. Probably the three most commonly used are on the Velocity Keyboard, on the S-page and on the Motion Control Panel of the Q-page. While it may appear at first that they are functionally equivalent, more thorough use reveals that they are not the same. For example, when incoming SMPTE is present the VK STOP button would stop the sequencer, but the S-page and Q-page STOP buttons would not. Similarly, if the sequence was not running and Direct To Disk cues were playing, pressing the Motion Control Panel's STOP button on the Q-page would stop the cues from playing, but the VK and S-page STOP buttons would not.

Because it was a little frustrating to press STOP to no avail and then to have to go searching for the right flavor of STOP, we have made the three aforementioned STOP buttons (more nearly) functionally equivalent. That is, all three will now stop the sequence even if incoming SMPTE is present, and all three will stop Direct To Disk cues from playing even if the sequence was not running.

Note: When the sequence is not running, the VK STOP button can be pressed to stop any stuck MIDI notes. This function is still not shared by the S-Page and Q-page STOP buttons.

Barely worth mentioning, BUT…

- A bug was discovered and fixed which allowed long headings on the windows in the B-page and R-page to plot over the buttons.

- Some math routines used extensively by the Synclavier and the Direct to Disk have been replaced by new routines which run three to five times faster on D-processor systems and somewhat faster on PPC systems. It is unknown whether this boost in performance will manifest itself in any way noticeable to us carbon-based life forms.

DETAILS OF 5.1 BUG FIXES AND FEATURES

New Mod-Wheel Proxy Function

Many customers don't have pedals attached to the Ped1 or Ped2 inputs on the back of their keyboards, or find them difficult to control or uncomfortable to use. Others have expressed a desire to be able to control MIDI volume (Ped1) using the mod wheel. To address these issues we have implemented an easy and intuitive way to use the mod wheel to generate any of the other monopolar RTEs (Ped1, Ped2, ModW, Brth). Now when you press the mod wheel button, you can dial whatever controller you want the mod wheel to proxy for. You can even change what type of RTEs the Mod Wheel will generate "on the fly" while you are recording. As one beta-tester exclaimed, "I just gained a bunch of controllers I've never been able to use before.". You can quickly return to the default behavior "ModWheel -> ModW" simply by double-pressing the mod wheel button.

Understanding the new Mod Wheel Proxy feature

When you press the Mod Wheel button, you will have the option to dial up whatever controller you want the physical mod wheel to proxy for. What this means simply is that when you move the mod wheel, the Synclavier will think that you moved the proxied controller. For example if you set the ModWheel to proxy for Ped1, then moving the mod wheel will generate Ped1 RTEs which will modulate whatever Pedal 1 is patched to. This does *not* mean that whatever the mod wheel was patched to becomes what Pedal 1 is patched to. While the mod wheel is proxying for Ped1, the Synclavier thinks that the mod wheel is not being moved, and any movement on the actual Pedal 1 is ignored. Bear in mind that the proxying applies to the physical controller, not to any previously recorded RTEs.

S-Page

Three bugs dating from the inception of the S-page are now fixed.

1. When starting the S-page for the first time after launching the RTP, the time fields were displayed as Seconds regardless of what the time format was actually set to. If your time format was set to anything other than Seconds (Beats for example), attempting edits with the time fields in this state could cause confusion and an error messages.

   Tip: You can set your preferred default time format using the Q-page's Events panel, and then save it by clicking the "Defaults:Write" button.

2. When activating the "Cut/Paste" panel, the "Paste at" time was erroneously 50 milliseconds after the "Edit Start" time. Now it will match it as intended.

3. Jogging did not work on the click rate field in the settings panel. ("Jogging" refers to decrementing or incrementing numbers or switch positions using option-click and command-click respectively.)

Q-page Optical Transfer panel

The Optical Transfer panel was the last feature added to the Q-page before New England Digital was shut down in 1992, and apparently had not been thoroughly tested and debugged before the plug was pulled. Indeed I had always found it to be quite problematic and crash-prone, and it had long been on my wish-list of things to fix. With Release 5.0 it took a turn for the worse and began crashing more frequently and more immediately. This finally prompted the long needed overhaul in which we have identified and repaired the two original flaws as well as the new one that appeared in Release 5.0.

For those who like to know these things, the problems we repaired are outlined below:

1. Corruption of internal memory, usually resulting in a crash or erratic behavior. (This is the problem that appeared in Release 5.0.)

2. Corruption of external memory, often causing other Q-page panels to cease working properly and often preventing the index update operation from succeeding.

3. The down-triangle to the left of the cue name, used for loading the next cue (as listed alphabetically by name), did not work when the current cue's name exceeded 27 characters.

24-hour SMPTE Wrap-around

It used to be that whenever the current cue's SMPTE start time was 15 minutes or less *before* the SMPTE start time of the current sequence, the system interpreted the cue's start time relative to the sequence as a negative number. This resulted in the error message…

MT: "Cannot enter values before start of sequence"

…and the cue's SMPTE start time was replaced with that of the current sequence.

This had several drawbacks. For starters it was unnecessarily restrictive. One ought to be able to review one's cues and see their audition times regardless of when the current sequence starts. Worse yet, since the cue's SMPTE start time was replaced with that of the current sequence, if the user didn't notice this and re-saved the cue (by renaming it for example), the cue's original start time was irretrievably lost. Furthermore, if the Audition Mode were enabled (or you attempted to place the clue), the negative time would cause a system crash if the sequence was mapped.

To Solve all of these problems, any cues starting before the current sequence are now simply interpreted as starting 24 hours later. All times will appear the same and remain fully editable regardless of when the current sequence starts.

Play From Cue Out

The "Play From" function key [F9] did not work when the selected time field was the cue out time (or the edit out time when it matched the cue out time). Now it will play from the end of the cue to the end of the project.

The bug that prevented this from working also manifested itself in the following way: When the selected time field was the anchor time (displayed in the upper left region of the Cue Edit panel), the playback stopped at the end of the cue rather than continuing to the end of the project.

Ergonomic Improvements to the "Rename" Function

I have found that almost every time I rename a cue, I only need to make a small adjustment to the existing name. It has always bugged me to have to retype the entire name from scratch. So now when you click the "Rename" button, the current name will be presented allowing you to edit it if desired. For example, if you just want to add a suffix to the current name, you can easily position the cursor at the end of the name by pressing control-R followed by the left arrow key. (For those not familiar with the Synclavier's text editing commands, a brief synopsis is given on the final page of this document.)

If instead you wish to enter a new name from scratch, then just start typing as before – the current name will disappear as soon as you do. For your further convenience, if you enter a name that is already taken, that name will be presented again, allowing you to easily modify it.

Change Of Defaults

On the Cue Edit panel, the cue out time field now defaults to "Out" instead of "Dur", and the edit out time field now defaults to "Out" instead of "Len".

Likewise on the Cue Trim panel, the cue out time field now defaults to "Out" instead of "Dur". This setting also affects the "Offs" field.

H-Page

A few bugs pertaining to audio channel assignments on the H-page (as well as in the VK window) have been repaired. In the process some new features were added.

Automatic output assignment bug/New cyclical automatic output assignment

If you've ever done one of the following things...

Imported a MIDI sequence using MIDInet

'SMT'ed a timbre onto a blank track

Created or copied a note onto a blank track from the G-page using "-" or "+"

...then you've probably noticed that when previously blank tracks are created by such means, the multichannel outputs automatically assigned to them match the track numbers up to the number of outputs in your system. However, for track numbers higher than the number of outputs in your system, the outputs were inadvertently left in an uninitialized state. The channel numbers would be blank on the H-page and the track would be inaudible (even though the VK window erroneously displayed "L:1 R:1") If you 'SKT'ed the timbre from a track in this condition to the keyboard, the timbre remained inaudible on the keyboard. It was necessary to manually enter a new output assignment in order to hear the sound.

Aside from the confusion or inconvenience caused by this, if your keyboard's output assignment was in this uninitialized state when you saved your user preferences (by clicking the "Defaults:Write" button on the Q-page), then that uninitialized inaudible output pair would be reassigned every time you loaded a sound file to your keyboard from the B-page or R-page.

To avoid the aforementioned problems, valid outputs will now be automatically assigned to newly created tracks regardless of the track number. Furthermore, the output numbers will match the track number modulo the number of multichannel outputs in your system. For example, if you have 16 outputs then outputs 1-16 will be assigned to tracks 1-16, then again to 17-32, and again to 33-48, and so on.

New muted channel 0

The aforementioned inaudible output assignments, though resulting from a software bug, were actually useful at times. For example, you may have a track playing an FM-only timbre and you wish it to go to the FM composite outputs only, thereby reserving your multichannel outputs for polysample voices. Since the bug has been fixed, we have defined a channel 0 to provide a proper way to achieve a muted output. You can simply type 0 (or the "delete" key) on the H-page, or dial it in at the VK keyboard.

Tip: Since output 0 appears blank on the H-page, setting MIDI-only tracks to output 0 can simplify the appearance of the H-page, making it clear at a glance which tracks actually produce audio at the outputs.

VK window update bug

Typing the space key on the H-page increments the output number, wrapping back to 0 now instead of 1. Typing the delete key now turns off the output instead of resetting it to 1. However with previous software, if the outputs were also being displayed in the VK window, the window was not updated to reflect the change. This has been corrected.

Bug fix: Assigning multichannel outputs to empty tracks

There has long been a troublesome and unseemly bug that would occur when typing multichannel output numbers over a sequencer track containing no notes. This bug exhibited itself only on systems including a Direct-to-Disk. When you typed a multichannel output number over one side of the stereo pair, if that number was higher than the number on the other side, then the other side would change into a Direct-to-Disk output (surrounded by asterisks) matching the number you just typed. To clarify, suppose you wanted the track to be assigned the multichannel output pair " 1 2 ". You would type "1" over the left side, then arrow to the right side and type "2". But upon pressing the return key on the right side, the left side would inexplicably change from "1" to "*2*". A nonsensical output pair that was half DtoD and half multichannel.

Incidentally, if you assign multichannel outputs to an empty track, but then later place DtoD cues on that track, the multichannel outputs will automatically change into a DtoD output matching the number on the left side.

Main Menu

A minor bug on the main menu was repaired. While an item was highlighted, clicking the mouse on it had no effect. This bug was likely introduced last April with release 4.4. Sorry.

NeedleS In The Haystack

A customer reported a system crash which could be produced by slowly dialing the click rate of a mapped sequence from 108.00 down to 107.99 when displayed as Beats/Min. The problem was traced to a flaw in a math routine which was put into service with Release 5.0. The flaw was of the type that would only surface under very rare circumstances, so it is not surprising that in the six months since Release 5.0 was shipped, only one customer reported an encounter with it. The bug has been fixed and the routine has been exhaustively tested with all possible input values to be sure there are no other hiding gremlins.

Two Tips

Track grouping only when you want it

I have yet to meet a soul who isn't annoyed by the "CREATE TRACK GROUP..." message intervening in the VK window whenever a track button is held for more than 2 seconds. Luckily you can easily disable this behavior by changing the line in your PROFILE reading "SET GRP ON" to "SET GRP OFF". Once you have done this, track groups can still be created and edited by holding the "SEQUENCE NAME" button while pressing a track button.

If you don't know how to edit your PROFILE using the screen editor, you can replace the line in question directly from the MONITOR by following these simple instructions:

- Break from the Main Menu of the RTP to the Monitor by holding the control key while pressing the space bar.
- Type the following command line, then press Return.

```
SET CAT W0:;OLD PROFILE;LIST
```

- Somewhere on the screen you'll see a line reading "SET GRP ON" with a line number in front of it. To replace this, simply type that line number followed by a space and "SET GRP OFF" (not including the quotes.)
- Type the following command line, then press Return.

```
REP;BOOT
```

Protecting your PROFILE and .SDEF-7 file when installing software with InterChange™

As you've just seen, the PROFILE can be used to store some of your preferences. Also, when you save your preferred defaults using the Q-page's "Defaults:Write" button*, that data is stored in a file in the .SYSTEM subcatalog called ".SDEF-7". Unfortunately, both of these files will be replaced when you install software by using the "Import .SYSTEM Files from Disk Image" or "Import .SYSTEM Files from Macintosh Folder" features in InterChange™. Consequently, if you install software in this way but you wish to retain to your preferred defaults, you must first copy your PROFILE and .SDEF-7 files to a safe place, then restore them after the installation is complete.

* See page 9 of "Release 4.3.pdf"

YOU CAN Improve the Synclavier

If there is a bug that you can reproduce consistently, we would like to know about it. As long as you can provide step by step instructions enabling us to reproduce the bug, we can fix it and email the update to you (provided of course that your software subscription is current).

Synopsis of Synclavier text editing commands:

In general, objects start out in "replace mode" when you first select them. This means that typing a string will completely replace the value previously entered. Once any editing command has been typed however, the object enters "edit mode". This means that typing characters will modify the existing string rather than replace it. It also means that the LEFT ARROW and RIGHT ARROW keys will move one character left and right (with wrap-around), staying within the object.

The full set of Synclavier text editing commands is:

RETURN will always attempt to enter the currently displayed string into the object, no matter where the cursor is. This includes entry of a completely NULL string (containing no characters). If the syntax of the new string is incorrect, the previous value will be restored (eg: typing letters in a "fixed point number" object).

CONTROL-A will toggle insert/overstrike mode. When first entering edit mode (eg: by typing TAB), a numeric field is in overstrike mode. This means any character typed will replace the one below the cursor. Text strings default to insert mode, meaning new characters are added to the string; nothing is overwritten.

CONTROL-D in insert mode will delete one character to the right of the cursor, if any exist. In overstrike mode the cursor just moves one character to the right.

CONTROL-E will delete all characters to the right of the cursor, if any exist.

TAB (CONTROL-I) will advance the cursor to the next field within the object. This is the character after the next ':', '.' or space. Thus TAB will find the next part of a time field (eg: SMPTE => 00:23:45:20.17), or the next word in a phrase (eg: "Reversed Sound File").

CONTROL-H is the same as left arrow or DELETE. Note that CONTROL-H generates a backspace which on the Pericom terminal is often exchanged with DELETE.

CONTROL-L is the same as right arrow.

CONTROL-R will cause the cursor to move to the left-most character in the object. This is a convenient way to enter "edit-mode" right after selecting an object, without making any changes.

CONTROL-X will erase the entire entry and EXIT edit mode.

DELETE in insert mode will delete one character to the left of the cursor, if any exist. In overstrike mode the cursor just moves one character to the left.

Restoring the Previous String: Any DELETE command (CONTROL-D, CONTROL-E, CONTROL-X, DELETE) will restore the previous value of the object if the delete command is given to an empty field. For example, if you enter an object and press CONTROL-X, the object will be erased. If you press CONTROL-X a second time (or any other delete command), the original value will be restored.

When in edit/overstrike mode on a numeric field, pressing ':' or '.' will move the cursor to the next ':' or '.' respectively rather than entering the character. Wrapping will occur if there are no more ':' or '.' characters to the right of the cursor position. This is to assist in changing time values and digits beyond a decimal point.

Release Notes for Synclavier® Release 4.4

Synclavier® PowerPC™ 1.4

InterChange™ 1.4

and InterChange™ 2.0

December 1, 1999

What's In This New Release?

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

Bug fixes and new features that are applicable to all systems:

- EditView™ and AutoConform™ Machine Control is now more reliable on new Macintoshes and will work with some USB Serial Ports
- Added a Frames-Per-Beat metronome display that is accurate in all cases and at all speeds
- Closer integration of the Patch (I) screen and the Sample-to-Memory (L) screen that provides for editing of sound files within a patch without disrupting the entire patch and accessing all sound files in the patch directly from the Sample-to-Memory (L) screen
- Fixed bugs to provide for correct mouse operation on the Patch (I) screen
- Simplified navigation between screens using the <ENTER> <ENTER> key sequence
- Streamlined mouse access to the Subcatalog (D) screen
- Fixed Sync Panel Beats-Per-Minute switch and decimal point display (Q)

Bug fixes and new features that are specific to Synclavier® PowerPC™:

- "Digital STM" hardware option to provide digital audio input to the Sample-to-Memory. See separate documentation.
- A complete OMS MIDI Implementation for Synclavier® PowerPC™ that provides "virtual" MIDI ports that are available to any OMS-aware Macintosh application. See separate documentation.
- The default W0 disk image file name was renamed to provide less confusion during software upgrades. For this release the file is named "Release 1.4 W0 Disk Image"
- The .INDEX subcatalog created during installation is now much larger than before (5 megabytes vs. 1 megabyte)
- Fixed bug in TransferMation™ to keep TransferMation™ up-to-date automatically as Direct-to-Disk cues are recorded, renamed or deleted
- Fixed InterChange™ display bug where the disk image file name field was blank in certain cases
- Fixed bug in the Real-Time-Software where fast incoming SMPTE could lock up the host Macintosh
- Fixed InterChange™ bug importing and exporting subcatalogs containing 128 files
- Provided additional Metronome calibration options
- Fixed bug with SCSI Interpretation that prevented certain SCSI drives from working correctly with certain Adaptec PCI SCSI Cards
- Fixed bug to allow InterChange™ 1.4 to access Synclavier® SCSI Bus disk drives while Synclavier® PowerPC™ is running.

Synclavier® Release 4.4 $5^1/_4$" Diskettes

A series of 8 $5^1/_4$" SuperFloppy diskettes provides a copy of all 4.4 System and Real-Time software for the Model D hardware platform. These diskettes can also be used to install the Release 4.4 operating software on a Synclavier® hard drive that is used with Synclavier® PowerPC, although it is typically easier to use InterChange™ for that purpose.

2 diskettes - System Software
2 diskettes - Real Time Software (SYN-4.4)
2 diskettes - Real Time Software with Guitar (SYN-4.4G)
1 diskette - Music Printing and XPL Compiler
1 diskette - Winchester Bootload Diskette

Synclavier® Release 4.4 Macintosh Diskettes

A series of 2 Macintosh HD Diskettes installs the basic Macintosh applications, including Termulator, EditView®, AutoConform, MIDINet®, TransferMation™ and InterChange™ 1.4. The MixMap™ cue sheet printing software for use with EditView™ is also included on these diskettes.

Synclavier® PowerPC™ 1.4 CD-ROM

The Synclavier® PowerPC™ 1.4 CD-ROM installs all Macintosh and operating software, including Synclavier® PowerPC™ 1.4.

Documentation

User documentation for the new features follows. A seprate reference document is provided for using the Digital STM and also for the Synclavier® PowPC™ OMS MIDI Implementation.

Frames-per-beat display

Earlier software releases included a primitive ability to display tempi in frames-per-beat notation by setting the sequencer speed to .960. This earlier implementation suffered several drawbacks including its inability to work with tempo-mapped and meter-mapped sequences and its inability to work at speed settings other than .960.

Release 4.4 includes a comprehensive frames-per-beat display mechanism that is available at all times and is accurate in all cases. It is no longer automatically activated by setting the speed to .960. Instead it may be activated at any time either from the button panel, or from the Synchronization Panel of the Audio Event Editor (Q) page.

From the button panel, the metronome notation style is changed by holding the Click button and pressing the Continue button one or more times (as before). Release 4.4 provides 3 metronome display options:

- Beats-per-minute (displayed to 1/1000 beat)
- Milliseconds-per-beat (Microseconds-per-beat if tempo map active)
- Frames-per-beat (displayed to 1/1000 of a frame

Selecting the frame rate

The Frames-Per-Beat display can show either video-frames or film-frames per beat. The video-frame rate setting is generally made from the Synchronization panel of the Audio Event Editor (Q page) or using the SMPTE button. If the global Time Format setting is Seconds, Minutes:Seconds, Beats, Measures:Beats or SMPTE, then the frames-per-second reference is selected by the SMPTE mode setting (e.g. 30-frame, NTSC 30, drop-frame, 25-frame or 24-frame). If the global Time Format setting is Feet:Frames, then the frames-per-second reference is the chosen film frame rate (30-frame, 25-frame or 24-frame) as set from the Display Offset sub-panel. This implementation provides the ability to see the tempo in film-frames-per-beat (24 fps) while cinching to a SMPTE coded video print that was up-framed to 30 fps video.

Interaction with the Sequencer Speed Setting

Unlike the beats-per-minute and milliseconds-per-beat displays, the frames-per-beat displays are all fully corrected for the sequencer speed setting.

L-Page

The L-Page is now Patch-Savvy:

Until this release, the L-page only displayed and operated on the first sound file listed in a patch. If a sound file other than the first one needed to be edited, the user was forced to delete from the patch all sound files listed before it, thereby destroying it. To facilitate the viewing and editing of sound files within patches, the L-page has been enhanced in several ways.

If you select a sound file in the I-page, that file will be displayed when you go to the L-page. At the bottom right of the screen (just above the Current Catalog label) you'll see a patch assignment label. This will let you know where on the keyboard the currently displayed sound file can be played as well as which key to play to hear the original pitch (not taking de-tuning into account). This information is also displayed in the Velocity Keyboard window. In place of the old "FILENAME Active on Keyboard" message, you'll get something like "FILENAME Active on C#3-A3, F#3". This would tell you that the currently displayed sound file is assigned to the range of C#3 to A3 with the original pitch assigned to F#3. When no transpose key is explicitly defined in the patch, the system derives one from the SFM Octave Base parameter. Any such derived transpose key is displayed in parentheses.

Clicking on the patch assignment label will link you directly to the I-page and back. However it is not necessary to go to the I-page anymore to navigate through your patch. You can use the following commands from the L-page:

F5 or < .....Step down through the patch list
F6 or > .....Step up through the patch list
F7 .....Decrement the partial
F8 or space ...Increment the partial
1 2 3 4 .....Select a specific partial

If you select a different file in the patch from the L-page, the I-page will reflect this when you next go there. Using these commands, it's now very easy to apply certain edits (such as changing start-, end- and offset-marks, normalizing, reversing) to sound files within a patch without disrupting the patch. Bear in mind however that some operations, such as extracting, clear partial 1 and place a newly created sound file there. Such operations of course will disrupt any patch on partial 1.

Bug Fix:

The Zoom mode would not exit properly when invoking commands Q through W. This has been fixed.

I-Page

Mouse Activated:

You can now select any field on the I-page with the mouse. You don't even have to aim well since the field nearest to where you click will be selected.

"Default" Transpose Key Displayed:

A little background: Every Synclavier sound file has an Octave Base parameter accessible from the SFM's "SET" screen. This can be used to specify both a default transpose key and tuning offset. The default Octave Base setting is 3.0900, meaning the third octave, the ninth pitch up from C plus 0 cents (i.e., A3). It's extremely handy to have sound files automatically come up in tune when loaded from the B-page or R-page, or when first typed into a patch on the I-page.

When a transpose key is not explicitly defined in the patch, the system uses the Octave Base parameter embedded in the sound file as a default. Unfortunately this has never been displayed, so the user had no way of knowing for sure what the original pitch was, short of leaving the RTP to go to SFM and look it up. In order to always let the user know what key to play to hear a sound at it's original pitch, all such "derived" transpose keys will now be displayed. You will be able to distinguish between a transpose key explicitly defined in a patch, and one derived from the Octave Base parameter, because the latter will be in parentheses.

I'd like to clarify one more thing about this murky subject. When a transpose key is typed into the I-page, it **overrides** the one derived from the Octave Base parameter. However, when a tuning offset is typed into the I-page, it is **combined** with the "invisible" tuning offset derived from the Octave Base Parameter.

VK window patch assignment message:

The patch assignment message in the Velocity Keyboard window, referred to earlier in the section about the L-page, is also emitted when an edit is performed on the I-page. This may seem redundant since it contains no information that isn't already on screen. This is done to replace any earlier message (possibly placed there by the L-page or by a B-page or R-page load) which may be rendered incorrect by the edit just made.

Bug Fix:

Fixed a failure to update the tuning, total length or loop length parameters in the Velocity Keyboard window when a partial was changed with the space bar.

SCREEN NAVIGATION

Screen Rebounding:

The system now remembers the last two screens that you have visited. When you exit a screen (by pressing ENTER), if you press ENTER a second time you will be taken directly to the screen visited prior to the one you are exiting. (If you have only visited one screen, then pressing Enter from the Main Menu will take you back to that screen.) It is a common working scenario to need to go back and forth repeatedly between two screens. Once you have visited two screens, you can effortlessly switch between them just by pressing Enter twice from either screen. Note that this works even with sub-screens such as the Keyboard Display in the I-page and the various F-page screens. You can rebound directly to them without having to select them from their main screens.

New Mouse Links:

Nearly every screen has an indication somewhere of the Current Catalog. Many also have an indication of the Current Timbre. We are in the process of setting up mouse links so that clicking on the Current Catalog label from any screen will take you directly to the D-page. Once you have selected a new catalog (or not), exiting this screen will automatically return you to the screen of origin. Similarly clicking on a Current Timbre label will link you directly to the A-page and back. At the time of this writing, these links have only been added to the Main Menu, The I-page and the L-page. Hopefully by the release date most if not all will be done.

MISCELLANEOUS BUG FIXES

Fixed a bug that prevented the mouse from working as expected when clicked in the left or lower margins of the terminal window.

Fixed a bug that caused sound files with an Octave Base parameter of 6.0777 or greater to be out of tune and assigned to the wrong key.

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 $5^1/_4$" Diskettes

A series of 8 $5^1/_4$" 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 $5^1/_4$" 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?

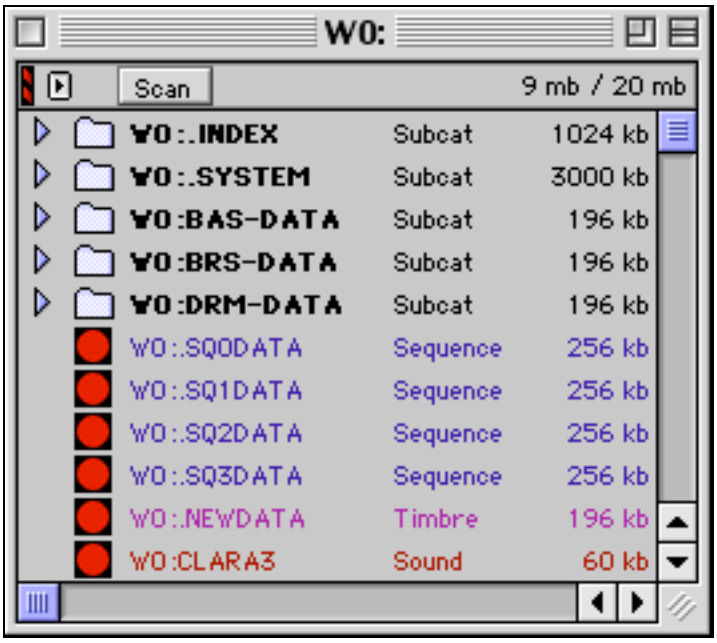
The Real Time Software includes some additional user-definable defaults, fixes to MIDINet® MIDI-file export, a significant re-working and debugging of the tempo- and meter-map software, plus numerous other useful changes. Here's a quick list:

- 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

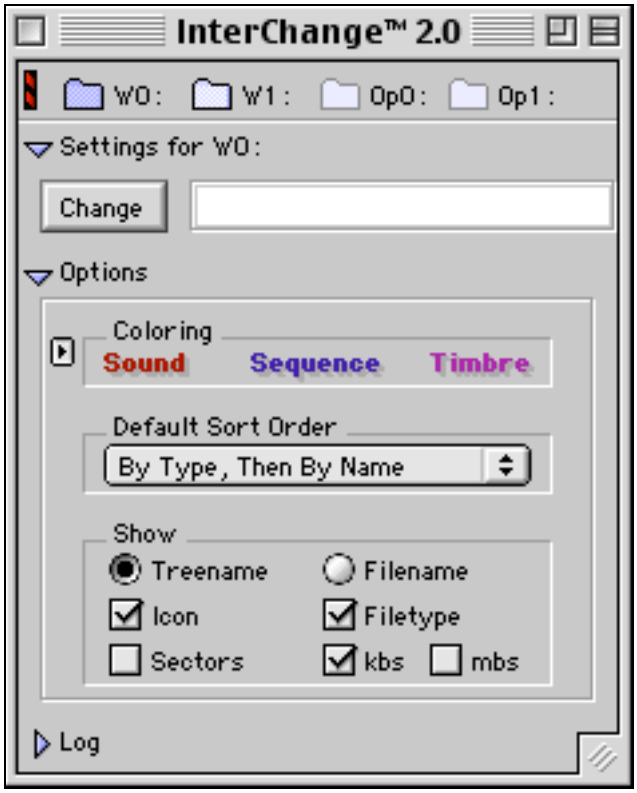
Complete documentation on these and related software fixes follow.

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™ 1.3



InterChange™ 2.0



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

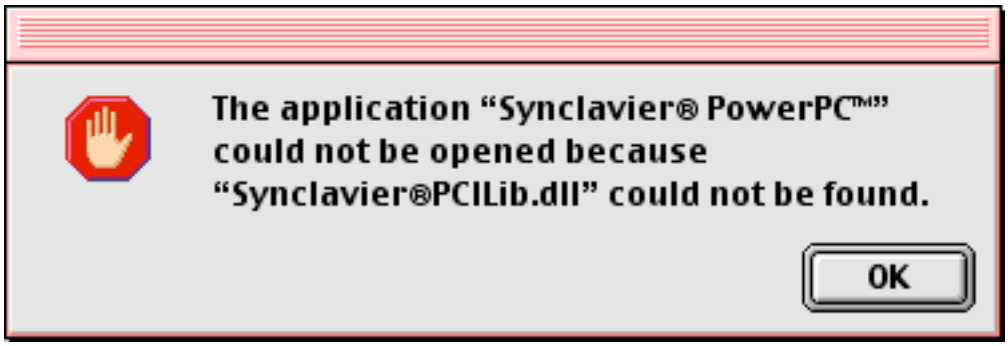
The Quit command now works when running the Screen Editor under Synclavier® PowerPC™.

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.

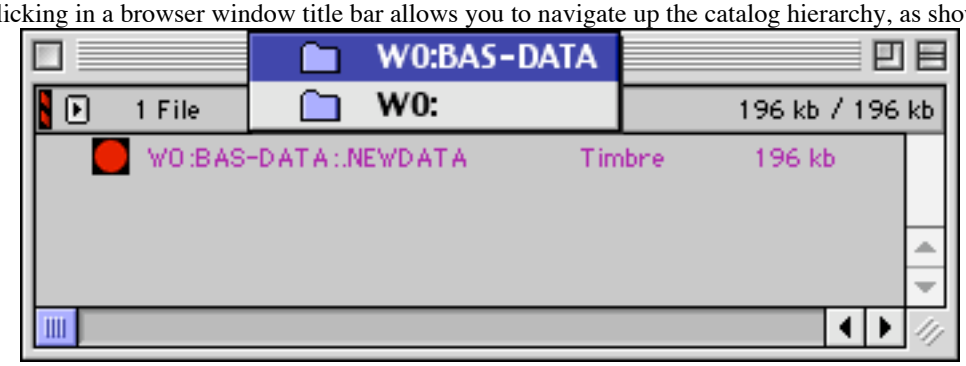
InterChange™ 2.0 uses the device configuration from InterChange™ 1.3.

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.

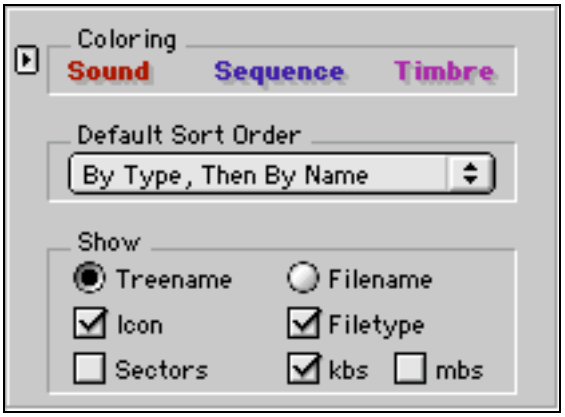
Sequences are called up to the memory recorder, and a warning dialog is presented if the current sequence is not saved.

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 Change 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.

Release Notes for Synclavier® Release 4.2.2

and
Synclavier® PowerPC™ 1.2
April 5, 1999

What's New

This Release includes a number of bug fixes to many modules. It is primarily intended for CD-ROM distribution and contains the following software modules:

Macintosh Application Summary

Editview 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 4.2.2:

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

MIDINet 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.

TransferMation™ 4.2.2

This is an all-new PowerPC build of TransferMation. It is not compatible with 68k Macintoshes. The prior 68k version is on the CD in the TransferMation 68k folder.

Synclavier® PowerPC™ 1.2

Release 1.0.1 - October 28, 1998
- Completed Bus Timing dialog. Fixed bugs with DTD-to-Poly transfer, DTD-to-Optical transfer. Fixed bugs with vibrato timing. Initial product release.

Release 1.0.2 - November 16, 1998
- Completed Multi-Processor Macintosh support. Completed initial documentation. PCI-1 Test Program 1.7 released with Settings... menu support.

Release 1.0.3 - November 20, 1998
- Added "PCI-1 In Use" warning dialog. Added communication indicator in MIDINet and AutoConform.

Release 1.0.4 - December 4, 1998

- Fixed MIDINet communication problems. PCI-1 Test Program 1.8 released with multiprocessor bug fixes. Added documentation warning about SYNCNet INIT Version. Provided limited SuperFloppy access. L-page scrub and multiple poly bin bugs fixed.

Release 1.0.6 - January 21, 1999
- Added metronome calibration (startup and Settings...). Added control over M512k memory allocation.

Release 1.0.8 - February 21, 1999
- Added support for TransferMation™.

Release 1.0.9 - February 22, 1999
- Added 'Capture Printer Output to File' menu command to support the Music Printing software option.

Release 1.2 - April 5, 1999
- Fixed EditView scrub problems on fast Macs. Fixed B/R page scrolling problems. Fixed hang while searching on B/R page; allowed <BREAK> to interrupt B/R page search. Added **Option-Quit** menu selection to quickly quit Synclavier® PowerPC™ in all cases. Fixed TransferMation crashing problem.

Termulator 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.

InterChange™ 1.2

No changes to this module. An entirely new InterChange™ 2.0 will be released shortly with many new features.

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.

Real Time Software Summary

FM Voices and the Multi-Channel Distributor

The software better handles configurations where the FM voices exists but are not connected to the Multi-Channel Distributor. Previous software would report an error in this configuration. The new software does not consider this configuration an error.

Optical-to-DTD and DTD-to-Optical transfer with Tahiti V drives

Changes in the Real Time Software were required to support the Tahiti V Magneto-Optical drive. Problems showed up when transferring between the Tahiti V drive and the Direct-to-Disk.

Fix to :SKT blinking mode

The "SKT blinking mode" whereby a sequencer track uses the Keyboard Timbre for playback was broken in 4.12. This feature has been fixed in this release.

