Sequencer Plus Gold

Professional
MIDI Sequencer

Universal
Librarian

MIDI Data
Analyzer

Voyetra

Version 4

Reference

SEQUENCER Plus Gold V

VERSION 4

REFERENCE MANUAL
REVISION 1.0

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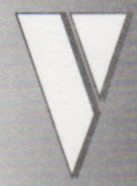

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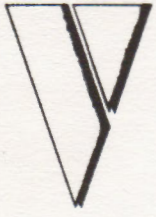
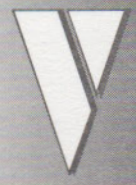


GETTING STARTED



Introduction

Features Summary

Sequencer Plus Gold is a major upgrade of Sequencer Plus Mark III version 3.0 that includes a multitude of new and enhanced features. For a complete features listing, see the section called "Features List."

Backing-Up Disks

Before proceeding, be sure to make back-up copies of the original disks included with this package and put the originals away for safe keeping.

To make back-up copies of the original program disks:

① Put the original diskette in the A: Drive and type:

DISKCOPY A:

② Follow the on screen instructions.

Read Me File

To see if there is additional documentation in a README file, place the Install disk in the A: drive and type:

A:TYPE README

The message "File Not Found", indicates that there is no README file; all the needed documentation is in this manual. If the README file is present, it will be displayed on the screen.

To print the information on the screen, use the [Print Screen] key or open the file in a text editor/word processor and print from there.

Because the README file is an ASCII text file, if it is loaded into a word processor and then saved in that word processor's format, it may no longer display on the screen as described above.

Registration

Please complete and return the software registration card included with this package.

Only registered customers can take advantage of the following benefits:

- ❑ Limited Warranty
- ❑ Update Notifications
- ❑ Upgrade Plan
- ❑ Customer Support
- ❑ Voyetracks Newsletter

To qualify for these benefits the completed registration form must be returned ***within 10 days of purchase.***

System Requirements

① IBM™ PC™, XT™, AT™, and true compatibles equipped with one of the following MIDI Interfaces:

- *Voyetra V-22 ™ /-24S ™ multi-port interfaces*
- *MPU-compatible interface (MPU-401 ™, MPU-IPC ™, V-4000x ™)*
- *Music Quest MQX-16 tm /16S ™, MQX-32 ™ /32M ™*
- *Creative Labs' Sound Blaster ™*
- *Ad-Lib ™ Game Card*
- *IBM Music Feature ™*

— Or —

IBM PS/2™ *(Micro Channel)*, equipped with a Roland Micro Channel MPU-401 interface

— Or —

IBM PS/1 with MIDI feature

— Or —

Yamaha C1™ Music Computer

② A Hard Drive (and one floppy drive for installation)

③ DOS 2.0 or higher

④ At least 512K of RAM (640K recommended)

⑤ One of the following monitors:

- *IBM Monochrome*
- *Hercules ™*
- *CGA*
- *EGA*
- *MCGA*
- *VGA*
- *Twinhead Magic Combo ™ Display Adapter*

Support for other interfaces may have been added since this manual was printed. The README file will list any new interfaces that have been added.

About this Manual

Symbols and Conventions

The + - [ ] keys are often used for data input and for toggling through menu choices. Throughout this manual, these symbols will be printed as they were in the previous sentence, and they simply represent the keys on the PC keyboard as follows:

PC Keyboard Chart

Key	Representation
+	Plus/ Equals key, with or without pressing the Shift key
-	Minus/ Underscore key, with or without pressing the Shift key.
[	Left bracket/ Curved bracket key, with or without pressing the Shift key.
]	Right bracket/ Curved bracket key, with or without pressing the Shift key.
<	Less Than/ Comma key, with or without pressing the Shift key.
>	Greater Than/ Comma key, with or without pressing the Shift key.

Individual keys to be typed at the PC keyboard will frequently appear in text with no special formatting.

For example, if instructed to press F, simply press the F key on your PC keyboard; pressing [Shift] or having [CapsLock] enabled makes no difference. When a lengthy command is to be typed it will appear below the text and indented, as follows:

cd\voyetra

In this instance you would be expected to type *cd\voyetra*.

Auxiliary keys, such as the Ctrl, Alt and Function Keys are contained in brackets as follows:

Example: [Ctrl] [Alt] [F1]

Key combinations are completed by holding down one key, while pressing another. The following example instructs you to press the [Ctrl] key, and while holding the control key, press the R key:

Example: [Ctrl] R

Special functions are printed so they are easier to find. For the most part these will be direct instructions on how to do something. We have tried to make the most commonly sought information the easiest to find by indicating its location with an arrow, and by printing them in italic type as follows.

➥ *To access the View Screen, press V.*

Instructions on using the mouse are printed as follows:

❖ ***If you have a mouse...***
Press both mouse buttons to access the mouse menu

> *Particularly important information is printed within a box, like this.*

Optimizing Performance

Computer Memory

Song Memory

After loading Sp, the unused portion of PC RAM is available for recording MIDI data. A PC equipped with a maximum DOS RAM of 640K allows a maximum song size of over 50,000 notes.

> *The actual number of notes available for a song depends upon the types of MIDI data recorded (eg. pitch bend, aftertouch, etc..)*

Track Memory

Individual tracks have a memory limit of about 65K, (approximately 10,000 notes). While this is not a limitation in normal use, recording five very long (or very complex) tracks of over 10,000 notes each, can use up all of the available song memory.

Memory remaining is shown in the top right hand corner of the screen status area. While recording, this shows how much memory is available in the track being recorded. Otherwise, it displays how much memory is available for the entire song.

Conserving Song Memory

Recording MIDI controllers (like pitch bend and aftertouch) uses a great deal of memory. Thus, it is best to eliminate unnecessary controller data in a recorded track by using the MIDI Thin Transform in the MIDI Transforms screen.

To conserve memory while recording tracks:

- ❑ Don't record MIDI data that may not be necessary. Use the Options Window to set "MIDI Benders, etc." for recording only the desired types of MIDI controllers.
- ❑ Don't cut and paste a track section to create a repeating musical pattern. Instead, try recording the pattern once (including rest measures, if any), then LOOP the track from the Main screen.

Utilizing Extra Memory

Using a Disk Cache

Memory above 640K can be set up as Extended or Expanded (EMS) memory. In either case, it can be utilized to speed up disk intensive operations by setting up a "disk cache" that uses RAM to store often-used data from the hard drive.

Disk caching programs are available from many third party developers, including one called SMARTDRV that is part of the Windows operating system.

When using a disk cache to enhance Sp Overlay performance, allocate at least 50K-128K for the cache RAM.

Speeding up "Overlay" Access

Sp is designed to optimize the 640K DOS RAM for song memory by minimizing the amount of program code that resides in DOS RAM. This is accomplished by swapping to disk the parts of the program that are not currently in use. The sections of the program that are transferred to and from disk are called "overlays."

When used with a hard drive, the process of swapping overlays is virtually unnoticeable. However, the use of a disk cache program substantially minimizes disk access by saving the overlays last read from the disk in a buffer area of EMS or extended RAM. If your system has this RAM available, you may want to consider this option.

Maximizing Song RAM

Certain utilities allow memory resident programs, such as VAPI and SAPI to be relocated into RAM above 640K. In particular, QEMM and QRAM by Quarterdeck Systems are useful for relocating VAPI and SAPI outside of DOS memory and increasing song RAM by 10K to 15K. If other memory resident programs are used in conjunction with Sp, QEMM and QRAM can most likely be used to relocate them as well.

Programs that are prime candidates for relocation into "High RAM" include the mouse driver program, disk cache program, keyboard macro programs and other utilities that may enhance the use of Sp.

Optimization Tips

Sp is a powerful program that performs complex calculations in real time while maintaining the accuracy of the recorded music. As such, certain features that are not essential in a particular situation may unnecessarily compromise program response.

Computer Choke

The microprocessor in your PC is incredibly fast, but it also has limits. When MIDI data is juggled with Sp Gold, it's easy to create an extremely complex song file that pushes the computer beyond its capabilities and chokes the song throughput.

The obvious solution to computer choke is to use a faster computer.

> *PCs based on the 80286, 80386 and 80486 microprocessors run a lot faster than a standard PC-based on the 8088 and are less prone to computer choke.*

Besides upgrading to a faster PC, the next best remedy is to prevent computer choke by avoiding the processes that cause it.

For example:

① ***Don't transmit several tracks of data on the same MIDI channel unless it's really necessary.***

It's fine to compose that way, but once you have a part together, use the Merge transform to combine short pieces on one track (this saves a lot of processing time).

② ***Don't make Sp Gold transpose and quantize too many tracks during playback.***

The Transpose and Quantize columns on the Main screen only change the data in a track when it's played back. The changes are made permanent by using the Quantize and Transposition transforms. Once the data has been changed, Sp Gold has to work a lot less to play it back than it does to juggle it into shape "on the fly."

③ ***Don't use "Smart" Time signature source unless necessary.***

Using "Smart" Time signature source (See Options Window section for details) forces Sp to perform substantial calculations in order to line up time signatures in tracks. By using "Fixed" or "default", the system editing and playback starting will work smoother.

Optimum Hardware Setup

To obtain the best performance characteristics from Sp, an optimum PC music system should have the following specifications:

① ***Use a PC with a fast microprocessor and Hard Drive.***

Using a PC with a fast (28ms or less) hard drive will yield the best performance characteristics when using Sp. In general, PC's based on the 80286, 80386 and 80486 processors will provide the best performance.

② ***Use the lowest /RES option your PC can handle.***

The Command Line Options section describes the /RES option which is used to "fine tune" Sp's performance based on the speed of the system microprocessor. While this option is set automatically when Sp is installed, if your PC is exceptionally fast (eg. '286/20, '386/20, '386/25, etc.), it may be possible to use the lowest setting of /RES:1, which yields the best song-timing accuracy. This may be done by editing the SEQ.BAT file with an ASCII text editor.

③ ***Maximize Song RAM.***

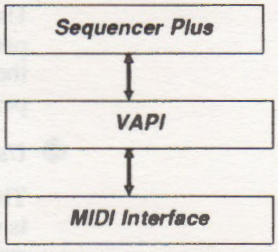
Use QEMM or QRAM to relocate the VAPI/SAPI drivers, mouse driver, disk cache program and other memory resident programs to the RAM above DOS 640K.

MIDI Interface Considerations

Voyetra software runs on many different MIDI interface models by virtue of its use of a device driver called VAPI (Voyetra Applications Program Interface.) This section describes the features particular to each interface model when using Sp and VAPI.

About VAPI

The VAPI device driver is a memory resident program that allows Sp to communicate with the MIDI interface. All of the features supported by the interface are incorporated into its VAPI driver version.



The VAPI device driver handles the communication between Sp and the MIDI Interface.

DRIVER.BAT

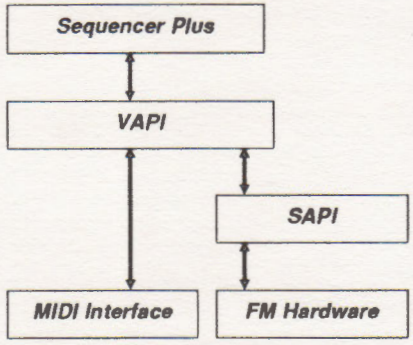
The specific VAPI version required for the interface installed is automatically copied onto the Hard Drive by the VINSTALL program, based on the information provided during installation. The VINSTALL program creates a batch file called DRIVER.BAT which contains all of the VAPI specific information for your system.

> *Each MIDI interface supported by Sp must use the specific VAPI driver designed for it. If the improper VAPI version is run, an error message will appear and the program will run in demo mode. (i.e.. it won't play or record.)*

The VAPI version used for each interface model is listed in the features summary chart in this section. For example, the chart shows that a V-24s must use the VAPI24S driver in order to function properly with Sp.

SAPI

For FM sound boards, such as the Sound Blaster and AdLib, another driver called SAPI provides a link between Sp and the FM hardware. SAPI works in conjunction with VAPI– *it may not be used alone.*



The SAPI device driver works with VAPI to handle the communication between Sp and the FM hardware in PC sound cards.

Removing VAPI and SAPI

When exiting Sp, VAPI and SAPI may be removed from memory with the /REM command line option. This is done automatically if the SEQ.BAT file is used to run Sp Gold. See the Command Line Options section for details.

IRQ and Address Options

PC MIDI Interfaces use specific interrupt (IRQ) and address settings which are either selectable on the card or predetermined by the manufacturer.

For instance, while most MPU-401 compatible interfaces are set to address 330H, their interrupt setting is often selectable.

> *VAPI automatically sets the proper MIDI interrupt setting when loaded. To override the setting, it is best to re-install VAPI with the VINSTALL procedure.*

The VAPI address setting defaults to the common setting used for interfaces with fixed addresses (such as the MPU-401 compatible.) For interfaces with selectable addresses (such as the V-22/-24s), the VAPI address may be reset by re- installing VAPI using the VINSTALL procedure. This process uses the VAPI command line options described in the section called "Command Line Options." The command line options for VAPI and SAPI may be edited manually by loading the DRIVER.BAT file into a text editor.

VAPI Supported MIDI Interfaces

While Sp supports many features such as integrated control of SMPTE hardware, click detection, multiple ports, etc., some interfaces may not support particular Sp features described in this manual. The following table summarizes differences between the supported interfaces.

> *For the most recent information on interface features, always check the Hardware Configuration Window by pressing [F3], H.*

Voyetra V-22/-24s

The V-22/-24s use VAPI22 and VAPI24S respectively.

MPU Option

The V-22m/-24sm include an **MPU option** that allows MPU compatible software to run on these interfaces. With the MPU option installed, the V-22/-24s boots up in MPU mode. When Sp is run, VAPI turns off the MPU functions and turns on the V-22/-24s functions. Upon exiting Sp, VAPI turns on MPU mode and the V-22/-24s functions are shut down. This process makes the use of MPU compatible software with a V-22m/-24sm completely transparent to the user.

Yamaha C1

When using Sp with a Yamaha C1, use the C1 CAPI driver supplied with Sp.

Sp requires CAPI version 1.08 or greater. Earlier versions of CAPI will cause Sp to function erratically.

MPU-401 Compatible Interfaces

Each of the following MPU-401 compatible interfaces use VAPIMPU:

- ❑ Roland MPU-401 and all Roland derivatives of this design.
- ❑ Roland LAPC sound card.
- ❑ Voyetra OP-4001, V-4001cs, V-4001 and V-4000.
- ❑ Music Quest interfaces used in MPU mode.
- ❑ All other MPU-401 compatible MIDI Interfaces.

VAPI does not utilize the MPU-401 intelligent mode. Instead, it turns on the MPU UART mode, which defeats the intelligent mode FSK and Metronome features.

> *Because VAPI uses MPU UART mode, the FSK and metronome outputs on the above interfaces will not function when used with Sp.*

Sp sounds the Metronome on the PC speaker or as a MIDI note (See the Metronome Window section for details.)

FM Synthesizer Cards

Sound Blaster (SB)

The SB uses VAPISB to drive the MIDI port and SAPIFM1 to drive the FM sounds.

> *For additional information about using the Sound Blaster with Sp, refer to the Sound Blaster section in this manual.*

To Replace the SB MIDI Port

The MIDI Port on the Sound Blaster can be defeated by removing the IRQ jumper. This allows another MIDI interface to be used in its place.

For instance, to use a V-24s in place of the Sound Blaster MIDI port, VAPI24S would be installed instead of VAPIFM1. The Sound Blaster SAPIFM1 would be installed at Port 5 in order to access the FM voices on port 5 and the four V-24s MIDI ports on ports 1 - 4.

SB and the Bank Arranger

Sound Blaster cannot receive and transmit MIDI simultaneously. As a consequence of this, the Sp Gold Setup Screen and Bank Arranger cannot upload Banks from MIDI Instruments. This may be overcome by replacing the SB MIDI Port with another MIDI interface.

AdLib Game Card

The AdLib card uses the Sound Blaster SAPIFM1 to drive the FM sounds. Since SAPI cannot function without a VAPI, the AdLib card uses VAPINUL to provide the VAPI function calls.

To use the AdLib card with a MIDI interface, install the VAPI version for the interface in place of VAPINUL. This may be done by re-installing VAPI with the VINSTALL procedure.

Music Quest Interfaces

MQX-32

The MQX-32 uses VAPIMQX.

① Although the MQX-32 has 2 physical inputs, they are merged at the hardware level, and therefore are only recognized as 1 port by Sp.

② Sp may function erratically with MQX ROM versions 013 and lower. To determine ROM revision number, run the MQX diagnostics included with the interface. If this reveals that the interface has ROM revision 013 or lower, contact Music Quest for an upgrade.

The Freewheel function and four SMPTE rates on MQX-32 requires ver 2.0 ROM.

The MIDITEST program supplied with Sp may be used to test the ROM Version. See the Installation section for details.

MQX-16s

The MQX-16s uses VAPI16S. It requires the version 2.0 ROM from Music Quest to operate properly with Sp.

MQX-16/ PCMIDI

The MQX-16 and PC MIDI card both use VAPIMPU, since they are essentially MPU- 401 compatible with no enhancements.

IBM Music Feature Card (MFC)

The IBM Music Feature uses VAPIMFC for driving the MIDI functions. Unlike the Sound Blaster and Adlib cards, the FM voices on the MFC are controlled via MIDI rather than directly from the PC bus. SAPIMFC may optionally be used to provide dynamic voice allocation.

Because the MFC voice assignment works much better with SAPIMFC, VINSTALL automatically installs SAPIMFC and VAPIMFC. To use the MFC as a standard FB-01, remove SAPFIMFC from the DRIVER.BAT file.

MFC MIDI port mapping

The MFC FM synth and MIDI interface are both mapped to Port 1. Tracks set to Port 1 will be transmitted via the MIDI port. The FM synth will respond to the channels mapped by the MFC performance setting.

MFC Performances

The FM synth voices may be mapped to different channels by selecting various MFC performance settings. The default performance is number 17, which is a single 8 voice instrument on channel 1 which provides one timbre only.

/MULTI option

MFC performance 18 sets the MFC as 8 monophonic voices on channels 1 through 8. VAPI assigns one channel to each voice, allowing a maximum of eight monophonic tracks. Thus, no matter how many voices occur simultaneously in a track, only one will play at a time. To activate this performance setting, run VAPI with the /multi command line option as follows:

VAPIMFC /MULTI

This command line option is most easily added by editing the DRIVER.BAT file.

Changing Performances

Assigning MIDI Data strings to the number keys in Sp Gold allows Sysex to be transmitted from the Data Analyzer to select any MFC performance. Check the MFC manual for a list of performance assignments.

The MIDI message string to change performances is:

f0 43 75 0 10 22 xx 7f

(where xx is the number of the performance minus 1)

Using the Bank Arranger with the MFC

By selecting the FB-01 instrument, the MFC voices can be accessed with the Bank Arranger in Sp Gold. This allows banks to be rearranged, uploaded and downloaded from the MFC to the PC RAM. FB-01 patch banks can be downloaded to the MFC with this method.

Using the MFC with VAPI and SAPI:

- Drum sounds on the MFC are mapped to channel 10 with the same note mapping as the Sound Blaster (see the section called "Using the Sound Blaster" for the drum map assignment.)
- FM voices will respond to channels 1 - 9 with the same patch mapping as the Sound Blaster (see the section called "Using the Sound Blaster" for the patch list.) The 8 MFC voices are assigned as necessary by SAPIMFC. Thus, if more than 8 voices are used at any point in the song, voice 1 will be robbed to play note 9, voice 2 will be robbed to play note 10, etc.
- Because SAPIMFC allocates voices and programs as necessary and sends sysex data to the MFC while it plays, the MFC MIDI port should not be used to control external MIDI devices. *Thus, when using SAPIMFC, the MFC should be considered as a stand alone FM sound card.*

> *Since the MIDI port does not function adequately when using SAPIMFC, the MFC cannot utilize the Universal Librarian functions with external MIDI instruments.*

Using the MFC with VAPI only:

- The MFC is limited to 45 programs.
- The MIDI port on the MFC functions normally when using this mode. Eight channels will be assigned to the MFC voices.
- The Universal Librarian functions properly when using this mode.