Synclavier® Release 4.12

October 25, 1998

Release Notes for Synclavier® Release 4.12

Highlights

Real Time Software
- Click operation simplified and improved
- "Live" click track operation restored and improved
- Zero beat now displayed prior to first click
- Sequence Mark Start is enabled when start point is entered
- Changes to L-page "Mark Start" behavior available in beta version
- L-page landscape display improved
- L-page no longer hides Macintosh mouse cursor
- Transpose button operation enhanced
- Termulator stays on same screen when window is refreshed
- Audio Event Editor Cue Directory re-opens correctly
- G-page function keys implemented
- Script/Reverse Compiler now translate Track Solos and Names
- Pedal 1 reinstated as default RTE controller
- 2 new Defaults to make life easier
- SKT of Track Partial retains keyboard parameters
- New PunchIn and Record saftey feature
- Inverted RTE responce changed

Bug Fixes
- New Track Sliding Algorithm
- 2 Audible Click Anomalies Repaired
- Q-page Click On/Off status display fixed
- Other Click Track related bugs corrected
- Recording of Real Time Effects bugs fixed
- G-Page sound file offsets vrs. Tempo Map corrected
- Dragging Memory Button time to Start Mark fixed
- OPCOPY volume mounting bug fixed
- Tuning problems with Sound Files using SFM Octave Base
- Reverse Compiler vrs. Locate point bug fixed

Tutorial
- Programming "Swing" quantization

EditView
- Significantly enhanced Cue Sheet printing via MixMap™
- More drawing bugs fixed
- Fixed bug causing track solos to get stuck on
- Fixed bug where scrubbing prevented further track sliding
- Several crash bugs fixed

Autoconform
- Improved update time for many cues

InterChange™
- Better handling of file aliases to remote file servers

Installation Notes

The various custom fonts used by AutoConform, EditView™ and Termulator have been gathered into a "font suitcase" that is automatically placed in your system folder during installation. This allows us to completely fix a number of nagging and annoying font drawing bugs in Termulator. This will also save RAM when multiple applications are run at once.

If you regularly move software between machines without doing a formal installation, please remember to bring the "Synclavier® Fonts" file with you.

Note: You must restart your computer after installation so that the updated SYNCNet Init gets installed!!!

Real Time Program

Important Notes

The Click Rate button and the Transpose button operate slightly differently in 4.12. Specifically, the click track audio output is changed independently of the click track mode. Additionally, the Transpose button now can be "armed" for a single transposition, or can be latched "on". Both of these changes are explained in detail below.

Click operation simplified and improved

In music production, toggling the click is something that's done so frequently, and often of a time-critical nature, that it needs to be immediate and should not require repeated multiple button presses. Hence the following:

The click's on/off status and the click's display format are now independent parameters. Now, either of these can be toggled without affecting the other. Most importantly, the click can ALWAYS be instantly turned on or off simply by pressing the **Click Rate** button. Stepping through the display formats is still done in the usual way of holding **Click Rate** while pressing **Continue**. Furthermore, the on/off status of the click is ALWAYS visible just by glancing at the **Click Rate** button.

Regardless of what parameters are selected, the **Click Rate** button is lit when it's on and unlit when it's off. You may want to be aware that the click's on/off status actually toggles when the **Click Rate** button is released, not when it is pressed. This was done so that the click's on/off status could remain unchanged if any other applicable buttons* are pressed (or if the knob is turned) before the **Click Rate** button is released. This is what enables the click's display format and settings to be changed without toggling click's on/off status.

You can use this knowledge to your advantage in the following ways.

1. If the sequence is playing and you must toggle the click's on/off status at a precise moment, don't linger on the button. Press it as far in advance as you like, but release it with precision.
2. If you wish to change the Click Rate without changing the click's on/off status, just hold the **Click Rate** button until you've commenced dialing.

** The buttons which have special functions if pressed while Click Rate is being held are: External Sync, Speed, Transpose, Fast Forward, Rewind, Start and Stop.*

"Live" click track operation restored and improved

The effort to restore the click track feature (sometimes referred to as “Live Click”), which began with Release 4.11, has now been completed! This feature has been inoperative since release 2.7 due to incompatibilities with the Tempo/Meter mapping introduced at that time. Not only is the feature now restored, but it has been greatly improved in two ways. Firstly, it works the same with tempo-mapped sequences as with non-mapped sequences. This will enable users to set up customized quantization grids that can be looped or chained across tempo changes. Secondly, all of the known bugs which the feature exhibited even prior to release 2.7 have been repaired.

Prior to release 2.7, the click track feature could be activated by holding the Click Rate button while pressing a Track button. With the introduction of tempo/meter mapping, this sequence of button presses no longer activated the click track feature but instead generated a tempo map matching the notes on the track. A similar function which generated the map and also conformed all other tracks to that map was assigned to a different sequence of button presses (holding click and speed while pressing the track’s button). Unfortunately, these functions were quite dangerous to have so accessible on buttons because once activated, the current sequence was irreversibly converted.

So, in order to achieve the following goals:
1.To once again have the click track feature accessible from the buttons,
2.To group all of these related functions together so that users need not memorize a multitude of different sequences of button presses,
3.To help avoid accidental and irreversible sequence conversions,
...these functions have all been reorganized as follows:

When holding the **Click Rate** button while pressing a **Track** button, you will now see a message in the VK window indicating which function will be executed when the **Click Rate** button is released. Repeatedly pressing the **Track** button(s) steps through the following options:

* USE FOR LIVE CLICK
  Note: If this track is already the click track, then this option will be:
  REVERT TO INTERNAL CLICK
* GENERATE TEMPO MAP
* GENERATE MAP AND CONFORM ALL
* ABORT

Aside from the obvious convenience and utility of this, two added levels of safety are also provided in the event that the user accidentally presses this sequence of buttons. First, the user can select “Abort” (as long as the Click Rate button hasn’t already been released). Second, since the first option to appear is “Use Track For Live Click” which does not actually alter the sequence, no harm is done if this is accidentally invoked, and the user can simply repeat the sequence of button presses to be greeted with “Revert To Internal Click”. Another reason for having “Use Track For Live Click/Revert To Internal Click” as the first option is that when using click tracks as quantization maps, it’s typical to be turning them on and off frequently.

Zero beat now displayed prior to first click

The VK window beat counter will now display the beat as 0 until the first click occurs. This is handy because when using a click track, the first click doesn’t necessarily occur at the start of the sequence, and it’s nice to see the number increment when it happens.

Sequence Mark Start is enabled when start point is entered

When the user dials in a Start Mark, it now automatically sets to ON. This is more ergonomic since the user probably wouldn't be entering a mark unless he/she intended to use it right away. This has been done on the S-page as well. (It already behaved this way on the Q-page Motion Panel.) This "auto-enable" behavior will also occur when Mark is set by holding Mark while pressing a Track button.

Changes to Mark Start/Mark End operation

To address a long-standing limitation of the system, the way L-page Mark Start/Mark End information is stored in the Synclavier® has been changed. Due to the somewhat experimental nature of this change, I have only made it available in a special version of the Real Time Software (4.12.1) that is **available to everyone upon request.**

Prior versions of software always looked in the *sound file itself* for Mark Start/Mark End information. This theoretically allowed you to use a sound file on a track, and then adjust the Mark Start/Mark End of the sound file and have those changes effect every place where that sound file was used.

Unfortunately, this method of operation was most likely what you *did not* want to occur, and it prohibited the ability to set a Mark Start/Mark End within the middle of a long sound file, record that portion on a track, reset the Mark Start/Mark End to a different region of the same sound file and record that different region on a another track.

An informal polling of Synclavier® users yielded a unanimous recommendation to change the way Mark Start/Mark End information is handled . Accordingly, We have made these changes for Release 4.12.1.

This new method stores Mark Start/Mark End information *in the timbre itself* when a patch is created.

The operation of this new feature is very straightforward and essentially invisible. When a sound file is called up to the keyboard, the Mark Start/Mark End information is copied into the patch at that time. If the Mark Start or Mark End is changed from the L-page, those changes are updated in the keyboard timbre as the changes are made.

Once the keyboard timbre has been recorded onto a track, the Mark Start/Mark End can be freely changed from the L-page *without affecting the sound of the recorded track*.

Changing the 'saved' Mark Start/Mark End information is straight-forward: call up the timbre to the keyboard with SKT; make any necessary changes from the L-page (or the I-page or knob in the case of Mark End); then SMT the timbre back onto the track in question.

L-Page Landscape Display

The "landscape" display on the L-page underwent fairly significant rework and will hopefully be easier to use. We've implemented a smaller cursor on the L-page to make it easier to grab each end of the landscape box.

Additionally, you can click any where within the highlighted box to move it precisely from that point. The time scale of the landscape bar is also now quite accurate. The image of the landscape display on the screen was modified to make it easier to use on the 2/3 and 1/2 size Termulator screens. Additionally, clicking on either side of the landscape 'box' performs page forward/page backward functions.

L-page no longer hides Macintosh mouse cursor

The Macintosh mouse should now always be visible when using the L-page.

Transpose button operation enhanced

Pressing the transpose button now steps through the following three states...
OFF: Transpose Off
ON: Transpose On - will turn off automatically when a key is pressed.
BLINKING: Transpose Locked On - will stay on until pressed again.
.

This will allow users the option to lock transpose on so they can press different keys while the sequence plays, when this is desired. But in the more typical scenario, pressing the button once automatically turns the Transpose feature off once the key is pressed. Hopefully this will prevent accidental loss of transpositions when users forget to turn it off manually.

Termulator stays on same screen when window is refreshed

Termulator now retains the current screen information whenever the Refresh function is enabled from the pull-down menu. Previously it would return to the Welcome screen.

Audio Event Editor Cue Directory bug fix

The Cue Directory Panel of the Audio Event Editor will now be positioned correctly when it is re-opened. In prior software releases the position was not stored correctly when the panel was closed after scrolling forward or backwards with the scroll bar arrows. The panel should now restore correctly in all cases.

New G-page function keys implemented

Four function keys have been added to the G-page that enable users to sharpen or flatten pitches or change octaves with just one keystroke. They are as follows:
F5 Flatten by 1 semitone
F6 Sharpen by 1 semitone
F7 8vb (Flatten by 1 octave)
F8 8va (Sharpen by 1 octave)

These functions operate on the note under the cursor. For now, it doesn't matter if the cursor is on the pitch field or not. In a later release however, these functions may be expanded to increment/decrement times when the cursor is over a time field, etc.

Script/Reverse Compiler now translate Track Solos and Names

The Script compiler and reverse compiler now translate Track Solo states and Track Names.

Pedal 1 reinstated as default RTE controller

In Release 4.11, the initial RTE type, when selecting "Change RTE", was changed from Ped1 to ModW. It was thought that the Modwheel was the most frequently edited controller since anyone with a Velocity Keyboard has the Modwheel permanently attached and at arm's reach, whereas pedals may not be connected.

It has since been pointed out that because Ped1 translates to MIDI Volume, it is probably the most frequently edited controller. Consequently, the initial RTE type has been changed back to Ped1.

2 new Defaults to make life easier

Two defaults have been set to reduce the number of steps a user must perform to play sound files “properly” after RTP initialization.

1. The RTP now initializes with the keyboard’s multichannel output routing set to “Left=1 Right=2” rather than “Left=1 Right=1”. Stereo sound files will now sound in stereo without requiring any user intervention.

2. When a sound file is called to the keyboard, either from the B-page or the R-page, the partial created to hold it now includes a final decay of 100 milliseconds to prevent that chopped-off sound on key-release. Again, no user intervention is needed. This should be especially handy when auditioning sounds - not to have to reach over, press the button and turn the knob each and every time a sound file is selected.

SKT of Track Partial retains keyboard parameters

When selectively recalling a partial or partials from a track’s timbre to the keyboard’s timbre (by holding partial buttons while executing an SKT), the track’s parameters (routings, volume etc.) will no longer overwrite the keyboard’s parameters.

The track’s parameters will be copied to the keyboard only when the keyboard’s timbre is entirely replaced with the track’s timbre (i.e., SKT with no partial buttons held).

New PunchIn and Record safety feature

To avoid accidental erasure, the PUNCH and RECORD buttons will now be rendered inoperative if any parameter buttons are being held. (Some users complained it was too easy to nick PUNCH when meaning to do a Mark-Continue.)

Inverted RTE response changed

As you probably know, when an expression input, such as a pedal, is patched to a parameter, it can either control the parameter in the normal way (parameter button lit) or in an inverted fashion (parameter button blinking).

It has long been noted however that, despite what one might expect, the inverted response was not a mirror image of the normal response but had some unrelated shape to it. This dashed attempts to use controllers with their inversions to create graceful crossfades between partials, equally opposing pitch bends, and the like.

After some debate and arm-twisting, we decided to replace this pseudo-log inversion with a straight-forward linear inversion. (This is a somewhat risky break with the safe convention of maintaining backwards compatibility, in that an old sequence which utilized this feature won’t sound exactly the same when played with release 4.12.

Whether it will sound different enough for anyone to notice remains to be seen.) In this instance, we felt it would be better to make the
improvement as of this release than to further perpetuate an undesirable situation. (You may want to keep a pre-4.12 release handy just in case.)

Bug Fixes

New Track Sliding Algorithm

Release 4.11's new track sliding algorithm contained inadequate overflow checks. The result was that if the knob was turned far enough when doing justified sliding, tracks could slide by the wrong amount, in the wrong direction, and the notes could even disappear. Unfortunately this was not discovered during pre-release testing. This bug has been fixed.

Audible Click Anomalies Repaired

The introduction of the tempo-map capable sequencer with Release 2.7 brought with it the following two anomalies pertaining to the audible clicks. Both of these anomalies have been eliminated:

1.When backing up the sequencer to an even beat (by setting a justified mark before the current time and pressing play, or by using the G-page's Control-C feature on an even beat), the first click would sound but the second click would not.

2.Similarly when advancing the sequencer to an even beat (by setting a justified mark after the current time and pressing play, or with the G-page's Control-C feature), the first click would not sound.

Q-page Click On/Off status display fixed

On the Q-page "Sync Panel", the Click On/Off switch didn't correctly display the click's on/off status when it was toggled with the keyboard buttons (or by any other external means). This is now fixed.

Other Click Track related bugs corrected

The following Click Track related bugs have been fixed.

The entry and display of duration in the "or, enter a new Length for the region:" field of the S-page's Fit To Time panel gave incorrect results. This bug also appeared when using meter maps in which the denominator of the time signature changed.

The S-page's display of times or durations in Meas:Beats format was incorrect. Beats were shown in the Measures field, while the beats and millibeats field showed meaningless numbers. (Actually this was fixed in time for Release 4.11 but wasn't included in the documentation).

Jogging times in Meas:Beats format on the S-page or Q-page generated ludicrous results. (For those unfamiliar with the term "jogging", it refers to decrementing a time field by option-clicking on it, or incrementing a time field by command-clicking on it).

The S-page's "current time display" in the upper right corner didn't follow the click track. Nor did the Q-page's giant time display.

Clicking on the Take buttons on the S-page or Q-page frequently produced ludicrous (often negative) times. Grabbing the sequence time with the Continue button (for startloop) or by holding Mark, Insert or Delete while pressing Continue, also frequently resulted in outrageous time values.

When attempting to dial justified times for Mark Start, Loop Start, Loop End, Insert or Delete, meaningless times were obtained. Dialing justified lengths for Loops, Insert and Delete gave ludicrous results.

Setting a Mark Start by holding Mark while pressing a track button produced ludicrous results.

Creating a justified loop with the End Loop button either produced no loop at all or produced a loop with ludicrous time values.

CLICK TRACK BUGS FIXED (EXHIBITED PRIOR TO RELEASE 2.7)

Each time the sequencer was backed up, either by rewinding or by using the G-page's Control-C feature, the beat numbers displayed in the VK window were offset by -1. To clarify, after rewinding once to beat 5, the counter would display beat 4 and remain off by -1 as the sequence played. After rewinding a second time to beat 5, the counter would display beat 3 and remain off by -2, and so on.

If you backed up the sequencer by setting a justified Mark, you would hear an 80 millisecond click-flam when you pressed play the first time.

After the sequencer was advanced to a point between beats by Fast Forwarding and pressing Continue, a stray audible click was emitted the instant the sequencer continued.

Advancing the sequencer, either by setting a Mark and pressing Play, or by using the G-page's Control-C feature, resulted in a horrible burst of rapid-fire clicks.

If you set a Mark after the last note on the click track, the sequencer would hang for a while, then start at the time of the last note on the click track, but at the wrong tempo.

When creating a justified loop with the End Loop button, the endloop was placed one millisecond too soon. Note: If the loop you're creating will start at a certain time between beats, such as if you have a pickup note, the endloop will only be accurately placed if you press the End Loop button before that time between any two beats. This is due to a current system limitation. If you have difficulty, you can always just type in the loop with the G-page or Q-page Event Editor Panel.

Recording of Real Time Effects bugs fixed

Several bugs have been fixed which caused the spurious recording of unused or unnecessary RTEs. Details follow:

A bug has been fixed which improperly initialized RTE values whenever the sequence was played with Mark Point off. A similar bug improperly initialized RTE values when an empty track was allocated for record. These caused a number of seemingly unrelated anomalies. Two notable ones are as follows:

1)When pressing record with Mark Point off, or when recording onto an empty track, the four monopolar RTE controllers (Ped1, Ped2, ModW, Brth) were recorded even though they were in their initial positions.

2)If you have a timbre with two partials who's volumes are both controlled by a monopolar controller, but one is controlled in the normal way while the other is controlled inversely, you won't hear it at all when played off a track until an applicable RTE occurs.

Users can once again control which RTEs are recorded and which are not. Any RTEs not used by the Timbre or by the MIDI settings will be ignored.

Sound File Offsets with Tempo Maps

It was recently noted that when using tempo maps, the sound file offset times reported on the G-page were not consistent with those reported on the Q-page's Event Editor Panel. (The Q-page's values were correct and the G-page's values were not.) This has now been repaired.

Dragging Memory Button time to Start Mark fixed

A rather aggravating S-page bug is now fixed! Dragging a time from one of the Memory Buttons to the Start Mark field now works as it should. (Before, the time would appear there but would not actually be stored in the Synclavier's Mark Start parameter. As soon as play was pressed, the previous Mark re-appeared.)

OPCOPY volume mounting bug fixed

After completing an Opcopy run, when inserting a new volume and running Opcopy again, the following message would frequently appear:

Could not mount volume: S$SenseKey = 6 Unit Attention
Status: SOURCE Drive is not ready;

Opcopy in 4.12 should correctly sense the Unit Attention status and retry without complaining.

Tuning problems with Sound Files using SFM Octave Base

It has been discovered that the tuning improvements implemented in release 4.11 have the potential in extremely rare circumstances to cause certain sound files placed in an old patch to sound a semitone sharp from what it did with pre-4.11 software. Chances are you will never encounter this situation, but in case you do, a brief explanation and work-around is provided here.

This only occurs with sound files that were assigned an Octave Base with a pitch offset of 50 cents in SFM. Sound files that use SFM's Octave Base are already quite rare. Those that happen to be set to 50 cents are probably extremely rare.

Here's a description of what is happening. Suppose a sound file is given an Octave Base of 4.0050. Should this be interpreted as a C that's 50 cents sharp or a C# that's 50 cents flat? Pre-4.11 software did not utilize rounding when calculating frequencies, consequently such Octave Bases were always truncated down to the lower frequency and thus interpreted as the lower pitch that is 50 cents sharp. As of release 4.11, rounding was implemented, consequently some Octave Bases set at 50 cents will round up to the higher frequency and thus be interpreted as the higher pitch that is 50 cents flat.

Please be sure not to confuse SFM's Octave Base with the Tuning offset field on the I-page. This anomaly does not occur with sound files given a tuning offset of 50 cents on the I-page.

If you should ever encounter this situation, keep in mind that it's not a bug but a circumstance of the improved tuning accuracy, and that you should simply increment the transpose key in the patch and resave it.

Reverse Compiler vrs. Locate point bug fixed

When reverse compiling a sequence which had a locate point saved, or which had a locate caption or sequence caption entered, the output file contained a bogus Notelist for Track 248 with a Track Volume of 1644.8. This prevented the file from re-compiling.

Tutorial - Programming "Swing" quantization

Many customers have asked for an easy way to justify shuffling rhythms, etc. The click track feature provides an intuitive and straight-forward way for users to set up any quantization pattern - even patterns that change from section to section. (In fact, this was the primary reason a priority was set for reinstating the click track feature.)

For example, one might set up a “shuffled” quantization grid like so:

```
----Track 32----
1.000 Loop Start
1.000 a3 0.000
1.300 a3 0.000
1.500 a3 0.000
1.800 a3 0.000
2.000 Loop End
```

- Set Live Click to track 32. (Hold click, press track 32 once, release click.)
- Set the Click Rate Multiplier to 1.
- Justify the desired track(s)*. (All justified notes will move toward the grid notes on track 32.)
- Revert to Internal Click when done. (Hold click, press track 32 once, release click.)

* While the click track is activated, the audible click will “play” the notes on that track, which can be very distracting during performance. Consequently, it’s probably best to record your performance using the internal click with justify off, then justify retroactively using the S-page.

If desired, you can construct a quantization grid that changes from section to section by using the chain feature (or the S-page’s unwrap loops feature).

Another similar application of the click track feature is to “tighten” accompanying instruments to a Rubato performance (or to a ritard) by using the track containing the Rubato performance as the click track when justifying.

EditView™

Significantly enhanced Cue Sheet printing via MixMap™

See MixMap™ documentation in separate file. The version of MixMap™ included with the this installation is designed to work only with EditView. If you wish to use MixMap™ with other hardware/software platforms contact DEMAS,Inc. to purchase a multi-platform version or download a demo copy from our website at www.synclavier.com.

More drawing bugs fixed

Additional fixes have been made in the endless battle to clean up the EditView window.

Fixed bug causing track solos to get stuck on

Previously, if an operator clicked near the global Solo button the system would, in fact, try to solo track '-1'. Problems resulted from the system believing a non-existent track was soloed when the operator had no way of knowing this.

Fixed bug where scrubbing prevented further track sliding

In special cases, scrubbing a cue could render track sliding inoperative. This is no longer the case.

Several crash bugs fixed

Several bugs related to font inconsistencies have been fixed. Some of these led to crashing if several applications were open simultaneously.

AutoConform

Improved update time for many cues

InterChange™

Better handling of file aliases to remote file servers

Interchange™ now better handles access to disk images anf files on remote servers.

Enjoy, and as always, let us now what we can do for you.

Cameron Jones

Release Notes for Synclavier Release 4.11 dated June 4, 1998

Real Time Software

- Track solo states are saved and recalled automatically with the sequence.
- Many, many G page and S page bug fixes were made

EditView®

- EditView® drawing of events in color to denote drive use
- Numerous black/white & color drawing bugs fixed
- Delete of multiple notes/events fixed
- PREV and NEXT buttons fixed
- More reliable machine control

AutoConform

- Faster event uploading
- More events
- Column spacing fixed

EditView™ Bugs Fixed

Delete of Event - The old 'Multiple Events at the Same Start time' bug has been fixed in EditView™. For many years EditView™ would incorrectly edit a sequence if there were more than one event at the same start time on one track. The symptom was that all the events at that same start time were deleted whenever one of the events was deleted or moved. This bug has been fixed in 4.11.

PREV and NEXT buttons should really work now - The 4.10 version of EditView™ introduced the PREV and NEXT buttons for scrolling through sequences that are available for recall. Due to a simple initialization bug, these buttons would often work incorrectly when scrolling through sequences in a subcatalog. The PREV and NEXT buttons should work correctly in all cases now.

Scrubbing with Machine Control - Several bugs were fixed that showed up while scrubbing audio in EditView™ while Machine Control was enabled. Frequently, Machine Control would be mysteriously turned off after several instances of quick scrubbing. These bugs have been fixed in 4.11.

EditView™ Color Feature

A feature has been added to 4.11 EditView™ whereby different colors can be used to indicate which Direct-To-Disk *drive* an event is stored on. This feature is activated by a new menu option on the *Control* menu called *"Show Event Sources"*. When this option is selected, different coloring schemes are used to show the events in EditView™ depending on which DTD drive stored the audio data.

Real Time Bugs

RS-422 Bootload Problem - The system would fail to properly initialize the D115 RS-422 card when the Real Time Software was activated when the current directory was on W1:, as in:

```
ENT W1:
...
PLAY
...
```

The sympton that showed up was that EditView™ would not communicate with the Real Time Software when the Real Time Software was launched when the current directory was on W1. This bug has been fixed in 4.11.

Optical Transfer to Locked Project - The Optical Transfer Panel of the Audio Event Editor did not check for a locked project when transfering to the DTD. The result would over-write the last cue in a (locked!) project. The software now checks for a locked project and will provide a warning instead of allowing the transfer.

Track Solos Saved with Sequence

The Real Time Software has been improved to save and recall the track solo states along with each sequence. Whenever a sequence is written to disk, the current state of track soloing is stored with that sequence. The saved state is restored when the sequence is recalled.

Due to internal constraints in the software, the soloing of **empty** tracks is not stored. That is, when the sequence is recalled, any empty tracks that were soloed when the sequence was saved, will not be soloed when the sequence is recalled. Please let me know if this is a real operational constraint on this feature.

Enjoy!

Cameron Jones

PARTIAL USER DOCUMENTATION FOR RELEASE 4.11

SOUNDFILE OFFSETS:

Prior to this release, the Synclavier did not take the effect of negative partial tunings into account when displaying soundfile offsets. Furthermore, with the release of 2.7, the displayed offset times inexplicably ceased to be correct for soundfiles with sample rates other than 50 Khz. Both of these problems have now been repaired.

In addition, if the system encounters a soundfile without an offset, it will now continue to look through the other partials until a soundfile with an offset is found or until all partials have been checked.

Some extra code was added to insure that the calculation of soundfile offsets will work even with samples created with very old versions of SFM (that haven't been subsequently edited with the L-page).

This repair will have a wider impact than just with the display and entry of soundfile offsets. The same error also caused incorrect calculations of RAM event durations/endtimes and certain other functions of the Q-page Event Editor Panel. As an example, if an offset time or a RAM event endtime is locked, and the user changes the pitch, the start time is altered so as to keep the offset or endtime locked. This calculation was previously erroneous for sample rates other than 50 Khz. This repair also enables the duration of the default note from the Q-page Event Editor Panel to match the length of the soundfile on A3.

CLICK TRACK FEATURE RESTORED (FOR THE MOST PART):

This feature, sometimes referred to as "Live Click" was a way of temporarily using the notes on a track as a surrogate click. While in effect, the interpretation of times in Beats or Meas:Beats format was done relative to the click track. With this feature, any rhythm on a track could be applied as a customized quantization grid to other tracks. After quantizing to this custom grid, the click could then be returned to it's normal mode.

When tempo/meter mapping was introduced with release 2.7, the click track feature had been severely crippled. In fact, the sequence of button presses that activated it was reassigned to create a tempo map instead. Since then, the only way to access the click track feature is from the S-page's Settings panel or the Q-page's Sync panel.

Restoring the click track feature is an ongoing process which is not complete as of this release. The following is an outline of the state of the click track feature as of this release.

- FIXED: Since release 2.7, any sequence that had ever been saved with a click track selected, was automatically converted to a tempo mapped sequence when loaded. Once this occurred, there was no way to return the sequence to it's original unmapped form. This meant that one could never again recall such a sequence as saved without reinstalling software prior to release 2.7. This auto-conversion routine has now been replaced with code that loads a sequence as it was saved.
- FIXED: The time displayed when holding a track button was incorrect.
- FIXED: On the G-page, the display and entry of times were misinterpreted such that the notes on the click track were only the odd numbered beats.

- FIXED: Entering durations on both the G-page and the Q-page Event Editor Panel gave incorrect results.
- FIXED: On the Q-page Event Editor Panel, the display of times or durations in Meas:Beats format was botched. Beats were shown in the Measures field, while the beats and millibeats field showed meaningless gibberish.
- FIXED: When a default loop was created on the G-page or the Q-page Event Editor Panel, the time of the endloop was not set properly relative to the click track.
- FIXED: Justifying to a click track using the S-page didn't work correctly.
- NOT FIXED: The audible click doesn't correctly follow the click track.
- NOT FIXED: The entry and display of duration in the "or, enter a new Length for the region :" field of the S-page's Fit To Time panel gives incorrect results.
- NOT FIXED: The S-page's display of times or durations in Meas:Beats format is botched. Beats are shown in the Measures field, while the beats and millibeats field show meaningless gibberish.
- NOT TESTED: We haven't yet tested whether MIDI sync correctly follows a click track.

One issue you may want to be aware of is that when using a click track with a meter mapped sequence, the notes on the click track don't necessarily relate in any way to the metric changes stored in the meter map. Consequently the meter map's changing time signatures cannot be meaningfully applied to the display and entry of times or durations in Meas:Beats format. Therefore the initial meter (that which was in effect when the meter map was created) is currently used for interpreting measures when using click tracks. In a future release, I hope to implement an independent "click track meter" which will enable the user to display and edit times relative to the actual measure or beat boundaries when the click track is a quantization grid.

TRACK SLIDING:

There was a bug that allowed tracks to slide out of sync relative to each other when slid toward beat 1. This was fixed in Release 4.10, but it was discovered after shipping that this problem still occurred if a real time effect, guitar update or independent loop existed prior to the first sounding note. This problem is now fixed as well.

Prior to this release, a track could not be slid (independently of others) unless it contained at least one note or cue. This was somewhat inconvenient since it's often handy to keep MIDI controllers on a separate track from the notes. Now, track sliding works the same no matter what type of event the track contains.

Justified track sliding now works correctly when using a click track. Keep in mind that, unlike with tempo mapping, the slid track does not conform to the click. Only the first sounding note on the track will necessarily remain at the same fraction of a beat. Consequently, unless the click track is a regular pattern, this feature is mostly only useful in conjunction with the STM record feature since a recording is placed as one note on a track.

CHAINING:

Anyone who periodically uses the CHAINING feature or the S-page's UNWRAP LOOPS feature has probably noticed that the chained notes are sometimes rippled by the wrong amount. A little investigation revealed the following three bugs:

1) The chained notes were rippled 50 ms late when the source track started in measure 0 and the destination track was not empty.

2) The chained notes were rippled 50 ms early when the source track started in any measure other than 0 and the destination track was empty.

3) If the source track started in measure 0, had a loop length shorter than the measure length, and was chained onto itself, the chained notes started at one measure after the first note rather than at one loop length after the first note.

The chaining routine has been rewritten and we haven't been able to make it produce erroneous results yet. Other than the absence of the aforementioned bugs and perhaps a slight speed increase, the user won't notice any difference from before, except perhaps for the following somewhat esoteric detail:

When chaining without a loop, any RTEs or Guitar updates between the measure boundary and the first sounding note will now be included in the chain (previously they were not). This is useful since such leading RTEs are often needed for initializing controller positions, MIDI parameters, etc. so that the repeated material will sound as it did in the first iteration.

TRANSPOSE:

When transposing using the transpose button on the keyboard, or with the "transpose track" feature introduced in release 4.03, any active screen is now immediately notified of the change. This means that any soundfile offsets or RAM event durations/endtimes displayed on the G-page or the Q-page Event Editor Panel will immediately update to show the effect caused by the transposition.

G-PAGE:

- TWO NEW TOOLS:

An “abort entry” and a “repeat entry” function have been implemented. Both are accessed by pressing control-X.

ABORT ENTRY: If something has been typed but not deposited (with return, enter, arrows, mouse click etc.), pressing control-X will abort the entry without the need for repeatedly pressing delete and the accompanying risk of accidentally deleting your note. Furthermore, by aborting your entry in this way, it is saved to be reentered at another location (or at any number of other locations) using the REPEAT ENTRY described below.

REPEAT ENTRY: After any entry is deposited (or aborted as described above), it can be repeated as often as desired by pressing control-X where desired.

Following are just a few scenarios where these two features can save a lot of time, effort and repetitious drudgery:

When you want all the notes of a chord to end at the same time, you can enter the end time over the first note, then just arrow down and press control-X for the remaining notes. You can also go from track to track, making each part end at the same time.

For accenting certain notes in an ongoing rhythm, there’s no need to keep typing the same velocity over each note to be accented (or the same pitch in the case of percussion patches having a different sound on each key).

If you type in an elaborate entry (like a SMPTE time), only to realize before pressing return that you’re on the wrong note, you can simply abort the entry with control-X, go to the correct note, then re-enter the aborted entry with control-X.

- RAM EVENTS:

RAM event durations/endtimes are now correctly displayed on the G-page. Prior to this release, the soundfile’s nominal length was used without regard for such things as how it was pitched, sequence speed and so on. As with the Q-page Event Editor Panel, since RAM event durations/endtimes are dependent on the soundfile lengths, they are not editable by typing over the duration or endtime field. Use EditView to modify RAM event durations/endtimes.

- DEFAULT NOTE:

When creating a default note with + or -, the default pitch will be A3 rather than C1. This is much more likely to be a usable pitch since soundfiles are assigned to A3 by default when loaded. As a logical extension to this line of thinking, if there is a soundfile active at A3 when the default note is created, the duration of the default note will match the length of that soundfile (as nearly as possible).

- INSERT INDEPENDENT LOOP & INSERT RTE:

When creating an independent loop using the ~ key, the loop length is now set to match your time signature. If a meter map is in use, the time signature of the measure where the loop starts is used.

An independent loop can now be created by typing ~ even if no note exists yet on the track. (Prior to 4.11, if ~ was pressed on a track with no notes, a default note was created instead of a loop.)

Similarly, a real time effect can be created by typing * even if no note exists yet on the track. (Prior to 4.11, if * was pressed on a track with no notes, a default note was created instead of a real time effect.)

When * is typed while the cursor is on an existing real time effect, that RTE will be duplicated, rather than duplicating the last RTE entered or creating the default RTE.

- VELOCITIES AND REAL TIME EFFECTS:

TRUTH IN ADVERTISING #1:

Prior to 4.11, the display and entry of velocities and real time effects had been confounded by a mismatch between the 201 discreet values displayed (0.0 to 100.0 in .5 increments) and the 226 discreet values actually stored in the sequence. This mismatch, in conjunction with a rounding anomaly, made it impossible for the user to enter certain values (without knowing the trick) and, of course, impossible to see the actual value resulting from the entry much less the actual value prior to the entry. This made it difficult to create smooth fade outs.

As of this release, the actual values are shown (rounded to the nearest tenth). Also the aforementioned rounding anomaly has been fixed (for both display and entry).

The accurate display of these values in conjunction with the improved S-page scaling finally eliminates the guess-work from such tasks as normalizing velocities and RTEs.

TRUTH IN ADVERTISING #2:

:

When showing pitchwheel RTEs, the G-page displayed, for all tracks, the semitones according to the pitch bend amount of the timbre on the track where the cursor rested, rather than according to each track's respective timbre. For example if you displayed a track using a timbre with a pitch bend amount of 12 semitones, and another using a pitch bend amount of 2 semitones, both tracks would display pitch wheel RTEs either from -12.00 to 12.00 or from -2.00 to 2.00, depending on which column the cursor was in. This was misleading and frustrating. This has been fixed. Now you'll see semitones displayed as you actually hear them in all cases.

:

The rounding (for both display and entry) has been improved to be consistent for both positive and negative pitch wheel values as well as for odd and even pitch bend ranges. The same has been done for ribbon controllers which also can have negative values.

:

Another more obscure bug with pitch bend RTEs occurred when typing semitone values far from 0 with bend ranges in excess of 163.83 semitones. Need it or not, it's fixed now.

- MANY INSTANCES OF OVER-RESPONSIVENESS AND UNDER-RESPONSIVENESS CORRECTED:

Prior to 4.11, there were a great many actions a user could take that would cause the G-page to update all of it's displayed information even though the user's action had no effect on this information. Consequently the G-page was a bit overactive with unnecessary screen traffic. Conversely, there were also several actions a user could take that should have an immediate effect on the tracks displayed, yet the G-page failed to update until some later action forced a redraw. Various instances of this caused outdated information to be left on the screen witch could easily mislead or confuse the user.

Accordingly, a good deal of care has been taken to fine-tune when the G-page should and should not update it's various displays, both to reduce needless screen activity and to assure that the information provided is always correct and not out of date. The specifics are as follows:

:

Previously, changes to global parameters such as Click Rate or Speed caused all of the track numbers and timbre titles to re-plot. (Certainly no point in that.) Now only the notes are re-plotted.