Features Chart for Supported MIDI Interfaces

	Voyetra					Music Quest				Rol	IBM	CL	
	V-24sm	V-24s	V-22m	V-22	V-4000	MQX 32m	MQX -16s	MQX -16	PC MIDI	MPU IPC	Music Feature	Sound Blaster	Yamaha C1
MIDI In Ports	2	2	2	2	1	2	1	1	1	1	1	1	2
MIDI Out Ports	4	4	2	2	1	2	1	1	1	1	1	1	8
MPU Compatible	■	Optional	■	Optional	■	■	■	■	■	■	□	□	□
VAPI Version	VAPI 24S	VAPI 24S	VAPI 22	VAPI 22	VAPI MPU	VAPI MQX	VAPI 16S	VAPI 16S	VAPI MPU	VAPI MPU	VAPI MFC	VAPI SB	CAPI
SMPTE Read/ Generate	■	■	□	□	□	■	■	Optional	□	□	□	□	■
SMPTE Frame Rates	24, 25, DF, 30, 29.97		–	–	–	24, 25, DF, 30		–	–	–	–	–	24, 25,DF 30
Pgm SMPTE Freewheel	■	■	–	–	–	■	■	–	–	–	–	–	□
SMPTE to MTC	■	■	–	–	–	■	■	–	–	–	–	–	□
SMPTE Reconditioner	■	■	–	–	–	□	□	–	–	–	–	–	□
SMPTE Stall Detector	■	■	–	–	–	□	□	–	–	–	–	–	□
SMPTE Rate detection	Auto or Manual		–	–	–	Auto only		–	–	–	–	–	Auto only
Audio Click Detector	■	■	□	□	□	□	□	□	□	□	□	□	□
Vari-Track	■	■	□	□	□	□	□	□	□	□	□	□	■
FM Synth	–	–	–	–	–	–	–	–	–	–	■	■	–
Digital audio	–	–	–	–	–	–	–	–	–	–	□	■	–
Joystick Port	–	–	–	–	–	–	–	–	–	–	□	■	–
Selectable I/O address	■	■	■	■	□	■	■	■	■	□	■	■	–
Selectable IRQ	■	■	■	■	■	■	■	■	■	■	■	■	–

■ = Includes feature.

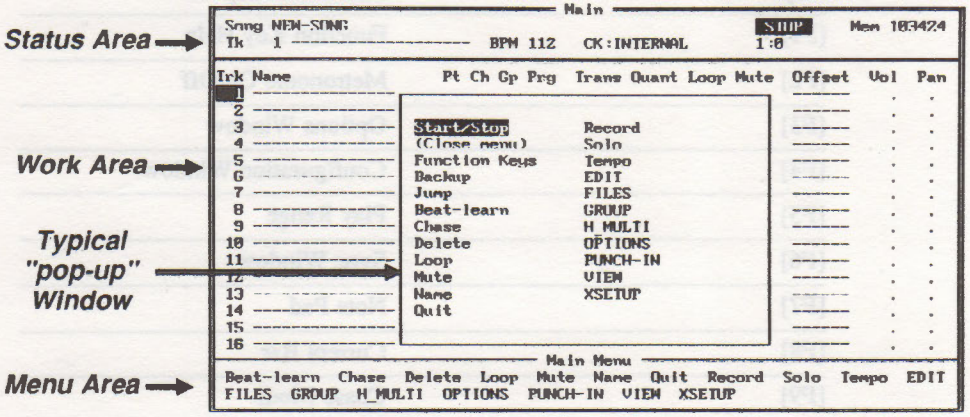
□ = Does not include feature.

– = Feature does not apply to product.

The Sp Gold User Interface

Screen Layout

All screens share a common structure, illustrated in the figure below.



Status Area	Contains general information about current selections. This area can be removed to expand the size of the work area.
Work Area	Where most of the action is. Each screen shows different things in this area.
Menu Area	Shows the commands you can use on the current screen, and other screens or windows you can select (commands are capitalized, screens and windows are in all upper case).
Windows	Typically "pop-up" into the middle of the work area, and can be moved around as needed.
Function key help	Press F1 to see a summary of the commands that are always available by using the function keys.
Instrument Help	Gives specific instructions for using the selected instrument with the Librarian.

Using the PC Keyboard

Function Keys

❖ ***If you have a mouse...***

To access Function Keys with a Mouse, activate the Mouse menu by pressing both mouse buttons. Highlight the Function Keys option in the mouse menu, then double-click the left button to activate the Function Keys Menu.

Key	Function/Purpose
[F1]	Function Key Help
[F2]	Metronome On/Off
[F3]	Options Window
[F4]	Configuration Window
[F5]	Play Range
[F6]	Sync Window
[F7]	Note Pad
[F8]	Current Bar
[F9]	Chase Mode
[F10]	Quit

[Shift] Function Keys

Key Combination	Function/Purpose
[Shift] [F1]	QWERTY Synth
[Shift] [F2]	Metronome Window
[Shift] [F3]	Lib Options
[Shift] [F4]	Markers Window
[Shift] [F5]	Program Name
[Shift] [F6]	Display Setup
[Shift] [F7]	Bar Sync
[Shift] [F8]	Solo Current Track
[Shift] [F9]	MIDI Thru Status Window
[Shift] [F10]	Digital Delay Length Calculator

[Ctrl] Key Combinations

Key Combination	Function/Purpose
[Ctrl]-B	Backup track
[Ctrl]-C	Set MIDI Channel
[Ctrl]-G	Go to track
[Ctrl]-J	Jump to track
[Ctrl]-O	Set Port
[Ctrl]-P	Set Initial Program number.
[Ctrl]-R	Record

Sync Source

Key Combination	Function/Purpose
[Alt]-I	Internal Clock
[Alt]-M	MIDI Time Code
[Alt]-S	Song Pointer
[Alt]-T	SMPTE

FM Synth Cards Only

Key Combination	Function/Purpose
[Alt]-D	Toggle between Drum and Instrument Mode

Sound Blaster Only*

Key Combination	Function/Purpose
[Alt]-X	Toggle MIDI IN/ MIDI OUT

** This features applies to Sound Blaster's equipped with pre 2.0 ROM. If your Sound Blaster has ROM 2.0 or higher this feature will not be needed and will not be available.*

Keyboard Commands

Key	Function/Purpose
/	Activates menu help. Press the first letter of each command to activate them.
[Enter]	Execute commands, confirm values.
[Esc]	Escape to the previous screen, remove a pop-up window, and abort a command.
[Ins] [Del]	Insert and delete measures, notes, or MIDI data in View and Edit Screens.
[Spacebar]	Run and Stop during play or record.
[Tab] and [Shift][Tab]	**Main and View Screen:** [Tab] moves the cursor down to the next track containing data. [Shift][Tab] moves the cursor up to the next track containing data. **Edit Screen:** [Tab] moves to the next note. [Shift][Tab] moves the cursor to the previous note.
+ - (Plus/Minus)	Increment and decrement values by single units. Toggle through lists in pop-up windows.
[ ] (Left/Right Brackets)	Increment and decrement values by tens. **Edit Screen:** Change pitch by octaves; change a note's Start time or Length by 4 units.
< > (Less Than/ Greater Than symbols)	**Edit Screen:** Change note start time or length by clicks.

Using a Mouse

> *To use a mouse with Sp, you must first run the "mouse driver" program supplied with the mouse. The driver may be installed temporarily or permanently as per the instructions supplied with the mouse.*

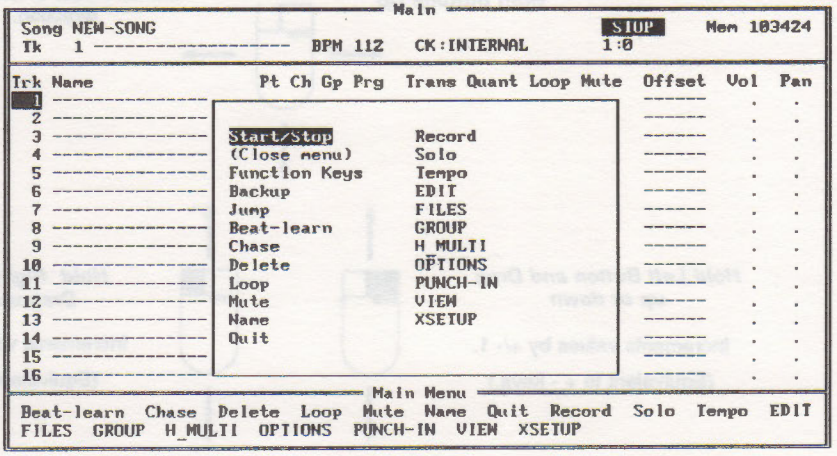
If the mouse moves the cursor, the mouse driver was installed properly. If not, try the mouse with another program that supports a mouse (there is probably a test program with the mouse package) to see if the mouse driver was installed properly.

Basic Mouse Techniques

Technique	Action
Click	Press a mouse button once and release it.
Double Click	Quickly press and release a mouse button twice.
Drag	Press and hold one or both mouse buttons, move the mouse, and release the buttons to complete the drag.

Accessing the Mouse Menus

Each screen has a Mouse Menu window accessed by simultaneously pressing the left and right mouse buttons. Items in the Mouse Menu perform the same function as their keyboard menu equivalents, except that they're accessible with the mouse.



On a three button mouse, the center button is equivalent to pressing the left and right buttons simultaneously.

➥ *To **activate the mouse menu** in any screen, press both mouse buttons simultaneously.*

➥ *To **select an item** from a pop-up menu, highlight the item and double-click the left mouse button.*

➥ *To **close the menu** without selecting anything, select Close from Mouse Menu*

– Or –

➥ *Double-click the right button. (Equivalent to hitting [Esc]).*

– Or –

➥ *Hit [Esc] on the keyboard.*

➥ ***To move from the Main, to View, to the Edit screens,** double click the left mouse button.*

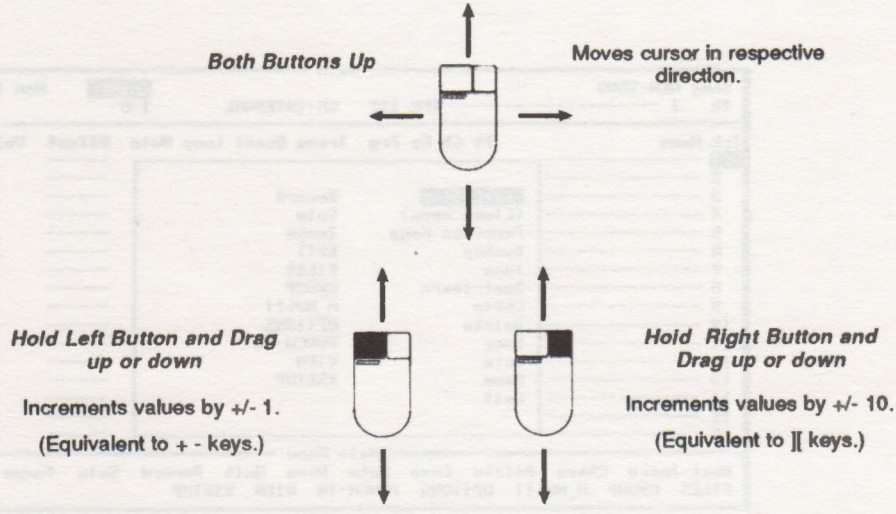
➥ ***To return to the previous screen,** double click the right mouse button. This is always equivalent to pressing [Esc].*

Mouse Actions

Many functions require additional information before they execute. This information can be provided from the keyboard, or with the mouse.

There are two types of responses in Sp:

- **Fixed Responses:** A choice of word answers.
- **Values:** A number, usually within a required range.



➥ ***The responses to a prompt*** *can be selected by dragging the mouse so the cursor moves vertically on the screen while pressing the left or right button.*

- ❑ If the left button is pressed fixed responses will be shown one at a time and values will increment/decrement by ones.
- ❑ If the right button is pressed some fixed responses will be skipped as they are shown and values will be incremented/decremented by tens.

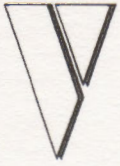
To Exit with the Mouse

① Click the Left and Right mouse buttons to call the Mouse Menu, then highlight QUIT and double click the Left mouse button.

② Double click again on Quit to confirm exiting.

– Or –

➥ *Double-click the right button during any step to escape, and not quit the program.*



Setting Up The PC MIDI System

Setting up your PC MIDI system involves several steps:

① Installing the Sp Gold program onto the hard drive.

② Installing and testing the MIDI interface.

③ Hooking up the sound system to the synthesizers.

④ Connecting the MIDI cabling between the MIDI Interface and MIDI devices.

If you're experienced with these tasks, you probably won't need to refer to this section. However, if your new to the PC, MIDI or both, take your time and follow the instructions. If you do, your complete system will be up and running quickly, and you'll learn some important things about MIDI in the process.

Installing Sp Gold

When the VINSTALL program transfers the Sp Gold program files and VAPI driver to the hard disk, it creates batch files that run the VAPI driver and Sp Gold with the proper command line options for your system.

To install Sp Gold

① Place the Install disk in the A: drive and type:

A: [Enter]

VINSTALL [Enter]

② Follow the on screen instructions. *If you change the MIDI interface, run VINSTALL again to make the corrections for the new setup.*

> *VINSTALL will halt the installation if any hardware inconsistencies are detected.*

VINSTALL automatically creates two batch files that are used in running Sp Gold:

DRIVER.BAT Automatically installs the proper drivers and command line options for your MIDI interface.

SEQ.BAT First runs DRIVER.BAT to install the drivers, then runs Sp Gold. When you quit Sp Gold the VAPI drivers are removed from memory.

Running MIDITEST

The MIDITEST program should be run immediately after running VINSTALL to test for proper installation of VAPI, Sp Gold and the MIDI interface.

To run MIDITEST

① Change to the drive and directory where SpG is installed. For example, if the defaults were used, SpG would be in the C:\VOYETRA directory and you'd type:

C: [Enter]

CD\VOYETRA [Enter]

② Load the VAPI driver by typing:

DRIVER [Enter]

③ Run the test program by typing:

MIDITEST [Enter]

Follow the on screen instructions. You'll be asked to connect the MIDI Input to the MIDI Output on the MIDI interface so that a "loop back" test may be performed.

④ If the MIDI interface does not pass MIDITEST, check the hardware's documentation to see if it's installed properly.

⑤ After running MIDITEST, remove the MIDI cable connected in step 3.

After running VINSTALL, and checking your hardware with MIDITEST, you are ready to run Sp Gold.

Running Sp Gold

Sp Gold must be run from a hard disk, it will not run from a floppy.

When Sp Gold is run, it will halt if any problems are detected in the hardware setup. For example, a mismatch between the Sp and MIDI interface address settings would cause SEQ.BAT to not load the VAPI/SAPI drivers. If this happens, Sp Gold will stop during the loading process and list the nature of the problem it found. If Sp loads without stopping, this indicates that everything's fine.

If Sp is instructed to continue loading in spite of the error encountered, it will run in "demo" mode. (ie. it will not play or record, but the screen functions will be active.)

To run Sp Gold

① Switch to the directory used by VINSTALL during installation. For example, if the defaults were used, SpG would be in the C:\VOYETRA directory and you'd type:

C: [Enter]

CD\VOYETRA [Enter]

② Run the SEQ.BAT file as follows.

SEQ [Enter]

The SEQ.BAT file uses DRIVER.BAT to load the VAPI driver and then runs Sp Gold. When you Quit Sp Gold, SEQ.BAT will remove the VAPI driver from memory.

– Or –

③ To bypass the SEQ.BAT program, run the DRIVER.BAT file, and then run SPG.EXE directly, as follows:

DRIVER [Enter]

SPG [Enter]

This would load the VAPI driver but not remove it when you quit SpG.

The DRIVER.BAT file may also be included as part of your AUTOEXEC.BAT file to automatically load VAPI when the PC boots. To do this, add the following command to the AUTOEXEC file:

CALL DRIVER

The SEQ.BAT provides a simple way to run Sp Gold and the VAPI driver. If do not have a firm understanding of the DOS batch language, do not attempt to edit the original batch files created during installation. If you do try to edit copies of these files be aware that they refer to each other by name. If you rename them, you must also alter the names in the calling files.

Using Sp Gold with Windows 3.0

Although Sp Gold is not written for Microsoft Windows 3.0, it may be run as a DOS application from within the Windows environment. Other than the convenience of not having to exit Windows, running Sp Gold from Windows 3.0 doesn't provide any Windows enhancements for Sp Gold (eg. Clipboard, multitasking, etc.).

To run Sp Gold in Windows 3.0:

① Put the VAPI driver into the AUTOEXEC.BAT file. (Don't try to run it after running Windows.) If you want to use a mouse with Sp, put the mouse driver in the AUTOEXEC.BAT file too.

② From the Windows Program Manager, select "New..." from the "File" menu. Add a new item for Sp. The command line must specify the drive and path to Sp. (You do not need a batch file that will change to your Sp directory, Windows will do this for you.)

③ The default ICON selection is the DOS prompt ICON, but choosing the "Change Icon" option lets you select any of the icons in the program manager's executable file for your Sp icon.

Don't run other MIDI programs while running Sp in Windows since the PC may crash as a result of too many IRQ requests.

If you experience any interrupt problems, try changing your MIDI interface interrupt. Windows does some strange things with interrupts, so you never can be sure what you'll run into. Running Sp Gold from within Windows also reduces the maximum song file size as follows:

Memory Decrease when using SpG with Microsoft Windows 3.0

Windows Mode	Lost Memory (Decrease in note capacity)
Real	76K (12,700 Notes)
Standard	64K (10,700 Notes)
386 Enhanced	7K (1,170 Notes)

For instance, the chart shows that running Sp Gold in Windows Real Mode decreases the maximum song size by 12,700 notes.

Sp Gold is a complicated program that juggles MIDI data while keeping track of timers, MIDI hardware, etc.. Windows was designed to run spreadsheets, word processors, drawing programs, database programs, etc., none of which work in "real time" as does Sp. Because of this, you may run into strange problems that are related to Windows sitting in the background while Sp does its job. Thus, it is advised that Sp Gold be run from DOS by exiting Windows. Since this can be done effortlessly with the proper batch files, it's a better (and safer) alternative than experiencing puzzling problems and reducing song memory.

Hardware Installation

Because Voyetra products run on so many different hardware platforms we can't tell you all the particulars about installing your MIDI interface. We can, however, make some suggestions about MIDI cabling, hooking up your synths, etc. If you need any further details concerning your interface, consult its documentation.

Please note that a "MIDI device", as referred to throughout this manual, is *anything* (other than your PC) that uses MIDI (ie. synthesizer, drum machine, external hardware sequencer, etc.)