Note: There are scenarios in which changing the Click Rate has no effect on the displayed times but changing the Speed does (or vise versa). Currently the subsystem that reports user activity to the various screens does not distinguish between these actions. Consequently it is not feasible to disable the needless plotting of times in these instances.

SKT BLINKING MODE:

When sound file offsets were being displayed, any change to the keyboard timbre caused all three columns to update even though changing the keyboard timbre has no effect on the offset times in the sequence unless the SKT blinking mode is used to link a track's timbre to keyboard control (by holding SKT while pressing the track button). Furthermore, when the SKT blinking mode is used, RAM event durations/endtimes can also be changed from the keyboard timbre, yet these times were not updated on the screen unless sound file offsets were being displayed.

So, to correct all of this, changes to the keyboard timbre will no longer affect the G-page unless the SKT blinking mode is being used on one of the displayed tracks while soundfile offsets or RAM event durations/endtimes are being displayed.

When you abort the SKT-blinking mode without retaining the altered timbre on the track (by holding SKT while pressing Stop), the G-page will now automatically reset itself to represent the original timbre.

TRANSPOSING RAM EVENTS:

When tracks are transposed with the keyboard transpose button, RAM event durations/endtimes will change, but as described previously, unless sound file offsets were being displayed, the screen didn't update. This is now fixed.

SMT:

SMTing a new timbre onto a track could alter the soundfile names, soundfile offset times and RAM event durations or end-times. Yet this action only updated the timbre name in the track title. Now, SMTing a new timbre onto a track will immediately update the notes as well, but only if any of the aforementioned three items are being displayed.

"RECORD TRACK" FEATURE:

When the Record Track feature is in use (by typing # over the track number), changing the blinking track on the keyboard (or by any other means) now immediately changes the track displayed on the screen. (It used to be easy to inadvertently type over the wrong track because the G-page continued to display the old track.)

Also, when using the Record Track feature, if no track is blinking, the display will now show "No Record Track (R)". This will remain until, at any time later, a track is put into record ready mode and is consequently immediately displayed in that column.

Another problem with the Record Track feature was that you couldn't deselect the track by pressing the delete key over the track number. It was necessary to first type some other track number and then press delete. Needless to say, this bug has been squashed without remorse.

:

Pressing the space key with the cursor over the pitch column no longer causes a screen redraw.

:

Toggling “Note Ripple” or “UNDO Enabled” no longer causes a screen redraw.

- A FEW ANNOYANCES VANQUISHED:

:

Prior to this release, pressing delete on a note in the top row caused to cursor to jump to the second row after deletion. This made it very inconvenient to delete multiple notes from the top row and would often cause accidental erasure of the third note when the first and second notes were the intended victims. Deleting from the top row now behaves consistently with deleting from any other row.

:

There were certain instances whereby, given the positions of the cursor and the columns, it was impossible for the user to type enough characters to complete the desired entry. These are too numerous to list here but as just one example, if you needed to type over an End-Time displayed in Meas:Beats format and the measure number had 3 digits or more, you couldn’t enter the third digit after the decimal. To alleviate as many of these sorts of problems as currently feasible, the cursor and column positions have been optimized. (Sure it looks a little lopsided now, and when soundfile offsets are displayed the circumflex connects to the pitch, but you’ll be glad when you need those extra characters.)

:

Sometimes when changing display modes or tracks while the sequence played, certain trailing or leading characters were not cleared and caused screen litter and confusion. This happened when displaying sustain pedal, when soundfile names where erased, when a track with cues was selected over a previous track without cues, when velocities yadda yadda and a multitude of other rather specific scenarios. I think we fixed them all. We certainly fixed the vast majority of them.

:

Loop Starts and Loop Ends can no longer be inadvertently duplicated in isolation with + or - . (Once this occurred, there was usually no way to delete the invalid event, short of reverse compiling the sequence.) Pressing + or - with the cursor on a loop event (or in the same row on another track) now creates a default note at the loop event’s time. Actually rather handy.

- CONSISTENCY IN PROCESSING PENDING ENTRIES:

Prior to 4.11, if something was typed in without return being pressed, and then the mouse was clicked elsewhere, the entry was deposited at the clicked position while also remaining visually at the original position even though it didn’t get deposited there. While this loophole could be put to good use in rare circumstances (for example, realizing after typing something but before pressing return, that it should have been on a different note), more often it caused unintended edits and screen litter.

To close this loophole, clicking the mouse while an edit is pending now completes the edit where entered before changing the cursor position. If you click the mouse while the system is waiting for you to confirm a ripple edit, the edit is executed without ripple and then the cursor position is changed. This behavior is consistent with what happens when moving the cursor by any other means while the system awaits ripple confirmation (i.e., arrow keys, return).

The aforementioned paragraph now applies also to pressing > to go to the S-page, as well as pressing the ENTER key to go to the main menu. Previously, if either of these were done while an edit was pending, the edit was discarded.

Furthermore, clicking the mouse, pressing > or the enter key after typing an entry when using ripple verify mode, now behaves consistently with the other means of moving the cursor (i.e., arrow keys, return). That is, the cursor is not moved, but instead the verification prompt is printed.

- MINOR DETAILS:

You'll perhaps notice that the G-page looks a bit different from before. Some of these changes are merely cosmetic (for example, things are centered better and more symmetrically placed) but more importantly, many such changes were made for utilitarian purposes (even at the expense of appearance in some cases). Specifics are as follows:

:

Note velocities now plot with the decimal in a position different from that of RTE values. This makes it easy to distinguish at a glance between note velocities and RTE values.

:

The G-page initializes with the mode selection panel displayed rather than the instructions. This was done because the mode selection panel contains immediately useful functions whereas most of us read the instructions once years ago and haven't needed to see them since.

:

The Instructions have been modified to include the RECORD TRACK feature and to be centered and formatted more consistently. Also the <DELETE>, H, # and <ENTER> items are now clickable as well as <TAB>.

Similarly the items in the mode selection panel and the panel above have been centered and formatted more consistently. More importantly, the active regions for mouse clicks have been adjusted to accurately match the text on screen. (These were pretty wacked out before. For example, clicking on the E in <SPACE> would actually activate an "Insert Note" instead.)

- BARELY WORTH MENTIONING:

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Fixed an error that caused the line-join at the lower right side of the mode selection panel to be overwritten when TABing to the instructions and back (never to be recovered).

:

To maintain consistent nomenclature, "Append EFX: *" has been changed to "Insert RTE: *".

:

The title at the top of the page has been centered better. The track titles have been better centered over the columns. (Not exactly the sort of thing you're paying for, but it looks nicer.)

Q-PAGE: EVENT EDITOR PANEL:

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All G-page improvements pertaining to the entry and display of velocities and real time effects, including issues of rounding and of pitch bend amounts exceeded 163.83 semitones, have been applied to the Q-page Event Editor Panel as well.

:

As with the G-page, the default loop length is now set according to your time signature (although it defaults to two measures here instead of one). If you're using a meter map, the default loop will even match changing time signatures. If you're using a click track, it currently defaults to one measure using the meter map's time signature at the loop start time.

:

When creating a default note with the "Add Note -" or "Add Note +" buttons, the pitch will now default to A3 rather than C1 even if no sound file is found. This is more likely to be a useful pitch since soundfiles are assigned to A3 by default when loaded.

S-PAGE:

- SCALING TRACK VOLUMES:

Track Volumes can now be scaled by factors greater than 100%. Standard rounding has been employed to maintain proportions as closely as possible.

- UNWRAP LOOPS:

The fixes detailed in the section on CHAINING also apply to the "Unwrap Loops" feature of the S-Page.

- "CHANGE RTE" AND "CHANGE VELOCITY":

All of the functions pertaining to velocities and real time effects have been redesigned. The functions that previously didn't work correctly (outlined below) now do. Scaling precision has been increased and rounding has been incorporated for more accurate results. Also, negative scaling factors can now be used to invert RTEs and velocities.

INVERTING:

The new ability to scale by a negative factor can be very useful. For example, pitch bends can be inverted, one track can be made to accent another track's quiet notes, equal sum cross-fades can be easily created, etc.

INCREASED PRECISION:

Prior to 4.11, when entering a scaling factor for RTEs, even though the user could enter two places after the decimal, it turns out that (unknown to the user) both digits after the decimal were discarded before scaling ribbon controllers, and the second digit after the decimal was discarded before scaling other (non-MIDI) RTEs. Now, all scaling utilizes the full number as entered and displayed.

:

Resolution is now conserved in all of the sloping functions for velocities and RTEs.

FUNCTIONS THAT PREVIOUSLY DIDN'T WORK:

The "Slope" function for ribbon controllers never worked correctly. Negative values were written as Guitar updates. Although Guitar updates are very nice, this bug has been fixed.

The "Scale RTE by" and the "Add" functions for both pitch bend and ribbon controller never worked correctly. They produced garbled results. These have now been fixed. However, the as-of-yet unfixed problems with the user interface, require that the user manually enter meaningful Minimum and Maximum limits before executing the edit. A discussion of this issue follows.

PITCH BEND RTES: A STICKY ISSUE CLARIFIED:

It will be useful to anyone wishing to edit pitch bend or ribbon controller to be aware of the following issues. The range for normal RTEs is 0.0 to 100.0. Pitch bend and ribbon controller RTEs are different in that their range is from -100 to 100. To further complicate things, the pitch bend RTEs are expressed in terms of the pitch bend amount of the timbre in use. Consequently, the maximum and minimum limits that are appropriate for normal RTEs, are not appropriate for ribbon controllers or for pitch bend, and because the pitch bend values are expressed according to the timbre's bend range, limits that are appropriate for ribbon controllers are not appropriate for pitch bend and vise versa.

Even now that the edit functions for pitch bend and ribbon controller are fixed, the problem remains that when the user selects pitch bend or ribbon controller, the maximum and minimum limits do not automatically change to appropriate values. This should be fixed in the future, but for now it will be necessary for the user to manually enter appropriate values after switching between normal RTEs, pitch bend or ribbon controller.

Now with this explained, another bug fix can be described:

A further problem remained that the user often couldn't enter the desired maximum and minimum limits for pitch bend because the system was limiting the entered value to the bend range of the timbre on the last track edited (or the last track plotted on the G-page). Clearly, since this isn't necessarily the track about to be edited, and since any number of tracks with different bend amounts may be edited in one step, such limiting serves no purpose other than to fetter the user.

To eradicate this problem, the entered maximum and minimum limits for pitch bend will now only be limited to the maximum pitch bend amount for any timbre, which is 240.00 semitones.

TEMPORARY SAFEGUARDS INSTALLED:

The S-page's user interface for the "Change Duration", "Change RTE" and "Change Velocity" functions, have some rather knotty loopholes that leave ways for the user to inadvertently enter out-of-range values that could then cause the functions to produce unintended or even invalid results. These have not been corrected yet. Consequently, safeguards have been installed to internally limit the values passed to the functions.

One example of this happens when entering valid limits for one type of RTE and then changing to another type of RTE where the limits are no longer valid (yet they remain). Another example is that when changing from "Slope" to "Scale" or "Add", it is possible to have a Maximum value less than a Minimum value. Previously this caused all RTEs (or velocities) to be set to the faux Minimum value. Now, when this occurs, the Maximum and Minimum limits will be exchanged internally before the edit is executed.

- BUG FIX: SPURIOUS TRACK SOLOS AFTER PASTE/MERGE/FILL:

Last year a very curious bug appeared that caused the buttons for any tracks which had previously been pasted/merged/filled into, to light up after every paste/merge/fill. The danger posed by this was that when doing multiple edits to a group of soloed tracks, if the user didn't notice that unintended tracks lit up between edits, then tracks would be edited that shouldn't have been. (Even if the user did notice, it was certainly inconvenient to have to keep turning the renegade tracks off after each edit.)

Owing to the potential for easily losing one's work, as well as the annoyance factor, this bug has been eliminated.

- TWO JUSTIFY BUGS FIXED:

Aside from the fact that the Justify function now works correctly with click tracks, the following two bugs have also been repaired:

When two adjacent quantization gridpoints were an odd number of milliseconds apart, a note at the "midpoint" closer to the earlier gridpoint quantized improperly toward the later gridpoint.

Erroneous results occurred when the beats immediately before and after a note to be justified were on opposite sides of any multiple of 64K milliseconds.

- MINOR DETAILS:

:

The "Change RTE" panel now initializes to "Scale RTE by" instead of "Set RTE to". Also the RTE type now initializes to "Mod Wheel" instead of "Pedal 1". This seems to be the most likely to be used combination. Hopefully no-one will be seriously upset by this.

:

When entering Maximum and Minimum limits, any excess digits to the right of the decimal place are now used for rounding rather than simply being discarded.

:

Pitch bend RTEs are no longer quantized to the resolution of the timbre's pitch bend when executing a "Scale RTE by" and the "Add" edit. Previously, when a timbre with a bend range less than 100 was used, resolution was lost as a result of this quantization.

:

The rounding used by all "change rte" and "change velocity" functions has been improved to be consistent for both positive and negative values as well as for odd and even ranges.

:

The failure previously mentioned, which occurred only when the pitch bend amount exceeded 163.83 semitones, has been fixed in three parts of the S-page code as well.

- BARELY WORTH MENTIONING:

Stray periods printed after the number following "Set velocities to" and "Set durations to" have been eliminated.

MISCELLANEOUS:

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The tuning accuracy when changing partial tunings or overall tuning has been slightly improved.

:

Some of the frequently used routines in Release 4.11 have been streamlined. Some of these modifications result in faster and more efficient execution of certain procedures (only very slightly in some cases, more substantially in others), whereas others make the program consume less memory. (As one example, a good deal of duplicated code, once required due to the limitations of the C Processor, has been eliminated). Most of these changes will likely be unnoticed by the user, but it's worth mentioning them none the less.

:

An ancient bug was discovered that caused the titles of the A, C, D, E, I, K and M pages to be offset one character to the right.

A CORRECTION TO THE 4.10 RELEASE NOTES:

A bug-fix reported in the 4.10 release notes was misdescribed.

The report stated: “A bug was fixed in the EDIT module that causes a system crash when editing files on a different hard drive than the current catalog.”

The correction is as follows: “A bug was fixed in the EDIT module of SFM that caused a system crash when writing to any sector exceeding 32 megabytes from the origin of the disk.”

Feature Summary for Release 4.10

Bug fixes carried forward from the Release 4.03.1 update

- Bug fixes to track sliding of grouped tracks
- Track groups now not erased when a Tempo Map is created
- Termulator now quits properly on ShutDown and Restart
- "Fat" Termulator and EditView® applications available
- Bug fixes to some of the 'window' menus
- EditView® preferences are now saved correctly

New Bug Fixes in 4.10

- A Termulator problem that broke the simple "Generate SMPTE" capability of the Synclavier® has been fixed.
- Several (actually many!) bugs were fixed so that the Sync Panel of the Audio Event Editor can correctly handle negative time values in the Compute SMPTE Offset and Compute Event Times sub-panels.
- A bug that caused the Synclavier® to freeze on the K page (Music Notation Screen) has been fixed.
- SFM updated to new platform and an editing bug fixed

New Features in 4.10

- Improved Termulator operation with 7100/8100 Power Macs™ at high baud rates.
- The "Journaling" feature of Termulator has been restored.
- Script/Reverse Compiler updates
- A preference option has been created for the operation of Track Grouping.
- "Export One File" Macintosh utility for transferring files from a Macintosh to a Synclavier® hard drive using SCSI.
- OPRENAME and OPREPAIR utilities are now included.
- The 'Guitar' compilations is available for anyone with the Digital Guitar hardware.
- AutoConform is available in an accelerated "fat" application for both PowerPC and 68k based Macintoshes.
- EditView® now has the ability to Save, Recall, and Revert the sequence that is memory. Additionally, it shows in the EditView® Title Bar the path and filename of the sequence that is recalled.
- Synclavier Error Messages Displayed in EditView®
- Refined 'Cue Sheet' printout capability in EditView®

What's been accomplished:

- Continued development in the area of Macintosh integration of the Real Time Software.
- All software verified with Macintosh OS 8.0

Details of 4.03.1 bug fixes.

Real Time Software:

- Some further refinements to track sliding from the VK panel were made. These enhancements will preserve the time relation between tracks being slid and the click track in all cases. 4.03 had a bug where the time relation between tracks and the click track could be lost if justification was enabled.
- A bug showed up in release 4.03 that caused track group settings to be lost when a tempo map was created by holding the click rate button and pressing a track button. This bug was fixed in 4.03.1.

Termulator:

- The PowerPC version of Termulator (A.K.A TermulatorPPC) did not shut down correctly in response to the Finder's "Restart" and "Shut Down" menu commands. This was been fixed in 4.03.1. This bug did not show up in Termulator68k.
- The PowerPC and 68k versions of Termulator are now combined into one 'fat' application called 'Termulator'. This change simplifies both the distribution and installation of the software as well as simplifies the operation of the 'Window' menu in other applications such as EditView®..
- The 'Window' menu in Termulator did not function correctly in 4.03. This has been fixed. The 'Window' menu now correctly handles 'aliases' to other applications.

EditView®:

- The PowerPC version of EditView® did not save its 'preferences' properly when quitting. The prefs were saved correctly if any printing had been done; they were not saved in other cases. The preferences (including window size, etc.) are now saved correctly in all cases.
- The 'Window' menu in EditView® did not function correctly in 4.03. This has been fixed. The 'Window' menu now correctly handles 'aliases' to other applications.
- The PowerPC and 68k versions of EditView® are now combined into one 'fat' application called 'EditView®'. This change simplifies both the distribution and installation of the software as well as simplifies the operation of the 'Window' menu.

Details of 4.10 Bug Fixes.

- A problem with the X-on/X-off processing in some versions of Termulator was causing the "Generate SMPTE" function of the Synclavier® to stop randomly, usually with a few seconds of starting. The fault has been located and the bug has been fixed.

- An old problem (circa Release 2.8) with the "Compute SMPTE Offset" function on the Q-Page 'Sync' panel has been fixed. This particular bug caused incorrect values to be calculated if a negative number was entered while in the "BEATS" or MEASURES AND BEATS" display mode. In fixing this bug several other potential bugs were discovered and repaired to prevent similar problems in the future.

- Users of the K-Page, particularly with older systems or those configured with 60K of core memory, have been experiencing crashing when that page was selected while an empty sequence was loaded. This

was due to an error that caused the CPU to reference a location in memory that did not exist. This has been corrected and should now function properly in all configurations.

- A bug was fixed in the EDIT module that causes a system crash when editing files on a different hard drive than the current catalog. The source for the Sound File Manager has been located and updated for our modern Macintosh development platform.

Details of 4.10 Features.

Macintosh System 8.0

We have made the switch here at DEMAS, Inc. to using Macintosh OS 8.0 on our development systems. It appears to be a good and stable Mac OS release. At first I missed some software add-ons that I had been using to navigate around the Macintosh (the "Now" utilities). I eventually found some shareware replacements which work quite nicely ("MenuChoice", "Default Folder" and "GoMac"). I would recommend upgrading to Mac OS 8.0 on all PowerPC machines.

Improved communications with Power Macs™ at high data rates

Prior versions of Termulator did not work correctly on some Macintosh models running certain versions of the Macintosh OS. The result was frequent graphics errors making the Termulator window difficult to use. The problem was most noticeable on Power Macs™ running System 7.6 and later, at the higher baud rates. This was a complicated problem created by undesirable interactions between the 'serial driver' and the way in which Termulator used the serial ports.

Having a large or second video monitor contributed to the problem due to additional interrupt latency introduced when the large or second monitor was re drawn.

A menu option has been added to the Release 4.10 version of Termulator to provide control over the internal mechanism that Termulator uses to access the Macintosh printer and modem ports. The traditional 'polled' serial port mechanism is available when the 'Use Polled IO' menu item is checked (see the 'Terminal' menu). A new mechanism using 'DMA' IO provides superior performance on all PowerPC Macintoshes that are running System 7.6 and beyond. It may also provide improved performance on some 68k Macintosh models. By upgrading to System 7.6 or System 8.0 and unchecking the 'Used Polled IO' menu item, all systems should be able to reliably communicate at 38,400 BAUD.

Note: Using the 'DMA' IO setting is not recommended on PowerPC Macintoshes running Mac OS 7.5.1 and earlier as problems are known to exist.

I would recommend that you use "Polled IO" on any system running Mac OS 7.5.1 and earlier. I believe that "DMA IO" will work at higher data rates on all systems running Mac OS 7.6 and beyond. Intermediate systems (e.g. 7.5.3 and 7.5.5) will vary between platforms.

Note: Unfortunately, the Release 4.03 and earlier CONFIGUR program does not work correctly with the new Termulator when the new Termulator is using DMA serial IO. This bug is a result of a time measurement that CONFIGUR makes to try and figure out what kind of terminal it is talking to. The time interval is different when the new Termulator is used, so CONFIGUR gets confused. The 4.10 version of CONFIGUR fixes this problem and will work in all cases.

If you wish to use earlier versions of CONFIGUR, you will have to switch to "Use Polled IO" before starting CONFIGUR.

Journaling Feature Restored

Journaling is a feature that captures text from the screen and saves it in a text file. For example, if journaling is on while you are running the OPLIST utility, the list of files on the selected optical disk is saved in a text file. Once the text is captured, you can use a word processing program to edit and/or print the the file to a printer connected to the Macintosh.

To turn on journaling, press CMD-Option-del (the 'del' key is above the arrow keys). A dialog box asks you to name the file created. Output from the is then recorded to the file.

To turn of journaling, press CMD-Option-del again. The screen output is no longer recorded to the file. To add more captured text to the same file, turn journaling on again.

While journaling is on, you can also close the current file and open another. When you press CMD-Option-end, the current file closes and a dialog file asks for the name of a new file.

Look for menu support of Journaling in the near future.

SCRIPT/Reverse Compiler

Some updates were made to SCRIPT and the Reverse Compiler for release 4.10. For a number of years in the late 1980's features were added to the Real Time Software but were not properly updated in the SCRIPT language and Reverse Compiler. Some of these limitations have been addressed in Release 4.10, including:

- translation of the preferred Poly bin
- translation of Track Grouping assignments

Button Panel activation of Track Grouping

The response to the Track Grouping feature introduced in Release 4.03 has been very positive, however several users reported having difficulty with the 2-second timer that was used to start the feature. We have made 3 changes to the way Track Grouping operates in Release 4.10 to accommodate these requests:

1. Track Grouping while Playing - Release 4.10 will **not** enter the 'Create' or 'Modify' track group menu while the sequencer is playing. There are several situations while playing where track buttons are held for extended period of times - for example when setting up independent loops. Release 4.10 will not create a track group while playing no matter how long the track button is held.

2. Hold the 'SEQ NAME' button and press a track button to create a track group - Release 4.10 lets you bypass the 2-second timer by pressing and holding the SEQ NAME button and then pressing a track button. The SEQ NAME button is used to control the 'start-up-notes-in-middle' function. It has never been used to enter a sequence name. Pressing and holding the SEQ NAME button and then pressing a Track button will force immediate entry into the 'Create Track Group' or 'Modify Track Group' menu, even if the sequence is playing.

3. MONITOR 'GRP' Preference - a preference option has been added to the MONITOR to disable track group creation by holding track buttons in all cases. This setting may be desirable for users that find the 'Create Track Group' or 'Modify Track Group' menu appearing when not intended. The relevant MONITOR commands are:

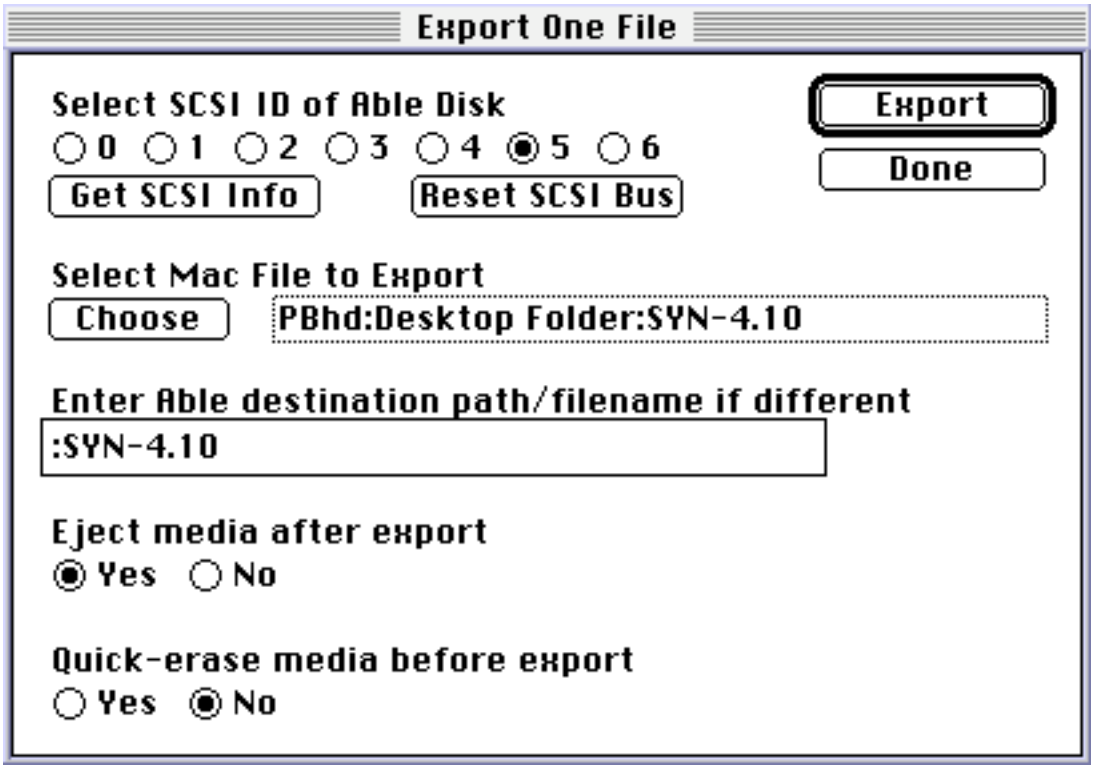
```
   SET GRP ON
   SET GRP OFF
and   SHOW GRP.
```

The GRP preference defaults to ON; that is, Track Groups can be created or modified by holding a track button for 2 seconds. When the GRP preference is set to OFF, Track Groups can only be created or modified by holding the SEQ NAME button and then pressing a track button.

You may add 'SET GRP OFF' to your PROFILE file to set this preference to OFF whenever your system starts up, if you wish.

Export One File

Screen shot of the *Export One File* dialog window:



The *Export One File* utility is used to transfer a file from the Macintosh to a Synclavier® hard drive connected to that Macintosh. Media control is provided, as is the ability to initialize the Synclavier® hard drive before exporting (**to be used with care!!!**).

My initial purpose for creating this utility program was to provide a mechanism for e-mail distribution of software updates. Over the next few releases we hope to expand the capabilities of *Export One File* to include the ability to import files to the Mac, and to convert files from AIFF to Synclavier®-specific sound file formats.

The *Export One File* is not included in this disk set, however, it is available to those who would like to try it. Please let me know if you have an immediate interest in this utility program and I will send it to you via e-mail.

Guitar Compilation

A guitar compilation of Release 4.10 is available to anyone using the NED Digital Guitar hardware. Please let us know, if we are not already aware, that you need a copy.

OPRENAME and OPREPAIR utilities

OPRENAME and OPREPAIR utilities have updated SCSI protocol to better handle Magneto Optical drives. They are now included in the ABLE system software. Additionally, all files on the System Utilities diskette have been updated wherever applicable.

OPRENAME appears similar to OPREPAIR initially but instead allows you to change the name of an optical volume. This is useful when a copy of an optical volume is made for use within the same facility. Volumes with identical names can be confused by a system and, because the physical location of files on each media is **not** identical, incorrect sound file data can be recalled to memory. For this reason it is recommended that no two optical volumes within a facility ever be given exactly the same name.

AutoConform

The source for AutoConform has been located and converted to CodeWarrior Pro 1.0. At this point in time we have created a 'fat' AutoConform application that is included in Release 4.10. We plan to add several new features to AutoConform during 1998.

We believe that the source we have for AutoConform is the correct source for the version that has been in use for several years. However, bugs could be introduced in the current version as a result of switching to the CodeWarrior development environment. Please let me know if the operation of AutoConform has been changed in any way for release 4.10.

Saving and Recalling the Synclavier® Sequence from EditView®

You can now save and recall the Synclavier® Sequence from EditView®. Four basic capabilities are available:

1) Recall a named 'stored' sequence by path and filename
2) Save (or replace) a 'named' sequence to a specified path and filename
3) Save the current 'in-memory' sequence back from.
4) Revert the current 'in-memory' sequence to the most recently saved version.

Four buttons have been added to the EditView™ Screen to accomplish this:

NEXT, PREV, STORE, and RECALL

The **NEXT** and **PREV** buttons are used to scroll through the list of sequences that are available on the Synclavier®. These buttons mimic the Motion Panel forward/backward buttons in the Audio Event Editor. Additionally, a text field just to the right of the **NEXT** and **PREV** buttons is available to enter path and file names.

You will notice that the **NEXT** and **PREV** buttons in EditView® are "linked" to the forward and backward scroll buttons in the Motion Panel. Scrolling can be performed either from EditView® or the Motion Panel.

To use **NEXT** and **PREV** buttons, enter the starting path name in the field provided to the right of the buttons. Press <RETURN> to enter the path name into the Synclavier®. You will see the path name appear in the Motion Panel if that screen is visible.

User tip: For best results, type a ':' at the end of the path name, such as "W0:" or ":SEQCAT:".

Once you have entered the path string, you can use the **NEXT** and **PREV** buttons to navigate through the sequences that are saved on disk.

Of course, you may type in the complete path and file name directly if you prefer.

Once the path and file name are shown, you may use the **STORE** or **RECALL** buttons to access the specified file.

When a sequence is called up, the path and filename of that sequence are shown as the title of the EditView® window. The title of the EditView® window is updated whenever a sequence is recalled, whether from the button panel, from the C-page, or wherever.

Using the **SAVE** and **REVERT** menu choices

The **SAVE** menu choice (activated by cmd-S) stores the current sequence back to where it was called up from. In Synclavier® terms, it should be viewed as a "replace" function.

Note that the **SAVE** menu choice does not use the path name or file name entered for the **NEXT** and **PREV** buttons. Instead, the **SAVE** menu item uses the name shown for the EditView® window to identify where to save the sequence.

REVERT is used to reread the sequence into memory from where it was most recently save to, or recalled from. Any changes that had been made to the sequence in memory will be discarded. **REVERT** uses the path name and file name shown as the title of the EditView® window to identify the Synclavier file to use.

Synclavier Error Messages Displayed in EditVIew®

Error messages from the Synclavier® and DTD are now displayed in the lower-left corner of EditView®'s window. In some cases, when operations like Store and Recall generate errors, they will be displayed as alerts.

Cue Sheet Printing from EditView®

The 'Cue Sheet' printout capability in EditView® has been refined and enhanced with more formatting and time-scaling options. Additionally, Project/Track names are now displayed in the printout and are taken directly from the Synclavier® sequence.

Event alignment has been improved to better indicate sequence timing to the mixer.

The 'Event Break' feature allows the user to print cues which occur closely in time, on a single track, to be printed as a single event for ease of display. To prevent the 'event break' feature from combining specific cues, place an exclamation point as the first character of a cue's dialog. Any cue beginning with an exclamation point will never be joined with preceding cues.

If an event is continued to another page, the word "continued" is printed at the top of the that event on the next page, along with the name and caption. This alerts the mixer to the fact that this is an event already in progress.

Note: At this time, 'Punched In' cues do not get "continued" text.

You can now stop printing at any stage without crashing the Macintosh®. Previously, in some cases. Editview™ would crash when Command-Period(.) was pressed to stop the printing process.

Note to users of Hewlett-Packard printers: Pressing Command-Period(.) to cancel from the print dialog when using Hewlett-Packard printers does not work. As far as we can tell, this is because the HP driver does not allow key presses to be read by software using the driver, preventing EditView® from detecting the cancel command.

Release Notes for Synclavier Release 4.03.1 dated November 1, 1997

4.03.1 is available to address some specific bugs that showed up in 4.03. The following issues are addressed;

Real Time Software:

- Some further refinements to track sliding from the VK panel were made. These enhancements will preserve the time relation between tracks being slid and the click track in all cases. 4.03 had a bug where the time relation between tracks and the click track could be lost if justification was enabled.
- A bug showed up in release 4.03 that caused track group settings to be lost when a tempo map was created by holding the click rate button and pressing a track button. This bug is fixed in 4.03.1.

Termulator:

- The PowerPC version of Termulator (A.K.A TermulatorPPC) did not shut down correctly in response to the Finder's "Restart" and "Shut Down" menu commands. This has been fixed in 4.03.1. This bug did not show up in Termulator68k.
- The PowerPC and 68k versions of Termulator are now combined into one 'fat' application called 'Termulator'. This change simplifies both the distribution and installation of the software as well as simplifies the operation of the 'Window' menu.
- The 'Window' menu in Termulator did not function correctly in 4.03. This has been fixed. The 'Window' menu now correctly handles 'aliases' to other applications.

EditView®:

- The PowerPC version of Editview® did not save its 'preferences' properly when quitting. The prefs were saved correctly if any printing had been done; they were not saved in other cases. The preferences (including window size, etc.) are now saved correctly in all cases.
- The 'Window' menu in EditView® did not function correctly in 4.03. This has been fixed. The 'Window' menu now correctly handles 'aliases' to other applications.
- The PowerPC and 68k versions of EditView® are now combined into one 'fat' application called 'EditView®'. This change simplifies both the distribution and installation of the software as well as simplifies the operation of the 'Window' menu.

C. Jones
10/23/97

Release Notes for Synclavier Release 4.03 dated September 1, 1997

Release 4.03 is now available!

What's added:
- Track grouping from the VK button panel
- Accessing all 200 Sequencer Tracks from the VK button panel
- More options for the VK ERASE button
- Recording of sequencer transpositions
- Cue sheet printouts (by output) in EditView
- Longer event captions in EditView
- Editing event captions in EditView
- PowerPC Native Termulator
- Eve-key-less EditView, MidiNet, AutoConform, TransferMation
- Removable media support for the DTD
- Removable hard disk for DTD backup
- Format of DTD hard drives from the O-page

What's been accomplished:
- Lots of small but important improvements and fixes to Termulator
- Locating good sources for EditView, AutoConform, MidiNET
- MPW Development environment completed for ABLE software

Highlights

Direct-to-Disk

- The source for the Direct-to-Disk operating software (.LOD-7) was converted to our modern development environment. This both allows us to add features to that module, and assures us that we have the correct working source as a platform for future releases and software development efforts.

- The Direct-to-Disk Cue Directory software was reorganized in memory to speed up certain screen updates in the Audio Event Editor and Editview. This was done to address delays and slow-downs that occur when the system is loaded with many cues.

- The Direct-to-Disk software was enhanced to support removable-media-hard-drives as both an operating medium and as an alternative to DAT tape backup. Backup-up-to-Jaz can be added to many systems without disturbing the existing tape backup configuration.

- A feature was added to the O-page to quickly format all DTD hard drives in one simple operation.

- The O-page was modified to allow the entry of longer project start and end times. 6-character values (e.g. 100:30) may now be entered. A space character may be used in place of the ":".

- The "Skip All" command was restored to the O-page. The "Verify All" command reads through each project on the backup tape and verifies the checksum for each project. The "Skip All" offers the fastest way to position the backup tapes at the end of the media.

Real Time Software

- A previously unused button ("TRACK PAN") was implemented to provide for simplified and speedy access to all 200 tracks of the Digital Memory Recorder. All 200 tracks of the sequencer can be easily accessed directly from the button panel without resorting to the screen software.

- The operation of the ERASE button was enhanced in several ways. Firstly, more informative VK Window displays are provided while erasing. Secondly, a new capability was added to erase just the *HELD* track buttons. This feature allows you to erase just one track without disturbing a complex solo setup.

- An entirely new capability to create "grouped" tracks was implemented in Release 4.03. This feature allows you to create a hierarchy of "grouped" tracks that can be accessed from a single Track Select button. This feature is particularly convenient for soloing and unsoloing a group of tracks, for sliding a group of tracks, and so forth.

- A bug with track sliding has been fixed in 4.03. In earlier releases the time relationship between tracks could be changed when sliding more than one track at once at the same time. In 4.03, when multiple tracks are slipped at the same time, the tracks being slid will remain in sync.

- The sequence transpose capability of the Real Time Software was enhanced for this release. Sequencer transpositions can now be recorded by recording actual notes on a sequencer track. The first note on the track becomes a 'reference pitch' that defines the pitch around which notes are transposed. When this feature is combined with the track grouping feature, multiple transpositions affecting different tracks can occur at the same time.

Macintosh Software - Termulator

- Termulator68k (for 68k Macintoshes) and TermulatorPPC (for PowerPC Macintoshes) are now available.

- Numerous display problems in the Termulator VK Panel Window were fixed. These problems showed up in various ways such as mysterious "green" buttons flashing on the panel, buttons stuck "on", and buttons staying green instead of red.

- Termulator now detects and reports if the chosen Serial Port is in use when Termulator is started up. Earlier versions of Termulator would frequently crash your Macintosh in that situation. The new version detects the port in use, reports that to the user, and allows the user to select a different serial port. Alternatively, the same serial port can be reselected from the Terminal menu once the offending application is halted.

- Numerous "low memory" crashing problems were identified and fixed.

- The VK panel portion of Termulator should update much faster and in a more consistent way, especially when button presses are being processed.

- A new streamlined mechanism for "pressing and holding" a Synclavier button from Termulator was implemented. The existing method (e.g. holding shift while clicking a button) is unchanged. In the new software, a button can also be held simply by pressing the button with the Macintosh mouse and holding the Macintosh mouse button down. This mechanism is particularly convenient for functions that become active after holding a button for a certain period of time. The Synclavier button is automatically released when the Macintosh button is released.

- Termulator can now better handle small screens such as those on a portable PowerBook computer. That is, the windows are sizes so that the scroll bars are always accessible even on computers with small screens.

- It is now easier to select a group of Parameter buttons from Termulator by simply wiping the mouse over a range of buttons.

- Several "mouse reporting" bugs were fixed in Termulator. These bugs showed up as erratic delays when using the mouse in the Terminal window, or the mouse was often dragged to a location further than intended. The S-page in particular should more responsive to mouse clicks and dragging.

- Zooming of the VK button panel is now more consistent and should do what you want a greater percentage of the time. That is, the window position and size are saved independently for both the 'zoomed' and 'current' state.

- The current button panel layout is saved and automatically restored when Termulator is restarted.

- Numerous drawing bugs that were particularly apparent on the Sound File Recall Screen and the Audio Event Editor screens were fixed. In particular the scrolling through the Sound File directory no longer fills the screen with drawing errors when using the small and medium display sizes.

- The current sizes of the Terminal window are saved for each of the 3 display sizes (half, medium, full). When the display size is changed from the menu, the size of the window and the scroll-bar position of the Able screen is restored.

Macintosh Software - EditView, AutoConform, MidiNet, TransferMation

- An entirely new feature was added to EditView: the ability to print *cue sheet* style printed output showing events by output. This feature is described in detail in separate release notes.

- A PowerPC Native EditView is available upon request. Please help us test this version if you have the necessary Macintosh.

- EditView, AutoConform, MidiNet, and TransferMation now are available in versions that do not require Eve-key protection.

- TransferMation requires a Software Floating Point emulator to run on PowerPC processors. A PowerPC Native version of SoftFPU is available from John Neil Associates (email: johnneil@netcom.com) (PO Box 2156, Cupertino CA 95015) (800-663-2943) @$25.00.

Please let me know how these features work for you. And thanks again for joining our software update program!

Cameron Jones
September, 1997

Direct-to-Disk

Support of Removable Media Hard drives as DTD Backup Devices

This release adds the capability to use removable media hard drives as both an operating media and a backup media for the Direct-to-Disk. The Iomega JAZ drive, for example, can be used to replace the 4 mm DAT tapes that are currently used for data backup on most DTD installations. The JAZ drive offers 1.0 gig of storage and is significantly faster than DAT, although it's media is more expensive than DAT.

This feature was most requested by and will be most useful for quickly distributing DTD projects amongst multiple machines within a large production facility.

Two configurations for backup are supported in the software. The 'Single Drive' configuration allows all the tracks of a project to be backed up to a single removable-media-hard-drive. The 'Multiple Drive' configuration requires a removable-media-hard-drive connected to each DTD SCSI port.

The software supports two variations of both the 'Single Drive' and 'Multiple Drive' configurations. Thus a total of 4 different backup configurations are possible. For example, a single JAZ drive could be added to a system with 4 DAT tapes. The software chooses which device to used based upon its media being present. In other words, removable-media-hard-drive backup capability could likely be added to a system without disconnecting the DAT tape installation.

There are no specific changes to the user interface software to support removable media hard drives as backup devices. The software automatically senses what kind of device is connected and issues the appropriate commands to that device.

Please contact DEMAS if you are interested in adding this capability to your system.

Support of Removable Media Hard drives as DTD Operating Drives

Removable-media-hard-drives such as the Iomega JAZ drives can now be used as operating media for the Direct-to-Disk. Commands were improved and added to the O-page to manage the spinning up, spinning down, and ejecting of removable media hard drives. Additionally, some improvements were made in the real-time and DTD software to better handle drives which automatically 'spin down' after a period of inactivity.

Earlier versions of the DTD software included a DISMOUNT and MOUNT command on the O-page to facilitate the use of hard drives in removable mounting bays (e.g. RourkeData mounting bays). The operation of the DISMOUNT commands has been improved to actually eject the DTD media if a removable drive is used, or to spin down the disk drive if its media is not removable. This will provide positive feedback to the operator that the DISMOUNT was successful.

An additional change is that removable media are now locked in place while the DTD is operating to prevent possible data loss by removing the media at the wrong time. The DISMOUNT command is then used to spin down and eject the operating media.

The MOUNT command is used to reset the DTD when the operating media has been changed.

SPIN and SLEEP commands were added to the O-page and are used to control the motors of the DTD hard drives. These two commands can be used with all hard drives, not just removable hard drives, if desired. Spinning down the hard drives overnight might increase the longevity of the drives in facilities where the systems are normally left powered on. The SPIN command might also be used to manually 'wake up' the DTD hard drives if they have automatically spun down after a period of inactivity.

Format of DTD hard drives directly from real time software

In response to a long-standing request for simplified formatting of DTD drives, a command was added to the O page that formats all of the DTD hard drives in one

(relatively painless) operation. This command is selected from the O-page. Periodic formatting of the DTD hard drives is recommended to reduce the occurrence of disk errors.

Format of DTD hard drives directly from real time software

In response to a long-standing request for simplified formatting of DTD drives, a command was added to the O page that formats all of the DTD hard drives in one (relatively painless) operation. This command is selected from the O-page. Periodic formatting of the DTD hard drives is recommended to reduce the occurrence of disk errors. All of the drives on the DTD system are formatted at the same time when this command is used.

Real-Time-Software

Accessing all 200 sequencer tracks from the VK Button Panel

The "TRACK PAN" button was implemented in this software release to provide for simplified and speedy access to all 200 sequencer tracks directly from the clavier. This powerful implementation provides four distinct functions from this one button:

- you can quickly see the current button assignment settings in the VK Window Display
- you can assign one of the rows of 8 track buttons to a "bank" of 8 sequencer tracks
- you can quickly reset all of the track buttons to correspond to sequencer tracks 1-32 (the default startup setting)
- you can recall the button assignments associated with a particular "grouped" track (described later).

The TRACK PAN button was chosen both because it was an unused button, and also because I felt the concept of "panning" the track buttons across the sequence space made some sort of sense in terms of this feature.

Track Pan Window Display

The first function available from the TRACK PAN button is to see the current track button assignment settings. When the TRACK PAN button is first pressed, the VK window display shows the current track button assignments. The display shows the Sequencer track numbers that are assigned to the first button of each row, as in:

Note: Pressing the TRACK PAN button a second time is used to recall the button assignments associated with a "grouped" track. This feature is explained later.

Pressing the TRACK PAN button a third time (or pressing STOP) cancels the Track Pan Window Display without changing any button assignments.

The current track button assignment settings are saved with the Sequence and will be restored when a Sequence is recalled.

Recalling a "Bank" of Tracks to the Button Panel

The second function that can be performed with the TRACK PAN button is to quickly assign a "bank" of 8 sequencer tracks to one of the rows of 8 track buttons. This is accomplished as follows:

1) Press and release the TRACK PAN button once (release it before 2 seconds are up; see below). You will see the track buttons labeled 1, 9, 17 and 25 start to blink.

2) Press one of the blinking track buttons (e.g. 1, 9, 17, or 25). This selects which row of track buttons will be affected. After pressing one of these blinking buttons you will see the all of the track buttons labeled 1-27 start to blink.

3) Press one of the blinking track buttons (e.g. 1 through 27). This will assign one of the 27 "banks" of tracks to the row of track buttons selected in step 2.

Here is a chart that relates "track banks" 1-27 to actual sequencer track buttons:

"track bank"	1	equals tracks:	1	2	3	4	5	6	7	8
"track bank"	2	equals tracks:	9	10	11	12	13	14	15	16
"track bank"	3	equals tracks:	17	18	19	20	21	22	23	24
"track bank"	4	equals tracks:	25	26	27	28	29	30	31	32
"track bank"	5	equals tracks:	33	34	35	36	37	38	39	40
"track bank"	6	equals tracks:	41	42	43	44	45	46	47	48
"track bank"	7	equals tracks:	49	50	51	52	53	54	55	56
"track bank"	8	equals tracks:	57	58	59	60	61	62	63	64
"track bank"	9	equals tracks:	65	66	67	68	69	70	71	72
"track bank"	10	equals tracks:	73	74	75	76	77	78	79	80
"track bank"	11	equals tracks:	81	82	83	84	85	86	87	88
"track bank"	12	equals tracks:	89	90	91	92	93	94	95	96
"track bank"	13	equals tracks:	97	98	99	100	101	102	103	104
"track bank"	14	equals tracks:	105	106	107	108	109	110	111	112
"track bank"	15	equals tracks:	113	114	115	116	117	118	119	120
"track bank"	16	equals tracks:	121	122	123	124	125	126	127	128
"track bank"	17	equals tracks:	129	130	131	132	133	134	135	136
"track bank"	18	equals tracks:	137	138	139	140	141	142	143	144
"track bank"	19	equals tracks:	145	146	147	148	149	150	151	152
"track bank"	20	equals tracks:	153	154	155	156	157	158	159	160
"track bank"	21	equals tracks:	161	162	163	164	165	166	167	168
"track bank"	22	equals tracks:	169	170	171	172	173	174	175	176
"track bank"	23	equals tracks:	177	178	179	180	181	182	183	184
"track bank"	24	equals tracks:	185	186	187	188	189	190	191	192
"track bank"	25	equals tracks:	193	194	195	196	197	198	199	200
"track bank"	26	equals tracks:	L1	L2	L3	L4	L5	L6	L7	L8
"track bank"	27	equals tracks:	L9	L10	L11	L12	L13	L14	L15	L16

Note: Changes to the button assignments made from the button panel appear immediately on the J and K screens if either screen is showing.

Resetting the Track Select buttons to Tracks 1-32

The third function that can be done with the TRACK PAN button is to quickly reset the 32 Track Select buttons to correspond to tracks 1 through 32. This is

accomplished by pressing and holding the TRACK PAN button for two seconds. This feature was provided to allow quickly returning to a known button state. You will see the following window display:

Recalling the button assignments associated with a Track Group

The fourth function that can be done with the TRACK PAN button is to recall the settings for all 4 rows of Track Select buttons that are associated with a particular Track Group. This function is activated by pressing the TRACK PAN button twice and is explained later under "Track Groups".

Improved Operation of the ERASE button

The operation of the ERASE button was enhanced for this software release. It now provides the following operations:

1) Erase ALL tracks

2) Erase SOLOED tracks

3) Erase the HELD tracks buttons

4) Erase just the RECORDING track

5) Erase the temp meter map

The logic for determining which ERASE operation is called for is determined in the following order:

1 - If the SPEED and CLICK RATE buttons are held, then the tempo and meter maps are erased. Soloed, held and recording tracks are ignored.

2 - If the system is RECORDING, then just the recording track is erased (regardless of buttons held or tracks soloed)

3 - If any track buttons are HELD, then just the held track buttons are erased without regard to track soloing

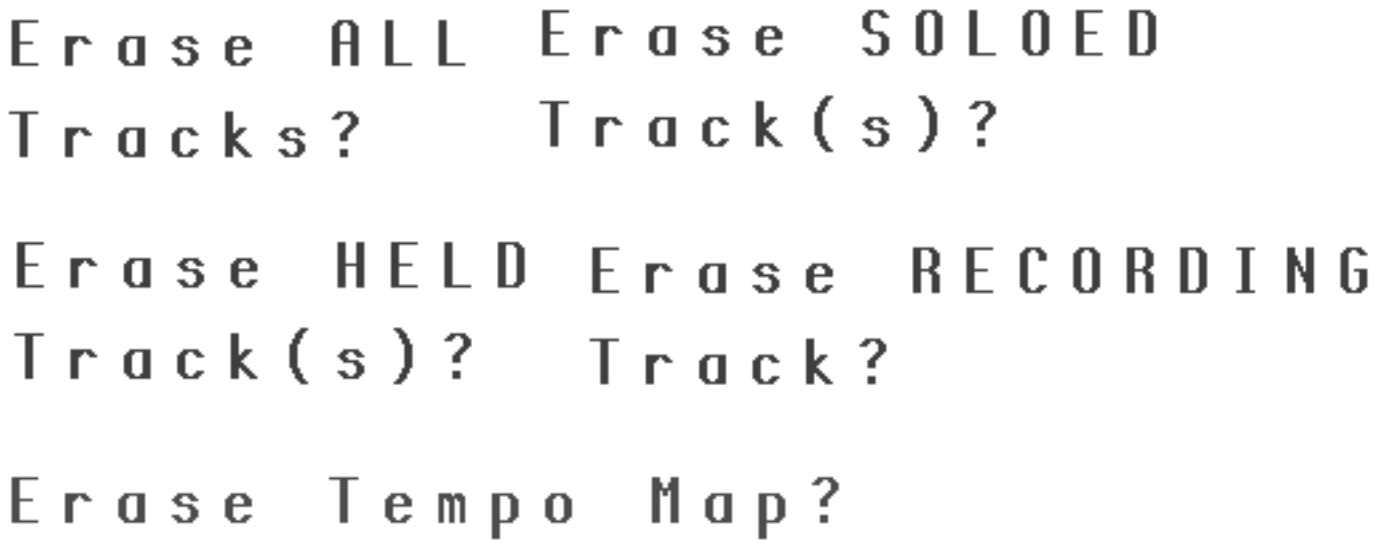
4 - If any tracks are soloed, just the SOLOED tracks are erased.

5 - If none of the above conditions apply, then the entire sequence is erased.

Operation of the ERASE button while the STOP button is held

Holding the STOP button while erasing provides for just erasing the notes on a track without erasing any of the settings associated with the track. The settings which are preserved in this way include virtually all settings for a particular track, including routing, volume, output, and independent loops.

Here are some of the displays you will see in the VK window when the ERASE button is pressed for the first time:



Erasing Track Groups

The erase feature operates slightly differently when tracks are grouped. These differences are describe later in the section on track grouping.

Working with Track Groups

A feature for creating and manipulating "Track Groups" was implemented in release 4.03. This feature allows you to assign a list of Sequencer Tracks to one "master track", and then access all of the tracks in the group from the one button associated with the master track. Up to 200 such track groups can be created.

This implementation of Track Grouping is an important (and long-awaited!) step forward for the Synclavier. I hope it will streamline and simplify the operation of your machine on a daily basis.

Track Groups

The concept behind a Track Group is straightforward: a Track Group is a list of tracks which may include any or all of the 200 Sequencer tracks plus any or all of the 16 Direct-to-Disk tracks. This list may also include other Track Groups.

A particular Sequencer Track may be part of any number of Track Groups.

When a Track Group is created, one of the 200 Sequencer Tracks is chosen to be the "master track" for that Track Group. The master track may contain notes and a timbre itself, or it may be an otherwise empty track. Notes on the master track will be played normally. Each of the 200 Sequencer Tracks may be a master track; therefore, 200 Track Groups are possible in a sequence.

Hierarchies of Track Groups can be created to any level. That is, one Track Group may contain other Track Groups within it, and so forth.

Track groups are saved and recalled with the sequence in entirety.

Most operations with Track Groups are straightforward. For example, soloing or un-soloing a Track Group is accomplished by pressing the Track Select button for

the master track. All members of the Group are soloed or unsoloed as a group. Sliding the master track in time slides all of the tracks of the group.

Other functions operate somewhat differently with track groups. For example, selectively recalling sequencer tracks will only read in the tracks associated with the track buttons being held; it will not read in other tracks that may be part of a track group. The group information, however, *is* read in if the track on disk is a master track. The member tracks of the track group would each have to be recalled if desired.

Creating a Track Group

Track Groups are easily created from the VK button panel. You must begin by deciding which one of the 200 Sequencer Tracks is going to be the master track for the group. Secondly, you must decide which other sequencer tracks are to be included in the Track Group.

The first actual step in creating a Track Group is to make sure the master track and one or more member tracks are accessible from the button panel. Use the TRACK PAN button (or the J or K Screens) to assign rows of the button panel to banks of sequencer tracks as needed.

Press the Track Button corresponding to the master track and hold that button for 2 seconds. You will see the VK Window display change to:

```
Create Track
Group...
```

When the "Create Track Group..." display appears, you will see the button for the master track start to blink, and all of the other Track Select buttons will be off.

Tracks may now be added to the Track Group by pressing any of the other track buttons; the button for the member tracks will turn on as they are added to the group. Lit buttons can be pressed at this time to remove a track from a group.

The step of creating a Track Group is normally terminated by pressing the button for the master track again; this reverts the Track Select buttons to their normal solo/unsolo operation. Alternatively, pressing the STOP button (or most any other button) will end the group creation session and save the group thus created.

Modifying the tracks that are members of a Track Group is equally straightforward. Press and hold the button for the master track for two seconds. The display will change to:

```
Modify Track
Group...
```

When the "Modify Track Group..." display appears, you can use the Track Select buttons to add or remove members of the track group at will.

Note: Whenever the contents of a Track Group is modified (that is, the list of member tracks in the Track Group is changed) a "snapshot" of the current Track Select button assignments is stored in memory. This snapshot can be recalled to

the button panel at a later time by pressing the Track Pan button twice. This feature is described in detail later.

Practical Considerations

Track Groups are most practical when the corresponding track button is readily available from the button panel. For example, a good set up might be to use tracks 1 through 24 as master tracks for 24 track groups, with each Track Group containing the master track plus 8 other tracks chosen from higher track numbers. Tracks 1 through 24 (e.g. the Track Groups) could always be kept accessible from the first 3 rows of Track Select buttons, while the lower row of track buttons could be assigned to a particular track group as needed.

Using TRACK PAN to access the members of a Track Group

Press the TRACK PAN button twice. If there are no master tracks accessible from the button panel (either there are no Track Groups in the sequence, or those Track Groups that do exist are not accessible from the button panel at the current time), you will see a message:

If there are 1 or more Track Groups accessible from the button panel, you will see those buttons start to blink.

Pressing one of the blinking track buttons will recall the button assignments for all 4 rows of Track Select buttons to what they were when the Track Group was last modified. Normally, these assignments might be expected to contain the tracks that are members of the Track Group, but more bizarre settings can be imagined. For example, a chain of track button assignments could be created for moving that track buttons through the sequence in a pre-determined order. Enjoy!

Note: If all the members of a track group are removed, the master track reverts to a normal sequencer track and the button assignment list for that master track is deleted.

Soloing a Track Group

Track Groups are brought in and out of the mix by pressing the Track Select button associated with the master track. The master track and all member tracks will be brought into or out of the mix depending on the state of the master track button when it is pressed.

This logic is hopefully as straightforward as it is powerful. For example, double-pressing a lit master track button will bring all member tracks into the mix if only some had been brought into the mix individually before. Similarly, pressing a lit master track button once will mute the master track and all member tracks from the mix even if some member tracks had been brought into the mix previously.

Track groups are soloed from EditView and the various screen in the same manner. Bringing in the master track will bring in all the tracks in the group.

Recursive Track Groups

It is possible to construct several Track Groups which each include each other. For example, Track 1 could be the master track for tracks 9-17, and Track 9 could be the master track for tracks 1-8. In this case, pressing either the track button for Track 1 or the track button for Track 9 would solo or unsolo all 16 tracks as a group. Enjoy!

Erasing a track group

The ERASE function operates slightly differently with master tracks. If a track group is soloed when the erase is performed, all notes are deleted from the tracks but the group information is preserved. For example, to erase all the tracks in the track group, first solo the entire group (e.g. by pressing the master track button). Then press ERASE twice to erase all of the soloed tracks. The group information on the master track will be preserved in this case.

To erase, the group information for a master track *press and hold* the master track button and then press ERASE twice (e.g. perform a normal erase-held-tracks operation). Any notes on the master track will be erased, as will the track grouping information.

Special operations with track groups

1) Changing the track volume or track routing of the master track will assign the new value to all members of the group.

2) When a master track is bounced to an empty track, the group information associated with the master track is moved to the new track as well. That is, master tracks can be moved at will without losing the track grouping information. However, the group information for two master tracks cannot be combined by bouncing them together; the new tracks will have to be manually added to the destination track group.

3) All of the tracks in a track group can be slid in time by holding the button for the master track and turning the knob. All of the tracks in the group will be moved in time together. When sliding back in time (e.g. towards 0:00), the slide distance is limited by the first track that would reach 0:00.

Recording Sequence Transpositions

A new feature was added to the Real Time Software whereby sequence transpositions can be recorded. In earlier versions of the Real Time Software, transpositions could be performed live, but could not be recorded.

Any track may be used to record sequence transpositions. The first note on the track defines the reference pitch. Additional notes on that track define a keyboard interval with respect to the first note that becomes the transposition amount.

To create a transposition track, press and hold the appropriate track button and then press the TRANSPOSE button. This marks the track as being a transpose track.

Any number of transpose tracks can be created in this way.

To see if a track is a transpose track, press and hold it's track button. The TRANSPOSE button will light up if the track is a transpose track.

The notes recorded on a transpose track are never heard themselves. That is, transpose tracks are always "muted".

When recording onto a transposition track, they keyboard note is heard while recording, but is not heard during playback. You may wish to use a "null" timbre when recording onto a transposition track if you do not want to hear any keyboard notes while recording.

If a transposition track is a master track, the transposition will only effect those tracks that are members of the track group.

If multiple transpose tracks affect a single sequencer track, the 'most recent' transposition is the one that is effective for that track. That is, multiple transpositions for the same track do not add together in any way.

Release Notes for Synclavier Release 4.02 dated May 1, 1997

Data Interchange Compatibility

Real time data (e.g. sequences, sound files, timbres, etc.) may be freely interchanged between release 4.02 and and earlier releases. These data structures have not been changed in any way.

There are, however, some incompatibilities between the old MONITOR and the new Real Time Software and vice-versa that will make it difficult, although not impossible, to intermingle the Monitor and RTP versions. In particular, the new Monitor supports two optical disk drives, and supports a much greater diversity of SCSI addresses for optical storage. Earlier utilities and Real Time Software will not recognize the new settings.

If there is an urgent reason to intermingle new and old software, using an earlier version of CONFIGUR may be your best work-around. Please let me know right away if there is some problem with the new software that can only alleviated by reverting to an earlier release.

What's in Release 4.02

4.02 contains a number of bug fixes, plus a host of new storage-related features. It also adds MIDI Time Code capability to the Real Time Software.

Additions to the operating system and utilities:

- Improved SCSI error recover for media errors and other drive problems
- Support for removable media hard drives as W0 and W1 from the MONITOR and the Real Time Software
- Support for a greater range of "optical" devices, including using a standard SCSI hard drive or SCSI removable hard drive as an "optical" device. In particular, 512-byte sector SCSI devices are now supported as "optical" devices.
- Newly released "optical" utilities for copying and/or combining optical media and performing other optical file management tasks
- Expansion to 8.191 gigabytes of storage for W0 and W1 (warning: additional testing is needed in this area; use at your own risk!!!)
- Improvements to FORMCOPY and CONFIGUR
- Better support of higher baud rates in "NED Startup"
- MONITOR enhancements with the CAT command, as well as greater use of "megabyte" settings.

Changes to the Real Time Software:

- Improved startup defaults for the Recorder screen (G page)
- Improved startup defaults for the Audio Event Editor "Event" panel
- Improved operation of the MIDI button
- Bug fixes to the MIDI Song Position Pointer software
- Bug fixes in the MIDI Sync software, for both input sync and output sync

Changes to the Macintosh Software:

- Keyless EditView, AutoConform, MidiNet
- PowerPC Native NED Startup

What follows...

... is an area-by-area description of what's new in the software. Enjoy!

NED Startup

"NED Startup" is undergoing some new development at this time. First, I have converted the source to "CodeWarrior", which lets us offer both a 68k and PowerPC Macintosh version. I improved how "NED Startup" handles the overwhelming beeps that occasionaly emit from the Synclavier. I also improved the load balancing with the Macintosh operating system that occasionally would create audio dropouts while scrubbing on the Q-page and the L-page.

I also fixed a problem with XON/OFF handling that showed up on some PowerPC Macintoshes with System 7.5.3 and beyond.

Lastly, "NED Startup" should fully support 38,400 BAUD on all platforms and users are encouraged to use that high data rate. Please let me know if any problems are encountered at 38,400.

MONITOR

Several bug fixes and improvements were added to the MONITOR:

- "CAT SE" option was added to see file and catalog lengths in sectors at all times. The default is megabytes for directories and divices over 1 megabyte in size.
- EJECT, SPIN, and SLEEP command were added to control removable media hard disks.
- Size of files and subctalogs can expressed in MegaBytes for the SAVE and REPLACE commands, as well as the CREATE command.

See the following section entitled "Using Removable Hard Drives with the Synclavier" for more information.

Here's a summary of the new MONITOR commands:

CAT SE - In response to a user request, I enhanced the MONITOR to allow greater control over the showing of catalog and file lengths in SECTORS vs. MEGABYTES. Versions of the MONITOR prior to release 4.01 always showed file lengths in SECTORS. The January 1, 1997 version of the MONITOR introduced a new feature whereby the contents of small catalogs were shown in sectors, while the contents of longer catalogs were shown in megabytes. the CAT SECTORS (abbreviated "SE" for sectors) directs the MONITOR to show the file lengths in sectors for that command for even the largest of subcatalogs and/or devices.

Variations include:

```
CAT SE
CAT X SE
CAT SE SN   (show SEctors, Sort by Name)
etc. etc. etc.
```

MEGABYTES - I simplified creating large subcatalogs by allowing an 'mb' (for megabytes) specifier with the create command, or the use of a '.' in the size specification. For example

```
CREATE   MYSUBCAT,5000
CREATE   MYSUBCAT,10mb
```

```
      CREATE   MYSUBCAT,1.5
```
This syntax can be used with SAVE and REPLACE commands as well.

SLEEP, SPIN, EJECT - to help manage data stored on removable media winchesters, 3 new MONITOR commands were added:

SLEEP

```
examples:   SLEEP W0
            SLE   W1
```

purpose: causes drive to spin down

SPIN

```
examples:   SPIN W0
            SPI  W1
```

purpose: causes drive to spin up from sleep state

EJECT

```
examples:   EJECT W0
            EJE   W1
```

purpose: ejects media from removable drives

UTILITY PROGRAM BUG FIXES

- The annoying "screen cleared after copy" bug in FORMCOPY was fixed
- A bug in SHUFFLE that would cause lost storage when dealing with very large subcatalogs has been fixed (subcatalogs greater than 200 megabytes in size)
- Simplified CONFIGUR settings for "optical" storage
- Fully flexible "Optical" SCSI addressing
- Support of two optical disks in CONFIGUR (for use with OPCOPY)

See the following sections regarding CONFIGUR, .INDEX and .INDEX1, and the new Optical Disk Utilities for greater detail.

SCSI Error Recovery Improvements

To address a long-standing weakness in the Synclavier's SCSI implementation, I added improved low level error recovery to the SCSI drivers. Since much of the Synclavier software was written in the days before SCSI (who else remembers those days, by the way?), there was no coherent approach in the software for the handling of SCSI errors.

My goal in improving the SCSI error recovery was to reduce the occurrences of long and extended blasts of system beeps which occurred, for example, when the RTP was started with a missing W1.

I was not able to eliminate all occurrences of the beeping, but I believe you will notice significant improvement.

In particular, I added SCSI error handling to FORMCOPY. If a SCSI error occurs (either reading or writing a file) using FORMCOPY, the user is prompted to continue with the rest of the files or to quit. If the user chooses to continue, FORMCOPY

reminds the user that some files were skipped due to disk errors at the end of the copy process.

I also verified the SCSI error recovery that is used in the OPCOPY optical disk copy utility (newly released; see below). Disk errors encountered by OPCOPY are logged to the W0:COPYLOG output file.

Lastly, I added SCSI error recovery to the Real Time Software. The most common reported problem was the RTP crashing trying to call up a sound file that could not be read. This has been fixed in both the simple recall, audition, and the audition-via-DTD cases. The second common reported case was the system crashing while constructing the sound file directory. This case has also been fixed. I also believe I added error recovery to all the places sequences are stored to or recalled from the disk.

Using Removable Hard Drives with the Synclavier

Release 4.02 offers new support for removable media hard drives. Modern hard drives such as the IoMega JAZ drive and drives made by Tahiti and Syquest are better supported by the system in release 4.02.

Additionally, any hard drive, either removable or fixed, may be used as an N.E.D. "optical" drive. The Tahiti-IV (double sided magneto optical; 1.3 gigabytes each side) and the IoMega JAZ drives are well-suited for use as an "optical" drive. Additionally, larger Winchester hard drives (up to 8 gigabytes) may be used in this manner.

Removable drives used as W0: or W1: are automatically sensed by the MONITOR. An EJECT command (EJECT W0 or EJECT W1) has been added to the MONITOR to provide preliminary management of removable media drives. The SLEEP W0 or SLEEP W1 command can be used to spin-down a hard drive; the corresponding SPIN W0 and SPIN W1 are also available.

Either or both W0 and W1 may be removable. Additionally, multiple removable drives can be concatenated on either W0 or W1 to provide for yet increased capacity, although this technique is not recommended due to the numerous possibilities for inserting the wrong media in the wrong drive at the wrong time with resulting data loss.

The system limitation for W0 and W1 has been increased to 8.191 gigabytes each. This area of the software needs additional testing, and any one wishing to fully utilize this feature should consult with DEMAS and, hopefully, offer their drive for some extended testing (non-destructive testing, of course!).

Using a Removable W1 with the Real Time Software

Control over removable media was added to the "B" page of the real time software. If a removable media W1 drive is connected to the system, an "EJECT W1" or a "MOUNT W1" button will appear on the upper right side of the screen. This button is used to eject the media from W1, or to inform the software that a new media has been inserted.

This mechanism should provide greater opportunities for improved sound file management. The most apparent limitation of this technique at the current time is that the entire sound file list must be reconstructed by scanning the disk whenever the media is changed. Unfortunately, W0 must be rescanned even when just the media in W1 is changed! I can perhaps address this limitation in a later release of the software if there is sufficient interest in removable media devices.

Additionally, it might be possible to improve the entire sound file list process by storing some pre-computed information on disk. Please let me know what your interest in this area is.

New CONFIGUR Options for "Optical" drives

Release 4.02 includes an enhanced CONFIGUR program that simplifies installation of multiple SCSI devices. The default SCSI addresses associated with W1 have been changed to more easily match most people's configuration. Additionally, the DELETE key may be used to quickly remove a device from the configuration list once the cursor is properly positioned in the device column.

The new CONFIGUR utility also allows the placing of SCSI "optical" drives at any SCSI address (any board, any target). Of course, SCSI ID 6 is used by the ABLE computer itself, and SCSI ID 7 is used by the Macintosh, so, only SCSI Id's 0-5 are truly available for Winchester and "optical" drives.

Additionally, the new CONFIGUR provides for the listing of two "optical" drives in the system configuration. This capability is used in conjunction with the OPCOPY utility described below. The two "optical" drives are called, somewhat confusingly, "O0" and "O1", as in "O"-Zero and "O"-One. "O1" may only be accessed by OPCOPY at the current time, and is not available for use by the Real Time Software.

Using A Hard Drive as an "Optical"

Release 4.02 allows the use of any Winchester hard drive (either removable or fixed media) as an N.E.D. "optical" drive. The N.E.D. "optical" format allows for indexing of sound files by category. The N.E.D. "Winchester" format allows for easy access to each file, but has no indexing capabilities and subcatalogs must, of course, be manually created.

Expanded Optical Disk .INDEX Capacity

To address the needs of customer sites with a large number of optical disk media in use, the software was modified to support two .INDEX subcatalogs for the storage of "Optical" disk index files. These subcatalogs are named ".INDEX" and ".INDEX1".

If you are using more than 128 Optical disk media, you have likely experienced the problem of not enough room for more entries in the .INDEX subcatalog.

The .INDEX1 subcatalog is not automatically created during the software installation process. This subcatalog must be manually created from the MONITOR, for example by the command:

```
CRE .INDEX1, large 1.0
```

An alternative mechanism that will work well for some users it to rename .INDEX to be .INDEX1, and create a new empty subcatalog called .INDEX. This automatically moves all of the existing .INDEX files into .INDEX1.

Occasionally, you might have to manually move a particular .INDEX file from .INDEX to .INDEX1 to keep the files relatively in balance between the two directories. The software will create all new .INDEX files in the .INDEX directory, but existing files in .INDEX1 will be kept there even if the associated optical disk is modified (e.g. "updated").

Newly Released Optical Utilities: OPVOLUME, OPUPDATE, OPCOPY, OPLIST

Release 4.02 includes a freshly tweaked set of Optical Disk Utilities. These utilities have been enhanced to support both Optical-Zero and Optical-One. They also support the use of standard SCSI hard drives as an "Optical" device.

These utilities are automatically installed in the .SYSTEM folder during installation. To run one of the utilities, just type the name of that utility into the MONITOR as if you were activating FORMCOPY.