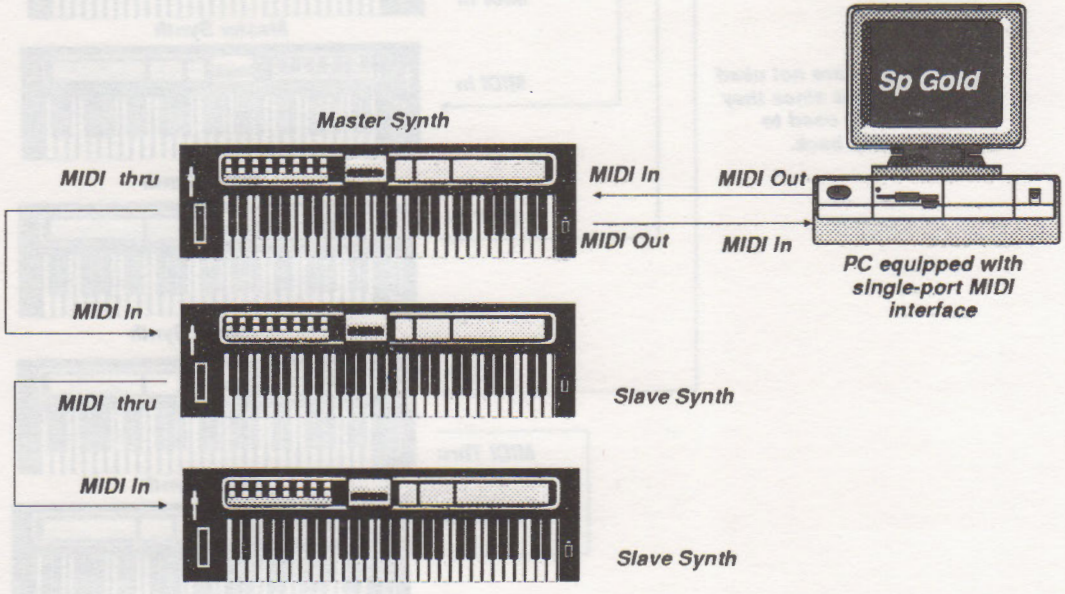
Connecting Single Port MIDI Interfaces

To connect MIDI devices to the MIDI interface

① Connect the MIDI OUT from the interface, to the MIDI IN on the MIDI synth to be used as a master keyboard.

② Connect the MIDI IN from the interface, to the MIDI OUT on the master keyboard.

② Connect any slave devices to the MIDI Thru output on the Master. If the devices do not have Thru Ports, an external MIDI Thru Box will serve the same purpose as the MIDI Thru Port.



Connecting Multi-Port Interfaces

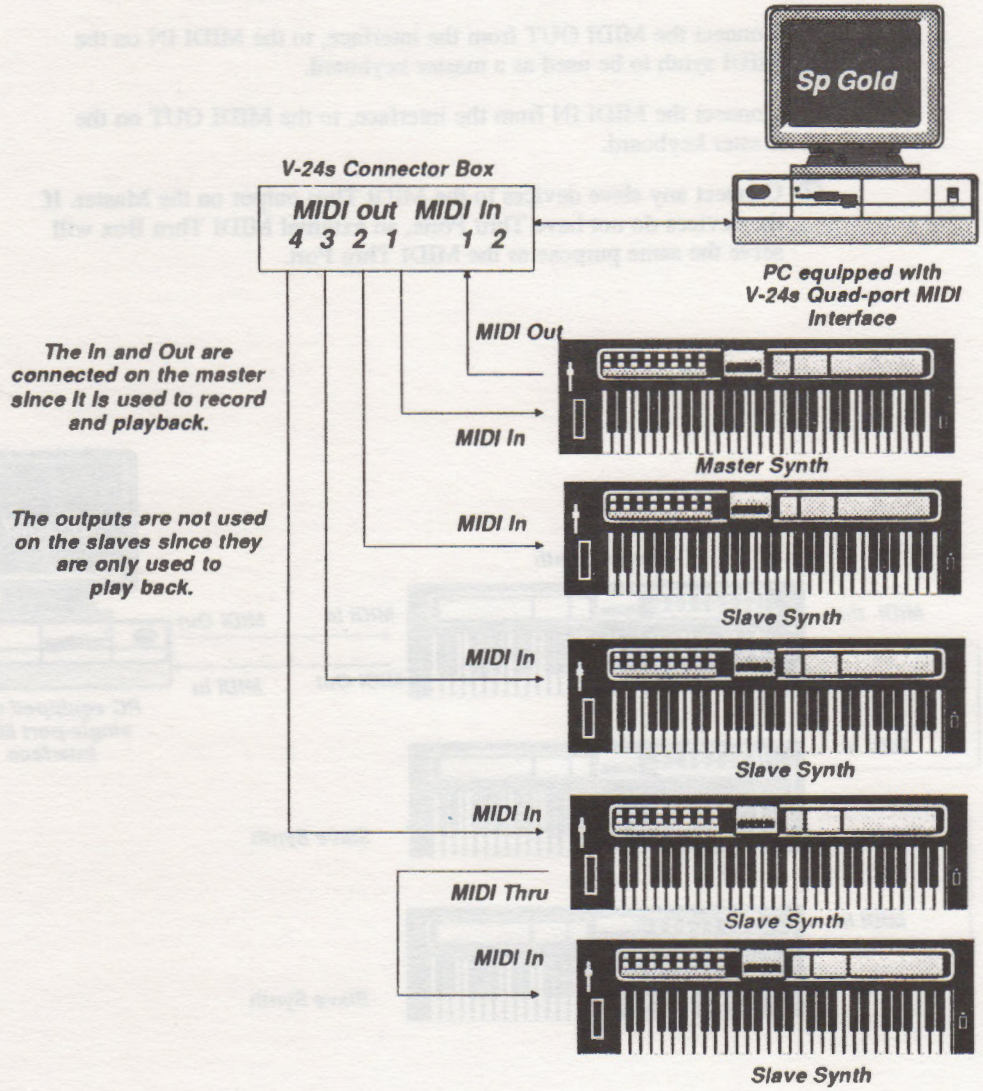
Multi port interfaces such as the Voyetra V-22/-24s, Yamaha C1 and Music Quest MQX-32 usually do not need to use MIDI Thru outputs since each MIDI device may be connected to the individual port outputs.

Using a Multi-Port Interface with a single master keyboard

① Connect the Master Synth to Port 1 as shown in the diagram.

② Connect the slave inputs to each output port.

③ Use the slave MIDI thru outputs when you run out of ports.



Installing the Sound Blaster

Before proceeding, follow the instructions in the Sound Blaster Manual to make sure the Sound Blaster is properly installed.

Connecting the Sound Blaster MIDI Box

① Plug the Sound Blaster MIDI Connector Box into the 15 pin Joystick connector on the back of the Sound Blaster.

② If you have a joystick, connect it to the joystick port that's on the MIDI Connector Box *(The joystick is not used by Sp.)*

Connecting the MIDI Synthesizer

The MIDI connection instructions for the Sound Blaster are similar to the previous instructions for single port MIDI Interfaces:

① Connect a MIDI cable from the OUT jack on the MIDI Synthesizer to the IN jack on the Sound Blaster MIDI Connector Box.

② Connect another MIDI cable from the OUT1 jack on the Sound Blaster MIDI Connector Box to the MIDI IN jack on the MIDI Synthesizer.

③ If you have more than one MIDI synthesizer, connect the MIDI Inputs to the other Sound Blaster MIDI Outputs (2 through 6).

> *OUT 1 - 6 on the Sound Blaster MIDI Connector Box are not separate MIDI ports, they are all connected to MIDI port one.*

Connecting the audio

① To hear the FM sounds from Sound Blaster, connect the Sound Blaster audio output to the sound system as per the directions in the Sound Blaster manual.

② To hear the sounds from the MIDI synth, connect its audio output to the sound system as per the instructions included with the synth.

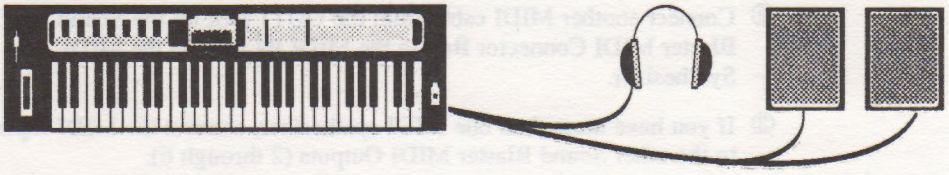
③ To hear both the MIDI keyboard and the Sound Blaster at the same time will require an audio ***mixer***. Connect the outputs from the MIDI keyboard and the Sound Blaster to the mixer's inputs and connect the sound system or headphones to the mixer's output.

> *Affordable mixers are available from Radio Shack type stores.*

To Hear Sound Blaster FM Synth

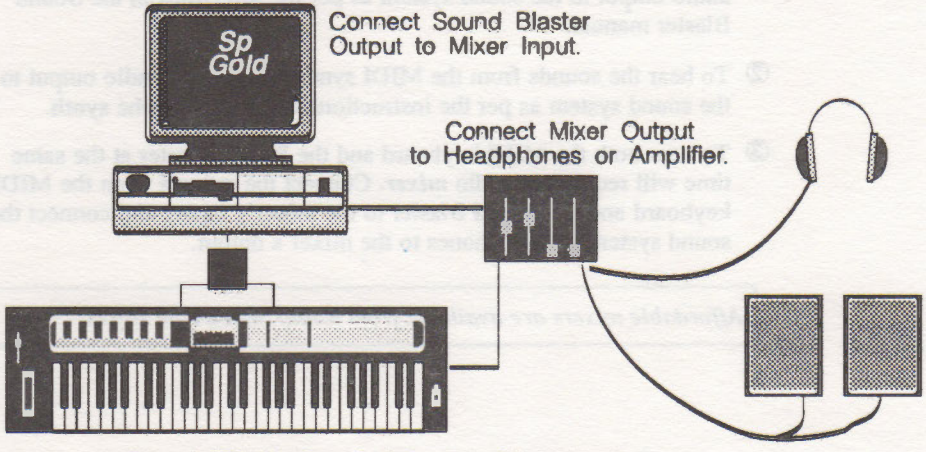
Connect Sound Blaster Output to Headphones, Speakers or Amplifier.

To Hear MIDI Synth



Connect MIDI Synth Output to Headphones, or Amplifier.

To Hear Both FM Synth and MIDI Synth



From MIDI Keyboard Output to Mixer Input.

Testing The System

To play a song file

① From the Main Screen, press **F**, for Files, to access the Files screen.

② Using the cursor/arrow keys on the PC keyboard, move the highlight to the word DEMOSNG2.

③ Press **L**, for Load, and press **[Enter]**.

④ DEMOSNG2 will load and the program will return to the Main Screen. *(The words **Song DEMOSNG2, should appear in the upper left hand corner of the Main Screen.**)*

⑤ After the song loads, press the **[Spacebar]** on the PC keyboard to play the song. If your system has been set up properly you should be hearing music from the MIDI system (or Sound Blaster.)

⑥ To stop the song, press the **[Spacebar]** again.

If the song doesn't play

① Be sure the VAPI drivers were loaded when Sp was run. Exit Sp and run it again to see if it stops to prompt you that the drivers weren't loaded.

② Check the audio cables and amplifier/speaker.

To quit Sp and return to DOS

① Press **Q** from the Main Screen. Or press **[F10]** from any screen. (If you accidentally press **Q** or **[F10]** and don't want to quit, press **[Esc]** to resume working.)

To record from the MIDI keyboard

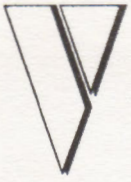
> *If you're using a Sound Blaster: First check that Sp is set to* **MIDI IN** *by noting the indicator at the top of the Main screen. Since the SB can't record and play MIDI at the same time, Sp must be set it to MIDI IN using [Alt][X].*

① From the Main screen, press R, then [spacebar].

② Run your finger up and down the MIDI keyboard to generate as much MIDI data as possible.

③ While doing this, watch the **Mem Counter** (top right of the Main screen) and note if it's decreasing in response to the MIDI data.

④ If it's dropping as the MIDI keyboard is played, MIDI is being recorded. To confirm this, press [spacebar] and enter the View screen (press V.) If there are no solid squares in the track just recorded, it indicates that MIDI data was not recorded. If there *are* solid squares, MIDI has been recorded.



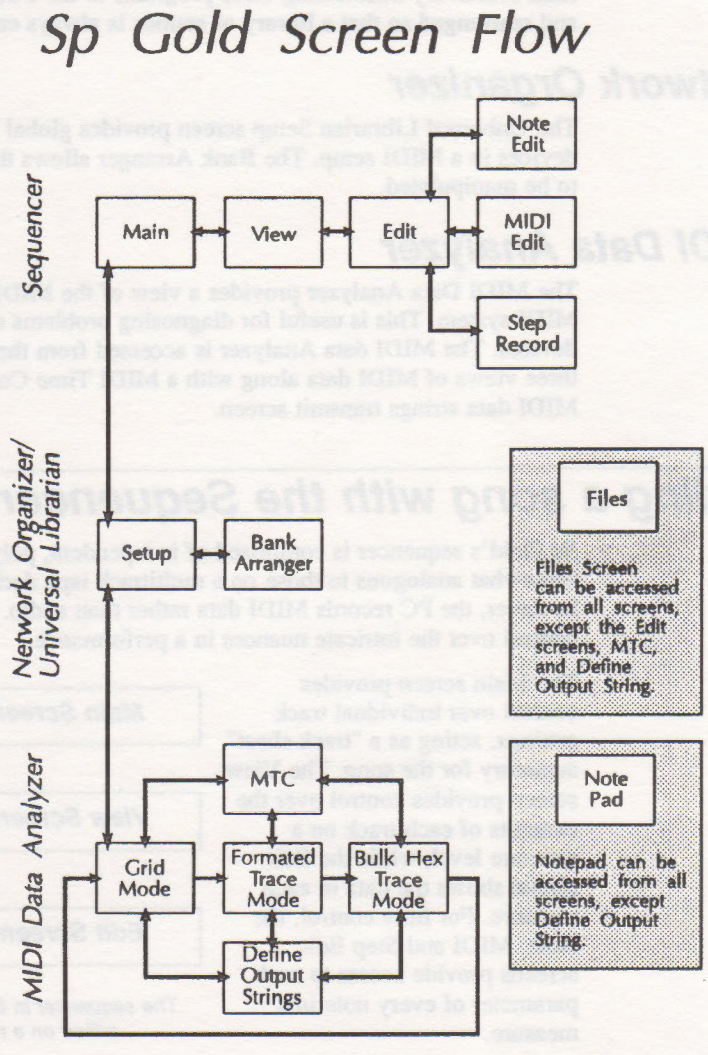
Basic Concepts

Sp Gold is an incredibly powerful MIDI program used for recording, editing, and arranging MIDI music in limitless ways. In addition, it's Universal Librarian and MIDI Data analyzer offer complete control over a PC MIDI setup.

This section provides a quick overview of how Sp Gold is organized so that the rest of the Reference can be easily utilized by first time users.

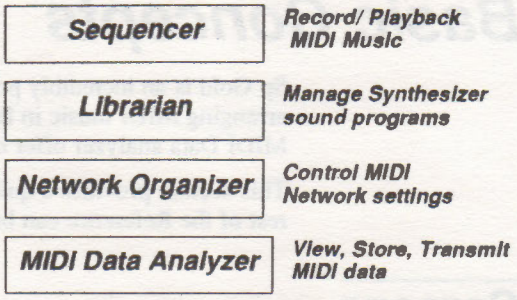
Screens

The illustration below shows the relationships between Sp Gold's major screens which are grouped into four basic sections: Sequencer, Universal Librarian, Network Organizer and MIDI Data Analyzer.



Sequencer

The sequencer section is used to record, edit and playback MIDI data generated when playing a MIDI keyboard. When the MIDI data is played back by the PC, the MIDI synthesizers respond to the MIDI commands and generate music.



The four sections of Sp Gold provide complete control over every aspect of a PC MIDI music setup.

Universal Librarian

The Universal Librarian is used for transferring synthesizer programs (or patches) between the synthesizers and PC. These programs represent the settings in the synthesizer voice that determine the final sound. By transferring these programs to the PC, they can be saved to disk and rearranged so that a library of sounds is always easily accessible.

Network Organizer

The Universal Librarian Setup screen provides global control over the MIDI devices in a MIDI setup. The Bank Arranger allows the programs for each devices to be manipulated.

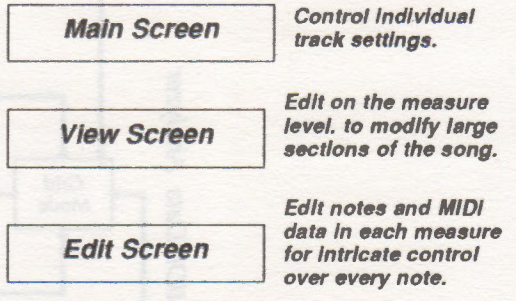
MIDI Data Analyzer

The MIDI Data Analyzer provides a view of the MIDI data activity in the PC MIDI system. This is useful for diagnosing problems or directly controlling MIDI devices. The MIDI data Analyzer is accessed from the Setup screen and provides three views of MIDI data along with a MIDI Time Code (MTC) monitor and a MIDI data strings transmit screen.

Building a song with the Sequencer

Sp Gold's sequencer is comprised of independent, polyphonic tracks that are somewhat analogous to those on a multitrack tape deck. Unlike a multitrack tape however, the PC records MIDI data rather than audio. Thus, it provides complete control over the intricate nuances in a performance.

The Main screen provides control over individual track settings, acting as a "track sheet" summary for the song. The View screen provides control over the contents of each track on a measure level, while the Edit screen shows the data in each measure. For finer control, the Note, MIDI and Step Edit screens provide access to each parameter of every note in a measure.



The sequencer in Sp Gold allows music to be edited on a macro or micro level.

Controlling the MIDI network

Sp Gold's Universal Librarian and Network Organizer is used to create *setups* that are representations of the settings in your MIDI network.

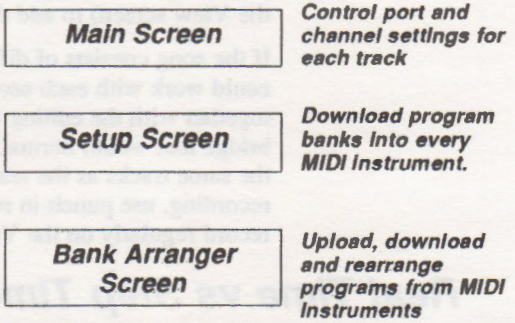
Setups

A setup is a list of the banks of patches to be transferred from the PC's disk library to the instruments. With a single keystroke, up to 32 different instruments are loaded with patches and set to specified program numbers.

The settings for a setup are stored along with your song so the instruments may be loaded with the proper sounds before the song begins.

Managing Sound Libraries

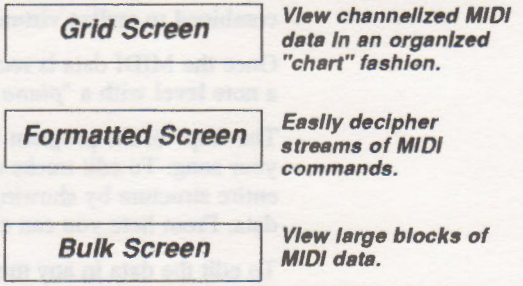
The Universal Librarian is used to upload, download, manipulate, and store banks of patches from over 130 supported instruments. With this power, Sp Gold can eliminate dedicated librarian programs, RAM cartridges, and cassettes and be used to manage programs for each instrument you own. Since so many instruments are predefined, making a selection is as easy as highlighting the name and pressing the Enter key.



The Librarian/ Network Organizer in Sp Gold provides total control over the sounds in MIDI instruments.