These utilities include:

OPVOLUME Prints out information about each "optical" drive and the name of the media that is in the drive.

```
Optical Volume ID Utility - 1 March 1997

Utility to print out name of Optical Volume in O0: and O1:

Optical Zero: "O0:"  iomega  jaz 1GB
   Volume Name:    COPY3B
   Serial Number:  00004
   Megabytes used: 387  (39% full)  Megabytes available: 600

Optical One:  "O1:"  MaxoptixT3-1304
   Could not read volume header:
      S$SenseKey =  00008  Media is Blank
      C#Status   =  00000  Good Catalog Status
```

OPUPDATE Constructs or updates the .INDEX file for an "optical" volume. OPUPDATE provides for choosing between Optical-Zero and Optical-One, and shows the name of the volume in the drive before proceeding.

```
Optical Index File Update Utility - 1 April 1997

Utility to update Optical Volume Index File.

Instructions:
   Press <RETURN> to construct or update the .INDEX file
                  for the Optical Volume shown below.

   Press <SPACE> to select a different Optical Drive
   Press <BREAK> or Q to quit

Optical One : "O1:"  MaxoptixT3-1304
   Volume Name:    COPY3B
   Serial Number:     255
   Megabytes used: 145  (30% full)  Megabytes available: 335
```

OPLIST Uses a .INDEX file to present a list of all the files and their categories on an optical volume. The output of this utility may be captured to a Macintosh text file for use by other data base or searching programs.

```
Optical Disk Listing Utility  version of 1 April 1997

Enter name of index file or <RETURN> to quit: copy3b
Display File List [Y(es) or N(o)]? Yes
Display Category List [Y(es) or N(o)]? Yes
Display all file information [Y(es) or N(o)]? Yes
Send output to printer [Y(es) or N(o)]? No
```

```
Volume Name:    COPY3B

Creation Date:  18-OCT-90
Creation Time:  09:23:00 PM
Caption:        Sound Ideas Sound Effects Library

No. Files:      132
No. Categories: 42

list of all the files and captions follow...
```

OPCOPY

OPCOPY is a general purpose optical media copy utility that can be used to duplicate optical media, or to combine two (or more) optical media onto 1. It should be particularly useful for distributing sound libraries within a mutli-site facility, and for simplifying the process of upgrading from the older 12" WORM technology to new devices.

OPCOPY creates a log of all file activity in the file W0:COPYLOG so that unattended copying operations can be reviewed.

While OPCOPY does not allow the operator to select individual files to be copied, when copying to a non-blank media it does let you specify which file to start with. This lets a copy operation be resumed in the case of a disk error or other interruption.

```
Optical Disk Copy Utility - 1 April 1997

Instructions for OPCOPY:
   1) Information on both optical volumes is shown below
   2) press <RETURN> to copy all files as shown
   3) press <SPACE> or <i> to interchange source and
destination drives
   4) Press <BREAK> or Q to quit


FROM: Optical Zero: "O0:"  iomega  jaz 1GB
   Volume Name:    CJMEDIA
   Serial Number:       0
   Megabytes used:    387   (39% full)   for    130 files

TO:   Optical One : "O1:"
   Could not read volume header:
      S$SenseKey =     -2  Selection Failed; The Drive is
                           off or not connected
      C#Status   =      0  Good Catalog Status

Status:
   DESTINATION Drive is not ready; see specific error
   message above
```

Bug Fixes and Enhancements to the Real Time Software

Miscellaneous RTP changes and bug fixes:

- I defaulted the Recorder screen to show 3 tracks upon startup
- I defaulted the Events panel to show a track in every column on startup
- I fixed inconsistent lighting of the "MIDI" button
- The MIDI Song Position Pointer message should be correct in all cases

Changes to the MIDI Button

I received several bug reports pointing out inconsistencies in the operation of the MIDI button. In particular, changing to MIDI IN SYNC or MIDI AUX SYNC while SMPTE Sync was active did not work from the button panel. Additionally, the Sync Panel screen would not update in some cases.

To address these bugs and to provide compatibility with the MIDI Time Code implementation, I changed how MIDI IN SYNC and MIDI AUX SYNC are activated from the button panel. The old button combination was to hold the external sync button and press the MIDI button. The new button combination is to hold the MIDI button and press the External Sync button. This new button combination is compatible with how SMPTE is turned on or off, as well has how MIDI Time Code output is turned on and off.

The Sync Panel sync setting should update correctly in all cases now.

As I describe in a later section on MIDI Time Code, the MIDI Sync Output can now be activated and directed from the button panel as well as from the "J" screen.

MIDI Song Position Pointer bug fixes

There were several long-standing bugs in earlier releases that caused incorrect MIDI Song Position Pointer messages to be created. Firstly, the MIDI Song Position Pointer message was virtually always wrong when locating more than 1 minute into the sequence. The most common bug report of this problem was that the MIDI Song Position Pointer message was wrong after bar 32.

Additionally, there were several bugs that showed up when creating MIDI Sync output while chasing SMPTE time code.

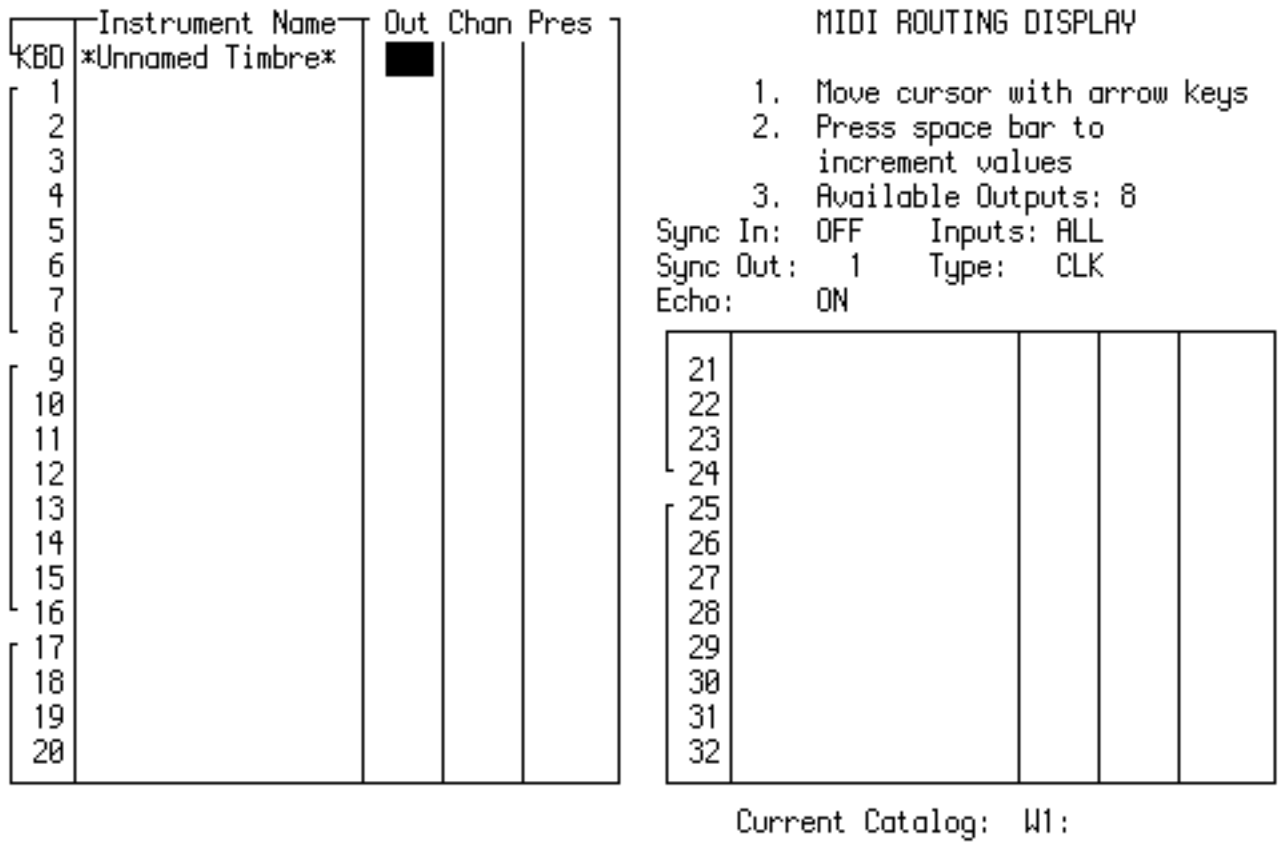
I have fixed these bugs and tested this area quite thoroughly. However, I would like to do some more testing with a real sequence, especially one that uses a tempo-meter map. If you would care to offer a sequence for testing, please contact me.

MIDI Time Code

An implementation of MIDI time code has been added to the Real Time Software. This feature allows the Real Time Software to create MIDI Time Code output both when operating as a master and when syncing to SMPTE or VITC code.

Using MIDI Time Code

MIDI Time Code can be activated from either the J screen ("MIDI Routing Display") or from the button panel. Here's the new layout of the J screen:



Activating MIDI Time Code Output from the J Screen

I added a new field to the J screen that provides for specifying either standard MIDI Clock/MIDI Song Position Pointer type synchronization, or for the creation of MIDI Time Code. The "Type" field specifies CLK for standard MIDI clock synchronization, or TC for MIDI Time Code. The field can be accessed either by arrow keys or the mouse and is changed with the space bar.

The other fields operate as before.

Activating MIDI Time Code Output and MIDI Sync Output from the Button Panel

The MIDI and SMPTE buttons are used to activate or deactivate MIDI Time Code Output or MIDI Sync Output from the button panel. Press and hold the MIDI button, and then press the SMPTE button. The current MIDI sync format (either MIDI Clock or MIDI Time Code) will be displayed allong with which MIDI output is selected, or the word OFF if no output is selected. Continue holding the MIDI button and press the SMPTE button again to change between MIDI Clock synchronization and MIDI Time Code synchronization.

The MIDI button can be released once the desired synchronization type is selected.

The knob is used to specify which MIDI output will contain the MIDI Clock or MIDI Time Code bytes. When the MIDI Synchronization format is displayed in the window, the External Sync button can be used to select which MTC frame style is desired.

Here are some sample window displays:

or

MIDI Time code and the SMPTE Offset

The SMPTE Offset field that is entered from the SMPTE button (or, of course, from the Audio Event Editor Sync Panel) is fully incorporated into the MIDI Time Code signal. The SMPTE Offset that is dialed in represents the precise MIDI Time Code time of the first click of the sequence.

The frame-style and frame-speed of the MIDI Time Code signal is also controlled by the SMPTE settings entered from the button panel or from one of several screen locations. 29.97 FPS Drop Frame, 30 Frame, 25 Frame, 24 Frame, and NTSC 30 Frame codes are supported.

Viewing the current MIDI Time Code time

The current out-goint MIDI Time Code value can be shown in the lower display window as if it were incoming SMPTE timecode. The display is toggled between showing measures:beats and the MIDI Time Code by pressing the SMPTE button once MIDI Time Code output has been enabled.

The MIDI Time Code display is updated while playing, during fast-forward and rewind, and after locating.

MIDI Time Code while Scrubbing

The software emits MIDI Time Code "full-frame" messages while scrubbing audio from EditView in the "full sequence" scrubbing mode. When scrubbing a single cue, MIDI Time Code is not created.

Release Notes: Release 4.01
January 1, 1997

****
Release 4.01 Feature Summary.

Bug fixes and enhancements were made in the following areas:
- Support of Tahiti-IV Magneto Optical Disk
- Better file selection capability in FORMCOPY
- A "Delete" Option in FORMCOPY
- Portamento bug fix
- Ability to abort Poly memory SHUFFLE and COLLECT
- Speeded up L-page NORMALIZE, VOLUME, and MIX functions
- Added L-page MODULATE function
- Monitor enhancements to show megabytes
- More thorough store-and-recall of Audio Event Editor setups
- Simplified "capture" of most recent keyboard note
- L-page typing bug fixed

Notes:

1) The Tahiti-IV Magneto Optical Disk Drive is now supported as both a W1, and as a replacement for a 12-inch WORM. The cost savings are dramatic, not to mention the portability and reliability factors!!!

   The Tahiti-IV can hold the entire contents of a 12-WORM on a 5 & 1/4" media.

   Changes were made to FORMCOPY, OPREPAIR, OPLIST and SYN-4.01 to support this drive.

   Note: It is still rather tedious to copy a library from 12-inch WORM to Tahiti-IV media. You must use S/Link and a synclavier. If enough users are interested, I'm sure I could put together a **macintosh** software utility that would provide for speedy duplication of a 12-inch WORM platter onto a 5 1/4" T-4 platter. Duplication would take on the order of 30 minutes per side.

2) FORMCOPY - Several enhancements were made to FORMCOPY to simplify various file management tasks. First of all, the file selection process was enhanced to make it easy to select all of the files of a certain type (e.g. sound files, patch files, timbre files). The goal is to make it easier to select all of the files of a certain type (for example: all of the patch files) to back them up to floppy (for example).

   Secondly, a "DELETE" option was added to make it easier to delete sound files, patches, and timbres from the hard disk. By combining the two features, it is now easier to do such tasks as "delete all sound files from this subcatalog" or "move all my patches from this subcatalog to that subcatalog while leaving the sound files where they are".

3) Portamento - The starting pitch value for a portamento glide is now correct and controllable as portamento is switched on and off with the foot switch (or with the button panel, for that matter).

4) SHUFFLE and COLLECT - The Poly Memory SHUFFLE and COLLECT functions activated from the B and R pages can now be interrupted

by the VK "STOP" button, OR by the break key on the terminal (control + space on Macintosh). Additionally, they are animated in both the VK window and on the terminal. I was hoping to provide the break feature for all polly memory commands, but didn't get to add it to the L-page commands. I'm all set to do that for next time if the interest is there. Let me know!

5) L-Page NORMALIZE, VOLUME and MIX have been speed up considerably (about by a factor of 3). What used to take 45 seconds now completes in about 17 seconds. Enjoy!

6) L-Page MODULATE command was added. This command performs a multiplication of two digitized signals. The effects are somewhat unpredictable, but may very well be usefull in sound design situations. Modulation tends to create lots of high frequences and can reduce signal levels; you will probably want to normalize both before and after the modulcate command. Spectrally speaking, the modulate function produces an output file whose frequency content equals the sum and the difference of all of the input frequencies. Enjoy!

7) The monitor (you know: "Ready >") enhanced to show megabytes when cataloging winchester disks and subcatalogs. It's about time!!!

8) The panel setup buttons on the Audio Event Editor were enhanced to store more information about the Events panel setup. Specifically, the number of tracks displayed and the display contents (e.g. pitch names, event names, RTE's, etc) are memorized when the setup is saved. This will allow you to memorize setups with different display configurations. Enjoy!

9) Capturing the last keyboard note shortcut: In response to a customer request, a simplified ability to capture the most recent keyboard note into the Audio Event Editor Event panel was added. The situation involves designing sounds at the VKP keyboard. During a sound design session, you can manipulate the sound at the keyboard and select the pitch by ear. Typing a value of XX into the pitch field of the events panel looks up the most recent key that was played and substitutes that value. Hey, a penny saved is a penny earned, right?

10) L-page input bug: The L-page now allows longer fields to by typed when enterring sound file times and cross fade lengths. This bug showed up when working with large sound files.

CJ

Release 4 Feature Recap

To assist finding the user documentation on new features that have been added since Release 4.0.1, here is a listing of all the features and the release they were introduced in. .PDF files for all release notes are contained in the folder "Additional Documentation" that is installed along with Synclavier® PowerPC™ .

Release 4.01 Dated January 1, 1997

- Support of Tahiti-IV Magneto Optical Disk
- Better file selection capability in FORMCOPY
- A "Delete" Option in FORMCOPY
- Ability to abort Poly memory SHUFFLE and COLLECT
- Speeded up L-page NORMALIZE, VOLUME, and MIX functions
- Added L-page MODULATE function
- Monitor enhancements to show megabytes
- More thorough store-and-recall of Audio Event Editor setups
- Simplified "capture" of most recent keyboard note

Release 4.02 Dated May 1, 1997

Changes to the Utility Software:

- Improved SCSI error recover for media errors and other drive problems
- Support for removable media hard drives as W0 and W1 from the MONITOR and the Re al Time Software
- Support for a greater range of "optical" devices, including using a standard SCSI hard dri ve or SCSI removable hard drive as an "optical" device. In particular, 512-byte sector SCSI devices are now supported as "optical" devices.
- Newly released "optical" utilities for copying and/or combining optical media and perfor ming other optical file management tasks
- Expansion to 8.191 gigabytes of storage for W0 and W1 (warning: additional testing is ne eded in this area; use at your own risk!!!)
- Improvements to FORMCOPY and CONFIGUR
- Better support of higher baud rates in "NED Startup"

- MONITOR enhancements with the CAT command, as well as greater use of "megabyte" settings.

Changes to the Real Time Software:

- Improved startup defaults for the Recorder screen (G page)
- Improved startup defaults for the Audio Event Editor "Event" panel
- Improved operation of the MIDI button
- Bug fixes to the MIDI Song Position Pointer software
- Bug fixes in the MIDI Sync software, for both input sync and output sync

Changes to the Macintosh Software:

- Keyless EditView, AutoConform, MidiNet
- PowerPC Native NED Startup

Release 4.03 Dated September 1, 1997

- Track grouping from the VK button panel
- Accessing all 200 Sequencer Tracks from the VK button panel
- More options for the VK ERASE button
- Recording of sequencer transpositions
- Cue sheet printouts (by output) in EditView
- Longer event captions in EditView
- Editing event captions in EditView
- Removable media support for the DTD
- Removable hard disk for DTD backup
- Format of DTD hard drives from the O-page

Release 4.10 Dated January 1, 1998

- Improved Termulator operation with 7100/8100 Power Macs™ at high baud rates.
- The "Journaling" feature of Termulator has been restored.
- A preference option has been created for the operation of Track Grouping.
- "Export One File" Macintosh utility for transferring files from a Macintosh to a Synclavier® hard drive using SCSI.
- OPRENAME and OPREPAIR utilities are now included.
- The 'Guitar' compilations is available for anyone with the Digital Guitar hardware.

- EditView® now has the ability to Save, Recall, and Revert the sequence that is memory. Additionally, it shows in the EditView® Title Bar the path and filename of the sequence that is recalled.
- Synclavier Error Messages Displayed in EditView®
- Refined 'Cue Sheet' printout capability in EditView®

Release 4.11 Dated June 4, 1998

Real Time Software
- Track solo states are saved and recalled automatically with the sequence.

EditView®
- EditView® drawing of events in color to denote drive use
- Numerous black/white & color drawing bugs fixed
- Delete of multiple notes/events fixed
- PREV and NEXT buttons fixed
- More reliable machine control

AutoConform
- Faster event uploading
- More events
- Column spacing fixed

Release 4.12 Dated October 25, 1998

Real Time Software
- Click track operation simplified and improved
- "Live" click track operation restored and improved
- Zero beat now displayed prior to first click
- Sequence Mark Start is enabled when start point is entered
- Changes to L-page "Mark Start" behavior available in beta version
- L-page landscape display improved
- L-page no longer hides Macintosh mouse cursor
- Transpose button operation enhanced
- Termulator stays on same screen when window is refreshed
- Audio Event Editor Cue Directory re-opens correctly
- G-page function keys implemented

- Script/Reverse Compiler now translate Track Solos and Names
- Pedal 1 reinstated as default RTE controller
- 2 new Defaults to make life easier
- SKT of Track Partial retains keyboard parameters
- New PunchIn and Record safety feature
- Inverted RTE response changed

Bug Fixes
- New Track Sliding Algorithm
- 2 Audible Click Anomalies Repaired
- Q-page Click On/Off status display fixed
- Other Click Track related bugs corrected
- Recording of Real Time Effects bugs fixed
- G-Page sound file offsets Vs. Tempo Map corrected
- Dragging Memory Button time to Start Mark fixed
- OPCOPY volume mounting bug fixed
- Tuning problems with Sound Files using SFM Octave Base
- Reverse Compiler Vs. Locate point bug fixed

Tutorial
- Programming "Swing" quantization

EditView
- Significantly enhanced Cue Sheet printing via MixMap™
- More drawing bugs fixed
- Fixed bug causing track solos to get stuck on
- Fixed bug where scrubbing prevented further track sliding
- Several crash bugs fixed

Autoconform
- Improved update time for many cues

InterChange™
- Better handling of file aliases to remote file servers

<u>Release 4.3 Dated June 1, 1999</u>

- Introduction of InterChange™ 2.0
- Linking InterChange™ to Timbre Directory

- Call up sound files, sequences, timbre files from InterChange™ 2.0
- 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

Release 4.4 Dated December 1, 1999

Bug fixes and new features that are applicable to all systems:

- EditView™ and AutoConform™ Machine Control is now more reliable on new Macintoshes and will work with some USB Serial Ports
- Added a Frames-Per-Beat metronome display that is accurate in all cases and at all speeds
- Closer integration of the Patch (I) screen and the Sample-to-Memory (L) screen that provides for editing of sound files within a patch without disrupting the entire patch and accessing all sound files in the patch directly from the Sample-to-Memory (L) screen
- Fixed bugs to provide for correct mouse operation on the Patch (I) screen
- Simplified navigation between screens using the <ENTER> <ENTER> key sequence
- Streamlined mouse access to the Subcatalog (D) screen
- Fixed Sync Panel Beats-Per-Minute switch and decimal point display (Q)

Bug fixes and new features that are specific to Synclavier® PowerPC™:

- "Digital STM" hardware option to provide digital audio input to the Sample-to-Memory. See separate documentation.
- A complete OMS MIDI Implementation for Synclavier® PowerPC™ that provides "virtual" MIDI ports that are available to any OMS-aware Macintosh application. See separate documentation.
- The default W0 disk image file name was renamed to provide less confusion during software upgrades. For this release the file is named "Release 1.4 W0 Disk Image"
- The .INDEX subcatalog created during installation is now much larger than before (5 megabytes vs. 1 megabyte)
- Fixed bug in TransferMation™ to keep TransferMation™ up-to-date automatically as Direct-to-Disk cues are recorded, renamed or deleted

- Fixed InterChange™ display bug where the disk image file name field was blank in certai n cases
- Fixed bug in the Real-Time-Software where fast incoming SMPTE could lock up the host Macintosh
- Fixed InterChange™ bug importing and exporting subcatalogs containing 128 files
- Provided additional Metronome calibration options
- Fixed bug with SCSI Interpretation that prevented certain SCSI drives from working corr ectly with certain Adaptec PCI SCSI Cards
- Fixed bug to allow InterChange™ 1.4 to access Synclavier® SCSI Bus disk drives while Synclavier® PowerPC™ is running.

Release Notes: Release 4.01
January 1, 1997

Bug Fixes and Enhancements:

Release 4.01, Jan 1, 1997

- Support of Tahiti-IV Magneto Optical Disk
- Better file selection capability in FORMCOPY
- A "Delete" Option in FORMCOPY
- Portamento bug fix
- Ability to abort Poly memory SHUFFLE and COLLECT
- Speeded up L-page NORMALIZE, VOLUME, and MIX functions
- Added L-page MODULATE function
- Monitor enhancements to show megabytes
- More thorough store-and-recall of Audio Event Editor setups
- Simplified "capture" of most recent keyboard note
- L-page typing bug fixed

Release 4.02, May 1, 1997

- Improved SCSI error recover for media errors and other drive problems
- Support for removable media hard drives as W0 and W1 from the MONITOR and the Real Time Software
- Support for a greater range of "optical" devices, including using a standard SCSI hard drive or SCSI removable hard drive as an "optical" device. In particular, 512-byte sector SCSI devices are now supported as "optical" devices.
- Newly released "optical" utilities for copying and/or combining optical media and performing other optical file management tasks
- Expansion to 8.191 gigabytes of storage for W0 and W1 (warning: additional testing is needed in this area; use at your own risk!!!)
- Improvements to FORMCOPY and CONFIGUR
- Better support of higher baud rates in "NED Startup"
- MONITOR enhancements with the CAT command, as well as greater use of "megabyte" settings.

Changes to the Real Time Software:

- Improved startup defaults for the Recorder screen (G page)
- Improved startup defaults for the Audio Event Editor "Event" panel
- Improved operation of the MIDI button
- MIDI Time Code Output capability
- Bug fixes to the MIDI Song Position Pointer software
- Bug fixes in the MIDI Sync software, for both input sync and output sync

Changes to the Macintosh Software:

- Keyless EditView, AutoConform, MidiNet
- PowerPC Native NED Startup

Release 4.03, September 1, 1997

- Track grouping from the VK button panel
- Accessing all 200 Sequencer Tracks from the VK button panel
- More options for the VK ERASE button
- Recording of sequencer transpositions
- Cue sheet printouts (by output) in EditView
- Longer event captions in EditView
- Editing event captions in EditView
- PowerPC Native Termulator
- Eve-key-less EditView, MidiNet, AutoConform, TransferMation
- Removable media support for the DTD
- Removable hard disk for DTD backup
- Format of DTD hard drives from the 0-page

Release 4.10, January 1, 1998

Bug fixes carried forward from the Release 4.03.1 update

- Bug fixes to track sliding of grouped tracks
- Track groups now not erased when a Tempo Map is created
- Termulator now quits properly on ShutDown and Restart
- "Fat" Termulator and EditView® applications available
- Bug fixes to some of the 'window' menus
- EditView® preferences are now saved correctly

New Bug Fixes

- A Termulator problem that broke the simple "Generate SMPTE" capability of the Synclavier® has been fixed.
- Several (actually many!) bugs were fixed so that the Sync Panel of the Audio Event Editor can correctly handle negative time values in the Compute SMPTE Offset and Compute Event Times sub-panels.
- A bug that caused the Synclavier® to freeze on the K page (Music Notation Screen) has been fixed.
- SFM updated to new platform and an editing bug fixed

New Features

- Improved Termulator operation with 7100/8100 Power Macs™ at high baud rates.
- The "Journaling" feature of Termulator has been restored.
- Script/Reverse Compiler updates
- A preference option has been created for the operation of Track Grouping.
- "Export One File" Macintosh utility for transferring files from a Macintosh to a Synclavier® hard drive using SCSI.
- OPRENAME and OPREPAIR utilities are now included.
- The 'Guitar' compilations is available for anyone with the Digital Guitar hardware.
- AutoConform is available in an accelerated "fat" application for both PowerPC and 68k based Macintoshes.
- EditView® now has the ability to Save, Recall, and Revert the sequence that is memory. Additionally, it shows in the EditView® Title Bar the path and filename of the sequence that is recalled.
- Synclavier Error Messages Displayed in EditView®
- Refined 'Cue Sheet' printout capability in EditView®

Release 4.11, June 1, 1998

New Features in 4.11

- Track solo states are saved and recalled automatically with the sequence.
- Many, many G page and S page bug fixes were made

EditView®
- drawing of events in color to denote drive use
- Numerous black/white & color drawing bugs fixed
- Delete of multiple notes/events fixed
- PREV and NEXT buttons fixed
- More reliable machine control

AutoConform
- Faster event uploading
- More events
- Column spacing fixed

Release 4.12, October 1, 1998

Real Time Software
- Click operation simplified and improved
- "Live" click track operation restored and improved
- Zero beat now displayed prior to first click
- Sequence Mark Start is enabled when start point is entered
- L-page landscape display improved
- L-page no longer hides Macintosh mouse cursor
- Transpose button operation enhanced
- Termulator stays on same screen when window is refreshed
- Audio Event Editor Cue Directory re-opens correctly
- G-page function keys implemented
- Script/Reverse Compiler now translate Track Solos and Names
- Pedal 1 reinstated as default RTE controller
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- Significantly enhanced Cue Sheet printing via MixMap™
- More drawing bugs fixed
- Fixed bug causing track solos to get stuck on
- Fixed bug where scrubbing prevented further track sliding
- Several crash bugs fixed

Autoconform
- Improved update time for many cues

InterChange™
- Better handling of file aliases to remote file servers

4.30

- 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>unmapped sequences (etc.)
- Ergonomic improvement to Mark Start
- PowerPC native version of TransferMation
- Creating and changing Optical Image files with InterChange 1.3
- Using InterChange 2.0

Release Notes:

Termulator:
4.03.1

- The PowerPC version of Termulator (A.K.A TermulatorPPC) did not shut down correctly in response to the Finder's "Restart" and "Shut Down" menu commands. This was been fixed in 4.03.1. This bug did not show up in Termulator68k.
- The PowerPC and 68k versions of Termulator are now combined into one 'fat' application called 'Termulator'. This change simplifies both the distribution and installation of the software as well as simplifies the operation of the 'Window' menu in other applications such as EditView®..
- The 'Window' menu in Termulator did not function correctly in 4.03. This has been fixed. The 'Window' menu now correctly handles 'aliases' to other applications.

4.10

- A problem with the X-on/X-off processing in some versions of Termulator was causing the "Generate SMPTE" function of the Synclavier® to stop randomly, usually with a few seconds of starting. The fault has been located and the bug has been fixed.

Improved communications with Power Macs™ at high data rates

Prior versions of Termulator did not work correctly on some Macintosh models running certain versions of the Macintosh OS. The result was frequent graphics errors making the Termulator window difficult to use. The problem was most noticeable on Power Macs™ running System 7.6 and later, at the higher baud rates. This was a complicated problem created by undesirable interactions between the 'serial driver' and the way in which Termulator used the serial ports.

Having a large or second video monitor contributed to the problem due to additional interrupt latency introduced when the large or second monitor was re drawn.

A menu option has been added to the Release 4.10 version of Termulator to provide control over the internal mechanism that Termulator uses to access the

Macintosh printer and modem ports. The traditional 'polled' serial port mechanism is available when the 'Use Polled IO' menu item is checked (see the 'Terminal' menu). A new mechanism using 'DMA' IO provides superior performance on all PowerPC Macintoshes that are running System 7.6 and beyond. It may also provide improved performance on some 68k Macintosh models.By upgrading to System 7.6 or System 8.0 and unchecking the 'Used Polled IO' menu item, all systems should be able to reliably communicate at 38,400 BAUD.

Note: Using the 'DMA' IO setting is not recommended on PowerPC Macintoshes running Mac OS 7.5.1 and earlier as problems are known to exist.

I would recommend that you use "Polled IO" on any system running Mac OS 7.5.1 and earlier. I believe that "DMA IO" will work at higher data rates on all systems running Mac OS 7.6 and beyond. Intermediate systems (e.g. 7.5.3 and 7.5.5) will vary between platforms.

Note: Unfortunately, the Release 4.03 and earlier CONFIGUR program does not work correctly with the new Termulator when the new Termulator is using DMA serial IO. This bug is a result of a time measurement that CONFIGUR makes to try and figure out what kind of terminal it is talking to. The time interval is different when the new Termulator is used, so CONFIGUR gets confused. The 4.10 version of CONFIGUR fixes this problem and will work in all cases.

If you wish to use earlier versions of CONFIGUR, you will have to switch to "Use Polled IO" before starting CONFIGUR.

4.3 (from 4.2.2)

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.

Monitor:

4.01

- FORMCOPY - Several enhancements were made to FORMCOPY to simplify various file management tasks. First of all, the file selection process was enhanced to make it easy to select all of the files of a certain type (e.g. sound files, patch files, timbre files). The goal is to make it easier to select all of the files of a certain type (for example: all of the patch files) to back them up to floppy (for example).

  Secondly, a "DELETE" option was added to make it easier to delete sound files, patches, and timbres from the hard disk. By combining the two features, it is now easier to do such tasks as "delete all sound files from this subcatalog" or "move all my patches from this subcatalog to that subcatalog while leaving the sound files where they are".

- The monitor (you know: "Ready >") enhanced to show megabytes

when cataloging winchester disks and subcatalogs. It's about time!!!

4.02

- "CAT SE" option was added to see file and catalog lengths in sectors at all times. The default is megabytes for directories and divices over 1 megabyte in size.
- EJECT, SPIN, and SLEEP command were added to control removable media hard disks.
- Size of files and subctalogs can expressed in MegaBytes for the SAVE and REPLACE commands, as well as the CREATE command.

See the following section entitled "Using Removable Hard Drives with the Synclavier" for more information.

Here's a summary of the new MONITOR commands:

CAT SE - In response to a user request, I enhanced the MONITOR to allow greater control over the showing of catalog and file lengths in SECTORS vs. MEGABYTES. Versions of the MONITOR prior to release 4.01 always showed file lengths in SECTORS. The January 1, 1997 version of the MONITOR introduced a new feature whereby the contents of small catalogs were shown in sectors, while the contents of longer catalogs were shown in megabytes. the CAT SECTORS (abbreviated "SE" for sectors) directs the MONITOR to show the file lengths in sectors for that command for even the largest of subcatalogs and/or devices.

Variations include:

```
CAT SE
CAT X SE
CAT SE SN   (show SEctors, Sort by Name)
etc. etc. etc.
```

MEGABYTES - I simplified creating large subcatalogs by allowing an 'mb' (for megabytes) specifier with the create command, or the use of a '.' in the size specification. For example

```
CREATE      MYSUBCAT,5000
CREATE      MYSUBCAT,10mb
CREATE      MYSUBCAT,1.5
```

This syntax can be used with SAVE and REPLACE commands as well.

SLEEP, SPIN, EJECT - to help manage data stored on removable media winchesters, 3 new MONITOR commands were added:

SLEEP

```
examples:   SLEEP W0
            SLE   W1

purpose:    causes drive to spin down
```

SPIN

examples: SPIN W0
SPI W1

purpose: causes drive to spin up from sleep state

EJECT

examples: EJECT W0
EJE W1

purpose: ejects media from removable drives

UTILITY PROGRAM BUG FIXES

- The annoying "screen cleared after copy" bug in FORMCOPY was fixed
- A bug in SHUFFLE that would cause lost storage when dealing with very large subcatalogs has been fixed (subcatalogs greater than 200 megabytes in size)
- Simplified CONFIGUR settings for "optical" storage
- Fully flexible "Optical" SCSI addressing
- Support of two optical disks in CONFIGUR (for use with OPCOPY)

See the following sections regarding CONFIGUR, .INDEX and .INDEX1, and the new Optical Disk Utilities for greater detail.

SCSI Error Recovery Improvements

To address a long-standing weakness in the Synclavier's SCSI implementation, I added improved low level error recovery to the SCSI drivers. Since much of the Synclavier software was written in the days before SCSI (who else remembers those days, by the way?), there was no coherent approach in the software for the handling of SCSI errors.

My goal in improving the SCSI error recovery was to reduce the occurrences of long and extended blasts of system beeps which occurred, for example, when the RTP was started with a missing W1.

I was not able to eliminate all occurrences of the beeping, but I believe you will notice significant improvement.

In particular, I added SCSI error handling to FORMCOPY. If a SCSI error occurs (either reading or writing a file) using FORMCOPY, the user is prompted to continue with the rest of the files or to quit. If the user chooses to continue, FORMCOPY reminds the user that some files were skipped due to disk errors at the end of the copy process.

I also verified the SCSI error recovery that is used in the OPCOPY optical disk copy utility (newly released; see below). Disk errors encountered by OPCOPY are logged to the W0:COPYLOG output file.

Lastly, I added SCSI error recovery to the Real Time Software. The most common reported problem was the RTP crashing trying to call up a sound file that could not be read. This has been fixed in both the simple recall, audition, and the audition-via-DTD cases. The second common reported case was the system crashing while constructing the sound file directory. This case has also been fixed. I also believe I added error recovery to all the places sequences are stored to or recalled from the disk.

Using Removable Hard Drives with the Synclavier

Release 4.02 offers new support for removable media hard drives. Modern hard drives such as the IoMega JAZ drive and drives made by Tahiti and Syquest are better supported by the system in release 4.02.

Additionally, any hard drive, either removable or fixed, may be used as an N.E.D. "optical" drive. The Tahiti-IV (double sided magneto optical; 1.3 gigabytes each side) and the IoMega JAZ drives are well-suited for use as an "optical" drive. Additionally, larger Winchester hard drives (up to 8 gigabytes) may be used in this manner.