Getting to the Heart of MIDI

Sp Gold's MIDI Data Analyzer provides a window to the MIDI world by providing a way to communicate with MIDI instruments in their own language. It's indispensable for studio owners, MIDI musicians, software developers, and educators, *virtually anyone who uses MIDI in his/her profession*. MIDI network activity can be monitored in three different display formats to check for the occurrence of specific messages and easily decipher MIDI commands. MIDI instruments can also be controlled from the PC keyboard by transmitting strings of MIDI commands for doing anything from playing a note to initiating a patch dump. There's also a full screen MIDI Time Code monitor.



The MIDI Data Analyzer in Sp Gold acts as a "window" into the world of MIDI.

Recording Techniques

Like a multi track tape deck, but *better*, Sp Gold allows a song to be built by adding tracks one at a time (or several at a time). Most of the manipulations can be done on multiple tracks at the same time.

There are many ways to build a song with Sp Gold, and after a while you will likely find one that you prefer above the others. This section briefly discusses some of the alternatives.

Laying the Foundation

A song is begun by recording one track that can serve as a melody line, bass line, or chord riff. You can record the complete track from beginning to end, or just a piece of it. Once you have the initial track, record additional tracks from the beginning of the song (in the Main screen) or from any measure of the song (from the View screen) to add drums, a lead pattern, etc..

If the song consists of different sections music (verse, chorus, bridge, etc.), you could work with each section on a different group of tracks and then piece it together with the editing functions. This technique is handy when recording a bridge that would normally occur in the middle of the song. If the bridge were on the same tracks as the rest of the music, you'd have to set a play range before recording, use punch-in recording (which limits your choice of final versions), or record regularly on the View screen, and lose everything after the bridge section.

Real Time vs Step Time Recording

A song can be recorded in either *real time* or *step time*.

In *real time*, you play a MIDI keyboard and record the MIDI data directly into a track. In *step time*, the notes are entered one at a time at a fixed rhythm, allowing for far more complex musical passages. In step time, you can use the mouse, PC keyboard or an external keyboard to enter the notes. The two methods may be combined to realize virtually *any* performance.

Once the MIDI data is recorded into a track, it may be edited on a measure level or a note level with a *"piano roll"* style note display.

The "top" of the program is the Main screen, which provides a "track sheet" for your song. To edit tracks on the macro level, the View screen displays the song's entire structure by showing which measures in the recorded tracks contain MIDI data. From here you can cut, paste, copy, etc. large song sections.

To edit the data in any measure, zoom in on the micro level with the Edit screens, which allow individual notes and MIDI data to be examined and precisely manipulated.

There are also several other screens that make it especially easy to work with your music. The Notepad, for instance, lets you write and save text about a particular musical piece you're working on.

Overdubbing

One common way to overdub later in the piece is to record onto the end of a track in the View screen by putting the cursor at the end of the track and pressing [Ctrl]-R, [Spacebar]. With this technique, however, the recording starts immediately, making it hard to begin playing on time.

To avoid this, you can set a lead-in of one or more bars, during which you'll hear the last 'n' bars the song. (Don't worry, you aren't recording over them!) After the lead-in, the REC indicator turns solid, indicating that recording has begun.

This technique has a drawback in that you may accidentally erase the end of a track. Also, there's no easy way to keep alternate takes. Instead, try opening up some blank tracks next to the one you want to extend and use them to record the new material. That way, you can start at the bar you want and not only keep from killing a good track, but also mute all the old takes.

Once you have a good take, copy it to the end of the track and delete (or hide) the takes you don't want.

In some cases you may want to add new material to a bar without losing what was there originally. Although you could use the above technique to create a bar in a new track with the desired part, you can't just paste the new material onto the end of the old track because they must overlap. In this situation, you'll need the Merge transform, which preserves the original material in the destination track.

Group Commands

Recording at the beginning of a song may be preferable in certain cases because:

- It's easy to jump to the first bar, record from the first bar, etc..
- It's nice to be able to make a simple loop to use for a drum or bass part, which can't easily be done in the middle of a song.

Sp Gold's group commands come in handy in this situation, because you can assign different groups to mute and solo each part while deciding which to keep.

To use group commands while recording at the beginning of a song, put each section on different tracks, all starting on bar zero. Keep all tracks muted, except the ones that belong to the section you're working on. Then assign each section its own group letter to make it easy to mute and unmute sections.

Once you have each section in a somewhat finished form, you can unmute all of them and use the block copy functions to put them to where they should be.

Punch-in vs View Recording

To correct mistakes in a track without re-recording the whole track, you could use the note editor (if the mistake is just a few notes), or punch-in (to re-record a larger section.)

In many cases, the View record functions are much more powerful and easier to use than Punch-In.

For instance, to re-do a section in the middle of a track, try using the zap function and/or the note editor to get rid of the material you want to replace. Then go to a new track and record the correct material. When satisfied with the new take, use the merge transform to put it back into the original track.

This technique is superior to punch-in for the following reasons:

- You aren't limited to bar boundaries.
- You have more control over saving and archiving of old takes (and won't have to answer so many annoying prompt questions!)
- You can see what you're doing.

This technique can be extended to other, situations. For instance:

- If you played a drum part on your pads, but want to re-record only the snare, use the Split xform to remove all the snare notes, record the new ones on a new track, and merge.
- You can also use this technique to easily re-record pitch bend or other midi controller data.

Syncing to the Outside World

Through intricate synchronization methods, Sp Gold interfaces with tape decks, other MIDI and non MIDI devices, and even another computer. Using a variety of techniques, Sp Gold can act as the master of the multi system network or as the slave.

By syncing the PC song to a tape deck, you can add vocals on audio tape that play right along with the MIDI music. When the song sounds exactly the way you want it to, a mix of all the MIDI instruments can be recorded onto the spare tracks of the tape for a final version.

Fix It In The MIDI Mix

You can also create a sync track on multitrack tape with a matching MIDI song in Sp Gold. Then record with tape and Sp Gold simultaneously. At a later time, you can edit the MIDI song, sync the tape and song together, and drop the corrected take into place on the tape.

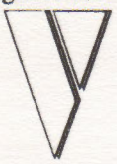
You can even go back and fix bad balances in bounced tracks, by redoing them, if:

- all the components of the bounce were sequencer tracks, or
- the non-sequencer tracks are still on the tape.

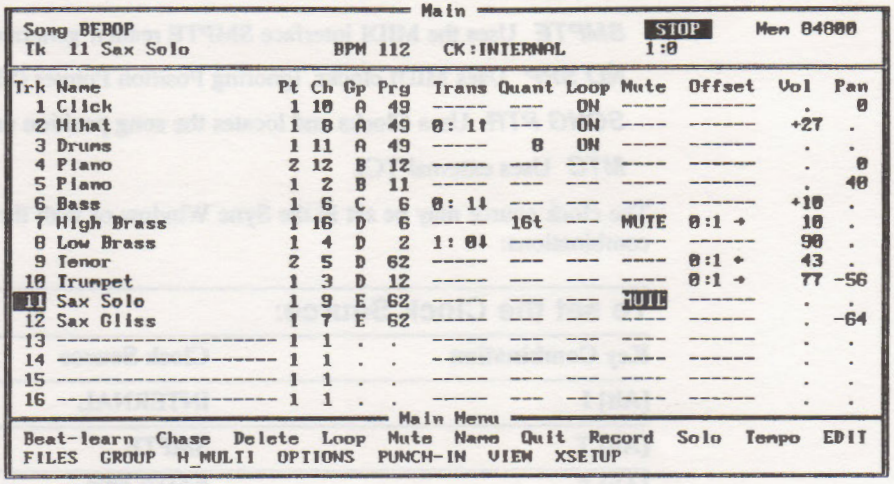
Virtual Tracks

If you have lots of parts or you would like to put more tracks onto your song than you have room for in your multi-track recorder (eg. if want to record 16 tracks, but only have a 4-track recorder) you could try the following:

Set up the sync code track/song combination as described, then turn off the tape deck and record everything that can be MIDIed into Sp Gold alone. Use the tape deck only for recording acoustic tracks. When the time comes to mix, sync Sp Gold to tape, let it drive your MIDI network in real time, and mix straight to the 2-track mixdown deck. This saves a generation of tape, and gives you more tracks to work with.



SEQUENCER V



Main Screen

The Main Screen provides direct control over track-related functions and is displayed each time Sp Gold is run. To return to the Main Screen from any other screen press [Esc] repeatedly.

Main Screen Status Area

Song Filename assigned to the current song.

Tk (Track) Highlighted track number and name. (Also referred to as the Current Track.)

BPM (Beats Per Minute) Current tempo setting. Set with the Tempo command.

MIDI:IN/OUT Used only with the Sound Blaster, whose MIDI port cannot simultaneously receive and send MIDI. Toggle with [Alt] X.

> *This features applies to Sound Blaster's equipped with pre 2.0 ROM. If your Sound Blaster has ROM 2.0 or higher this feature will not be needed and will not be available.*

IN Sound Blaster will receive MIDI data but not transmit it. Used for recording from a MIDI instrument.

OUT Sound Blaster will send MIDI data but not receive it. Used for playing MIDI instruments from a track assigned to Port 1.

CK (Clock source used as a timing reference for the song. (For details, see the Sync Window section.) The source of timing may be one of the following:

Internal Uses an internal timing source, which can be either the PC's timer or if available, the timer on the MIDI interface.

SMPTE Uses the MIDI interface SMPTE reader/ generator.

NO SPP Uses MIDI clocks, ignoring Position Pointer (SPP).

SONG PTR Uses Clocks and locates the song position using Position Pointer.

MTC Uses external TC).

The clock source may be set in the Sync Window or with the following [Alt] key combinations:

To set the Clock Source:

Key Combination	Clock Source
[Alt] I	INTERNAL
[Alt] T	SMPTE
[Alt] S	SONG PTR
[Alt] M	MTC
Use Sync Window	No SPP

Bar:Beat Song position displayed as bar:beat. The value is updated as the cursor position is changed manually in the View Screen, or when play/record is activated.

When recording with one lead-in measure (as set in the Options Window) the counter starts at 0:0 and counts the number of beats per measure before recording begins. If more than one lead in measure is set, the counter will begin at a negative number. When the counter reaches 1:1, recording begins.

REC Appears while recording. Flashes when Record Mode has been activated, but recording hasn't started.

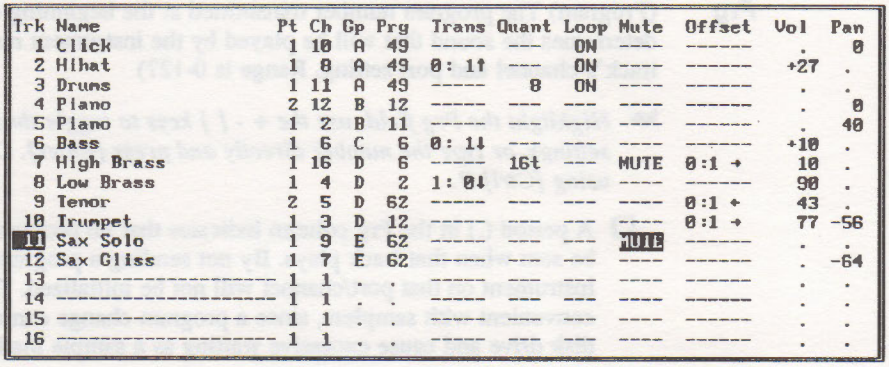
Indicates that playback or record is active.

STOP Indicates that record or playback is not active.

Mem (Memory) During playback, shows memory remaining in the song.

During record, shows memory left in the track (approximately 65K max).

Main Screen Work Area



Trk	Name	Pt	Ch	Gp	Prg	Trans	Quant	Loop	Mute	Offset	Vol	Pan
1	Click	1	10	A	49	-----	---	ON	----	------	.	0
2	Hihat	1	8	A	49	0: 1↑	---	ON	----	------	+27	.
3	Drums	1	11	A	49	-----	8	ON	----	------	.	.
4	Piano	2	12	B	12	-----	---	---	----	------	.	0
5	Piano	1	2	B	11	-----	---	---	----	------	.	40
6	Bass	1	6	C	6	0: 1↓	---	---	----	------	+10	.
7	High Brass	1	16	D	6	-----	16t	---	MUTE	0:1 →	10	.
8	Low Brass	1	4	D	2	1: 0↓	---	---	----	------	90	.
9	Tenor	2	5	D	62	-----	---	---	----	0:1 →	43	.
10	Trumpet	1	3	D	12	-----	---	---	----	0:1 →	77	-56
11	Sax Solo	1	9	E	62	-----	---	---	MUTE	------	.	.
12	Sax Gliss	1	7	E	62	-----	---	---	----	------	.	-64
13	----------	1	1	.	.	-----	---	---	----	------	.	.
14	----------	1	1	.	.	-----	---	---	----	------	.	.
15	----------	1	1	.	.	-----	---	---	----	------	.	.
16	----------	1	1	.	.	-----	---	---	----	------	.	.

❖ *If you have a mouse*

Change parameter values in the Work Area by highlighting the parameter, holding the left button and dragging up/down to increase/decrease the value.

Dragging the right mouse button is equivalent to pressing the [ ] keys which decrement/increment in larger steps.

Trk (Track) Default is 1 - 64, but it can be increased with the /tk command line option.

➥ *[Tab] moves the cursor down to the next track containing data. [Shift][Tab] moves it up to the next track containing data.*

Name Name assigned to each track using the Name command. When a track is first recorded, it is automatically named "New Track."

Port Port number assigned to a track. Cannot be changed while song is playing.

➥ *Highlight the Port field, use the + - keys to toggle the setting. Can also be changed by pressing [Ctrl] O.*

> *Not all interfaces support multiple ports. Use the Hardware Configuration Window [F3] H to determine the number of ports available on your interface.*

If the interface has only one port, assigning a track to anything other than port 1 will disable that track's output.

With the Sound Blaster, port 1 is assigned to the MIDI connector box, and port 2 is normally assigned to the FM sounds.

Ch (Channel) Each track can be assigned to one of 16 MIDI Channels. The Channel setting cannot be changed during playback.

➥ *Highlight the Ch field, use the + - keys to toggle the setting, or type in the number and press [Enter]. Can also be changed using [Ctrl] C.*

Sound Blaster's port 1 channels correspond to 16 MIDI channels, port 2 channels correspond to FM sounds.

Gp (Group) Tracks can be grouped into 26 separate groups (from A - Z). Once grouped using the Group/Arrange Menu, certain functions can be performed on groups of tracks from the Main and View Screens instead of individual tracks.

Prg (Program) The program number transmitted at the beginning of playback. This determines the sound that will be played by the instrument responding to the track's channel and port setting. Range is 0-127)

➥ *Highlight the Prg field, use the + - [ ] keys to toggle through Program settings, or type the number directly and press [Enter]. Can also be changed using [Ctrl] P.*

- ❑ A period (.) in the Prg column indicates that no program change will be sent when that track plays. By not sending a program change, the instrument on that port/channel will not be initialized. This is convenient with samplers, since a program change can activate their disk drive and cause excessive waiting as a sample loads.
- ❑ Tracks set to the same channel and port numbers will respond to the same program number settings.
- ❑ Program changes can also be embedded throughout the track using the MIDI Edit screen.

> *See the Options window [F3] Programs command for details on how these embedded program changes are sent to MIDI instruments.*

Trans (Transpose) Raises or lowers the pitch of the entire track.

➥ *Highlight the Trans field, use the + - keys to toggle by semitones, [ ] to toggle by octaves. Or type the number directly and press [Enter].*

Transpose can be changed during playback, but there is a slight delay when it changes from one key to another. It does not permanently alter the track data, as do the Transpose transforms.

Transposition Display Examples

Display	Transposition
------	No transposition.
1:0 ↑	Transposed up one octave.
1:0 ↓	Transposed down one octave.
0:6 ↑	Transposed up six semi-tones.
2:8 ↓	Transposed down two octaves and eight semi-tones.

> *Transpose data can also be displayed in musical intervals by setting XPOSE display in the Configuration window to CHROMATIC.*

Quant (Quantize) Shifts notes onto the beats, a handy way of cleaning up sloppy playing.

- ❑ When quantizing during playback there is a slight delay before the change takes affect.
- ❑ Does not permanently alter the track data, as Quantize transforms do.
- ❑ Quantizing a track containing MIDI controllers could cause timing glitches. If this occurs, use the Quantize Transform to permanently quantize the track data.

Quantize Time-Units

Normal		Triplets	
---	No Quant)	n/a	
4	Quarter Notes	4t	Quarter Note Triplets
8	Eighth Notes	8t	Eighth Note Triplets
16	Sixteenth Notes	16t	Sixteenth Note Triplets
32	Thirty Second Notes	32t	Thirty Second Note Triplets
64	Sixty Fourth Notes	64t	Sixty Fourth Note Triplets

Loop ➥ *Toggle with L key, or use + - when Loop field is highlighted.*

LOOP Track will replay when the end of the track is reached.

---- Track will play through once and stop.

Mute ➥ *Toggle with M key, or use + - when Mute field is highlighted.*

MUTE Track is muted; i.e. it will not sound during playback or record.

---- Track is not Muted.

> *It is possible for a note to stick if you mute a track that has sent a Damper Pedal Down message, but has not yet sent the Damper Pedal Up message. This may happen even if the Pedals Up option is ON in the Options Window.*

Solo ➥ *Toggle with the S key, or use [Shift][F8].*

SOLO Track is Soloed. It is the only track you will hear when song plays back. The word SOLO and track number will flash in the Status Area, next to the Song display when active. To Solo a different track while playing move the cursor to that track and press S twice.

---- Track is not Muted or Soloed.

Mute and Solo can be changed while playing.

When a track is muted in Sequencer Plus, it is truly muted. Other programs differentiate between "muted" and "arced" (archived). Sequencer Plus always "arcs," and can do so "on the fly," i.e. while the sequencer is playing. With this method the Muted tracks are not processed and thereby MIDI choking problems are avoided.

Moving the cursor from track to track while playing does not change which track is soloed.

The following Mute and Solo features operate while the song is playing.

- Mute/ Un-Mute
- Solo/ EndSolo
- Group Mute/ Group Unmute
- Group Solo/ Group EndSolo

Offset Shifts track data forwards or backwards in time with respect to the other tracks; displays Offset status of track.

➥ *+ - [ ] offsets track by quarter notes:clicks. To enter just clicks, press 0 and : or just : then enter number of clicks.*

Display format is Quarter Notes:Clicks, and an arrow indicating direction.

Offset Screen Display

Display	Offset
-------	No Offset
1:0 →	Offset one quarter note later
1:0 ←	Offset one quarter note earlier
0:112 →	Offset one hundred and twelve clicks later
2:98 ←	Offset two quarter notes and ninety eight clicks earlier

Vol (Volume) Track volume is controlled in two ways.

- MIDI Volume Control Change Messages (Unsigned numbers ranging from 0 to 127.)
- Velocity Scaling (Signed numbers ranging from -127 to +127.)

➥ *To toggle between MIDI Volume Control Change Messages and Velocity Scaling, highlight the field and use the [Enter] key.*

The advantage to velocity scaling is that most synths have velocity sensitivity. Also, it can have different values for the same MIDI channel assigned to different tracks. The disadvantage of velocity scaling is that the music can lose some of its dynamic range when the scaling value is truncated too often.

To set the Volume for a track

① Confirm that your instrument is set to receive control change messages. (The message sent for Volume is controller number 7.)

Some synths can be set to receive that specific message; some can only be set to receive all controller messages, and others do not respond to controller number 7 at all. Check your synths documentation for more information.

② Move the cursor to the volume field in the desired track.

③ Choose the Volume Control Change Messages option by toggling with the [Enter] key. (An unsigned number indicates the MIDI Volume Control Change Messages method is active.)