Removable drives used as W0: or W1: are automatically sensed by the MONITOR. An EJECT command (EJECT W0 or EJECT W1) has been added to the MONITOR to provide preliminary management of removable media drives. The SLEEP W0 or SLEEP W1 command can be used to spin-down a hard drive; the corresponding SPIN W0 and SPIN W1 are also available.

Either or both W0 and W1 may be removable. Additionally, multiple removable drives can be concatenated on either W0 or W1 to provide for yet increased capacity, although this technique is not recommended due to the numerous possibilities for inserting the wrong media in the wrong drive at the wrong time with resulting data loss.

The system limitation for W0 and W1 has been increased to 8.191 gigabytes each. This area of the software needs additional testing, and any one wishing to fully utilize this feature should consult with DEMAS and, hopefully, offer their drive for some extended testing (non-destructive testing, of course!).

Using a Removable W1 with the Real Time Software

Control over removable media was added to the "B" page of the real time software. If a removable media W1 drive is connected to the system, an "EJECT W1" or a "MOUNT W1" button will appear on the upper right side of the screen. This button is used to eject the media from W1, or to inform the software that a new media has been inserted.

This mechanism should provide greater opportunities for improved sound file management. The most apparent limitation of this technique at the current time is that the entire sound file list must be reconstructed by scanning the disk whenever the media is changed. Unfortunately, W0 must be rescanned even when just the media in W1 is changed! I can perhaps address this limitation in a later release of the software if there is sufficient interest in removable media devices.

Additionally, it might be possible to improve the entire sound file list process by storing some pre-computed information on disk. Please let me know what your interest in this area is.

New CONFIGUR Options for "Optical" drives

Release 4.02 includes an enhanced CONFIGUR program that simplifies installation of multiple SCSI devices. The default SCSI addresses associated with W1 have been changed to more easily match most people's configuration. Additionally, the DELETE key may be used to quickly remove a device from the configuration list once the cursor is properly positioned in the device column.

The new CONFIGUR utility also allows the placing of SCSI "optical" drives at any SCSI address (any board, any target). Of course, SCSI ID 6 is used by the ABLE computer itself, and SCSI ID 7 is used by the Macintosh, so, only SCSI Id's 0-5 are truly available for Winchester and "optical" drives.

Additionally, the new CONFIGUR provides for the listing of two "optical" drives in the system configuration. This capability is used in conjunction with the OPCOPY utility described below. The two "optical" drives are called, somewhat confusingly, "O0" and "O1", as in "O"-Zero and "O"-One. "O1" may only be accessed by OPCOPY at the current time, and is not available for use by the Real Time Software.

Using A Hard Drive as an "Optical"

Release 4.02 allows the use of any Winchester hard drive (either removable or fixed media) as an N.E.D. "optical" drive. The N.E.D. "optical" format allows for indexing of sound files by category. The N.E.D. "Winchester" format allows for easy access to each file, but has no indexing capabilities and subcatalogs must, of course, be manually created.

Expanded Optical Disk .INDEX Capacity

To address the needs of customer sites with a large number of optical disk media in use, the software was modified to support two .INDEX subcatalogs for the storage of "Optical" disk index files. These subcatalogs are named ".INDEX" and ".INDEX1".

If you are using more than 128 Optical disk media, you have likely experienced the problem of not enough room for more entries in the .INDEX subcatalog.

The .INDEX1 subcatalog is not automatically created during the software installation process. This subcatalog must be manually created from the MONITOR, for example by the command:

CRE .INDEX1, large 1.0

An alternative mechanism that will work well for some users it to rename .INDEX to be .INDEX1, and create a new empty subcatalog called .INDEX. This automatically moves all of the existing .INDEX files into .INDEX1.

Occasionally, you might have to manually move a particular .INDEX file from .INDEX to .INDEX1 to keep the files relatively in balance between the two directories. The software will create all new .INDEX files in the .INDEX directory, but existing files in .INDEX1 will be kept there even if the associated optical disk is modified (e.g. "updated").

Newly Released Optical Utilities: OPVOLUME, OPUPDATE, OPCOPY, OPLIST

Release 4.02 includes a freshly tweaked set of Optical Disk Utilities. These utilities have been enhanced to support both Optical-Zero and Optical-One. They also support the use of standard SCSI hard drives as an "Optical" device.

These utilities are automatically installed in the .SYSTEM folder during installation. To run one of the utilities, just type the name of that utility into the MONITOR as if you were activating FORMCOPY.

These utilities include:

OPVOLUME Prints out information about each "optical" drive and the name of the media that is in the drive.

```
Optical Volume ID Utility - 1 March 1997

Utility to print out name of Optical Volume in O0: and O1:

Optical Zero: "O0:"  iomega  jaz 1GB
   Volume Name:    COPY3B
   Serial Number:  00004
   Megabytes used: 387  (39% full)  Megabytes available: 600

Optical One:  "O1:"  MaxoptixT3-1304
   Could not read volume header:
      S$SenseKey =  00008  Media is Blank
      C#Status   =  00000  Good Catalog Status
```

OPUPDATE Constructs or updates the .INDEX file for an "optical" volume. OPUPDATE provides for choosing between Optical-Zero and Optical-One, and shows the name of the volume in the drive before proceeding.

```
Optical Index File Update Utility - 1 April 1997

Utility to update Optical Volume Index File.

Instructions:
   Press <RETURN> to construct or update the .INDEX file
                  for the Optical Volume shown below.

   Press <SPACE> to select a different Optical Drive
   Press <BREAK> or Q to quit

Optical One : "O1:"  MaxoptixT3-1304
   Volume Name:    COPY3B
   Serial Number:     255
   Megabytes used: 145  (30% full)  Megabytes available: 335
```

OPLIST Uses a .INDEX file to present a list of all the files and their categories on an optical volume. The output of this utility may be captured to a Macintosh text file for use by other data base or searching programs.

```
Optical Disk Listing Utility  version of 1 April 1997

Enter name of index file or <RETURN> to quit: copy3b
Display File List [Y(es) or N(o)]? Yes
Display Category List [Y(es) or N(o)]? Yes
Display all file information [Y(es) or N(o)]? Yes
Send output to printer [Y(es) or N(o)]? No

Volume Name:    COPY3B

Creation Date:  18-OCT-90
Creation Time:  09:23:00 PM
Caption:        Sound Ideas Sound Effects Library

No. Files:      132
No. Categories: 42

list of all the files and captions follow...
```

OPCOPY OPCOPY is a general purpose optical media copy utility that can be used to duplicate optical media, or to combine two (or more) optical media onto 1. It should be particularly useful for distributing sound libraries within a mutli-site facility, and for simplifying the process of upgrading from the older 12" WORM technology to new devices.

OPCOPY creates a log of all file activity in the file W0:COPYLOG so that unattended copying operations can be reviewed.

While OPCOPY does not allow the operator to select individual files to be copied, when copying to a non-blank media it does let you specify which file to start with. This lets a copy operation be resumed in the case of a disk error or other interruption.

```
Optical Disk Copy Utility - 1 April 1997

Instructions for OPCOPY:
   1) Information on both optical volumes is shown below
   2) press <RETURN> to copy all files as shown
   3) press <SPACE> or <i> to interchange source and
destination drives
   4) Press <BREAK> or Q to quit


FROM: Optical Zero: "O0:"  iomega  jaz 1GB
   Volume Name:    CJMEDIA
   Serial Number:       0
   Megabytes used:    387   (39% full)   for    130 files

TO:   Optical One : "O1:"
   Could not read volume header:
      S$SenseKey =     -2  Selection Failed; The Drive is
                           off or not connected
      C# Status   =      0  Good Catalog Status

Status:
   DESTINATION Drive is not ready; see specific error
   message above
```

4.10

Journaling Feature Restored

Journaling is a feature that captures text from the screen and saves it in a text file. For example, if journaling is on while you are running the OPLIST utility, the list of files on the selected optical disk is saved in a text file. Once the text is captured, you can use a word processing program to edit and/or print the the file to a printer connected to the Macintosh.

To turn on journaling, press CMD-Option-del (the 'del' key is above the arrow keys). A dialog box asks you to name the file created. Output from the is then recorded to the file.

To turn of journaling, press CMD-Option-del again. The screen output is no longer recorded to the file. To add more captured text to the same file, turn journaling on again.

While journaling is on, you can also close the current file and open another. When you press CMD-Option-end, the current file closes and a dialog file asks for the name of a new file.

Look for menu support of Journaling in the near future.

SCRIPT/Reverse Compiler

Some updates were made to SCRIPT and the Reverse Compiler for release 4.10. For a number of years in the late 1980's features were added to the Real Time Software but were not properly updated in the SCRIPT language and Reverse Compiler. Some of these limitations have been addressed in Release 4.10, including:

- translation of the preferred Poly bin
- translation of Track Grouping assignments

OPRENAME and OPREPAIR utilities

OPRENAME and OPREPAIR utilities have updated SCSI protocol to better handle Magneto Optical drives. They are now included in the ABLE system software. Additionally, all files on the System Utilities diskette have been updated wherever applicable.

OPRENAME appears similar to OPREPAIR initially but instead allows you to change the name of an optical volume. This is useful when a copy of an optical volume is made for use within the same facility. Volumes with identical names can be confused by a system and, because the physical location of files on each media is **not** identical, incorrect sound file data can be recalled to memory. For this reason it is recommended that no two optical volumes within a facility ever be given exactly the same name.

4.12

Script/Reverse Compiler now translate Track Solos and Names

The Script compiler and reverse compiler now translate Track Solo states and Track Names.

Reverse Compiler vrs. Locate point bug fixed

When reverse compiling a sequence which had a locate point saved, or which had a locate caption or sequence caption entered, the output file contained a bogus Notelist for Track 248 with a Track Volume of 1644.8. This prevented the file from re-compiling.

4.30

FORMCOPY

This version of FORMCOPY allows reading of Kennedy backup 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.)

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.

Real-Time Software:

4.01

- The Tahiti-IV Magneto Optical Disk Drive is now supported as both a W1, and as a replacement for a 12-inch WORM. The Tahiti-IV can hold the entire contents of a 12-WORM on a 5 & 1/4" media.

Changes were made to FORMCOPY, OPREPAIR, OPLIST and SYN-4.01 to support this drive.

- Portamento - The starting pitch value for a portamento glide is now correct and controllable as portamento is switched on and off with the foot switch (or with the button panel, for that matter).

- SHUFFLE and COLLECT - The Poly Memory SHUFFLE and COLLECT functions activated from the B and R pages can now be interrupted by the VK "STOP" button, OR by the break key on the terminal (control + space on Macintosh). Additionally, they are animated in both the VK window and on the terminal. I was hoping to provide the break feature for all poly memory commands, but didn't get to add it to the L-page commands. I'm all set to do that for next time if the interest is there. Let me know!

- L-Page NORMALIZE, VOLUME and MIX have been sped up considerably (about by a factor of 3). What used to take 45 seconds now completes in about 17 seconds. Enjoy!

- L-Page MODULATE command was added. This command performs a multiplication of two digitized signals. The effects are somewhat unpredictable, but may very well be useful in sound design situations. Modulation tends to create lots of high frequencies and can reduce signal levels; you will probably want to normalize both before and after the modulate command. Spectrally speaking, the modulate function produces an output file whose frequency content equals the sum and the difference of all of the input frequencies. Enjoy!

- The panel setup buttons on the Audio Event Editor were enhanced to store more information about the Events panel setup. Specifically, the number of tracks displayed and the display contents (e.g. pitch names, event names, RTE's, etc) are memorized when the setup is saved. This will allow you to memorize setups with different display configurations.

Enjoy!

- Capturing the last keyboard note shortcut: In response to a customer request, a simplified ability to capture the most recent keyboard note into the Audio Event Editor Event panel was added. The situation involves designing sounds at the V/P keyboard. During a sound design session, you can manipulate the sound at the keyboard and select the pitch by ear. Typing a value of XX [return] into the pitch field of the Events panel looks up the most recent key that was played and substitutes that value.

- L-page input bug: The L-page now allows longer fields to be typed when entering sound file times and cross fade lengths. This bug showed up when working with large sound files.

4.02

Changes to the MIDI Button

I received several bug reports pointing out inconsistencies in the operation of the MIDI button. In particular, changing to MIDI IN SYNC or MIDI AUX SYNC while SMPTE Sync was active did not work from the button panel. Additionally, the Sync Panel screen would not update in some cases.

To address these bugs and to provide compatibility with the MIDI Time Code implementation, I changed how MIDI IN SYNC and MIDI AUX SYNC are activated from the button panel. The old button combination was to hold the external sync button and press the MIDI button. The new button combination is to hold the MIDI button and press the External Sync button. This new button combination is compatible with how SMPTE is turned on or off, as well has how MIDI Time Code output is turned on and off.

The Sync Panel sync setting should update correctly in all cases now.

As I describe in a later section on MIDI Time Code, the MIDI Sync Output can now be activated and directed from the button panel as well as from the "J" screen.

MIDI Song Position Pointer bug fixes

There were several long-standing bugs in earlier releases that caused incorrect MIDI Song Position Pointer messages to be created. Firstly, the MIDI Song Position Pointer message was virtually always wrong when locating more than 1 minute into the sequence. The most common bug report of this problem was that the MIDI Song Position Pointer message was wrong after bar 32.

Additionally, there were several bugs that showed up when creating MIDI Sync output while chasing SMPTE time code.

I have fixed these bugs and tested this area quite thoroughly. However, I would like to do some more testing with a real sequence, especially one that uses a

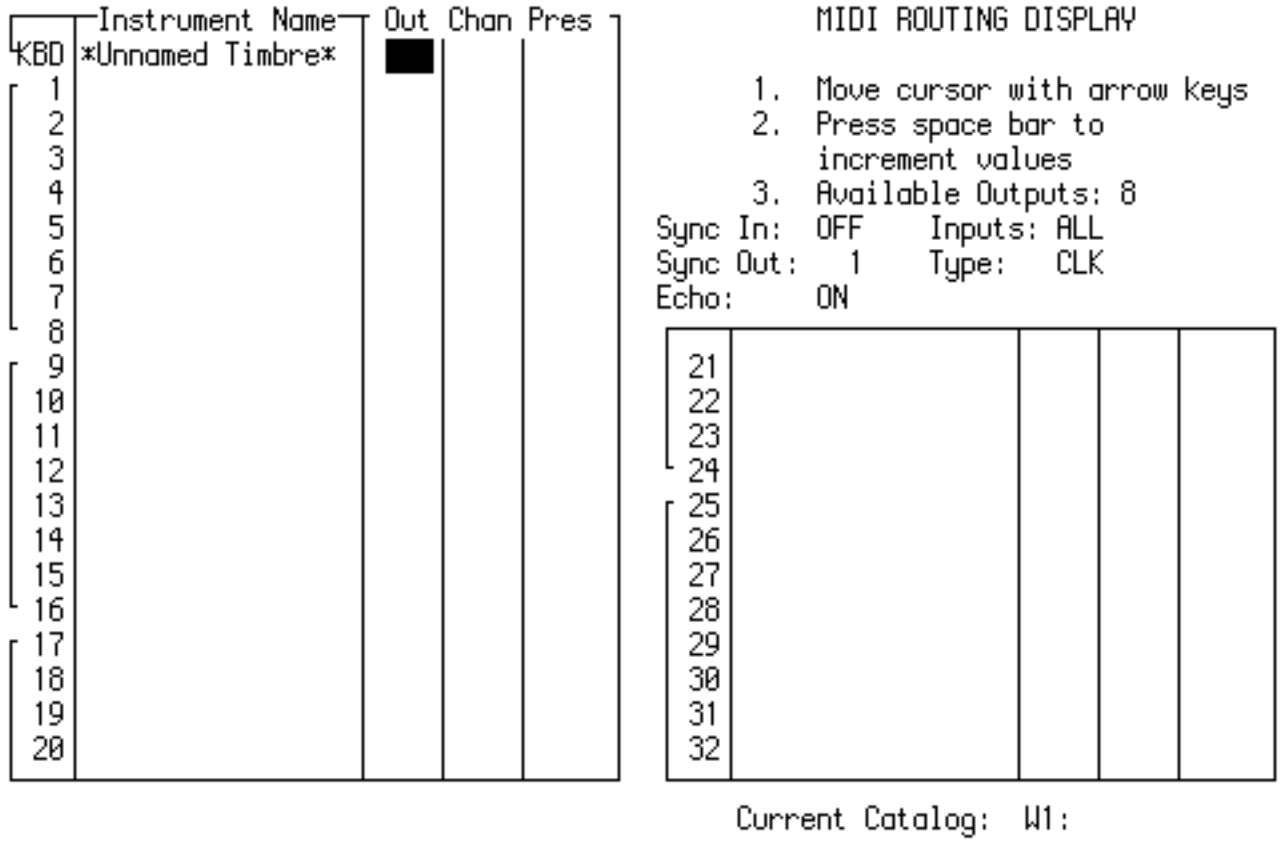
tempo-meter map. If you would care to offer a sequence for testing, please contact me.

MIDI Time Code

An implementation of MIDI time code has been added to the Real Time Software. This feature allows the Real Time Software to create MIDI Time Code output both when operating as a master and when syncing to SMPTE or VITC code.

Using MIDI Time Code

MIDI Time Code can be activated from either the J screen ("MIDI Routing Display") or from the button panel. Here's the new layout of the J screen:



Activating MIDI Time Code Output from the J Screen

I added a new field to the J screen that provides for specifying either standard MIDI Clock/MIDI Song Position Pointer type synchronization, or for the creation of MIDI Time Code. The "Type" field specifies CLK for standard MIDI clock synchronization, or TC for MIDI Time Code. The field can be accessed either by arrow keys or the mouse and is changed with the space bar.

The other fields operate as before.

Activating MIDI Time Code Output and MIDI Sync Output from the Button Panel

The MIDI and SMPTE buttons are used to activate or deactivate MIDI Time Code Output or MIDI Sync Output from the button panel. Press and hold the MIDI button, and then press the SMPTE button. The current MIDI sync format (either MIDI Clock or MIDI Time Code) will be displayed allong with which MIDI output is selected, or the word OFF if no output is selected. Continue holding the MIDI button and press the SMPTE button again to change between MIDI Clock synchronization and MIDI Time Code synchronization.

The MIDI button can be released once the desired synchronization type is selected.

The knob is used to specify which MIDI output will contain the MIDI Clock or MIDI Time Code bytes. When the MIDI Synchronization format is displayed in the window, the External Sync button can be used to select which MTC frame style is desired.

Here are some sample window displays:

or

MIDI Time code and the SMPTE Offset

The SMPTE Offset field that is entered from the SMPTE button (or, of course, from the Audio Event Editor Sync Panel) is fully incorporated into the MIDI Time Code signal. The SMPTE Offset that is dialed in represents the precise MIDI Time Code time of the first click of the sequence.

The frame-style and frame-speed of the MIDI Time Code signal is also controlled by the SMPTE settings entered from the button panel or from one of several screen locations. 29.97 FPS Drop Frame, 30 Frame, 25 Frame, 24 Frame, and NTSC 30 Frame codes are supported.

Viewing the current MIDI Time Code time

The current out-goint MIDI Time Code value can be shown in the lower display window as if it were incoming SMPTE timecode. The display is toggled between showing measures:beats and the MIDI Time Code by pressing the SMPTE button once MIDI Time Code output has been enabled.

The MIDI Time Code display is updated while playing, during fast-forward and rewind, and after locating.

MIDI Time Code while Scrubbing

The software emits MIDI Time Code "full-frame" messages while scrubbing audio from EditView in the "full sequence" scrubbing mode. When scrubbing a single cue, MIDI Time Code is not created.

4.03

- A bug with track sliding has been fixed in 4.03. In earlier releases the time relationship between tracks could be changed when sliding more than one track at the same time. In 4.03, when multiple tracks are slid at the same time, the tracks being slid will remain in sync.

Termulator

- Termulator68k (for 68k Macintoshes) and TermulatorPPC (for PowerPC Macintoshes) are now available.
- Numerous display problems in the Termulator VK Panel Window were fixed. These problems showed up in various ways such as mysterious "green" buttons flashing on the panel, buttons stuck "on", and buttons staying green instead of red.
- Termulator now detects and reports if the chosen Serial Port is in use when Termulator is started up. Earlier versions of Termulator would frequently crash your Macintosh in that situation. The new version detects the port in use, reports that to the user, and allows the user to select a different serial port. Alternatively, the same serial port can be reselected from the Terminal menu once the offending application is halted.
- Numerous "low memory" crashing problems were identified and fixed.
- The VK panel portion of Termulator should update much faster and in a more consistent way, especially when button presses are being processed.
- A new streamlined mechanism for "pressing and holding" a Synclavier button from Termulator was implemented. The existing method (e.g. holding shift while clicking a button) is unchanged. In the new software, a button can also be held simply by pressing the button with the Macintosh mouse and holding the Macintosh mouse button down. This mechanism is particularly convenient for functions that become active after holding a button for a certain period of time. The Synclavier button is automatically released when the Macintosh button is released.

- Termulator can now better handle small screens such as those on a portable PowerBook computer. That is, the windows are sized so that the scroll bars are always accessible, even on computers with small screens.

- It is now easier to select a group of Parameter buttons from Termulator by simply wiping the mouse over a range of buttons.

- Several "mouse reporting" bugs were fixed in Termulator. These bugs showed up as erratic delays when using the mouse in the Terminal window, or the mouse was often dragged to a location further than intended. The S-page in particular should be more responsive to mouse clicks and dragging.

- Zooming of the VK button panel is now more consistent and should do what you want a greater percentage of the time. That is, the window position and size are saved independently for both the 'zoomed' and 'current' state.

- The current button panel layout is saved and automatically restored when Termulator is restarted.

- Numerous drawing bugs that were particularly apparent on the Sound File Recall Screen (B-Page) and the Audio Event Editor (Q-Page) screens were fixed. In particular, scrolling through the Sound File directory no longer fills the screen with drawing errors when using the small and medium display sizes.

- The current sizes of the Terminal window are saved for each of the 3 display sizes (half, medium, full). When the display size is changed from the menu, the size of the window and the scroll-bar position of the Able screen is restored.

Accessing all 200 sequencer tracks from the VK Button Panel

The "TRACK PAN" button was implemented in this software release to provide for simplified and speedy access to all 200 sequencer tracks directly from the clavier. This powerful implementation provides four distinct functions from this one button:

- you can quickly see the current button assignment settings in the VK Window Display
- you can assign one of the rows of 8 track buttons to a "bank" of 8 sequencer tracks
- you can quickly reset all of the track buttons to correspond to sequencer tracks 1-32 (the default startup setting)
- you can recall the button assignments associated with a particular "grouped" track (described later).

The TRACK PAN button was chosen both because it was an unused button, and also because we felt the concept of "panning" the track buttons across the sequence space made some sort of sense in terms of this feature.

Track Pan Window Display

The first function available from the TRACK PAN button is to see the current track button assignment settings. When the TRACK PAN button is first pressed, the VK window display shows the current track/button assignments. The display shows the Sequencer track numbers that are assigned to the first button of each row, as in:

Note: Pressing the TRACK PAN button a second time is used to recall the button assignments associated with a "grouped" track. This feature is explained later.

Pressing the TRACK PAN button a third time (or pressing STOP) cancels the Track Pan Window Display without changing any button assignments.

The current track button assignment settings are saved with the Sequence and will be restored when a Sequence is recalled.

Recalling a "Bank" of Tracks to the Button Panel

The second function that can be performed with the TRACK PAN button is to quickly assign a "bank" of 8 sequencer tracks to one of the rows of 8 track buttons. This is accomplished as follows:

1) Press and release the TRACK PAN button once (release it before 2 seconds are up; see below). You will see the track buttons labeled 1, 9, 17 and 25 start to blink.

2) Press one of the blinking track buttons (e.g. 1, 9, 17, or 25). This selects which row of track buttons will be affected. After pressing one of these blinking buttons you will see that all of the track buttons labeled 1-27 start to blink.

3) Press one of the blinking track buttons (e.g. 1 through 27). This will assign one of the 27 "banks" of tracks to the row of track buttons selected in step 2.

Here is a chart that relates "track banks" 1-27 to actual sequencer track buttons:

"track bank"	1	equals tracks:	1	2	3	4	5	6	7	8
"track bank"	2	equals tracks:	9	10	11	12	13	14	15	16
"track bank"	3	equals tracks:	17	18	19	20	21	22	23	24
"track bank"	4	equals tracks:	25	26	27	28	29	30	31	32
"track bank"	5	equals tracks:	33	34	35	36	37	38	39	40
"track bank"	6	equals tracks:	41	42	43	44	45	46	47	48
"track bank"	7	equals tracks:	49	50	51	52	53	54	55	56
"track bank"	8	equals tracks:	57	58	59	60	61	62	63	64
"track bank"	9	equals tracks:	65	66	67	68	69	70	71	72
"track bank"	10	equals tracks:	73	74	75	76	77	78	79	80
"track bank"	11	equals tracks:	81	82	83	84	85	86	87	88
"track bank"	12	equals tracks:	89	90	91	92	93	94	95	96
"track bank"	13	equals tracks:	97	98	99	100	101	102	103	104
"track bank"	14	equals tracks:	105	106	107	108	109	110	111	112
"track bank"	15	equals tracks:	113	114	115	116	117	118	119	120
"track bank"	16	equals tracks:	121	122	123	124	125	126	127	128
"track bank"	17	equals tracks:	129	130	131	132	133	134	135	136
"track bank"	18	equals tracks:	137	138	139	140	141	142	143	144
"track bank"	19	equals tracks:	145	146	147	148	149	150	151	152
"track bank"	20	equals tracks:	153	154	155	156	157	158	159	160
"track bank"	21	equals tracks:	161	162	163	164	165	166	167	168
"track bank"	22	equals tracks:	169	170	171	172	173	174	175	176
"track bank"	23	equals tracks:	177	178	179	180	181	182	183	184
"track bank"	24	equals tracks:	185	186	187	188	189	190	191	192
"track bank"	25	equals tracks:	193	194	195	196	197	198	199	200
"track bank"	26	equals tracks:	L1	L2	L3	L4	L5	L6	L7	L8
"track bank"	27	equals tracks:	L9	L10	L11	L12	L13	L14	L15	L16

Note: Changes to the button assignments made from the button panel appear immediately on the J and K screens if either screen is showing.

Resetting the Track Select buttons to Tracks 1-32

The third function that can be done with the TRACK PAN button is to quickly reset the 32 Track Select buttons to correspond to tracks 1 through 32. This is accomplished by pressing and holding the TRACK PAN button for two seconds. This feature was provided to allow quickly returning to a known button state. You will see the following window display:

Recalling the button assignments associated with a Track Group

The fourth function that can be done with the TRACK PAN button is to recall the settings for all 4 rows of Track Select buttons that are associated with a particular Track Group. This function is activated by pressing the TRACK PAN button twice and is explained later under "Track Groups".

Improved Operation of the ERASE button

The operation of the ERASE button was enhanced for this software release. It now provides the following operations:

1) Erase ALL tracks

2) Erase SOLOED tracks

3) Erase the HELD tracks buttons

4) Erase just the RECORDING track

5) Erase the tempo meter map

The logic for determining which ERASE operation is called for is determined in the following order:

1 - If the SPEED and CLICK RATE buttons are held, then the tempo and meter maps are erased. Soloed, held and recording tracks are ignored.

2 - If the system is RECORDING, then just the recording track is erased (regardless of buttons held or tracks soloed)

3 - If any track buttons are HELD, then just the held track buttons are erased without regard to track soloing

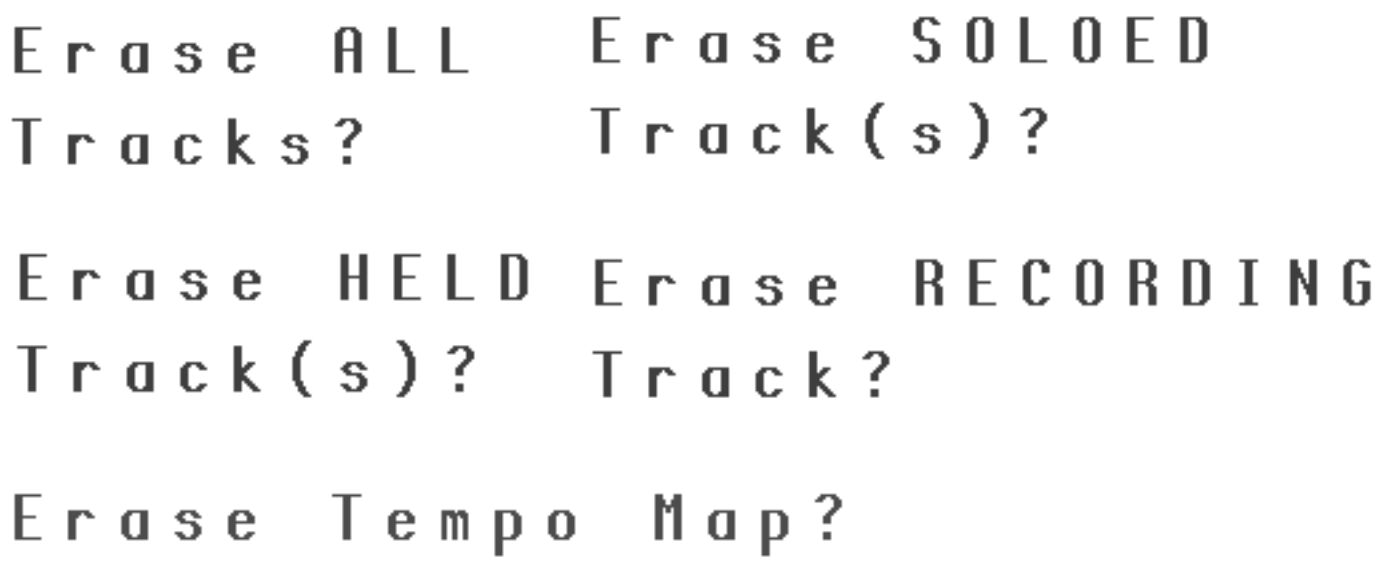
4 - If any tracks are soloed, just the SOLOED tracks are erased.

5 - If none of the above conditions apply, then the entire sequence is erased.

Operation of the ERASE button while the STOP button is held

Holding the STOP button while erasing provides for just erasing the notes on a track without erasing any of the settings associated with the track. The settings which are preserved in this way include virtually all settings for a particular track, including routing, volume, output, and independent loops.

Here are some of the displays you will see in the VK window when the ERASE button is pressed for the first time:



Erasing Track Groups

The erase feature operates slightly differently when tracks are grouped. These differences are describe later in the section on track grouping.

Working with Track Groups

A feature for creating and manipulating "Track Groups" was implemented in release 4.03. This feature allows you to assign a list of Sequencer Tracks to one "master track", and then access all of the tracks in the group from the one button associated with the master track. Up to 200 such track groups can be created.

This implementation of Track Grouping is an important (and long-awaited!) step forward for the Synclavier. We hope it will streamline and simplify the operation of your machine on a daily basis.

Track Groups

The concept behind a Track Group is straightforward: a Track Group is a list of tracks which may include any or all of the 200 Sequencer tracks plus any or all of the 16 Direct-to-Disk tracks. This list may also include other Track Groups.

A particular Sequencer Track may be part of any number of Track Groups.

When a Track Group is created, one of the 200 Sequencer Tracks is chosen to be the "master track" for that Track Group. The master track may contain notes and a timbre itself, or it may be an otherwise empty track. Notes on the master track will be played normally. Each of the 200 Sequencer Tracks may be a master track; therefore, 200 Track Groups are possible in a sequence.

Hierarchies of Track Groups can be created to any level. That is, one Track Group may contain other Track Groups within it, and so forth.

Track groups are saved and recalled with the sequence in entirety.

Most operations with Track Groups are straightforward. For example, soloing or un-soloing a Track Group is accomplished by pressing the Track Select button for the master track. All members of the Group are soloed or unsoloed as a group. Sliding the master track in time slides all of the tracks of the group.

Other functions operate somewhat differently with track groups. For example, selectively recalling sequencer tracks will only read in the tracks associated with the track buttons being held; it will not read in other tracks that may be part of a track group. The group information, however, *is* read in if the track on disk is a master track. The member tracks of the track group would each have to be recalled if desired.

Creating a Track Group

Track Groups are easily created from the VK button panel. You must begin by deciding which one of the 200 Sequencer Tracks is going to be the master track for the group. Secondly, you must decide which other sequencer tracks are to be included in the Track Group.

The first actual step in creating a Track Group is to make sure the master track and one or more member tracks are accessible from the button panel. Use the TRACK PAN button (or the J or K Screens) to assign rows of the button panel to banks of sequencer tracks as needed.

Press the Track Button corresponding to the master track and hold that button for 2 seconds. You will see the VK Window display change to:

Create Track
Group...

When the "Create Track Group..." display appears, you will see the button for the master track start to blink, and all of the other Track Select buttons will be off.

Tracks may now be added to the Track Group by pressing any of the other track buttons; the button for the member tracks will turn on as they are added to the group. Lit buttons can be pressed at this time to remove a track from a group.

The step of creating a Track Group is normally terminated by pressing the button for the master track again; this reverts the Track Select buttons to their normal solo/unsolo operation. Alternatively, pressing the STOP button (or most any other button) will end the group creation session and save the group thus created.

Modifying the tracks that are members of a Track Group is equally straightforward. Press and hold the button for the master track for two seconds. The display will change to:

Modify Track
Group...

When the "Modify Track Group..." display appears, you can use the Track Select buttons to add or remove members of the track group at will.

Note: Whenever the contents of a Track Group is modified (that is, the list of member tracks in the Track Group is changed) a "snapshot" of the current Track Select button assignments is stored in memory. This snapshot can be recalled to the button panel at a later time by pressing the Track Pan button twice. This feature is described in detail later.

Practical Considerations

Track Groups are most practical when the corresponding track button is readily available from the button panel. For example, a good set up might be to use tracks 1 through 24 as master tracks for 24 track groups, with each Track Group containing the master track plus 8 other tracks chosen from higher track numbers. Tracks 1 through 24 (e.g. the Track Groups) could always be kept accessible from the first 3 rows of Track Select buttons, while the lower row of track buttons could be assigned to a particular track group as needed.

Using TRACK PAN to access the members of a Track Group

Press the TRACK PAN button twice. If there are no master tracks accessible from the button panel (either there are no Track Groups in the sequence, or those Track Groups that do exist are not accessible from the button panel at the current time), you will see a message:

No Track Groups available...

If there are 1 or more Track Groups accessible from the button panel, you will see those buttons start to blink.

Pressing one of the blinking track buttons will recall the button assignments for all 4 rows of Track Select buttons to what they were when the Track Group was last modified. Normally, these assignments might be expected to contain the tracks that are members of the Track Group, but more bizarre settings can be imagined. For example, a chain of track button assignments could be created for moving the track buttons through the sequence in a pre-determined order. Enjoy!

Note: If all the members of a track group are removed, the master track reverts to a normal sequencer track and the button assignment list for that master track is deleted.

Soloing a Track Group

Track Groups are brought in and out of the mix by pressing the Track Select button associated with the master track. The master track and all member tracks will be brought into or out of the mix depending on the state of the master track button when it is pressed.

This logic is hopefully as straightforward as it is powerful. For example, double-pressing a lit master track button will bring all member tracks into the mix if only some had been brought into the mix individually before. Similarly, pressing a lit master track button once will mute the master track and all member tracks from the mix even if some member tracks had been brought into the mix previously.

Track groups are soloed from EditView and the various screens in the same manner. Bringing in the master track will bring in all the tracks in the group.