④ Use the + - keys to increment/decrement the value by ones, the [ ] to increment/decrement by tens, or type the number directly and press [Enter]. (Range 0 - 127)

⑤ To return to no volume setting press •, and a dot will appear in the column.

Volume messages are only sent from the start of a song from the main screen, or when the its value is changed.

A typical synth's default setting for volume is 127. Once volume has been set using the Control Change method, the synth will remain at that setting even if the track volume is set to . i.e. no setting, or is toggled to the velocity scaling method. Thus, if the volume is set to 20 using control change messages, then toggled to velocity scaling, it may suddenly sound very weak.

To use Velocity Scaling

① Move the cursor to the volume column in the desired track.

② Choose Velocity Scaling option by toggling with the [Enter] key. A signed number indicates Velocity Scaling is active.

③ Use the + - keys to toggle by ones, the [ ] to toggle by tens, or type the number directly and press [Enter]. (Range -127 to +127)

This is a real time velocity filter that adds or subtracts velocity values from each note as it is played.

The velocity scaling value is added to the velocity portion of a MIDI Note On message, and increases or decreases the volume accordingly.

When the sum goes out of the acceptable velocity range, the extra amount is truncated.

When toggling between Volume and Velocity Scaling the values are converted, not saved. Thus, if the Volume setting is 100 and Velocity Scaling is toggled on, the conversion will be approximately +72. If the +72 Velocity Scaling value is changed and Volume is toggled back on, the Volume setting will be a conversion of the new value– not the original value of 100.

Pan The Pan setting lets instruments with stereo outputs send sound to the left and right speakers at different levels.

> *Many synths do not implement Pan; check your synths documentation for more information.*

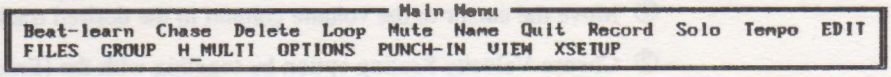
0 is equivalent to center panning, +/- 64 is equivalent to Pan full Left/ Right.

➥ *Move the cursor to the Pan field in the desired track, use the + - keys to toggle by ones and the [ ] keys to toggle by tens, or type the number directly and press [Enter].*

To return to no pan setting, press (.). A typical synth's default Pan setting is 0. Once Pan has been set, the synth will remain at that setting even if the track Pan setting is set to no Pan with the dot "•".

- ❑ The MIDI instrument must be able to understand MIDI control change message #10 (pan) for panning to take effect.
- ❑ When using Pan, all tracks on the same Port and MIDI channel will have the same setting.
- ❑ Before using the Pan setting, be sure to set your instrument to receive control changes.

Main Screen Menu Commands



❖ ***If you have a mouse***

Press both mouse buttons to activate the Mouse Menu which allows access to all the menu commands.

Beat-learn Beat-learn listens for an audio reference click on a recorded tape and creates a Tempo Map that is used to automatically set the proper SMPTE offset. This allows a song to be synchronized to a multi-track tape that has a metronome reference rather than a sync track. By doing so, you can add sequenced tracks to a recorded song using a metronome as a timing reference.

See the end of this Main Screen section for details on using the Beat-learn feature.

Chase Chase lock to tape. Allows hands off use with Sync Window section in this Reference for further details.)

➥ *Chase mode is also activated with the [F9] key.*

Delete Deletes the current track. To delete all tracks, press D, followed by A.

❑ The /Keep command line option allows you to delete a track while retaining all the track's Main screen settings such as channel and group. See command Line Options section at the end of this Reference for details.

Loop Activates looping for current track as indicated by the ON setting in the Loop column. Length and time signature of each looping track can be different.

❑ Loops can be turned on and off during playback.

❑ Turning a loop back on after the track has ended has no effect until you stop and restart the song.

Mute Toggles the Mute function to silence a track, as indicated by the word MUTE displayed in the Mute column.

❑ If Mute is turned ON while playing, the song will continue to play beyond the end of the song until the [Spacebar] is pressed.

Name Used for entering a track name.

Highlight the track, press N, and type in a name of up to 20 characters. The name Track is automatically entered when a track is first recorded.

Quit ➥ *To exit the program, press Q, then Q again to confirm. Or, press [F10], then Q to confirm.*

Record Activates record mode. (See next section.)

Solo Makes a track the only audible track during playback, as indicated by the Mute column setting (SOLO). Also activated by pressing [Shift] [F8]

❑ If Solo is turned ON while playing, the song will continue to play beyond the end of the song until you press the [Spacebar].

Tempo Sets the song playback speed as the number of Beats Per Minute (BPM). Default tempo setting is 120 BPM; range is 16 to 255 BPM. Tempo can be changed during playback.

Edit Accesses the Edit Screen for detailed editing. (See separate section in this Reference.)

FILES Accesses the Files Screen for file management. (See separate section in this Reference.)

GROUP Accesses the Group/Arrange menu to create and manage groups of tracks. (See separate section in this Reference.)

H_MULTI Accesses Multitrack record mode for recording more than one track at a time. (See separate section in this Reference.)

OPTIONS Accesses Options window for setting Metronome, Time Signature, MIDI Options, etc. (See separate section in this Reference.)

PUNCH-IN Accesses In record window. (See separate section in this Reference.)

View Screen View Screen. (See separate section in this Reference.)

XSETUP Access the Setup Screen. (See separate section in this Reference.)

Record and Playback from the Main Screen

> *Main Screen erases all of the original track's data.*

Playback and recording from the Main screen always begins at the start of the track. To playback or record from any measure in the track, use the View screen.

For single-track recording, connect the master keyboard to Port #1. Sp Gold only records MIDI data from Input Port #2 when Multi-Track record floating mode is active. In other recording situations, port 2 is used to connect an external MIDI clock used as a MIDI Sync Sync Window [F6] for more information.

To record a track from the Main screen

① Place the cursor anywhere on the line for the track to be recorded.

② Press R to activate Record Mode, press the [Spacebar] and begin playing on the MIDI keyboard.

④ MIDI Thru Status Mode, [Shift][F9] M, should be set to CURRENT.

③ When finished, press the [Spacebar] to stop recording.

> *If the Assignment feature in the Options window [F3] is ON, Sp Gold reads the channel number from the data and automatically enters it in the Chn column for the new track.*

To record with a Sound Blaster

① Use [Alt] X* to set MIDI IN/OUT to IN to activate the Sound Blaster's MIDI input port.

② Place the cursor anywhere on the line for the track to be recorded.

③ Set the track to Port 2 (FM) and the MIDI Thru window [F9] to CURRENT if you want to monitor your playing with one of the Sound Blaster's FM sounds. Setting the track to Port 1 will not have any effect since the MIDI:OUT is not active and the MIDI data will not be routed to the external synth.

④ Press R to activate Record Mode, press [Spacebar] and begin playing on the MIDI keyboard.

⑤ When finished, press the [Spacebar] to stop recording.

To play back from the Main Screen

① Load a song from the FIles Screen, F, highlight song, L, [Enter].

② Press the [Spacebar] and the song will play.

If the track's MIDI channel setting doesn't match the Synth's receive channel, the synth won't respond to the MIDI data in the track.

To play back using the Sound Blaster FM sounds

① To hear tracks play the FM sounds, set them to Port 2.

② Press the [Spacebar]. The tracks set to Port 2 will playback with the FM sound it's set to in the Prg column. Assign a different channel to each track to get multiple tracks playing multiple sounds.

To play Sound Blaster FM sounds with a MIDI keyboard

① Use [Alt] X to set MIDI IN/OUT to IN. This activates the Sound Blaster's MIDI input port.

② Set MIDI Thru Mode to current - [Shift][F9], press the M key until CURRENT appears in the Mode field.

③ If the highlighted track is set to Port 2 (FM), then the program setting on the track will determine the FM sound that's played.

④ If the track is set to port 1 (MIDI), nothing happens since the Sound Blaster can't receive and send MIDI at the same time.

For more information about using the Sound Blaster FM sounds, see the Hardware Window and Sound Blaster sections in this reference.

Main Screen Group/Arrange Menu

➥ *G to enter from the Main menu. [Esc] to return to the Main menu.*

Commands in the Group/Arrange menu are used to move and reorganize tracks and control the mute and solo status of track groups.

Each track can be assigned to one of 26 groups (A-Z) by entering a letter in the Grp column.

The Period (.) is a special group designation, meaning not assigned to any group. It is used to leave a track out of the track grouping system.

Tracks can be assigned to groups by highlighting the group column and using the + -] and [keys to change the group letter assignment. Tracks can also be assigned to a group by activating the Assign command.

The /grp command line option puts all tracks in the A group, instead of the period (.) grouping as the program is started. See the section on Command Line Options for details.

The wild card character (*) can be used to designate all groups. You can mute, sort, or solo all groups (with the *), yet leave the unassigned tracks as they were.

Group/Arrange Menu Commands

Assign Used for assigning tracks to a group by typing the letter directly instead of using the + -] and [keys.

Press A, cursor up/down between tracks, assign the track to a group by typing the letter key. The Assign command is cancelled by moving the cursor horizontally, or pressing [Enter] or [Esc].

Backup Copies an entire track, including note and MIDI data and Main screen settings. Will not copy over a track already in use.

➥ *Place the cursor on the track, press B, type the number of the empty destination track, press [Enter]. Can also be selected from the Main or View screens by pressing [Ctrl]B.*

Close Removes a blank track from between other tracks, moving others up.

EndSolo Restores each track to the mute/non-mute status it had prior to the issuance of the Solo command. Used for soloing the desired group without affecting the mute status of all tracks.

GSort Sorts the tracks by group letter designation. When the track groups are sorted, you'll be asked if you want to insert blank tracks between the groups.

Hide Moves the selected track to the highest numbered empty track, mutes it, and assigns it to the (.) period group.

Jump Moves a track's position. Will not move a track to a destination track already in use.

Place the cursor on the track, press J, type the number of the empty destination track, press [Enter]. Can also be selected from the Main or View screens by pressing [Ctrl]J.

Mute Mutes every track in the specified group.

Open Inserts a blank track between two other tracks, moving others down. Tracks that have been moved to the bottom of the track sheet are not deleted.

Rename Changes the letter assigned to the specified track group.

Solo Mutes every track that is not in the specified group. The mute status of every track is saved first, so any muted tracks will stay muted when you use EndSolo.

Un-Mute Un-mutes every track in the specified group.

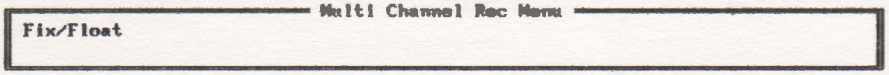
Multi Channel Recording

➥ *H to enter from the Main or View menus. [Esc] returns to the Main or View menu.*

The Main and View screens each provide access to the H_Multi menu option which allows recording up to 16 tracks of MIDI data at one time. When H_Multi is activated:

- ❑ The left side of the status area shows which tracks have been selected for recording.
- ❑ The memory indicator shows how much memory is left in the smallest track.
- ❑ The cursor in the work area changes to a "Multi-Track" cursor.
- ❑ The Multi-Track menu appears at the bottom of the screen.

H_Multi Menu Area Commands



➥ *Press F to toggle between the two modes (fixed or floating). The right side of the status area shows the channel assignment mode.*

Fixed Channels must first be assigned to the tracks to be recorded. MIDI data can only be recorded from Port 1.

Port 2 can be used to record MIDI Sync signals from an external controller, such as a drum machine, MTC, etc..

To Record in Fixed Mode

① From the H_Multi menu, use the up / down cursor keys to select a block of destination tracks. Select one track for each channel of data to record.

② Use the left / right cursor keys to highlight the track's channel number column. Enter a different channel number for each track in the block.

> *If two or more tracks in the destination block are assigned to the same channel, Fixed mode cannot be used.*

③ Press F to select Fixed mode.

④ Press the [Spacebar] to start recording.

While recording, Sp Gold reads the incoming data channel numbers and routes it to the track with a matching channel number.

Float Channels are assigned to recorded tracks automatically on a first come first serve basis. MIDI data can be recorded from both input Ports.

For example, if both input ports are receiving data from instruments transmitting on Ch 1, Sp Gold sorts the data so the two instruments are kept on separate tracks. When recording is stopped, tracks made by data from port 2 are indicated by "p2" in parentheses after the track names.

Each input port accepts data from any number of channels, but *the **total** number of tracks you can record at one time from both inputs is **16**.* If both inputs contain more than 16 channels, Sp Gold records the first 16 it receives.

> *When recording multiple track data on two ports, the MIDI data rate far exceeds the normal data rate for normal recording. To minimize the load on Sp Gold, the MIDI THRU options in the MIDI Thru window [Shift][F9] should be turned off. This allows the Sp Gold to devote all of its processing power to recording rather than divert resources to rechanneling data to multiple output ports.*

To Record in Floating Mode

① From the H_Multi menu, use the up/down cursor keys to select a block of destination tracks– one for each channel of data to record.

② Press the [Spacebar] to start recording. While recording, Sp Gold sorts the incoming data by channel number and sends it to the next available track in the order the channels are received.

③ Press the [Spacebar] to stop recording. The channel numbers appear next to each new track.

To Record Multiple Tracks from the View Screen

When using the multi-track recording features on the View screen, recording starts from the current measure, shown by the cursor's position. As with single-track recording, music may be added to the end of a group of tracks by moving the cursor to the measure where recording should start.

① From the H_Multi menu, move the cursor to the first track of the group into which you want to record.

② Move the cursor to the measure where recording should start.

③ Move the cursor down to select the additional tracks.

> *Ctrl-C may be used to conveniently enter the track's MIDI channel number in the View screen.*

If recording starts from a point past the end of the tracks, the blank sections of the recording tracks are automatically filled in with measures of silence.

Recording with Multiple Ports

When you have more than one synthesizer, recording can get complicated. Since the synths are all on different MIDI channels, you'll have to do some juggling to get everything to go to the correct channel.

Every time you record on another synth, you may have to change the MIDI transmit channel so that you can hear what you're recording on the synth that will play the part back. You'll also have to set the playback channel (in the Main screen) to play the track back to the desired tone generator.

Sp Gold's "auto channel assign" and "MIDI thru rechannelize" features help you automate various aspects of this common procedure. Here are some examples of three recording methods to illustrate the use of these features.

In all cases, you should never have to change the receive channel settings on your tone generators.

Method 1:

If you have no more MIDI instruments than output ports (eg. 4 instruments with a V-24s or 8 instruments with a C1), connect each one to its own output port and set all of them to receive on Channel 1. In this case, you won't have to reset the instrument's receive channel, because each instrument receives data from different ports.

In this case, set Sp Gold as follows:

① From the MIDI Thru window [Shift][F9], set the Mode to CURRENT and turn Rechannel OFF.

② From the Options window [F3], turn Auto Channel Assign OFF.

③ From the Main screen, assign an empty track to each output port that's connected to an instrument.

This method makes it easy to connect a master keyboard to other instruments. The MIDI data that enters the PC is sent "Thru" the multi-port interface to the instrument that's assigned to the CURRENT track. When you move the cursor to another track, the data is sent "Thru" to a different instrument.

Although this is the easiest recording method to use, you can't use more than 8 channels with a C1 (or 4 in the case of a V-24s). If you own a multi-timbral instrument and want to send it data on more than one channel, you'll have to use method 2 or 3 (at least for that instrument).

Method 2:

In this method, the master keyboard can be set to transmit on any channel. Set Sp Gold as follows:

① From the MIDI Thru window [Shift][F9], set the Mode to CURRENT and turn Rechannel ON.

② From the Options window [F3], turn Auto Channel Assign OFF.

③ Before recording the track, enter the port number and channel number of the target instrument on the Main screen (this same port and channel will be used later when the track plays back).

When you start recording, the data that's sent "Thru" is Rechannelized to match the receive channel of the target instrument on the CURRENT track. You can record the track, then play it back without changing channel settings on the master keyboard or the target instrument.

If you're recording over a track that's already set up, the port and channel will have been set.

This method is similar to Method 1 and almost as easy to use. The only time you'll have to select channels is when you first assign a track. After that, you can overdub or re-record any track without changing channel assignments.

Method 3:

Here we use the Auto Channel Assign feature. Before recording a track, change the master keyboard's transmit channel to match that of the target instrument. Set Sp Gold as follows:

① From the MIDI Thru window [Shift][F9], set the Mode to CURRENT and turn Rechannel OFF.

② From the Options window [F3], turn Auto Channel Assign ON.

③ From the Main screen, assign an empty track to the desired output port.

After recording, Sp Gold reads the MIDI channel number from the data and enters it in the Chn column. The track will play back on the same channel you used when you recorded it.

This method requires you to change the transmit channel on your master keyboard every time you record on a different track. Although this isn't difficult, it can be a problem if your keyboard only transmits on Channel 1 (such as the original DX-7). If you use a synthesizer as a master keyboard and need to play back tracks with its internal voices, you may also have problems if you can't change the transmit and receive channels independently.

Beat-Learn

Beat-learn listens for an audio reference on tape and creates a Tempo Map from the detected sound. Once created by the beat-learn function, the Tempo Map is used to set the proper SMPTE offset. The tempo map with SMPTE offset value can then be used to sync Sequencer Plus to the tape without a sync track.

To use Beat-learn you must have

- ❑ A Voyetra V-24s MIDI interface with click detector and SMPTE hardware.
- ❑ A multi-track tape deck.
- ❑ A tape recorded with one track of quarter note clicks and other tracks with music played in sync with the metronome.

To set up for Beat-learn

① If one does not exist, record a SMPTE track that starts before the beginning and ends past the end of the song. (Any frame rate may be used.)

② Set an initial SMPTE offset that starts before the beginning of the song.

③ Use the Sync Window to set clock source to SMPTE counter to ABSOLUTE, so you can see what the current time is.

④ A song without tracks will not play, so put in a dummy track (eg. one note in a looped bar.)

⑤ Run the tape, and start the song with the [Spacebar]. When the tape reaches the start of the song, stop Sp with the [Spacebar].

⑥ Note the SMPTE time, this will be the rough offset. Subtract a second or two from the SMPTE time and enter it into Tape Offset in the Sync Window. The idea is to have the song start up a bit before the first beat of the song.

To record the Reference metronome track recorded on the tape into the Audio Trigger -24s.

② Set the Click Lockout Time in the Sync Window to something reasonable, such as 10.

③ Press B to activate Beat-learn. Then press the space bar and start the tape.

④ Once everything works, repeat step 3.

⑤ Once the Reference track is recorded, you can run tap-tempo to generate the tempos (see Tap Tempo in the transforms section). The track you just recorded from tape into the Audio Trigger In is the

Reference track. Since there is no Track yet, use a blank track as the source track.

> *metronome click that's detected (after the tape offset) will become the first beat of the song.*

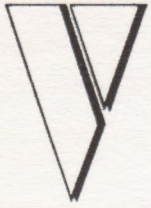
Using Tap-Tempo will generate all of the tempos in the Reference Track, and the tape-offset should have been set to the accurate offset.

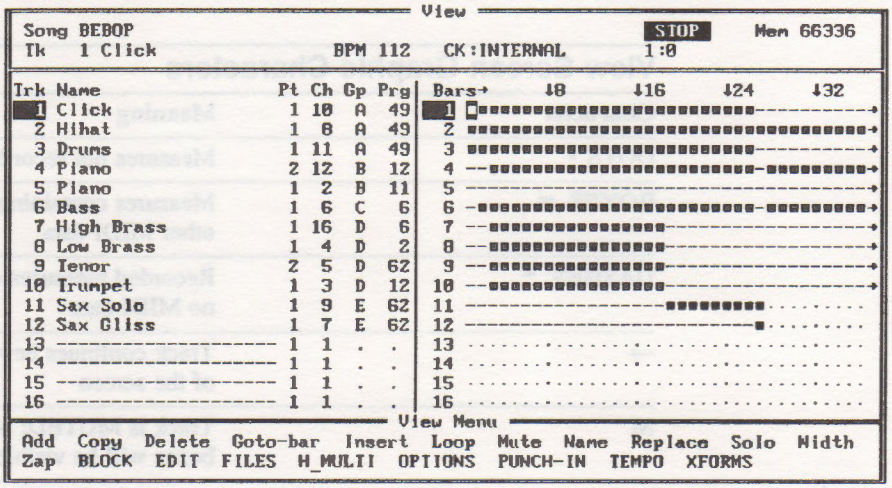
To make sure everything worked

① Use the Options Window to enter the Reference Track.

② Turn on the metronome, [F2].

③ Play back the tape while syncing to it. The clicks on the tape should be in sync with the metronome.





View Screen

➥ *V to enter from the Main Screen. [Esc] to return to the Main Screen.*

❖ ***If You Have a Mouse...***

You can access the View screen from the Main screen by double clicking the left button. Double click the right button from View to return to Main.

The View Screen is used to:

- ❑ View the tracks and measures in a song.
- ❑ Cut and paste by measures to create musical formats.
- ❑ Record from any point in the song.

The Width command (see menu area commands) removes the track information on the left, so the measure display fills the screen.

> *The View Screen status area is identical to the Main Screen.*

View Screen Work Area

Graphic characters represent tracks and measures. The grid of dots represents measures. Every eighth measure is highlighted and marked with a number (8, 16, 24, 32, etc.) along the top of the Work Area. The table below is a key to the View Screen's graphic display.

View Screen Graphic Characters

Character	Meaning
DOTS ·	Measures not recorded
BOXES ■	Measures containing notes or other MIDI data
DASHES -	Recorded measures containing no MIDI data
→	Track continues beyond the edge of the screen
M	Track is MUTED; no dashes or boxes will be visible
L	Track is LOOPED

Moving the Cursor

Key	Function/Purpose
[←] [↑] [→] [↓]	Move up/down/left/right
[Ctrl] [←] [→]	Move Left/Right by 8 measures
[Home]/[End]	Scroll one screen L / R
[Ctrl] [Home]/[End]	Go to the start/end of track
[PgUp]/[PgDn]	Scroll one screen up/down
[Ctrl] [PgUp]/[PgDn]	Move to first / last track
[Tab]/[Shift][Tab]	Move to next/ previous track in use

Special Keys

Key	Function/Purpose
[Ins]	Inserts an empty measure at the cursor position. Not the same as the INSERT command.
[Del]	Removes the measure at the cursor position to shorten track (not the same as DELETE command)
[Backspace]	Deletes one measure to the left

To view the notes in any measure

① Highlight the measure and press E to enter the Edit screen.

② Press [Esc] to return to the View Screen.

❖ ***If you have a mouse...***

Enter the Edit screen by moving the cursor to the desired measure in the View screen and double clicking the left button.

View Screen Menu Commands

View Menu

```
Add  Copy  Delete  Goto-bar  Insert  Loop  Mute  Name  Replace  Solo  Width
Zap  BLOCK  EDIT  FILES  H_MULTI  OPTIONS  PUNCH-IN  TEMPO  XFORMS
```

❖ ***If you have a mouse...***

You can access the menu area commands by pressing both buttons simultaneously to activate the Mouse Window.

Add Inserts any number of blank measures into a track at a user defined point.

The Add command is similar to the [Ins] key, except that it provides control over time signature and number of bars to insert.

Copy Copies a range of measures into a memory buffer, without changing the original measures.

Delete Deletes a range of measures, and places them into a memory buffer. Measures to the right of the deleted measures are shifted left to fill in the empty space.

Goto-bar ➥ *To go to any measure in a track: Press G, type the measure number, press [Enter].*

Entering the current measure will make the current bar the center of the view screen display.

Insert Inserts the selected memory buffer at the cursor position. Shifts all measures after the insertion point to the right to make room for the inserted measures.

Replace Replaces a range of measures with the contents of a memory buffer. Any section of a song that is replaced is permanently erased.

The contents of the memory buffers are saved with the song file. See the File screen for details.

Name, Loop, Mute and Solo Identical to Main screen commands.

- ❑ An L appears at the end of a Looped track.
- ❑ An M appears at the beginning of a Muted track, and the grid displays dots, but no measures. When a track is un-muted the measures return, unchanged.

Width Removes the information on the left side of the view screen so that the entire width of the screen shows measures in tracks.

Zap Copies a range of measures into a memory buffer, leaving behind empty measures.

BLOCK Activates Block Moves Menu. (See "Block Moves Menu" in this section.)

EDIT Accesses the Edit Screen for detailed editing. (See section on Edit Screen.)

FILES Accesses the Files Screen for file management. (See section on Files Screen.)

H_MULTI Accesses Multi-track record mode for recording more than one track at a time. (See H_Multi in the Main Screen section.)

- ❑ The one important difference in Multi Track recording from the View Screen that recording can begin from any point in a song. (See "Recording from the View Screen" in this section.)

OPTIONS Accesses Options window for setting Metronome, Time Signature, MIDI Options, etc. (See section on Options Window.)

PUNCH-IN Accesses Punch-In record window. (See section on Punch-In Window.)

TEMPO Accesses Tempo Track Window. (See Tempo Track section.)

XFORMS Accesses Transforms Window. (See Transforms section.)

To Copy measures into a memory buffer

① Press C for Copy

② Move the cursor to highlight the range of measures to be copied.

③ Press [Enter]. Type the memory buffer to use: 0 - 9 or Temp.

④ Press [Enter] again to execute.

❖ ***If you have a mouse...***

To select a track range, cursor to the beginning of the range, hold the left button and drag to the end of the range.

> *The procedures for Delete and Zap are identical to Copy.*

To Insert from a memory buffer

① Move the cursor to the location to paste into.

② Press I for Insert

③ Enter the memory buffer to insert from: 0 - 9 or Temp.

④ Enter the number of times to insert the buffer, then press [Enter]

To fill a track with empty bars

① Move the cursor to the last unused bar in the track that you want to be filled with empty bars.

② Press [Ins], the track will be filled with empty bars from the beginning of the track or the last existing bar to the cursor location.

Record and Playback from the View Screen

Unlike the Main screen (where recording and play back always begin at the start of a track), View allows record and playback from any point in a track. During play back, the cursor moves from measure to measure until it reaches the end.

To Play Back from any point in the song

① Move the cursor to the desired measure in the track.

② Press the [Spacebar] to start and stop playing.

> *If time signatures don't match, playback may not start from where you expect it to. Use Check Bar Sync [Shift][F7] to confirm that bars are in sync.*

To Record from any point in the song

① Move the cursor to the measure in the track where you want to begin recording.

② Press [Ctrl] R to enable Record mode.

③ Press the [Spacebar] to begin recording.

④ Press [Spacebar] again when finished recording.

Using a Lead-in when Recording

When recording from any point in a song, lead-in can be helpful. For every measure of lead-in (set in the Options Window) the cursor will play a one measure prior to the cursor location, i.e. where recording will actually begin. This feature gives you time to become oriented before actually starting to record.

View Screen Block Moves Menu

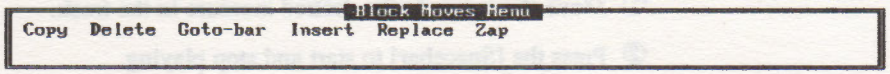
➥ *B to enter from the View screen. [Esc] to return to the View screen menu.*

Block Moves are used to add, erase, move, or delete a range of measures across any number of tracks. Using Block Moves, the Source Range can be copied, deleted, or zapped from any place in a song, and inserted or replaced into any other part of the song.

For example, if a song section must be moved or repeated, it can be defined as the Source Range and moved to a new location called the Target Range. Or it may be copied to the Target Range several times to create a repeating pattern.

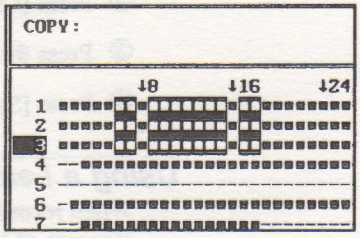
While the source range is being defined, the Status Area displays the measure and track number of the upper left and bottom right limits of the rectangular area.

Block Moves Menu Commands



Although the Block Moves commands have the same names as buffer commands, they do not work the same way. Measures are not placed in memory buffers, so before using a block move command and permanently modifying your data, you may want to save the song to disk.

Copy The source range can be inserted one or more times anywhere within the song. The old data is moved to the right so it won't be overwritten.



Delete Removes a block of measures from a range of tracks. Measures to the right of the deleted measures shift to the left.

Goto-bar To move the cursor to any measure, press G, type the measure number, then press Enter.

Insert Creates a block of empty measures in a range of tracks. The time signature of the inserted measures is determined by the setting of the Time Signature Source in the Options window. This is similar to the Ins key, except it lets you insert more than one blank measure at the preset time signature.

Replace Source range overwrites the target range.

Zap Erases a range of tracks and measures, leaving empty measures behind.

To move a block using the Block Copy command

① Press B to access the Block Moves menu.

② Move the cursor to the upper left corner of the source range.

③ Press C for Copy, then move the cursor to the bottom right corner of the source range. Press [Enter] to complete the Source Range definition.

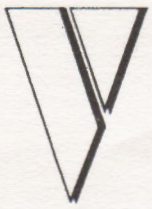
➥ *To reset the range to the current cursor position, press R.*

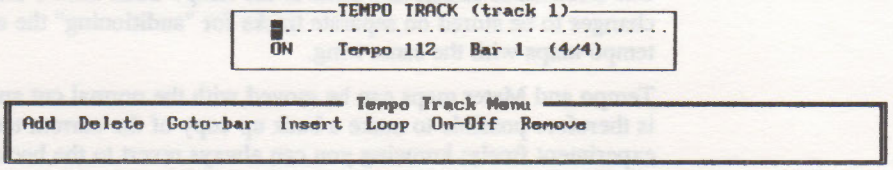
➥ *To keep the same range used in the previous block move (or transform), press K.*

④ Move the cursor the upper left corner of the target range. The destination can be across any number of bars or tracks. Press [Enter], then type the number of times the block is to be inserted.

A prompt in the Menu Area asks for verification before making this permanent change. The change about to be made is detailed in the Status Area.

⑤ If the data is correct press [Enter], or Y to execute the move. Otherwise, press N to abort the Copy process.





Tempo Track Window

➥ *From the View screen, press T to access. [Esc] to close.*

Tempo controls the rate at which a song plays. Tempos range from 16 to 255 BPM (Beats Per Minute) and can be made to vary throughout the song to speed up or slow down as needed.

Tempo Reference Track

The Tempo Track window is used to insert tempo and meter changes into any bar of the *Tempo Reference Track*, designated with a "T" in place of the Track number. The Tempo Reference Track is set in the Options Window (see below.) To insert finer changes in tempo, use the MIDI Edit screen.

The Tempo Track window can only be moved up or down with the cursor keys.

The same graphic symbols used in the View screen apply to the tempo track:

- (.) A DOT indicates a measure that has not been recorded.
- (—) A DASH indicates a recorded measure with no tempo change in it.
- (■) A BOX indicates a measure with a tempo change.

The Tempo Track only functions when the Clock Source in the Sync Window is set to INTERNAL, MTC or SMPTE. It has no effect when used with SPP or MIDI sync.

To designate a Tempo Reference Track

① Press [F3] to activate the Options Window.

② Press T to highlight the TEMPO TRACK field. Enter the track number to be designated as the tempo track.

On the Main and View screens, a "T" will replace the track number for the track designated as the Tempo Reference Track.

Although tempo changes may be inserted into any track, only the track designated as the Tempo Track determines the changes in song tempo. Tempo changes embedded in other tracks will have no effect. The notes in the Tempo Track will not play.

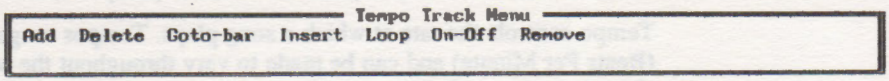
Tempos and Tracks

Any track can contain tempo data, however only one track at a time may be designated as the tempo track. In most other sequencers, a single "conductor track" specifies the time signature and tempo changes.

The freedom to assign any track as the tempo track allows different sets of tempo changes to be stored on separate tracks for "auditioning" the effect of various tempo maps with the same song.

Tempo and Meter maps can be moved with the normal cut and paste commands. It is therefore possible to make a back up copy of the current tempo track, and experiment freely; knowing you can always revert to the back up copy if your experiments go awry.

Tempo Track Window Menu Commands



Add Inserts blank measures of any time signature into the tempo track.

➥ *Highlight the measure(s), press A and follow the prompts in the menu area.*

Delete Erases a tempo change without shortening the tempo track. If the cursor is not on a tempo change, this command will do nothing.

The Delete command is not the same as the [Delete] key:

- ❑ The Del key removes measures, shortening the track and shifting any later tempo changes to the left.
- ❑ The BACKSPACE key deletes anything to the immediate left of the cursor, shortening the track by one measure.

Goto-bar Moves the cursor to the selected bar in the tempo window.

Insert Inserts or replaces a tempo change without lengthening the track.

The Insert command is not the same as the [Ins] key:

- ❑ The [Ins] key inserts an empty measure into a track at the cursor location, lengthening the track and moving any later tempo changes to the right.

Loop Loops the tempo track so it will repeat itself until stopped. Same as the Main screen Loop command.

On/Off Toggles the tempo track ON and OFF. When OFF, the tempo change commands have no effect on playback.

Remove Deletes all tempo changes from the tempo track.

To Save a Tempo Track

Since the track designated as the Tempo Track may be treated as any other track, it can be saved as a single track in the Files screen. This allows the tempo changes embedded in the track to be used in another song.

See the Track Save command in the Files screen for details.

> *If you're working with a MIDI file, you can save only the tempo track (a prompt during the saving process will ask you if you want to save only the tempo track).*

Entering Tempo Settings

From the Main screen

① From the Main screen, press T for Tempo and enter the desired tempo value from 16 to 255 bpm. This tempo setting is visible in the Status areas of the sequencer screens.

② The tempo change will be global, i.e. the effect of the tempo change will uniformly affect the song.

From View Screen (Tempo Track Window)

The Tempo Track Window allows tempo changes to be inserted on bar boundaries into the tempo track. In certain cases, this may be easier to work with than inserting tempo changes in the MIDI Edit screen.

① Press V to enter the View screen from the Main screen. Press T to activate the Tempo Track Window.

② Press I to insert a particular tempo value at the measure highlighted by the cursor. This tempo will continue until a new tempo change is encounterd.

From the MIDI Edit screen

① From the Edit screen, press M to access the MIDI Edit screen.

② Press C for Class, and use the + - keys to select Tempo.

③ Press M, for MIDI Line, and use the cursor keys to select Tempo events, if any, to edit.

Tempo events inserted on the MIDI Line have the value of the current tempo value set in the Main screen.

④ For details on editing techniques in the MIDI Edit screen, see the MIDI Edit section in this manual.

In earlier versions of Sequencer Plus, tempo changes could only be made on bar lines from the Tempo Window.

With Tempo Transforms

Tempo transforms work on all tempo data embedded in tracks. See Tempo Transforms, in the Transforms section in this manual for detailed information.

With the Tap-Tempo transform

The Tap Tempo Transform allows a tempo map to be generated in free time rather than by inserting tempo change events. See Tap-Tempo in the Transforms section for details.

With Beat-Learn

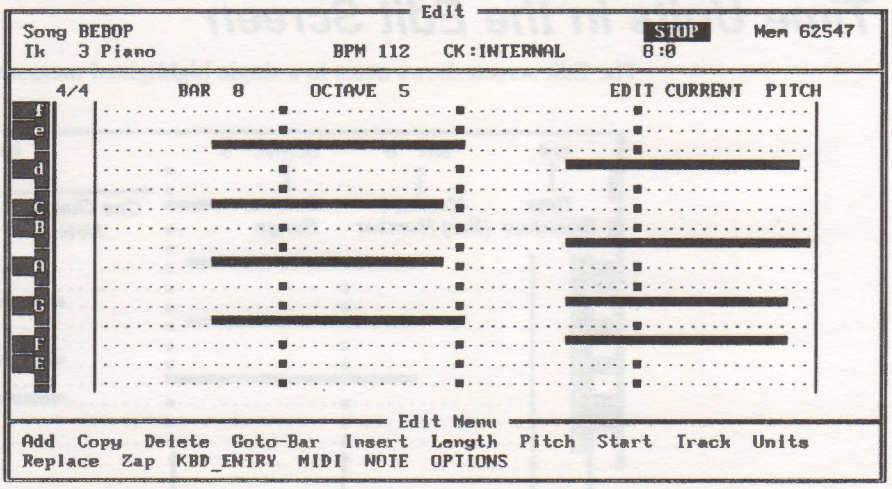
Beat-Learn creates a tempo map by listening to an audible click from audio tape (requires a V-24s interface.) See Beat-Learn in the Main screen section.

Loading Song Files from Sp Ver 3.03 and Earlier

When a song file made with Sp version 3.3 (or earlier), or a standard MIDI file, is loaded into Sp Gold, a combination time signature/ tempo track is loaded on the highest-numbered empty track (usually 64).

For instance, if Sp Gold is set to 64 tracks, the tempo track from a song recorded with an earlier version of Sp will be placed in the 64th track if it is empty, even if only tracks 1 through 4 are being used.

The open and jump commands (see group arrange) may be used to move this to track 1. If this is done, the tempo and Tsig track variables in the Options window should be reset (see Options Window/Time Signatures).



Edit Screen

➥ *E to enter from the Main or View Screen. [Esc] to return to previous screen.*

❖ ***If you have a mouse...***

To access the Edit Screen from the View Screen, double click the left mouse button. To return to the View Screen double click the right mouse button.

The Edit Screen shows the notes in the highlighted measure of the View screen.

- ❑ To edit notes in more detail, use the Note Edit screen.
- ❑ To edit MIDI data, use the MIDI Edit Screen.
- ❑ The status area can be removed to display more notes by using the Configuration window's Edit Size command.

> *The Status area is identical to the Main Screen, with the exception of Mem (Memory), which shows the amount of memory still available in the current track. Mem in other screens displays memory remaining for the entire song.*

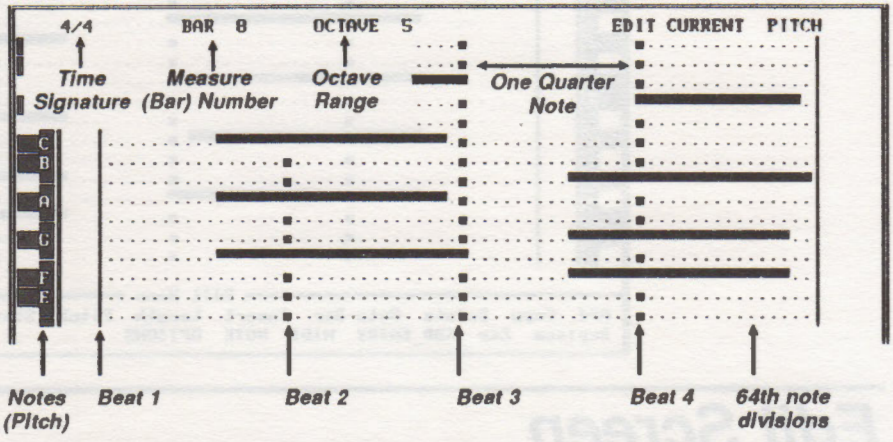
Edit Screen Work Area

Vertical Axis, (Up/Down) Represents pitch. Note values are displayed on the left edge of the display in a format determined by the Accidentals command in the Note Edit screen. The notes displayed for the middle C octave are displayed in capital letters. The note C is always capiatalized because it indicates the start of an octave.