Recursive Track Groups

It is possible to construct several Track Groups which each include each other. For example, Track 1 could be the master track for tracks 9-17, and Track 9 could be the master track for tracks 1-8. In this case, pressing either the track button for Track 1 or the track button for Track 9 would solo or unsolo all 16 tracks as a group. Enjoy!

Erasing a track group

The ERASE function operates slightly differently with master tracks. If a track group is soloed when the erase is performed, all notes are deleted from the tracks but the group information is preserved. For example, to erase all the tracks in the track group, first solo the entire group (e.g. by pressing the master track button). Then press ERASE twice to erase all of the soloed tracks. The group information on the master track will be preserved in this case.

To erase, the group information for a master track *press and hold* the master track button and then press ERASE twice (e.g. perform a normal erase-held-tracks operation). Any notes on the master track will be erased, as will the track grouping information.

Special operations with track groups

1) Changing the track volume or track routing of the master track will assign the new value to all members of the group.

2) When a master track is bounced to an empty track, the group information associated with the master track is moved to the new track as well. That is, master tracks can be moved at will without losing the track grouping information. However, the group information for two master tracks cannot be combined by bouncing them together; the new tracks will have to be manually added to the destination track group.

3) All of the tracks in a track group can be slid in time by holding the button for the master track and turning the knob. All of the tracks in the group will be moved in time together. When sliding back in time (e.g. towards 0:00), the slide distance is limited by the first track that would reach 0:00.

Recording Sequence Transpositions

A new feature was added to the Real Time Software whereby sequence transpositions can be recorded. In earlier versions of the Real Time Software, transpositions could be performed live, but could not be recorded.

Any track may be used to record sequence transpositions. The first note on the track defines the reference pitch. Additional notes on that track define a keyboard interval with respect to the first note that becomes the transposition amount.

To create a transposition track, press and hold the appropriate track button and then press the TRANSPOSE button. This marks the track as being a transpose track.

Any number of transpose tracks can be created in this way.

To see if a track is a transpose track, press and hold it's track button. The TRANSPOSE button will light up if the track is a transpose track.

The notes recorded on a transpose track are never heard themselves. That is, transpose tracks are always "muted".

When recording onto a transposition track, the keyboard note is heard while recording, but is not heard during playback. You may wish to use a "null" timbre when recording onto a transposition track if you do not want to hear any keyboard notes while recording.

If a transposition track is a master track, the transposition will only effect those tracks that are members of the track group.

If multiple transpose tracks affect a single sequencer track, the 'most recent' transposition is the one that is effective for that track. That is, multiple transpositions for the same track do not add together in any way.

4.03.1

- Some further refinements to track sliding from the VK panel were made. These enhancements will preserve the time relation between tracks being slid and the click track in all cases. 4.03 had a bug where the time relation between tracks and the click track could be lost if justification was enabled.
- A bug showed up in release 4.03 that caused track group settings to be lost when a tempo map was created by holding the click rate button and pressing a track button. This bug was fixed in 4.03.1.

4.10

- An old problem (circa Release 2.8) with the "Compute SMPTE Offset" function on the Q-Page 'Sync' panel has been fixed. This particular bug caused incorrect values to be calculated if a negative number was

entered while in the "BEATS" or MEASURES AND BEATS" display mode. In fixing this bug several other potential bugs were discovered and repaired to prevent similar problems in the future.

- Users of the K-Page, particularly with older systems or those configured with 60K of core memory, have been experiencing crashing when that page was selected while an empty sequence was loaded. This was due to an error that caused the CPU to reference a location in memory that did not exist. This has been corrected and should now function properly in all configurations.

- A bug was fixed in the EDIT module that causes a system crash when editing files on a different hard drive than the current catalog. The source for the Sound File Manager has been located and updated for our modern Macintosh development platform.

Button Panel activation of Track Grouping

The response to the Track Grouping feature introduced in Release 4.03 has been very positive, however several users reported having difficulty with the 2-second timer that was used to start the feature. We have made 3 changes to the way Track Grouping operates in Release 4.10 to accommodate these requests:

1. Track Grouping while Playing - Release 4.10 will **not** enter the 'Create' or 'Modify' track group menu while the sequencer is playing. There are several situations while playing where track buttons are held for extended period of times - for example when setting up independent loops. Release 4.10 will not create a track group while playing no matter how long the track button is held.

2. Hold the 'SEQ NAME' button and press a track button to create a track group - Release 4.10 lets you bypass the 2-second timer by pressing and holding the SEQ NAME button and then pressing a track button. The SEQ NAME button is used to control the 'start-up-notes-in-middle' function. It has never been used to enter a sequence name. Pressing and holding the SEQ NAME button and then pressing a Track button will force immediate entry into the 'Create Track Group' or 'Modify Track Group' menu, even if the sequence is playing.

3. MONITOR 'GRP' Preference - a preference option has been added to the MONITOR to disable track group creation by holding track buttons in all cases. This setting may be desirable for users that find the 'Create Track Group' or 'Modify Track Group' menu appearing when not intended. The relevant MONITOR commands are:

```
      SET GRP ON
      SET GRP OFF
and   SHOW GRP.
```

The GRP preference defaults to ON; that is, Track Groups can be created or modified by holding a track button for 2 seconds. When the GRP preference is set to OFF, Track Groups can only be created or modified by holding the SEQ NAME button and then pressing a track button.

You may add 'SET GRP OFF' to your PROFILE file to set this preference to OFF whenever your system starts up, if you wish.

4.11

Real Time Bugs

RS-422 Bootload Problem - The system would fail to properly initialize the D115 RS-422 card when the Real Time Software was activated when the current directory was on W1:, as in:

```
ENT W1:
...
PLAY
...
```

The sympton that showed up was that EditView™ would not communicate with the Real Time Software when the Real Time Software was launched when the current directory was on W1. This bug has been fixed in 4.11.

Optical Transfer to Locked Project - The Optical Transfer Panel of the Audio Event Editor did not check for a locked project when transfering to the DTD. The result would over-write the last cue in a (locked!) project. The software now checks for a locked project and will provide a warning instead of allowing the transfer.

Track Solos Saved with Sequence

The Real Time Software has been improved to save and recall the track solo states along with each sequence. Whenever a sequence is written to disk, the current state of track soloing is stored with that sequence. The saved state is restored when the sequence is recalled.

Due to internal constraints in the software, the soloing of **empty** tracks is not stored. That is, when the sequence is recalled, any empty tracks that were soloed when the sequence was saved, will not be soloed when the sequence is recalled.

TRACK SOLOS SAVED WITH SEQUENCE:

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Due to internal constraints in the software, the soloing of empty tracks is not stored. That is, when the sequence is recalled, any empty tracks that were soloed when the sequence was saved, will not be soloed when the sequence is recalled. Please let me know if this is a real operational constraint on this feature.

SOUND FILE OFFSETS:

Prior to this release, the Synclavier® did not take the effect of negative partial tunings into account when displaying sound file offsets. Furthermore, as of Release 2.7, the displayed offset times inexplicably ceased to be correct for sounds with sample rates other than 50 Khz. Both of these problems have now been repaired.

In addition, if the system encounters a sound file without an offset, it will now continue to look through the other partials until a sound file with an offset is found or until all partials have been checked.

Some extra code was added to insure that the calculation of sound file offsets will work even with samples created with very old versions of SFM (that haven't been subsequently edited with the L-page).

This repair will have a wider impact than just with the display and entry of sound file offsets. The same error also caused incorrect calculations of RAM event durations/endtimes and certain other functions of the Q-page Event Editor Panel. As an example, if an offset time or a RAM event endtime is locked, and the user changes the pitch, the start time is altered so as to keep the offset or endtime locked. This calculation was previously erroneous for sample rates other

than 50 Khz. This repair also enables the duration of the default note from the Q-page Event Editor Panel to match the length of the sound file on A3.

CLICK TRACK FEATURE RESTORED (FOR THE MOST PART):
This feature, sometimes referred to as “Live Click” was a way of temporarily using the notes on a track as a surrogate click. While in effect, the interpretation of times in Beats or Meas:Beats format was done relative to the click track. With this feature, any rhythm on a track could be applied as a customized quantization grid to other tracks. After quantizing to this custom grid, the click could then be returned to it’s normal mode.
When tempo/meter mapping was introduced with Release 2.7, the click track feature was severely crippled. In fact, the sequence of button presses that activated it was reassigned to create a tempo map instead, so that the only way to access the click track feature was from the Settings panel on the S-page.
Restoring the click track feature is an ongoing process which is not complete as of this release. The following is an outline of the state of the click track feature as of this release.
- FIXED: Since Release 2.7, any sequence that had ever been saved with a click track selected, was automatically converted to a tempo mapped sequence when loaded. Once this occurred, there was no way to return the sequence to it’s original unmapped form. This meant that one could never again recall such a sequence as saved without reinstalling software prior to Release 2.7. This auto-conversion routine has now been replaced with code that loads a sequence as it was saved.
- FIXED: The time displayed when holding a track button was incorrect.
- FIXED: On the G-page, the display and entry of times were misinterpreted such that the notes on the click track were only the odd numbered beats.
- FIXED: Entering durations on both the G-page and the Q-page Event Editor Panel gave incorrect results.
- FIXED: On the Q-page Event Editor Panel, the display of times or durations in Meas:Beats format was incorrect. Beats were shown in the Measures field, while the beats and millibeats field showed meaningless information.
- FIXED: When a default loop was created on the G-page or the Q-page Event Editor Panel, the time of the 'endloop' was not set properly relative to the click track.
- FIXED: Justifying to a click track using the S-page didn’t work correctly.
- NOT FIXED: The audible click doesn’t correctly follow the click track.
- NOT FIXED: The entry and display of duration in the “or, enter a new Length for the region :” field of the S-page’s Fit To Time panel gives incorrect results.
- NOT FIXED: The S-page’s display of times or durations in Meas:Beats format is incorrect. Beats are shown in the Measures field, while the beats and millibeats field show meaningless information.
- NOT TESTED: We haven’t yet tested whether MIDI sync correctly follows a click track.

One issue you may want to be aware of is that when using a click track with a meter mapped sequence, the notes on the click track don’t necessarily relate in any way to the changing meter stored in the meter map. Consequently the meter map cannot be meaningfully applied to the display and entry of times or durations in Meas:Beats format. Therefore the initial meter (that which was in effect when the meter map was created) is currently used for interpreting measures when using click tracks. We intend to implement an independent “click track meter” which will be useful for being able to see actual measure or beat boundaries when the click track is a quantization grid.

TRACK SLIDING:
There was a bug that allowed tracks to slide out of sync relative to each other when slid toward beat 1. This was fixed in Release 4.10, but it was discovered after shipping that this problem

still occurred if a real time effect, guitar update or independent loop existed prior to the first sounding note. This problem is now fixed as well.
Prior to this release, a track could not be slid (independently of others) unless it contained at least one note or cue. This was somewhat inconvenient since it's often handy to keep MIDI controllers on a separate track from the notes. Now, track sliding works the same no matter what type of event the track contains.
Justified track sliding now works correctly when using a click track. Keep in mind that, unlike with tempo mapping, the slid track does not conform to the click. Only the first sounding note on the track will necessarily remain at the same fraction of a beat. Consequently, unless the click track is a regular pattern, this feature is primarily only useful in conjunction with the STM record feature since a recording is placed as one note on a track.

CHAINING:
Anyone who periodically uses the CHAINING feature or the S-page's UNWRAP LOOPS feature has probably noticed that the chained notes are sometimes rippled by the wrong amount. A little investigation revealed the following three bugs:

1) The chained notes were rippled 50ms late when the source track started in measure 0 and the destination track was not empty.

2) The chained notes were rippled 50ms early when the source track started in any measure other than 0 and the destination track was empty.

3) If the source track started in measure 0, had a loop length shorter than the measure length, and was chained onto itself, the chained notes started at one measure after the first note rather than at one loop length after the first note.

The chaining routine has been rewritten and we haven't been able to make it produce erroneous results yet. Other than the absence of the aforementioned bugs and perhaps a slight speed increase, the user won't notice any difference from before, except perhaps for the following somewhat esoteric detail:
When chaining without a loop, any RTEs or Guitar updates between the measure boundary and the first sounding note will now be included in the chain (previously they were not). This is useful since such leading RTEs are often needed for initializing controller positions, MIDI parameters, etc. so that the repeated material will sound as it did in the first iteration.

TRANSPOSE:
When transposing using the 'Transpose' button on the keyboard, or with the 'Transpose Track' feature introduced in release 4.03, any active screen is now immediately notified of the change. This means that any sound file offsets or RAM event durations/endtimes displayed on the G-page or the Q-page Event Editor Panel will immediately update to show the effect caused by the transposition.

MISCELLANEOUS:

• RS-422 Bootload Initialization Problem - The system would fail to properly initialize the D115 RS-422 card when the Real Time Software was activated while the current directory was on W1:, as in:

```
ENT W1:
...
PLAY
...
```

The symptom that showed up was that EditView™ would not communicate with the Real Time Software when the Real Time Software was launched when the current directory was on W1. This bug has been fixed in 4.11.

• Optical Transfer to Locked Project - The Optical Transfer Panel of the Audio Event Editor did not check for a locked project when transferring to the DTD. The result would over-write the last cue in a (locked!) project. The software now checks for a locked project and will provide a warning instead of allowing the transfer.

• The tuning accuracy when changing partial tunings or overall tuning has been slightly improved.
• Some of the frequently used routines in Release 4.11 have been streamlined. Some of these modifications result in faster and more efficient execution of certain procedures (only very slightly in some cases, more substantially in others), whereas others make the program consume less memory. (As one example, a good deal of duplicated code, once required due to the limitations of the C Processor, has been eliminated). Most of these changes will likely be unnoticed by the user, but it's worth mentioning them none the less.
• An ancient bug was discovered that caused titles of the A, C, D, E, I, K and M pages to be offset one character to the right.
G-PAGE:

- TWO NEW TOOLS:

ABORT ENTRY: If something has been typed but not deposited (with return, enter, arrows, mouse click etc.), pressing control-X will abort the entry without the need for repeatedly pressing delete and the accompanying risk of accidentally deleting your note. Furthermore, by aborting your entry in this way, it is saved to be reentered at another location (or at any number of other locations) using the REPEAT ENTRY described below.
REPEAT ENTRY: After any entry is deposited (or aborted as described above), it can be repeated as often as desired by pressing control-X where desired.
Following are just a few scenarios where these two features can save a lot of time and effort:

•When you want all the notes of a chord to end at the same time, you can enter the end time over the first note, then just arrow down and press control-X for the remaining notes. You can also go from track to track, making each part end at the same time.

•For accenting certain notes in an ongoing rhythm, there's no need to keep typing the same velocity over each note to be accented (or the same pitch in the case of percussion patches having a different sound on each key).

•If you type in an elaborate entry (like a SMPTE time), only to realize before pressing return that you're on the wrong note, you can simply abort the entry with control-X, go to the correct note, then re-enter the aborted entry with control-X.

- RAM EVENTS:

RAM event durations/endtimes are now correctly displayed on the G-page. Prior to this release, the sound file's nominal length was used without regard for such things as how it was pitched, sequence speed and so on. As with the Q-page Event Editor Panel, since RAM event durations/endtimes are dependent on the sound file lengths, they are not editable by typing over the duration or endtime field. Use EditView™ to modify RAM event durations/endtimes.

- DEFAULT NOTE:

When creating a default note with + or -, the default pitch will be A3 rather than C1. This is much more likely to be a usable pitch since sound files are assigned to A3 by default when loaded. As a logical extension to this line of thinking, if there is a sound file active at A3 when

the default note is created, the duration of the default note will match the length of that sound file (as nearly as possible).

- INSERT INDEPENDENT LOOP & INSERT RTE:

When creating an independent loop using the ~ key, the loop length is now set to match your time signature. If a meter map is in use, the time signature of the measure where the loop starts is used.

An independent loop can now be created by typing ~ even if no note exists yet on the track. (Prior to 4.11, if ~ was pressed on a track with no notes, a default note was created instead of a loop.)

Similarly, a real time effect can be created by typing * even if no note exists yet on the track. (Prior to 4.11, if * was pressed on a track with no notes, a default note was created instead of a real time effect.)

When * is typed while the cursor is on an existing real time effect, that RTE will be duplicated, rather than duplicating the last RTE entered or creating the default RTE.

- VELOCITIES AND REAL TIME EFFECTS:

TRUTH IN ADVERTISING #1:

Prior to 4.11, the display and entry of velocities and real time effects had been complicated by a mismatch between the 201 discreet values displayed (0.0 to 100.0 in .5 increments) and the 226 discreet values actually stored in the sequence. This mismatch, in conjunction with a rounding anomaly, made it impossible for the user to enter certain values (without knowing the trick) and, of course, impossible to see the actual value resulting from the entry much less the actual value prior to the entry. This could make it difficult to create smooth fade outs.

As of this release, the actual values are shown (rounded to the nearest tenth). Also the aforementioned rounding anomaly has been fixed (for both display and entry).

The accurate display of these values in conjunction with the improved S-page scaling finally eliminates the guess-work from such tasks as normalizing velocities and RTEs.

TRUTH IN ADVERTISING #2:

When showing pitch wheel RTEs, the G-page displayed, for all tracks, the semitones according to the pitch bend amount of the timbre on the track where the cursor rested, rather than according to each track's respective timbre. For example if you displayed a track using a timbre with a pitch bend amount of 12 semitones, and another using a pitch bend amount of 2 semitones, both tracks would display pitch wheel RTEs either from -12.00 to 12.00 or from -2.00 to 2.00, depending on which column the cursor was in. This was misleading and frustrating. This has been fixed. Now you'll see semitones displayed as you actually hear them in all cases.

The rounding (for both display and entry) has been improved to be consistent for both positive and negative pitch wheel values as well as for odd and even pitch bend ranges. The same has been done for ribbon controllers which also can have negative values.

Another more obscure bug with pitch bend RTEs occurred when typing semitone values far from 0 with bend ranges in excess of 163.83 semitones. Need it or not, it's fixed now.

- CORRECTED SCREEN UPDATING:

Prior to 4.11, there were a great many actions a user could take that would cause the G-page to update all of it's displayed information even though the user's action had no effect on this information. Consequently the G-page was a bit overactive with unnecessary screen traffic. Conversely, there were also several actions a user could take that should have an immediate effect on the tracks displayed, yet the G-page failed to update until some later action forced a redraw. Various instances of this caused outdated information to be left on the screen which could easily mislead or confuse the user.

Accordingly, a good deal of care has been taken to fine-tune when the G-page should and should not update it's various displays, both to reduce needless screen activity and to assure that the information provided is always correct and not out of date. The specifics are as follows:

• Global Parameters - Previously, changes to global parameters such as Click Rate or Speed caused all of the track numbers and timbre titles to re-plot. (Certainly no point in that.) Now only the notes are re-plotted.

Note: There are scenarios in which changing the Click Rate has no effect on the displayed times but changing the Speed does (or vise versa). Currently the subsystem that reports user activity to the various screens does not distinguish between these actions. Consequently it is not feasible to disable the needless plotting of times in these instances.

• SKT Blinking Mode - When sound file offsets were being displayed, any change to the keyboard timbre caused all three columns to update even though changing the keyboard timbre has no effect on the offset times in the sequence unless the SKT blinking mode is used to link a track's timbre to keyboard control (by holding SKT while pressing the track button). Furthermore, when the SKT blinking mode is used, RAM event durations/endtimes can also be changed from the keyboard timbre, yet these times were not updated on the screen unless sound file offsets were being displayed.

So, to correct all of this, changes to the keyboard timbre will no longer affect the G-page unless the SKT blinking mode is being used on one of the displayed tracks while sound file offsets or RAM event durations/endtimes are being displayed.

When you abort the SKT-blinking mode without retaining the altered timbre on the track (by holding SKT while pressing Stop), the G-page will now automatically reset itself to represent the original timbre.

• Transposing RAM Events - When tracks are transposed with the keyboard transpose button, RAM event durations/endtimes will change, but as described previously, unless sound file offsets were being displayed, the screen didn't update. This is now fixed.

• SMT - SMTing a new timbre onto a track could alter the sound file names, sound file offset times and RAM event durations or end-times. Yet this action only updated the timbre name in the track title. Now, SMTing a new timbre onto a track will immediately update the notes as well, but only if any of the aforementioned three items are being displayed.

• "Record Track" Feature - When the Record Track feature is in use (by typing # over the track number), changing the blinking track on the keyboard (or by any other means) now immediately changes the track displayed on the screen. (It used to be easy to inadvertently type over the wrong track because the G-page continued to display the old track.)

Also, when using the Record Track feature, if no track is blinking, the display will now show "No Record Track (R)". This will remain until, at any time later, a track is put into record ready mode and is consequently immediately displayed in that column.

Another problem with the Record Track feature was that you couldn't deselect the track by pressing the delete key over the track number. It was necessary to first type some other track number and then press delete. Needless to say, this bug has been fixed.

• Pressing the space key with the cursor over the pitch column no longer causes a screen redraw.

• Toggling "Note Ripple" or "UNDO Enabled" no longer causes a screen redraw.

- CONSISTENCY IN PROCESSING PENDING ENTRIES:

Prior to 4.11, if something was typed in without return being pressed, and then the mouse was clicked elsewhere, the entry was deposited at the clicked position while also remaining visually at the original position even though it didn't get deposited there. While this loophole could be put to good use in rare circumstances (for example, realizing after typing something but before

pressing return, that it should have been on a different note), more often it caused unintended edits and screen litter.
To close this loophole, clicking the mouse while an edit is pending now completes the edit where entered before changing the cursor position. If you click the mouse while the system is waiting for you to confirm a ripple edit, the edit is executed without ripple and then the cursor position is changed. This behavior is consistent with what happens when moving the cursor by any other means while the system awaits ripple confirmation (i.e., arrow keys, return).
The aforementioned paragraph now applies also to pressing > to go to the S-page, as well as pressing the ENTER key to go to the main menu. Previously, if either of these were done while an edit was pending, the edit was discarded.
Furthermore, clicking the mouse, pressing > or the enter key after typing an entry when using ripple verify mode, now behaves consistently with the other means of moving the cursor (i.e., arrow keys, return). That is, the cursor is not moved, but instead the verification prompt is printed.

- GENERAL SCREEN ALIGNMENT AND CONTENT CHANGES:

• Prior to this release, pressing delete on a note in the top row caused to cursor to jump to the second row after deletion. This made it very inconvenient to delete multiple notes from the top row and would often cause accidental erasure of the third note when the first and second notes were the intended victims. Deleting from the top row now behaves consistently with deleting from any other row.
• There were certain instances whereby, given the positions of the cursor and the columns, it was impossible for the user to type enough characters to complete the desired entry. These are too numerous to list here but as just one example, if you needed to type over an End-Time displayed in Meas:Beats format and the measure number had 3 digits or more, you couldn't enter the third digit after the decimal. To alleviate as many of these sorts of problems as currently feasible, the cursor and column positions have been optimized. (Sure it looks a little lopsided now, and when sound file offsets are displayed the circumflex connects to the pitch, but you'll be glad when you need those extra characters.)
• Sometimes when changing display modes or tracks while the sequence played, certain trailing or leading characters were not cleared and caused screen litter and confusion. This happened when displaying sustain pedal, when sound file names where erased, when a track with cues was selected over a previous track without cues, and a multitude of other rather specific scenarios. I think we fixed them all. We certainly fixed the vast majority of them.
• Loop Starts and Loop Ends can no longer be inadvertently duplicated in isolation with + or -. (Once this occurred, there was usually no way to delete the invalid event, short of reverse compiling the sequence.) Pressing + or - with the cursor on a loop event (or in the same row on another track) creates a default note at the loop event's time. Actually rather handy.
You'll perhaps notice that the G-page looks a bit different from before. Some of these changes are merely cosmetic (for example, things are centered better and more symmetrically placed) but more importantly, many such changes were made for utilitarian purposes (even at the expense of appearance in some cases). Specifics are as follows:
• Note velocities now plot with the decimal in a position different from the RTE values. This makes it easier to distinguish at a glance between note velocities and RTE values.
• The G-page initializes with the mode selection panel displayed rather than the instructions. This was done because the mode selection panel contains immediately useful functions whereas most of us read the instructions once years ago and haven't needed to see them since.
• The Instructions have been modified to include the RECORD TRACK feature and to be centered and formatted more consistently. Also the <DELETE>, H, # and <ENTER> items are now clickable as well as <TAB>.

Similarly the items in the mode selection panel and the panel above have been centered and formatted more consistently. More importantly, the active regions for mouse clicks have been adjusted to more accurately match the text on screen. (These could be somewhat inaccurate before. For example, clicking on the E in <SPACE> would actually activate an "Insert Note" instead.)

• Fixed an error that caused the line-join at the lower right side of the mode selection panel to be overwritten when TABing to the instructions and back (never to be recovered).
• To maintain consistent nomenclature, "Append EFX: *" has been changed to "Insert RTE: *".
• The title at the top of the page has been centered better. The track titles have been better centered over the columns. (Not exactly the sort of thing you're paying for, but it looks nicer.)

Q-PAGE: EVENT EDITOR PANEL:
All G-page improvements pertaining to the entry and display of velocities and real time effects, including issues of rounding and of pitch bend amounts exceeding 163.83 semitones, have been applied to the Q-page Event Editor Panel as well.
As with the G-page, the default loop length is now set according to your time signature (although it defaults to two measures here instead of one). If you're using a meter map, the default loop will even match changing time signatures. If you're using a click track, it currently defaults to one measure using the meter map's time signature at the loop start time.
When creating a default note with the "Add Note -" or "Add Note +" buttons, the pitch will now default to A3 rather than C1 even if no sound file is found. This is more likely to be a useful pitch since sound files are assigned to A3 by default when loaded.

S-PAGE:

- SCALING TRACK VOLUMES:

Track Volumes can now be scaled by factors greater than 100%. Standard rounding has been employed to maintain proportions as closely as possible.

- UNWRAP LOOPS:

The fixes detailed in the section on CHAINING also apply to the "Unwrap Loops" feature of the S-Page.

- VELOCITY AND RTE CHANGES

All of the functions pertaining to velocities and real time effects have been redesigned. The functions that previously didn't work correctly (outlined below) now do. Scaling precision has been increased and rounding has been incorporated for more accurate results. Also, negative scaling factors can now be used to invert RTEs and velocities.
• Inverting - The new ability to scale by a negative factor can be very useful. For example, pitch bends can be inverted, one track can be made to accent another track's quiet notes, equal sum cross-fades can be easily created, etc.
• Increased Precision - Prior to 4.11, when entering a scaling factor for RTEs, even though the user could enter two places after the decimal, it turns out that (unknown to the user) both digits after the decimal were discarded before scaling ribbon controllers, and the second digit after the decimal was discarded before scaling other (non-MIDI) RTEs. Now, all scaling utilizes the full number as entered and displayed.
• Resolution is now conserved in all of the sloping functions for velocities and RTEs.
• The "Slope" function for ribbon controllers never worked correctly. Negative values were written as Guitar updates. Although Guitar updates are very nice, this bug has been fixed.
• The "Scale RTE by" and the "Add" functions for both pitch bend and ribbon controller never worked correctly. They produced garbled results. These have now been fixed. However, the

as-of-yet unfixed problems with the user interface, require that the user manually enter meaningful Minimum and Maximum limits before executing the edit. A discussion of this issue follows.

PITCH BEND RTES: A STICKY ISSUE CLARIFIED:

It will be useful to anyone wishing to edit pitch bend or ribbon controller to be aware of the following issues. The range for normal RTEs is 0.0 to 100.0. Pitch bend and ribbon controller RTEs are different in that their range is from -100 to 100. To further complicate things, the pitch bend RTEs are expressed in terms of the pitch bend amount of the timbre in use. Consequently, the maximum and minimum limits that are appropriate for normal RTEs, are not appropriate for ribbon controllers or for pitch bend, and because the pitch bend values are expressed according to the timbre's bend range, limits that are appropriate for ribbon controllers are not appropriate for pitch bend and vise versa.

Even now that the edit functions for pitch bend and ribbon controller are fixed, the problem remains that when the user selects pitch bend or ribbon controller, the maximum and minimum limits do not automatically change to appropriate values. This should be fixed in the future, but for now it will be necessary for the user to manually enter appropriate values after switching between normal RTEs, pitch bend or ribbon controller.

Now with this explained, another bug fix can be described:

• A further problem remained that the user often couldn't enter the desired maximum and minimum limits for pitch bend because the system was limiting the entered value to the bend range of the timbre on the last track edited (or the last track plotted on the G-page). Clearly, since this isn't necessarily the track about to be edited, and since any number of tracks with different bend amounts may be edited in one step, such limiting serves no purpose other than to fetter the user.

To eradicate this problem, the entered maximum and minimum limits for pitch bend will now only be limited to the maximum pitch bend amount for any timbre, which is 240.00 semitones.

TEMPORARY SAFEGUARDS INSTALLED:

The S-page's user interface for the "Change Duration", "Change RTE" and "Change Velocity" functions, have some rather knotty loopholes that leave ways for the user to inadvertently enter out of range values that could then cause the functions to produce unintended or even invalid results. These have not been corrected yet. Consequently, safeguards have been installed to internally limit the values passed to the functions.

One example of this happens when entering valid limits for one type of RTE and then changing to another type of RTE where the limits are no longer valid (yet they remain). Another example is that when changing from "Slope" to "Scale" or "Add", it is possible to have a Maximum value less than a Minimum value. Previously this caused all RTEs (or velocities) to be set to the faux Minimum value. Now, when this occurs, the Maximum and Minimum limits will be exchanged internally before the edit is executed.

- BUG FIX: SPURIOUS TRACK SOLOS AFTER PASTE/MERGE/FILL:

Last year a very curious bug appeared that caused the buttons for any tracks which had previously been pasted/merged/filled into, to light up after every paste/merge/fill. The danger posed by this was that when doing multiple edits to a group of soloed tracks, if the user didn't notice that unintended tracks lit up between edits, then tracks would be edited that shouldn't have been. (Even if the user did notice, it was certainly inconvenient to have to keep turning the renegade tracks off after each edit.)

Owing to the potential for easily losing one's work, as well as the annoyance factor, this bug has been eliminated.

- 2 JUSTIFY BUGS FIXED:

Aside from the fact that the Justify function now works correctly with click tracks, the following two bugs have also been repaired:
• When 2 adjacent quantization grid points were an odd number of milliseconds apart, a note at the “midpoint” closer to the earlier grid point quantized improperly toward the later grid point.
• Erroneous results occurred when the beats immediately before and after a note to be justified were on opposite sides of any multiple of 64K milliseconds.

- MINOR DETAILS:
• The “Change RTE” panel now initializes to “Scale RTE by” instead of “Set RTE to”. Also the RTE type now initializes to “Mod Wheel” instead of “Pedal 1”. This seems to be the most likely to be used combination. Hopefully no-one will be seriously upset by this.
• When entering Maximum and Minimum limits, any excess digits to the right of the decimal place are now used for rounding rather than simply being discarded.
• Pitch bend RTEs are no longer quantized to the resolution of the timbre’s pitch bend when executing a “Scale RTE by” and the “Add” edit. Previously, when a timbre with a bend range less than 100 was used, resolution was lost as a result of this quantization.
• The rounding used by all “Change RTE” and “Change Velocity” functions has been improved to be consistent for both positive and negative values as well as for odd and even ranges.
• The failure previously mentioned, which occurred only when the pitch bend amount exceeded 163.83 semitones, has been fixed in three parts of the S-page code as well.
• Stray periods printed after the number following “Set Velocities to” and “Set Durations to” have been eliminated.

A CORRECTION TO THE 4.10 RELEASE NOTES:
A bug-fix reported in the 4.10 release notes was misdescribed.
The report stated: “A bug was fixed in the EDIT module that causes a system crash when editing files on a different hard drive than the current catalog.”
The correction is as follows: “A bug was fixed in the EDIT module of SFM that caused a system crash when writing to any sector exceeding 32 megabytes from the origin of the disk.”

4.12

Important Notes

The Click Rate button and the Transpose button operate slightly differently in 4.12. Specifically, the click track audio output is changed independently of the click track mode. Additionally, the Transpose button now can be "armed" for a single transposition, or can be latched "on". Both of these changes are explained in detail below.

Click operation simplified and improved

In music production, toggling the click is something that’s done so frequently, and often of a time-critical nature, that it needs to be immediate and should not require repeated multiple button presses. Hence the following:

The click’s on/off status and the click’s display format are now independent parameters. Now, either of these can be toggled without affecting the other. Most importantly, the click can ALWAYS be instantly turned on or off simply by pressing the **Click Rate** button. Stepping through the display formats is still done in the usual way of holding **Click Rate** while pressing **Continue.** Furthermore, the on/off status of the click is ALWAYS visible just by glancing at the **Click Rate** button.

Regardless of what parameters are selected, the **Click Rate** button is lit when it's on and unlit when it's off. You may want to be aware that the click's on/off status actually toggles when the **Click Rate** button is released, not when it is pressed. This was done so that the click's on/off status could remain unchanged if any other applicable buttons* are pressed (or if the knob is turned) before the **Click Rate** button is released. This is what enables the click's display format and settings to be changed without toggling click's on/off status.

You can use this knowledge to your advantage in the following ways.

1. If the sequence is playing and you must toggle the click's on/off status at a precise moment, don't linger on the button. Press it as far in advance as you like, but release it with precision.
2. If you wish to change the Click Rate without changing the click's on/off status, just hold the **Click Rate** button until you've commenced dialing.

** The buttons which have special functions if pressed while Click Rate is being held are: External Sync, Speed, Transpose, Fast Forward, Rewind, Start and Stop.*

"Live" click track operation restored and improved

The effort to restore the click track feature (sometimes referred to as "Live Click"), which began with Release 4.11, has now been completed! This feature has been inoperative since release 2.7 due to incompatibilities with the Tempo/Meter mapping introduced at that time. Not only is the feature now restored, but it has been greatly improved in two ways. Firstly, it works the same with tempo-mapped sequences as with non-mapped sequences. This will enable users to set up customized quantization grids that can be looped or chained across tempo changes. Secondly, all of the known bugs which the feature exhibited even prior to release 2.7 have been repaired.

Prior to release 2.7, the click track feature could be activated by holding the Click Rate button while pressing a Track button. With the introduction of tempo/meter mapping, this sequence of button presses no longer activated the click track feature but instead generated a tempo map matching the notes on the track. A similar function which generated the map and also conformed all other tracks to that map was assigned to a different sequence of button presses (holding click and speed while pressing the track's button). Unfortunately, these functions were quite dangerous to have so accessible on buttons because once activated, the current sequence was irreversibly converted.

So, in order to achieve the following goals:
1.To once again have the click track feature accessible from the buttons,
2.To group all of these related functions together so that users need not memorize a multitude of different sequences of button presses,
3.To help avoid accidental and irreversible sequence conversions,
...these functions have all been reorganized as follows:

When holding the **Click Rate** button while pressing a **Track** button, you will now see a message in the VK window indicating which function will be executed when the **Click Rate** button is released. Repeatedly pressing the **Track** button(s) steps through the following options:

* USE FOR LIVE CLICK
  Note: If this track is already the click track, then this option will be:
  REVERT TO INTERNAL CLICK
* GENERATE TEMPO MAP
* GENERATE MAP AND CONFORM ALL
* ABORT

Aside from the obvious convenience and utility of this, two added levels of safety are also provided in the event that the user accidentally presses this sequence of buttons. First, the user can select "Abort" (as long as the Click Rate button hasn't already been released). Second, since the first option to appear is "Use Track For Live Click" which does not actually alter the sequence, no harm is done if this is accidentally invoked, and the user can simply repeat the sequence of button presses to be greeted with "Revert To Internal Click". Another reason for having "Use Track For Live Click/Revert To Internal Click" as the first option is that when using click tracks as quantization maps, it's typical to be turning them on and off frequently.

Zero beat now displayed prior to first click

The VK window beat counter will now display the beat as 0 until the first click occurs. This is handy because when using a click track, the first click doesn't necessarily occur at the start of the sequence, and it's nice to see the number increment when it happens.

Sequence Mark Start is enabled when start point is entered

When the user dials in a Start Mark, it now automatically sets to ON. This is more ergonomic since the user probably wouldn't be entering a mark unless he/she intended to use it right away. This has been done on the S-page as well. (It already behaved this way on the Q-page Motion Panel.) This "auto-enable" behavior will also occur when Mark is set by holding Mark while pressing a Track button.

Changes to Mark Start/Mark End operation

To address a long-standing limitation of the system, the way L-page Mark Start/Mark End information is stored in the Synclavier® has been changed. Due to the somewhat experimental nature of this change, I have only made it available in a special version of the Real Time Software (4.12.1) that is **available to everyone upon request.**

Prior versions of software always looked in the *sound file itself* for Mark Start/Mark End information. This theoretically allowed you to use a sound file on a track, and then adjust the Mark Start/Mark End of the sound file and have those changes effect every place where that sound file was used.

Unfortunately, this method of operation was most likely what you *did not* want to occur, and it prohibited the ability to set a Mark Start/Mark End within the middle of a long sound file, record that portion on a track, reset the Mark Start/Mark End to a different region of the same sound file and record that different region on a another track.

An informal polling of Synclavier® users yielded a unanimous recommendation to change the way Mark Start/Mark End information is handled . Accordingly, We have made these changes for Release 4.12.1.

This new method stores Mark Start/Mark End information *in the timbre itself* when a patch is created.

The operation of this new feature is very straightforward and essentially invisible. When a sound file is called up to the keyboard, the Mark Start/Mark End information is copied into the patch at that time. If the Mark Start or Mark End is changed from the L-page, those changes are updated in the keyboard timbre as the changes are made.

Once the keyboard timbre has been recorded onto a track, the Mark Start/Mark End can be freely changed from the L-page *without affecting the sound of the recorded track*.

Changing the 'saved' Mark Start/Mark End information is straight-forward: call up the timbre to the keyboard with SKT; make any necessary changes from the L-page (or the I-page or knob in the case of Mark End); then SMT the timbre back onto the track in question.

L-Page Landscape Display

The "landscape" display on the L-page underwent fairly significant rework and will hopefully be easier to use. We've implemented a smaller cursor on the L-page to make it easier to grab each end of the landscape box.

Additionally, you can click any where within the highlighted box to move it precisely from that point. The time scale of the landscape bar is also now quite accurate. The image of the landscape display on the screen was modified to make it easier to use on the 2/3 and 1/2 size Termulator screens. Additionally, clicking on either side of the landscape 'box' performs page forward/page backward functions.

L-page no longer hides Macintosh mouse cursor

The Macintosh mouse should now always be visible when using the L-page.

Transpose button operation enhanced

Pressing the transpose button now steps through the following three states...

OFF: Transpose Off
ON: Transpose On - will turn off automatically when a key is pressed.
BLINKING: Transpose Locked On - will stay on until pressed again.

.

This will allow users the option to lock transpose on so they can press different keys while the sequence plays, when this is desired. But in the more typical scenario, pressing the button once automatically turns the Transpose feature off once the key is pressed. Hopefully this will prevent accidental loss of transpositions when users forget to turn it off manually.

Termulator stays on same screen when window is refreshed

Termulator now retains the current screen information whenever the Refresh function is enabled from the pull-down menu. Previously it would return to the Welcome screen.

Audio Event Editor Cue Directory bug fix

The Cue Directory Panel of the Audio Event Editor will now be positioned correctly when it is re-opened. In prior software releases the position was not stored correctly when the panel was closed after scrolling forward or backwards with the scroll bar arrows. The panel should now restore correctly in all cases.

New G-page function keys implemented

Four function keys have been added to the G-page that enable users to sharpen or flatten pitches or change octaves with just one keystroke. They are as follows:

F5 Flatten by 1 semitone
F6 Sharpen by 1 semitone
F7 8vb (Flatten by 1 octave)

F8 8va (Sharpen by 1 octave)

These functions operate on the note under the cursor. For now, it doesn't matter if the cursor is on the pitch field or not. In a later release however, these functions may be expanded to increment/decrement times when the cursor is over a time field, etc.

Pedal 1 reinstated as default RTE controller

In Release 4.11, the initial RTE type, when selecting "Change RTE", was changed from Ped1 to ModW. It was thought that the Modwheel was the most frequently edited controller since anyone with a Velocity Keyboard has the Modwheel permanently attached and at arm's reach, whereas pedals may not be connected.

It has since been pointed out that because Ped1 translates to MIDI Volume, it is probably the most frequently edited controller. Consequently, the initial RTE type has been changed back to Ped1.

2 new Defaults to make life easier

Two defaults have been set to reduce the number of steps a user must perform to play sound files "properly" after RTP initialization.

1. The RTP now initializes with the keyboard's multichannel output routing set to "Left=1 Right=2" rather than "Left=1 Right=1". Stereo sound files will now sound in stereo without requiring any user intervention.

2. When a sound file is called to the keyboard, either from the B-page or the R-page, the partial created to hold it now includes a final decay of 100 milliseconds to prevent that chopped-off sound on key-release. Again, no user intervention is needed. This should be especially handy when auditioning sounds - not to have to reach over, press the button and turn the knob each and every time a sound file is selected.

SKT of Track Partial retains keyboard parameters

When selectively recalling a partial or partials from a track's timbre to the keyboard's timbre (by holding partial buttons while executing an SKT), the track's parameters (routings, volume etc.) will no longer overwrite the keyboard's parameters.

The track's parameters will be copied to the keyboard only when the keyboard's timbre is entirely replaced with the track's timbre (i.e., SKT with no partial buttons held).

New PunchIn and Record safety feature

To avoid accidental erasure, the PUNCH and RECORD buttons will now be rendered inoperative if any parameter buttons are being held. (Some users complained it was too easy to nick PUNCH when meaning to do a Mark-Continue.)

Inverted RTE response changed

As you probably know, when an expression input, such as a pedal, is patched to a parameter, it can either control the parameter in the normal way (parameter button lit) or in an inverted fashion (parameter button blinking).

It has long been noted however that, despite what one might expect, the inverted response was not a mirror image of the normal response but had some unrelated shape to it. This dashed attempts to use controllers with their

inversions to create graceful crossfades between partials, equally opposing pitch bends, and the like.

After some debate and arm-twisting, we decided to replace this pseudo-log inversion with a straight-forward linear inversion. (This is a somewhat risky break with the safe convention of maintaining backwards compatibility, in that an old sequence which utilized this feature won't sound exactly the same when played with release 4.12.

Whether it will sound different enough for anyone to notice remains to be seen.) In this instance, we felt it would be better to make the improvement as of this release than to further perpetuate an undesirable situation. (You may want to keep a pre-4.12 release handy just in case.)

Bug Fixes

New Track Sliding Algorithm

Release 4.11's new track sliding algorithm contained inadequate overflow checks. The result was that if the knob was turned far enough when doing justified sliding, tracks could slide by the wrong amount, in the wrong direction, and the notes could even disappear. Unfortunately this was not discovered during pre-release testing. This bug has been fixed.

Audible Click Anomalies Repaired

The introduction of the tempo-map capable sequencer with Release 2.7 brought with it the following two anomalies pertaining to the audible clicks. Both of these anomalies have been eliminated:

1.When backing up the sequencer to an even beat (by setting a justified mark before the current time and pressing play, or by using the G-page's Control-C feature on an even beat), the first click would sound but the second click would not.

2.Similarly when advancing the sequencer to an even beat (by setting a justified mark after the current time and pressing play, or with the G-page's Control-C feature), the first click would not sound.

Q-page Click On/Off status display fixed

On the Q-page "Sync Panel", the Click On/Off switch didn't correctly display the click's on/off status when it was toggled with the keyboard buttons (or by any other external means). This is now fixed.

Other Click Track related bugs corrected

The following Click Track related bugs have been fixed.

The entry and display of duration in the "or, enter a new Length for the region:" field of the S-page's Fit To Time panel gave incorrect results. This bug also appeared when using meter maps in which the denominator of the time signature changed.

The S-page's display of times or durations in Meas:Beats format was incorrect. Beats were shown in the Measures field, while the beats and millibeats field showed meaningless numbers. (Actually this was fixed in time for Release 4.11 but wasn't included in the documentation).

Jogging times in Meas:Beats format on the S-page or Q-page generated ludicrous results. (For those unfamiliar with the term "jogging", it refers to decrementing a time field by option-clicking on it, or incrementing a time field by command-clicking on it).

The S-page's "current time display" in the upper right corner didn't follow the click track. Nor did the Q-page's giant time display.

Clicking on the Take buttons on the S-page or Q-page frequently produced ludicrous (often negative) times. Grabbing the sequence time with the Continue button (for startloop) or by holding Mark, Insert or Delete while pressing Continue, also frequently resulted in outrageous time values.

When attempting to dial justified times for Mark Start, Loop Start, Loop End, Insert or Delete, meaningless times were obtained. Dialing justified lengths for Loops, Insert and Delete gave ludicrous results.

Setting a Mark Start by holding Mark while pressing a track button produced ludicrous results.

Creating a justified loop with the End Loop button either produced no loop at all or produced a loop with ludicrous time values.

CLICK TRACK BUGS FIXED (EXHIBITED PRIOR TO RELEASE 2.7)

Each time the sequencer was backed up, either by rewinding or by using the G-page's Control-C feature, the beat numbers displayed in the VK window were offset by -1. To clarify, after rewinding once to beat 5, the counter would display beat 4 and remain off by -1 as the sequence played. After rewinding a second time to beat 5, the counter would display beat 3 and remain off by -2, and so on.

If you backed up the sequencer by setting a justified Mark, you would hear an 80 millisecond click-flam when you pressed play the first time.

After the sequencer was advanced to a point between beats by Fast Forwarding and pressing Continue, a stray audible click was emitted the instant the sequencer continued.

Advancing the sequencer, either by setting a Mark and pressing Play, or by using the G-page's Control-C feature, resulted in a horrible burst of rapid-fire clicks.

If you set a Mark after the last note on the click track, the sequencer would hang for a while, then start at the time of the last note on the click track, but at the wrong tempo.

When creating a justified loop with the End Loop button, the endloop was placed one millisecond too soon. Note: If the loop you're creating will start at a certain time between beats, such as if you have a pickup note, the endloop will only be accurately placed if you press the End Loop button before that time between any two beats. This is due to a current system limitation. If you have difficulty, you can always just type in the loop with the G-page or Q-page Event Editor Panel.

Recording of Real Time Effects bugs fixed

Several bugs have been fixed which caused the spurious recording of unused or unnecessary RTEs. Details follow:

A bug has been fixed which improperly initialized RTE values whenever the sequence was played with Mark Point off. A similar bug improperly initialized RTE values when an empty track was allocated for record. These caused a number of seemingly unrelated anomalies. Two notable ones are as follows:

1)When pressing record with Mark Point off, or when recording onto an empty track, the four monopolar RTE controllers (Ped1, Ped2, ModW, Brth) were recorded even though they were in their initial positions.

2)If you have a timbre with two partials who's volumes are both controlled by a monopolar controller, but one is controlled in the normal way while the other is controlled inversely, you won't hear it at all when played off a track until an applicable RTE occurs.

Users can once again control which RTEs are recorded and which are not. Any RTEs not used by the Timbre or by the MIDI settings will be ignored.

Sound File Offsets with Tempo Maps

It was recently noted that when using tempo maps, the sound file offset times reported on the G-page were not consistent with those reported on the Q-page's Event Editor Panel. (The Q-page's values were correct and the G-page's values were not.) This has now been repaired.

Dragging Memory Button time to Start Mark fixed

A rather aggravating S-page bug is now fixed! Dragging a time from one of the Memory Buttons to the Start Mark field now works as it should. (Before, the time would appear there but would not actually be stored in the Synclavier's Mark Start parameter. As soon as play was pressed, the previous Mark re-appeared.)

OPCOPY volume mounting bug fixed

After completing an Opcopy run, when inserting a new volume and running Opcopy again, the following message would frequently appear:

Could not mount volume: S$SenseKey = 6 Unit Attention
Status: SOURCE Drive is not ready;

Opcopy in 4.12 should correctly sense the Unit Attention status and retry without complaining.

Tuning problems with Sound Files using SFM Octave Base

It has been discovered that the tuning improvements implemented in release 4.11 have the potential in extremely rare circumstances to cause certain sound files placed in an old patch to sound a semitone sharp from what it did with pre-4.11 software. Chances are you will never encounter this situation, but in case you do, a brief explanation and work-around is provided here.

This only occurs with sound files that were assigned an Octave Base with a pitch offset of 50 cents in SFM. Sound files that use SFM's Octave Base are already quite rare. Those that happen to be set to 50 cents are probably extremely rare.

Here's a description of what is happening. Suppose a sound file is given an Octave Base of 4.0050. Should this be interpreted as a C that's 50 cents sharp or a

C# that's 50 cents flat? Pre-4.11 software did not utilize rounding when calculating frequencies, consequently such Octave Bases were always truncated down to the lower frequency and thus interpreted as the lower pitch that is 50 cents sharp. As of release 4.11, rounding was implemented, consequently some Octave Bases set at 50 cents will round up to the higher frequency and thus be interpreted as the higher pitch that is 50 cents flat.

Please be sure not to confuse SFM's Octave Base with the Tuning offset field on the I-page. This anomaly does not occur with sound files given a tuning offset of 50 cents on the I-page.

If you should ever encounter this situation, keep in mind that it's not a bug but a circumstance of the improved tuning accuracy, and that you should simply increment the transpose key in the patch and resave it.

Reverse Compiler vrs. Locate point bug fixed

When reverse compiling a sequence which had a locate point saved, or which had a locate caption or sequence caption entered, the output file contained a bogus Notelist for Track 248 with a Track Volume of 1644.8. This prevented the file from re-compiling.

Tutorial - Programming "Swing" quantization

Many customers have asked for an easy way to justify shuffling rhythms, etc. The click track feature provides an intuitive and straight-forward way for users to set up any quantization pattern - even patterns that change from section to section. (In fact, this was the primary reason a priority was set for reinstating the click track feature.)

For example, one might set up a "shuffled" quantization grid like so:

```
----Track 32----
1.000 Loop Start
1.000 a3 0.000
1.300 a3 0.000
1.500 a3 0.000
1.800 a3 0.000
2.000 Loop End
```

- Set Live Click to track 32. (Hold click, press track 32 once, release click.)
- Set the Click Rate Multiplier to 1.
- Justify the desired track(s)*. (All justified notes will move toward the grid notes on track 32.)
- Revert to Internal Click when done. (Hold click, press track 32 once, release click.)

* While the click track is activated, the audible click will "play" the notes on that track, which can be very distracting during performance. Consequently, it's probably best to record your performance using the internal click with justify off, then justify retroactively using the S-page.

If desired, you can construct a quantization grid that changes from section to section by using the chain feature (or the S-page's unwrap loops feature).

Another similar application of the click track feature is to "tighten" accompanying instruments to a Rubato performance (or to a ritard) by using the track containing the Rubato performance as the click track when justifying.

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.

<u>Click Rate and Sequence Speed:</u>

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.

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.

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.

<u>More On The SKT Blinking Mode</u>

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.

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:

More accurate tuning for high notes:

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.

Direct-To-Disk:

4.03

- The Direct-to-Disk Cue Directory software was reorganized in memory to speed up certain screen updates in the Audio Event Editor and Editview. This was done to address delays and slow-downs that occur when the system is loaded with many cues.

- The O-page was modified to allow the entry of longer project start and end times. 6-character values (e.g. 100:30) may now be entered. A space character may be used in place of the ":".

- The "Skip All" command was restored to the O-page. The "Verify All" command reads through each project on the backup tape and verifies the checksum for each project. The "Skip All" offers the fastest way to position the backup tapes at the end of the media.

Support of Removable Media Hard drives as DTD Backup Devices

This release adds the capability to use removable media hard drives as both an operating media and a backup media for the Direct-to-Disk. The IoMega JAZ drive, for example, can be used to replace the 4mm DAT tapes that are currently used for data backup on most DTD installations. The JAZ drive offers 1.0 gig of storage and is significantly faster than DAT, although it's media is more expensive than DAT. This feature was most requested by and will be most useful for quickly distributing DTD projects amongst multiple machines within a large production facility.

Two configurations for backup are supported in the software. The 'Single Drive' configuration allows all the tracks of a project to be backed up to a single removable-media-hard-drive. The 'Multiple Drive' configuration requires a removable-media-hard-drive connected to each DTD SCSI port.

The software supports two variations of both the 'Single Drive' and 'Multiple Drive' configurations. Thus a total of 4 different backup configurations are possible. For example, a single JAZ drive could be added to a system with 4 DAT tapes. The software chooses which device to used based upon its media being present. In other words, removable-media-hard-drive backup capability could likely be added to a system without disconnecting the DAT tape installation.

There are no specific changes to the user interface software to support removable media hard drives as backup devices. The software automatically senses what kind of device is connected and issues the appropriate commands to that device.

Please contact DEMAS if you are interested in adding this capability to your system. Note - Jaz drives and some other devices require a SCSIP adaptor to be accessable by the Synclavier or DTD.

Support of Removable Media Hard drives as DTD Operating Drives

Removable-media-hard-drives such as the IoMega JAZ drives can now be used as operating media for the Direct-to-Disk. Commands were improved and added to the O-page to manage the spinning up, spinning down, and ejecting of removable media hard drives. Additionally, some improvements were made in the real-time and DTD software to better handle drives which automatically 'spin down' after a period of inactivity.

Earlier versions of the DTD software included a DISMOUNT and MOUNT command on the O-page to facilitate the use of hard drives in removable mounting bays (e.g. RourkeData mounting bays). The operation of the DISMOUNT commands has been improved to actually eject the DTD media if a removable drive is used, or to spin down the disk drive if its media is not removable. This will provide positive feedback to the operator that the DISMOUNT was successful.

An additional change is that removable media are now locked in place while the DTD is operating to prevent possible data loss by removing the media at the wrong time. The DISMOUNT command is then used to spin down and eject the operating media.

The MOUNT command is used to reset the DTD when the operating media has been changed.

SPIN and SLEEP commands were added to the O-page and are used to control the motors of the DTD hard drives. These two commands can be used with all hard drives, not just removable hard drives, if desired. SLEEPing the hard drives overnight might increase the longevity of the drives in facilities where the systems are normally left powered on. The SPIN command might also be used to manually 'wake up' the DTD hard drives if they have automatically spun down after a period of inactivity.

Format of DTD hard drives directly from real time software

In response to a long-standing request for simplified formatting of DTD drives, a command was added to the O page that formats all of the DTD hard drives in one (relatively painless) operation. This command is selected from the O-page. Periodic formatting of the DTD hard drives is recommended to reduce the occurrence of disk errors. All of the hard drives on the DTD system are formatted at the same time when this command is used.

EditView:

4.03.1

- The PowerPC version of EditView® did not save its 'preferences' properly when quitting. The prefs were saved correctly if any printing had been done; they were not saved in other cases. The preferences (including window size, etc.) are now saved correctly in all cases.
- The 'Window' menu in EditView® did not function correctly in 4.03. This has been fixed. The 'Window' menu now correctly handles 'aliases' to other applications.
- The PowerPC and 68k versions of EditView® are now combined into one 'fat' application called 'EditView®'. This change simplifies both the distribution and installation of the software as well as simplifies the operation of the 'Window' menu.

4.10

Saving and Recalling the Synclavier® Sequence from EditView®

You can now save and recall the Synclavier® Sequence from EditView®. Four basic capabilities are available:

1) Recall a named 'stored' sequence by path and filename
2) Save (or replace) a 'named' sequence to a specified path and filename
3) Save the current 'in-memory' sequence back to where it was called up from.
4) Revert the current 'in-memory' sequence directly to the most recent saved version.

Four buttons have been added to the EditView™ Screen to accomplish this:

NEXT, PREV, STORE, and RECALL

The **NEXT** and **PREV** buttons are used to scroll through the list of sequences that are available on the Synclavier®. These buttons mimic the Motion Panel forward/backward buttons in the Audio Event Editor. Additionally, a text field just to the right of the **NEXT** and **PREV** buttons is available to enter path and file names.

You will notice that the **NEXT** and **PREV** buttons in EditView® are "linked" to the forward and backward scroll buttons in the Motion Panel. Scrolling can be performed either from EditView® or the Motion Panel.

To use **NEXT** and **PREV** buttons, enter the starting path name in the field provided to the right of the buttons. Press <RETURN> to enter the path name into the Synclavier®. You will see the path name appear in the Motion Panel if that screen is visible.

User tip: For best results, type a ':' at the end of the path name, such as "W0:" or ":SEQCAT:".

Once you have entered the path string, you can use the **NEXT** and **PREV** buttons to navigate through the sequences that are saved on disk.

Of course, you may type in the complete path and file name directly if you prefer.

Once the path and file name are shown, you may use the **STORE** or **RECALL** buttons to access the specified file.

When a sequence is called up, the path and filename of that sequence are shown as the title of the EditView® window. The title of the EditView® window is updated whenever a sequence is recalled, whether from the button panel, from the C-page, or wherever.

Using the **SAVE** and **REVERT** menu choices

The **SAVE** menu choice (activated by cmd-S) stores the current sequence back to where it was called up from. In Synclavier® terms, it should be viewed as a "replace" function.

Note that the **SAVE** menu choice does not use the path name or file name entered for the **NEXT** and **PREV** buttons. Instead, the **SAVE** menu item uses the name shown for the EditView® window to identify where to save the sequence.

REVERT is used to reread the sequence into memory from where it was most recently save to, or recalled from. Any changes that had been made to the sequence in memory will be discarded. **REVERT** uses the path name and file name shown as the title of the EditView® window to identify the Synclavier file to use.

Synclavier Error Messages Displayed in EditVIew®

Error messages from the Synclavier® and DTD are now displayed in the lower-left corner of EditView®'s window. In some cases, when operations like Store and Recall generate errors, they will be displayed as alerts.

Cue Sheet Printing from EditView®

The 'Cue Sheet' printout capability in EditView® has been refined and enhanced with more formatting and time-scaling options. Additionally, Project/Track names are now displayed in the printout and are taken directly from the Synclavier® sequence.

Event alignment has been improved to better indicate sequence timing to the mixer.

The 'Event Break' feature allows the user to print cues which occur closely in time, on a single track, to be printed as a single event for ease of display. To prevent the 'event break' feature from combining specific cues, place an exclamation point as the first character of a cue's dialog. Any cue beginning with an exclamation point will never be joined with preceding cues.

If an event is continued to another page, the word "continued" is printed at the top of the that event on the next page, along with the name and caption. This alerts the mixer to the fact that this is an event already in progress.

Note: At this time, 'Punched In' cues do not get "continued" text.

You can now stop printing at any stage without crashing the Macintosh®. Previously, in some cases. Editview™ would crash when Command-Period(.) was pressed to stop the printing process.

Note to users of Hewlett-Packard printers: Pressing Command-Period(.) to cancel from the print dialog when using Hewlett-Packard printers does not work. As far as we can tell, this is because the HP driver does not allow key presses to be read by software using the driver, preventing EditView® from detecting the cancel command.

4.11

EditView™ Bugs Fixed

Delete of Event - The old 'Multiple Events at the Same Start time' bug has been fixed in EditView™. For many years EditView™ would incorrectly edit a sequence if there were more than one event at the same start time on one track. The symptom was that all the events at that same start time were deleted whenever one of the events was deleted or moved. This bug has been fixed in 4.11.

PREV and NEXT buttons should really work now - The 4.10 version of EditView™ introduced the PREV and NEXT buttons for scrolling through sequences that are

available for recall. Due to a simple initialization bug, these buttons would often work incorrectly when scrolling through sequences in a subcatalog. The PREV and NEXT buttons should work correctly in all cases now.

Scrubbing with Machine Control - Several bugs were fixed that showed up while scrubbing audio in EditView™ while Machine Control was enabled. Frequently, Machine Control would be mysteriously turned off after several instances of quick scrubbing. These bugs have been fixed in 4.11.

EditView™ Color Feature

A feature has been added to 4.11 EditView™ whereby different colors can be used to indicate which Direct-To-Disk *drive* an event is stored on. This feature is activated by a new menu option on the *Control* menu called *"Show Event Sources"*. When this option is selected, different coloring schemes are used to show the events in EditView™ depending on which DTD drive stored the audio data.

EDITING

• Disappearing Events: For many years EditView™ would incorrectly edit a sequence if there were more than one event at the same start time on one track. The symptom was that all the events at that same start time were deleted whenever one of the events was deleted or moved. This bug has been fixed in 4.11.
• Cue Volume: For a while, the ability to change Cue Volume was disabled. This has been fixed.
• Plus and Minus Characters in Cue Names: For a while, the ability to enter + and - characters into cue names was disabled. This has been fixed.
• Tack/Arrow Not Responding: The start tack/arrow button was broken. It is now working again.
• Sequence Save/Recall Dialogs: Users reported that the save/recall dialogs were confusing. They have been simplified. The beep has also been removed from these.

DISPLAY

• Output Routings: Output routings did not always display properly. This has been fixed.
• General Drawing Problems: A rash of drawing problems showed up after the introduction of the save/recall feature. These have been fixed as far as we know. All drawing routines were inspected to make sure they handled setting up and restoring their drawing environment properly.
• Event Coloring: Events can now display their "source" disk via color. This option can be enabled by selecting Show Event Sources under the Control menu. Users will be able to see where their events are stored on the DTD and hopefully avoid conflicts.
Displaying event sources will slow down display somewhat, since the information is not readily available to EditView™ and has to be looked up through additional steps.
Mono events are displayed as a solid color. Stereo events on the same drive are represented as gray-striped single color. Multi-channel events over multiple drives are represented as two colored striped. Only the first two drives are represented by color. If an event spans more than two drives, drives 3, 4, ... are not represented.
• Black & White Drawing: The B&W drawing code of EditView™ has been brought up to date. Previously, B&W was ignored in several key drawing portions of EditView™ causing items to either not show up or show up intermittently.
• Sequence Recall: The 4.10 version of EditView™ introduced the PREV and NEXT buttons for scrolling through sequences that are available for recall. In some cases, the Prev and Next buttons of the Sequence Recall feature did not report the proper sequence. Particularly when scrolling through sequences in a subcatalog. This has been fixed.

MACHINE CONTROL

• Machine Control On/Off: Sometimes clicking quickly on a track with machine control on caused machine control and external sync to click off. Occasionally the message: "Message not transmitted successfully. Check cabling." came up. If the message came up while scrubbing, you were left stuck in scrubbing mode. Quitting was the only way out of it. This has been fixed.

External Sync While Scrubbing: In previous versions, EditView™ sometimes became confused about the external sync state and would improperly set it after scrubbing. External sync is now automatically turned off while scrubbing with machine control and external sync on. After scrubbing, external sync is automatically turned back on.

• Machine Control Prefs: In some cases, EditView™ would crash when entering the Machine Control Preferences dialog. This has been fixed.

CUE SHEET PRINTING

• Track Range: EditView™'s cue sheet printing now considers only those tracks specified in the Track Range setting of the cue sheet dialog. Previously, even when a range was specified, the software considered all tracks of a sequence, leading to confusing spacing where events outside of the range forced events printed to be spread apart.

Be aware that if there are events outside of the track range, they will not be considered at all during printing.

• Scaling: The scaling options of cue sheet printing have been overhauled once again. We think we have finally arrived at a good solution.

Previously, there was one scale, Event Scale, which determined the scale of drawing when events were active. The space between events was logical, a small space for closely spaced events, a bigger space for further spaced events, with some user control via the Event Spacing parameter. Users complained this did not give them enough information about the distance between events. However, the space compression offered by not scaling space the same as events was desirable.

The solution has been to add another scale, Space Scale, and eliminate the Event Spacing parameter. Space Scale defines the scaling applied when there are no events active. Using Event Scale and Space Scale, users should be able to define any level of space/event compression desired. To keep events aligned properly, if any events are active at a given time, Event Scale will be applied to space. Space Scale is applied only when there is "silence."

For instance, an Event Scale of 10 sec/inch and a Space Scale of 60 sec/inch gives good detail in the events and a reasonable representation of silence that won't eat up too much paper.

The new cue sheet setup dialog.

Time Range: The time range values in the cue sheet printing setup have been changed to SMPTE. The interpretation of times previously was absolute seconds from the beginning of the sequence. So, if a sequence had an offset of 01:00:00:00, a time range of 10:00 to 20:00 would have printed 01:10:00:00 to 01:20:00:00. This led to some confusion.

Now, time range values represent the exact SMPTE times represented in the sequence, including offset.

• Event Break Override: The Event Break Override feature, which allows individual events to be marked as discreet so that the Event Break feature will not combine them with previous events, no longer prints the "!" which delimits the override.

The new Event Dialog Editor with Event Break Override checkbox.

In addition, the Event Dialog editor has a checkbox which allows users to toggle the Event Break Override without having to type the "!".

Old sequences will be interpreted correctly, however, users should no longer enter the "!" manually.

The "!" will still appear in EditView™'s caption display and in events if the Show Event Captions option is enabled.

• Page Overrun: In some cases, events would print off the bottom of a page. This has been fixed. In addition, code has been added to assure that the beginning and end of events appear on the same page, rather than being split across page breaks.
This bug would likely not have shown up in most situations.
• All Tracks: Sometimes when selecting All Tracks in the Cue Sheet setup, a bus error would occur. This has been fixed.
• Long Events: In some cases, very long events would be printed with no end. This has been fixed.

4.12

Significantly enhanced Cue Sheet printing via MixMap™

See MixMap™ documentation in separate file. The version of MixMap™ included with the this installation is designed to work only with EditView. If you wish to use MixMap™ with other hardware/software platforms contact DEMAS,Inc. to purchase a multi-platform version or download a demo copy from our website at www.synclavier.com.

More drawing bugs fixed

Additional fixes have been made in the endless battle to clean up the EditView window.

Fixed bug causing track solos to get stuck on

Previously, if an operator clicked near the global Solo button the system would, in fact, try to solo track '-1'. Problems resulted from the system believing a non-existent track was soloed when the operator had no way of knowing this.

Fixed bug where scrubbing prevented further track sliding

In special cases, scrubbing a cue could render track sliding inoperative. This is no longer the case.

Several crash bugs fixed

Several bugs related to font inconsistencies have been fixed. Some of these led to crashing if several applications were open simultaneously.

4.30

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:

4.10

The source for AutoConform has been located and converted to CodeWarrior Pro 1.0. At this point in time we have created a 'fat' AutoConform application that is included in Release 4.10. We plan to add several new features to AutoConform during 1998.

We believe that the source we have for AutoConform is the correct source for the version that has been in use for several years. However, bugs could be

introduced in the current version as a result of switching to the CodeWarrior development environment. Please let me know if the operation of AutoConform has been changed in any way for release 4.10.

4.11

• Event Updating: It is now possible to turn off automatic event updating. This is especially helpful on large projects where event updating could slow to a crawl.
Under the Events menu, two new selections have been added:
Disable Auto Update: Selecting this feature turns off Autoconform's automatic update of events after every recording. When selected, Autoconform presumes the events were recorded properly and continues to the next recording without waiting for confirmation.
Update Event Status: Choosing this menu item forces Autoconform to update all events status's. This process may still take a long time on large projects.
Note that when you turn Disable Auto Update off events are not automatically updated. Be sure to manually update events before conforming. (If Disable Auto Update is turned off and another recording is made, events will be updated after the recording.)
We have spent a considerable amount of time looking into why event update is slow and are looking into a solution which speeds it up.
• More Events: Autoconform can now handle up to 9999 events. Previously, any events numbered above 999 were lost. Events in the DTD cue directory now have a four digit extension to accommodate the larger number of cues. The previous release had three digit extensions.
• Column Widths: Autoconform's display columns have been returned to their original widths so that it is possible to display more aspects of an event on the screen without scrolling.

4.12

Improved update time for many cues

4.30(from 4.2.2)

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

TransferMation:

4.30

- A new version of TransferMation is introduced which is PowerPC native and completely compatible with Synclavier®PowerPC™

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.

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.

InterChange:

4.12

Better handling of file aliases to remote file servers

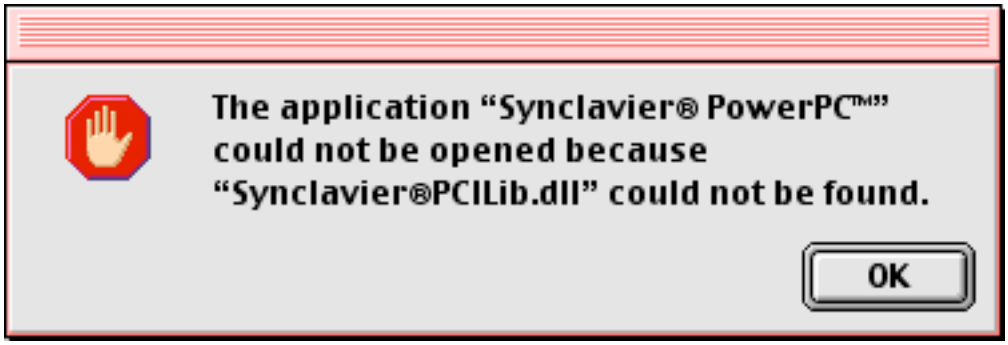
Interchange™ now better handles access to disk images anf files on remote servers

4.30

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.

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.

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.

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 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™!!!!!

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.

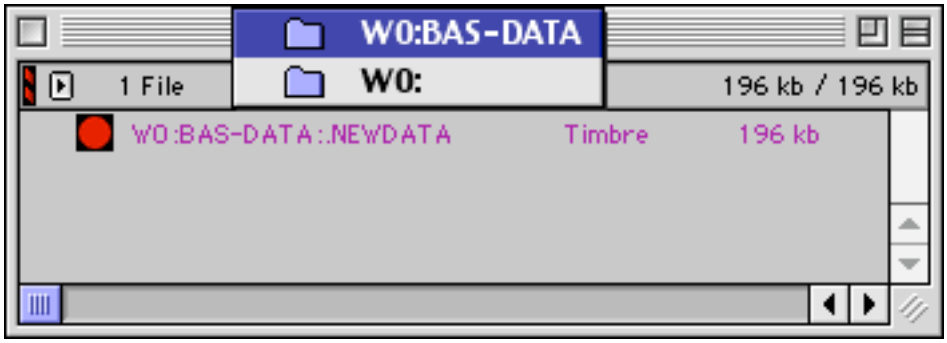
InterChange™ 2.0 uses the device configuration from InterChange™ 1.3.

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.

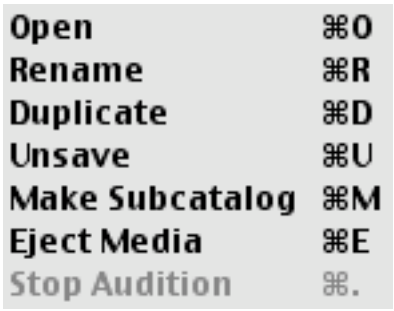
Rows can be opened or closed by clicking on the or Icon. Option-clicking the or Icons will open or close all enclosed subcatalogs.

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 Change 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.