Horizontal Axis, (Left/Right) Represents time. The far left is closer to the begining of a measure; the far right is closer to the end of the measure.

Time Units in the Edit Screen

The Edit screen shows notes in a single highlighted measure of the View Screen.



The Time Signature (also called "meter") assigned to the measure (also called "bar") determines how it is divided by the columns of boxes (■).

- For example, in the above screen, 4/4 time is represented by the three columns corresponding to the 2nd, 3rd and 4th beats in a measure. (If the Time Signature were 8/8, there would be 8 columns instead of 4, etc..)

The dots . in between the beat columns correspond to the finest resolution of on screen graphics possible.

Incremental cursor movement in the horizontal, or "time" direction, is determined by the Units command, which sets the cursor resolution from quarter notes to single clicks.

- For example, if the time unit is set to eighth notes, the left/ right arrow keys will move the cursor by eighth notes.

The dot resoluton is further divided into clicks, which can be either 1/96th of a quarter note or 1/192 of a quarter note, depending upon the Pulses Per Quarter Note (PPQ) setting in the Options Window. Because this fine resolution cannot be represented by the screen characters, editing note position on the click level will not be visible until the number of clicks corresponds to one character width. To make editing clicks easier use the Note Edit screen.

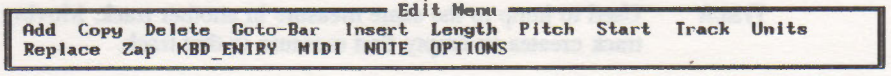
- For example, with a PPQ resolution of 192, one 64th note equals 12 Clicks. Thus, increasing the note length by clicks (using the < or > keys) will not show a screen note movement until the < or > key is pressed 12 times.

Moving the Cursor in the Edit Screens

The following keys are used to move the cursor in the Edit, Note Edit, Step Record and MIDI Edit screens:

Key	Function/Purpose
[↑] [↓]	Move by single semitones.
[←] [→]	Move by single current time units setting.
[Ctrl] [←] [→]	Move left/ right by four time units.
[Home]/[End]	Go to the next/ previous measure.
[Ctrl][Home]/[End]	Go to the start/end of track.
[PgUp]/[PgDn]	Scroll one octave up/down.,
[Ctrl][PgUp]/[PgDn]	Search above/below the displayed pitches for next note.
[Tab]/[Shift][Tab]	Move to next/previous note.

Edit Screen Menu Commands



❖ ***If you have a mouse...***

Access the menu area commands by pressing both buttons simultaneously to activate the Mouse Window.

Add Inserts any number of blank measures before or after the current measure. (Also see "Using the Edit Screen Buffer Commands" in this section.)

Copy Copies a range of measures into a memory buffer, without changing the original measures. (Also see "Using the Edit Screen Buffer Commands" in this section.)

Delete Deletes a range of measures, and places them into a memory buffer. Measures to the right of the deleted measures are shifted left to fill in the empty space. (Also see "Using the Edit Screen Buffer Commands" in this section.)

Goto-bar Moves the cursor to any measure in the current track. Cannot move beyond last measure of the track, even if the song is longer than the current track.

➥ *Press G, enter the measure number, press [Enter].*

Insert Inserts the contents of the selected memory buffer at the cursor position. Shifts original measures to the right. (Also see "Using the Edit Screen Buffer Commands" in this section.)

Length ➥ *Highlight note, press L, use +/- to increase/decrease note length by the time unit set with the Units command.*
Use] [to change by four time units. Use < > to change by single clicks.

Pitch ➥ *Highlight note, press P, +/- to move note up/ down by one semitone.*
Use] [to move by octaves.

Start ➥ *Highlight note, press S, use +/- to move note position (start time) right/left by the time unit set with the Units command.*
Use] [to change by four time units. Use < > to change by single clicks.

Summary of Note Editing Keys

Key	Effect on Pitch	Effect on Length / Start TIme
+ -	Change by semitones	Change by single time-units.
[ ]	Change by octaves	Change by four time-units.
< >	Change by semitones	Change by 1/192 or 1/96 of a quarter note, depending upon the ppq setting in the Sync Window.

Changes are made permanent the next time the [Ins] key or a cursor key is used, or when the measure is played. To cancel the changes, press [Esc] while the note is still flashing.

Track Used to jump to the same measure in another track. Moving into an unrecorded track creates an empty first measure in that track.

To use the Track command

① Press T.

② Enter the track number of the destination.

③ Press [Enter].

➥ *Press + - to move to the next or previous track.*

The Track command always tries to move to the same measure number from track to track. If the tracks are in different time signatures, the cursor will be shifted forward or backwards to compensate for the differences in time signature, instead of staying at the same point within a song.

Units Selects the time-unit for cursor movement and note editing. The following table displays Units available

Time Units

Unit	Normal	Triplets
Quarter Notes	4	4T
Eighth Notes	8	8T
Sixteenth Notes	16	16T
Thirty Second Notes	32	32T
Sixty Fourth Notes	64	64T
Single Clicks	HIGH	Not applicable

Replace Replaces a range of measures with the contents of the selected buffer. Erases original contents of replaced measures. (Also see "Using the Edit Screen Buffer Commands" in this section.)

Zap Copies the selected range of measures into a memory buffer, leaving behind empty measures. (Also see "Using the Edit Screen Buffer Commands" in this section.)

KBD_ENTRY Accesses Step Record Screen. (See Step Record section.)

MIDI Accesses MIDI Edit Screen. (See MIDI Edit Screen section.)

NOTE Accesses Note Edit Screen. (See Note Edit Screen section.)

OPTIONS Accesses Options Window. (See Options Window section.)

Using the Edit Screen Buffer Commands

The "Add, Copy, Delete, Zap, Insert, Replace" buffer commands function as they do in the View screen, with two exceptions:

- ❑ Whenever a buffer command is used in the Edit screen, the Buffer Contents Line appears at the bottom of the work area, showing what buffers are in use and how many measures they contain.
- ❑ The Insert command can insert the buffer contents either before or after the current measure.

> *The Insert command and the [Ins] key are easily confused. They do not do the same thing.*
> *While the Insert command inserts the contents of the selected buffer at the cursor position, the [Ins] key is used to place a note at the cursor postion. The insert note parameters are determined by the Insert Note Buffer (see below).*

Manipulating Notes in the Edit Screen

❖ ***If you have a mouse...***

To MOVE a note: *Highlight the note, drag the left button.*

To LENGTHEN a note: *Highlight the note, drag the right button left or right.*

To INSERT a note: *Double click the left button at any point. There can not be a note in the current position.*

To DELETE a note: *Highlight the note, and double click the left button.*

Insert Note Buffer

The duration and velocity of notes inserted into the Edit Screen are set from the Note Edit screen. It is possible to set these parameters from the Edit screen by copying the parameters from an existing note.

To copy "Insert Note" parameters from an existing note

① Highlight the note to copy.

② Press the Asterisk Key * on the numeric key pad to copy the note parameters into the Insert note buffer.

A note with the same Duration, Velocity and Off-Velocity will be inserted at the cursor position each time the [Ins] key is pressed.

To insert Notes in the Edit Screen

① Press the [Ins] key to insert a note at the current cursor position.

The note's pitch and start time are determined by the cursor's position. The other note parameters are determined by the contents of the Insert Note buffer.

Inserting notes using [Ctrl] key combinations

Notes may also be inserted at the cursor position by using the [Ctrl] key combinations listed in the table, below:

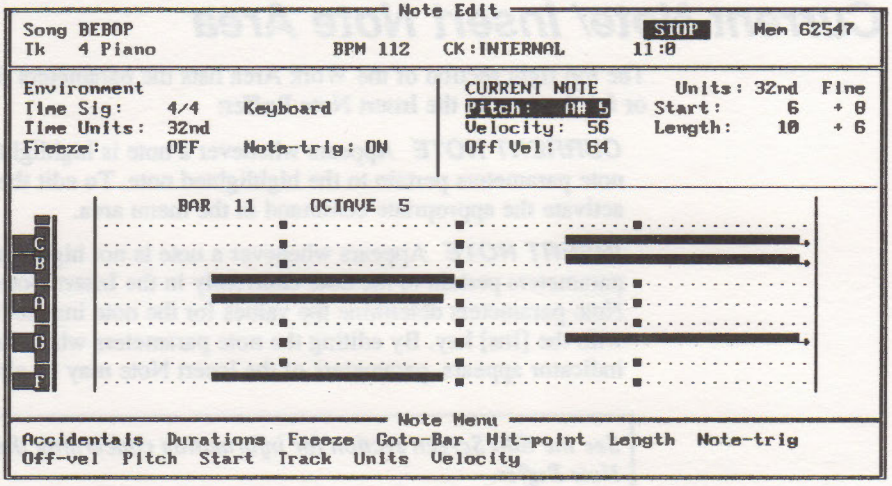
Preset notes inserted at the cursor position

Key Combination	Note Duration
[Ctrl] W	Whole
[Ctrl] D	Dotted Half
[Ctrl] H	Half
[Ctrl] Q	Quarter
[Ctrl] E	Eighth
[Ctrl] S	Sixteenth
[Ctrl] T	Thirty Second

The durations of these notes may be changed with the Durations Command in the Note Edit screen.

To Delete Notes

➥ *Highlight the note and press the [Del] key.*



Note Edit Screen

➥ *N to enter from the Edit Screen. [Esc] to return to the Edit Screen.*

The Note Edit Screen is used to access individual note parameters not visible in the Edit Screen.

> *The Status area is identical to the Edit Screen.*

Environment Area

The upper left corner of the Work area shows pertinent information for working in the Note Edit environment.

Time Sig Displays Time Signature of the current bar. Note how the measure is divided into the numerator of the time signature setting by blocks highlighting the dots in each pitch line. For example, in the above screen, 4/4 time indicated in the environment area corresponds to three columns of blocks representing the 2nd, 3rd and 4th beats in a measure.

Time Units Time unit setting for cursor movement in the Edit Screens. Set with the Units command.

Freeze Keeps current pitch range visible at all times. Toggle with the Freeze menu command.

Note Trig When ON, each note plays as it's highlighted. Toggle with Note Trig menu command.

Current Note/ Insert Note Area

The top right section of the Work Area lists the parameters for the highlighted note or for the note in the Insert Note Buffer:

CURRENT NOTE Appears whenever a note is highlighted, indicating that the note parameters pertain to the highlighted note. To edit the parameter values, activate the appropriate command in the menu area.

INSERT NOTE Appears whenever a note is not highlighted, indicating that the parameters pertain to the note cuurrently in the Insert Note Buffer. The Insert Note parameters determine the values for the note inserted at the cursor position with the [Ins] key. By editing the note parameters when the INSERT NOTE indicator appears, parameters of the Insert Note may be altered.

> *See the Edit Screen section for information concerning the Insert Note Buffer.*

Pitch Displays Current or Insert note's Pitch as Note/Octave number, or by MIDI note number when Accidentals display is set to Numbers.

Velocity Displays Current or Insert note's Velocity. Range is from 1 to 127.

Off Velocity Displays Current or Insert note's Off velocity. Range is from 0 to 127.

Units Displays Current or Insert note's incremental Time Units as determined by the Units menu command.

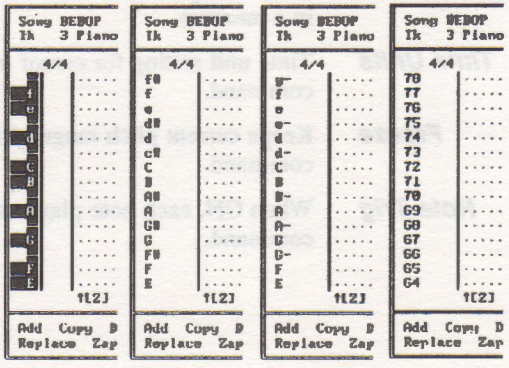
Start Displays Current or Insert note's Start Time in units:clicks.

Length Displays Current or Insert note's Length in current units:clicks.

Note Edit Menu Commands

Accidntals (Accidentals) Toggles the note display on the left hand side of the Edit, Note Edit, MIDI Edit and Step Record screens, as well as Current/Insert note pitch display.

➥ *Press A to toggle through the four options: piano keyboard, sharps, flats or MIDI note number in decimal.*



Durations Used for editing the durations of notes inserted with the [Ctrl] keys:

Preset Notes for Insertion

Key Combination	Note Duration
[Ctrl] W	Whole
[Ctrl] D	Dotted Half
[Ctrl] H	Half
[Ctrl] Q	Quarter
[Ctrl] E	Eighth
[Ctrl] S	Sixteenth
[Ctrl] T	Thirty Second

To edit the duration of the [Ctrl] key notes

① Press D for duration.

② Enter the [Ctrl] key combination to edit.

③ Type the note duration as [quarter notes: clicks], then press enter.

> *The values entered for duration are saved as part of the CONFIG.SEQ file. [F4], S, Y.*

Freeze ➥ *Toggle on/off with F key.*

ON Displays the current pitch range when moving from measure to measure.

OFF Pitch range changes depending on the range of notes in the current measure.

Goto-Bar Moves the cursor to any measure in the current track. Cannot move beyond last measure of the track, even if the song is longer than the current track.

➥ *Press G, enter the measure number, press [Enter].*

Hit-Point Similar to Goto-Bar except it sends the cursor to an exact SMPTE time specified as [Hours : Minutes : Seconds : Frames : Sub-Frames].

➥ *Press H, enter the SMPTE Time in [Hours : Minutes : Seconds : Frames : Sub-Frames], and press [Enter].*

> *Before using Hit-Point, the SMPTE counter in the Sync Window must be turned on. Press [F6] from the Main or View screen to access the Sync Window.*

Length Allows editing of the highlighted note's length. See Edit screen.

Note-trig ➥ *Toggle on/off with the N key.*

ON Each note plays as the cursor highlights it.

OFF Note does not play as the cursor highlights it.

➥ *Use the [Tab] key to scan notes in the forward direction.*

➥ *Use the [Shift][Tab] key to scan in the reverse direction.*

Off-Velocity Controls Off-Velocity (Range 0 - 127) ie., the effect caused when a note is decaying, usually based on how fast a key on the MIDI keyboard is released.

> *Many MIDI keyboards (and the Sound Blaster) do not support Off-Velocity. Check the particular instrument's documentation to find out if it does.*

Pitch Allows editing a highlighted note's pitch. See Edit Screen.

Start Sets the Start-time of the highlighted note in the format [units:clicks].

For instance, if the Units is set to sixteenth notes, a start time of 6:+8 means the note starts at the sixth sixteenth note, plus eight clicks.

A start time of 10:-11 means the note begins at the tenth sixteenth note, minus eleven clicks.

To edit by clicks, press the > < keys.

If you change the current time unit, the Insert Note's start time is updated to reflect the change.

Track Used to jump to the same measure in another track.

To jump between tracks

① Press T for Track.

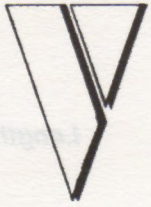
② Enter the new track number, then press [Enter].

Moving into an unrecorded track creates an empty first measure in that track.

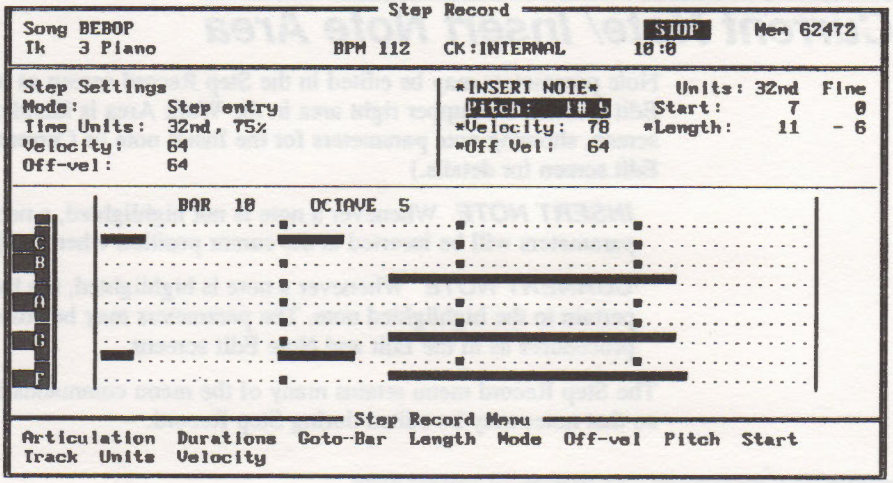
The Track command always tries to move to the same measure number from track to track. If the tracks are in different time signatures, the cursor will be shifted forward or backwards to compensate for the time lost or gained because of the difference in time signatures.

Units Selects the time-unit for cursor movement and note editing. See the Edit Screen section for a listing of the units available.

Velocity Used to edit the Velocity note parameter which is typically used to control a note's loudness. Range is 1 - 127.



➥ *Highlight the note and press V to select the Velocity parameter. Select new value.*



Step Record Screen

➥ *K to enter from the Edit Screen. [Esc] to return to the Edit screen.*

Step Record allows notes and chords to be entered and edited from a MIDI keyboard, in steps, rather than in real time. This allows notes recorded at any rhythm to play back at a fixed rhythm.

> *The Status area is identical to the Edit Screen.*

Step Settings Area

The rhythm, articulation and velocity settings of the step-entered notes are shown in the "Step Settings" area at the top left of the Work area. Before entering notes and chords from the MIDI keyboard, the Units, Articulation, Velocity and Off-Velocity, must be specified.

Mode Indicates which of the three step edit modes (Step Entry, Edit Existing or Preserve Rhythm) is active. Set by the Mode command.

Time Units Indicates the duration of step entered notes. Set by the Units and Articulation command.

Velocity Indicates the On-velocity of step entered notes. Set by the Velocity command.

Off-Vel Indicates the Off-velocity of step entered notes. Set by the Off-Velocity command.

Current Note/ Insert Note Area

Note parameters may be edited in the Step Record screen as in the Edit and Note Edit screens. The upper right area in the Work Area is identical to the Note Edit screen, showing note parameters for the Insert note or Current note. (See the Note Edit screen for details.)

INSERT NOTE Whenever a note is not highlighted, a note with the listed parameters will be inserted at the cursor position when the [Ins] key is pressed.

CURRENT NOTE Whenever a note is highlighted, the listed parameters pertain to the highlighted note. The parameters may be edited using the same procedures as in the Edit and Note Edit screens.

The Step Record menu retains many of the menu commands from the Edit window so that notes may be edited during Step Record.

Step Record Menu Area

Articulation Sets the duration of the step-inserted notes as a percentage (1% to 100%) of the step unit. The step unit duration is set with units command.

➥ *Press A, enter the percentage from 1 to 100, press Enter.*

For example, 50% Articulation, with Units set to 8th would result in sixteenth notes (ie. half of an eighth note) being inserted at every eighth note position during Step Entry.

> *If articulation is set too high, overlapping of notes will occur.*

Durations Used for editing the durations of notes inserted with the [Ctrl] keys:

Preset Notes for Insertion

Key Combination	Note Duration
[Ctrl] W	Whole
[Ctrl] D	Dotted Half
[Ctrl] H	Half
[Ctrl] E	Eighth
[Ctrl] S	Sixteenth
[Ctrl] T	Thirty Second

To edit the duration of the [Ctrl] key notes

① Press D for duration.

② Enter the [Ctrl] key combination to edit.

③ Type the note duration as [quarter notes: clicks], then press enter.

> *The values entered for duration can be saved as part of the CONFIG.SEQ file, [F4], S, Y.*

Goto-bar Moves the cursor to any measure in the current track. Cannot move beyond last measure of the track, even if the song is longer than the current track.

Length ➥ *Press L to edit the highlighted note's Length, as in the Edit and Note Edit screens.*

Mode Toggles between Step Entry, Edit Existing and Preserve Rhythm modes. (See detailed explanation below.)

Off-vel Sets the off-velocity value of the step-entered notes. The value can be either the MIDI keyboard off-velocity, or a user specified constant.

To set the note-off velocity

① Press O to activate Off-Velocity.

② To use keyboard off velocity, answer Y, then [Enter].

③ To use a constant off-velocity value, press N, then enter the value for the off-velocity (0 - 127). Press [Enter] to confirm.

Pitch ➥ *Press P to edit the highlighted note's Pitch, as in the Edit and Note Edit screens.*

Start ➥ *Press S to edit the highlighted note's Start time, as in the Edit and Note Edit screens.*

Track Jumps to the same measure in another track, as in the Edit and Note Edit screens.

➥ *Press T for Track. Enter the new track number, then press [Enter]. Or, press + - to move to the next or previous track.*

Moving into an unrecorded track creates an empty first measure in that track.

The Track command always tries to move to the same measure number from track to track. If the tracks are in different time signatures, the cursor will be shifted forward or backwards to compensate for the time lost or gained because of the difference in time signatures.

Units Determines how far the cursor will advance as notes are entered. This determines the rhythm of Step Recording.

➥ *Press U, select a new unit value, press Enter.*

For example, to enter a note on every sixteenth note, set Units to sixteenth.

Velocity Determines the note-on velocity of notes entered in Step Record mode. The velocity value can be either the MIDI keyboard velocity, or a user-specified constant.

To set the note-on velocity

① Press V to activate Velocity.

② To use keyboard velocity, answer Y, then [Enter].

③ To use a constant velocity value, press N, then enter the value for the note-on velocity (1 - 127). Press [Enter] to confirm.

Step Recording with velocities based on the keyboard velocities allows for fine control of velocities based on the player's finesse. Step Recording with a Constant velocity produces absolutely equal velocities.

Step Entry Modes

Step Record has three modes of operation:

Step Entry Used to record notes in step mode.

Edit Existing Once step record has been completed, this function is used to change the pitch or velocity of individual notes. This can also be used on music recorded in real time.

Preserve Rhythm Once step record has been completed, this mode is used to add a string of notes aligned with the recorded rhythm. This can also be used on music recorded in real time.

Step Entry

In contrast to normal recording where notes are entered exactly as they are played, Step Entry recording allows notes of fixed value to be entered with a fixed rhythm, regardless of playing technique. This facilitates recording sections of a song that must adhere to a specific "rhythmic feel." The pitch of the notes entered is always determined by the keys pressed on the MIDI-keyboard, while the rhythm is determined by the Units command.

In Step Entry mode, the first note pressed on the MIDI keyboard is entered at the cursor position with the duration and velocity settings defined by the Articulation, Velocity and Off-Velocity commands. If additional notes are pressed before the first note is released, the additional notes are entered at the same time position in the measure as the first note.

Once all of the notes are released, the cursor is advanced by one rhythmic unit (as defined by the Units menu command) ready to insert the next note.

To insert a rest

① Use the damper pedal, or the right cursor key on the PC keyboard.

To insert chords

① Hold the first key of the chord down while pressing the remaining notes of the chord. As long as a key remains down, pressing new keys inserts those notes at the current cursor position, creating the chord.

② As soon as all keys are released, the cursor advances by the amount specified as the Rhythmic unit.

To delete notes in a chord

① While still holding down a note in the chord, re-strike the note to be deleted.

Edit Existing

Once the notes are all recorded, Edit Existing mode is makes it easy to change the pitch or velocity of individual notes using the MIDI keyboard.

To edit existing notes

① Use the [Tab] key or mouse to highlight the note to be changed.

② Press a note on the MIDI keyboard to change the highlighted note's pitch and velocity.

③ The cursor will remain on the note, so you can try again.

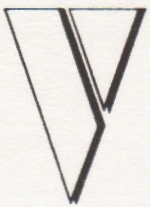
④ Use the damper pedal or the [Tab] key to move to the next note.

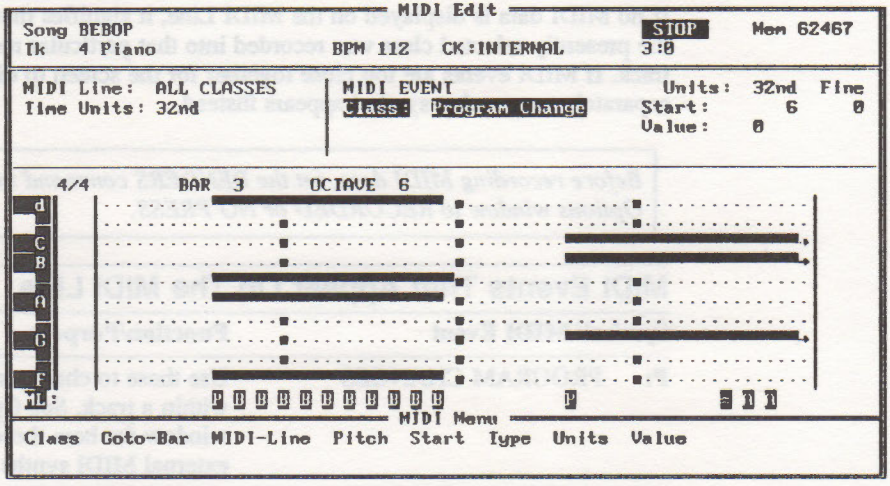
Preserve Rhythm

This mode is similar to Edit Existing, except the cursor automatically advances to the next note after the key is released. This makes it easy to add a new string of step-entered notes that follow the step-enter rhythm.

The track to be edited should contain melody only, without overlapping pitches. Overlapping pitches in Step Record can result in unpredictable cursor behavior.

Do not set articulation too high or overlapping will occur.





MIDI Edit Screen

➥ *M to enter from Edit Screen. [Esc] to return to the Edit Screen.*

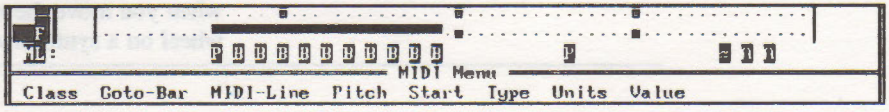
The MIDI Edit Screen is used to edit non-note MIDI events embedded in a track. Usually, this data affects notes, but does not include the note-specific parameters such as pitch and duration. See the table on the next page for a description of MIDI events.

The MIDI edit screen has two screen areas that make it unique:

- ❑ MIDI Line
- ❑ MIDI Event Box.

MIDI Line

The MIDI Line runs along the bottom of the work area. Information about the data on the MIDI line is displayed in the upper left of the work area. Since MIDI data does not have pitch, vertical position would be meaningless. Thus, it can be displayed on one horizontal line.



➥ *To see all classes of MIDI data press M. A.*

The notes displayed in the MIDI Edit screen are used only as a visual reference for lining up MIDI events with the music. They cannot be accessed or edited in the MIDI Edit screen.

If no MIDI data is displayed on the MIDI Line, it signifies that no MIDI data of the presently selected class was recorded into that particular measure of the active track. If MIDI events are too close together for the screen to display them separately, an overlap symbol appears instead.

> *Before recording MIDI data, set the BENDERS command in the the Options window to RECORDED or NO PRESS.*

MIDI Events That Appear On The MIDI Line

Symbol/ MIDI Event	Function/Purpose
P: PROGRAM CHANGES	Use these to change sounds from within a track. See Options window for how these are sent to external MIDI synths.
A: AFTERTOUCH	Also referred to as channel pressure data. This is the MIDI data for monophonic keyboard pressure.
B: BENDER	MIDI data for pitch bending of notes.
T: TEMPO	Data for tempo information. This is not standard MIDI data. It is used by Sequencer Plus for changing the song tempo.
K: KEY AFTERTOUCH	This is similar to the AFTERTOUCH data, but it's polyphonic, meaning that there can be a pressure sensitive controller for each note rather than for the entire channel (monophonic).
C: CONTROLLER	Controllers come in various types, designated by a Controller Number. For instance, Mod Wheel is the controller data sent when you move the modulation wheel on a synthesizer.

MIDI Event Area

The MIDI Event box is on the upper right side of the work area. The information displayed depends upon the type of MIDI data being edited, as determined by the Class command.

The MIDI Event area displays the following information:

Class Selects the MIDI event class as listed in the above table.

Type When Class is set to Controllers, Type is used to select the type of controller for editing as follows:

MIDI Controller Types

#	NAME	POSSIBLE VALUES
1	MOD WHEEL	0 - 127
2	BREATH	0 - 127
4	FOOT PEDAL	0 - 127
5	PORTAMENTO TIME	0 - 127
6	DATA SLIDER	0 - 127
7	MAIN VOLUME	0 - 127
8	CONTINUOUS RELEASE	0 - 127
9	PARAMETER NUMBER	0 - 127
10	PAN POSITION	0 - 127
64	DAMPER SWITCH	0 = off /127=on
65	PORTAMENTO SWITCH	0=off /127=on
66	SOSTENUTO SWITCH	0=off /127=on
67	SOFT SWITCH	0=off /127=on
68	2ND RELEASE SWITCH	0=off /127=on
96	DATA PLUS	0=off /127=on
97	DATA MINUS	0=off /127=on
122	LOCAL CONTROL	0=off /127=on
123	ALL NOTES OFF	normally 0
124	OMNI MODE OFF	normally 0
125	OMNI MODE ON	normally 0
126	MONO MODE ON	0/all voices to mono
127	POLY MODE ON	normally 0

- ❑ There are 128 different types of controller codes in MIDI. Most instruments only use a few of them, and some ignore controller data entirely.
- ❑ Some MIDI controllers are designated as switches by the MIDI spec (controllers 64-95 and 122). These controllers should be set to either 0 (OFF) or 127 (ON), and nothing in between.

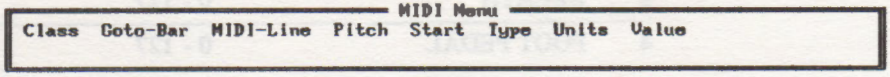
Pitch Displays pitch value of Key Aftertouch MIDI events.

Units Displays the time-unit for cursor movement as determined by the Units command.

Start Displays start time of the current MIDI event in Current Units:Clicks

Value Displays the value of the current MIDI event. Different MIDI events have different ranges of values.

MIDI Edit Screen Menu Commands



❖ ***If you have a mouse...***

You can access the menu area commands by pressing both buttons simultaneously to activate the Mouse Window.

Class Changes the type of MIDI event to be edited, as shown in the MIDI Event box. Controllers is a special class that is further affected by the Type command (below.)

Goto-Bar See Edit Screen.

MIDI Line Displays either one or all classes of MIDI events at the bottom of the work area where ML: is displayed. Changing the Class or Controller Type automatically changes what's displayed in the MIDI Line.

➥ *To see all classes press M, A.*

Pitch If any key-aftertouch data is displayed (polyphonic pressure), its pitch name is displayed in the MIDI Event box.

- ❑ The pitch of a key-aftertouch event is not the same thing as the Pitch command in the Edit and Note Edit Menus. Very few synths currently support key aftertouch (poly-pressure). For those that do, the pitch of the key-aftertouch event must match the pitch of a concurrently sounding note, or there is no audible effect.

Start Changes the start time of a selected event.

- ❑ The cursor position within the measure (on the MIDI Line) is displayed in the MIDI Event box.
- ❑ When editing the start time of a MIDI event, you cannot place it on top of an already existing event of the same type and class.

Type When Class is set to Controllers, Type is used to select the type of controller to edit. Controllers are each assigned a number and are scrolled by using the + - [ ] keys.

MIDI Controllers designated as switches by the MIDI spec (controllers 64-95 and 122) should be set to either 0 (OFF) or 127 (ON).

Units Selects the time-units for cursor movement. See Edit Screen.

Value Changes the Value of the currently selected MIDI event.

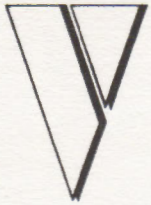
If the cursor is not on a MIDI event, this setting is blank. The acceptable values depend on the class of MIDI event and, in the case of Controllers, on the type.

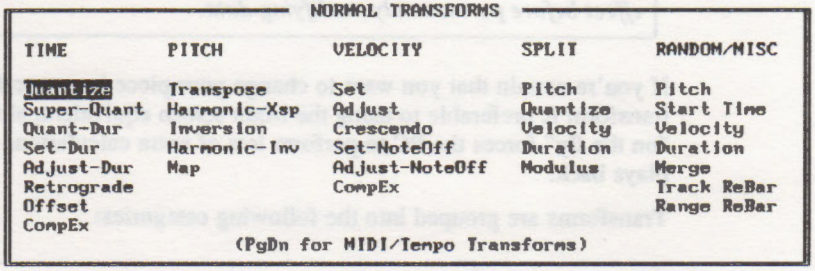
Most MIDI events have a range from 0 to 127, but Bender data could be within the range from -8,192 to 8,191 (with 0 being no PITCH BEND). This 16,000-plus range and resolution is 128 times 128. Use the - key to enter negative values, [ ] to lower and raise it by 128. On most synths a change of 128 is the minimum required to hear a change.

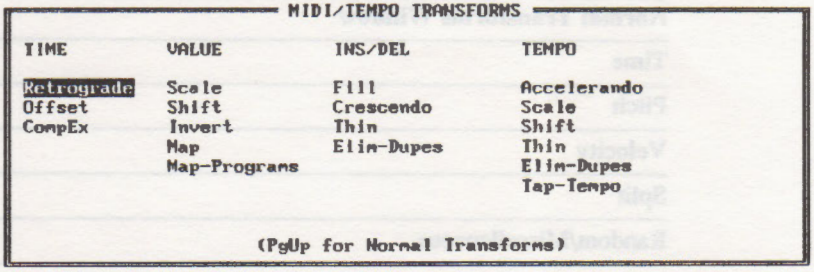
❖ ***If you have a mouse...***

You can select an item in the environment window by dragging the cursor. To change a value, highlight it and drag while holding the left button. Pressing the right button will change in larger increments.

To insert and delete MIDI events, drag the cursor to the desired point and double click. The event will be inserted if one isn't already there. If one exists, it will be deleted.







Transforms

➥ *Press X from the View Screen to access the Normal Transforms Window. Press [Esc] to close.*

➥ *Press [PgDn] from the Normal Transforms window to access the MIDI/Tempo Transforms window.*

➥ *Press [PgUp] to return to the Normal Transforms window, [Esc] to close either transform window, and return to the View screen.*

Transforms are special editing commands that affect MIDI data in a selected range of measures and tracks in the View Screen. Transforms may be used to:

- ❑ Combine tracks or split them apart.
- ❑ Reverse music to make it plays backwards.
- ❑ Compress or expand note durations and the amount of time between notes.
- ❑ Change the harmonic structure of your music.
- ❑ Adjust the bar lines.
- ❑ And much, much more!

While some transforms have the same names as certain Main screen features, they affect the data permanently, rather than temporarily. Therefore, before using a transform, it's a good idea to save the current song file to disk. That way, if you make a mistake or don't like the result. you can retrieve the original file from disk.

Certain Main screen features are useful to audition a transform's effect before permanently modifying data.

If you're certain that you want to change your piece in a specific way, using a transform is preferable to using the Main screen equivalent, since changing data "on the fly" forces the PC to perform lots of extra calculations every time the track plays back.

Transforms are grouped into the following categories:

Categories of Transforms

Normal Transforms Window
Time
Pitch
Velocity
Split
Random/Miscellaneous

MIDI/Tempo Transforms Window
Time
Value
Insert/Delete
Tempo

As the cursor is moved from one transform to another, a description of each transform appears in the menu area.

Using Transforms

With a few exceptions, the procedure for using transforms is as follows:

How to use transforms

① Press X from the View Screen to access Transforms Window.

② Highlight the desired transform, press [Enter]. The transforms window will disappear and the cursor will be placed in the View Screen.

④ Use the cursor keys to highlight a range of tracks and measures. The measure and track numbers appear in the menu area while you're defining the block. When the desired measures and tracks have been highlighted, press [Enter] to go to the final steps.

- *To reset the range to the current cursor position, press R.*
- *To keep the same range used in the previous block move (or transform), press K.*

– Or –

Enter non-bar bounded Start and End times (see detailed instructions below.)and press [Enter].

④ At this point a series of prompts will request particular information required by the transform. The information requested will depend on the transform in use. Details on each transform follow in this section.

Follow the prompts in the menu area and enter the required information.

⑤ Press [Enter] to execute the transform.

> *The last setting used in any transform automatically becomes the default setting. So, if you quantize a measure to 32nd notes, the next time you select Quantize, the prompt will offer you a default of 32nd notes. This greatly speeds repetitive operations.*

Selecting the Range

Most transforms let you change the data in a range of several tracks at once. The only exceptions are the Split, Merge, and Rebar, which work on one track at a time.

The range of tracks and measures is defined by highlighting a rectangular area on the View screen– the same method used to define a range for a block move command.

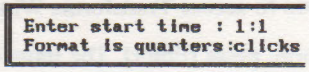
Non Bar-Bounded Option

The transform range can be defined to BAR, BEAT and CLICK. For instance, a transform could be defined to affect a range between [BAR3:BEAT2:CLICK98] and [BAR11:BEAT4:CLICK186].

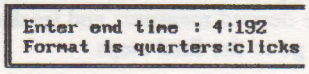
To use a Non Bar-Bounded range

① Choose a transform and select the range of bars.

② Press S for Start time, and enter the Starting [Beat:Click] for the range.



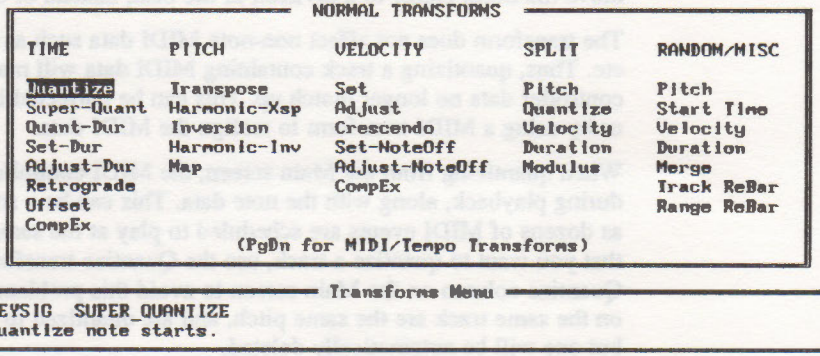
③ Press E for End time, and enter the Ending [Beat:Click] for the range.



④ Enter the information required by the particular transform you are using.

⑤ Press [Enter] to execute the transform.

Non Bar-Bounded values can be specified before or after selecting the bars of the range with the cursor keys. They are relative to the bars they are finally selected for. For example, if a transform was selected to Start on [BEAT3:CLICK60] and End on [BEAT1:CLICK35], it will always start and end on these values no matter what the range of bars is.



Normal Transforms

The remainder of this section is dedicated to individual transforms and the specific data required to use each one effectively.

> *For basic instructions on performing transforms, refer to the beginning of this section.*

Time Transforms

Quantize Moves the start-time of notes in the range towards the closest selected time unit division of the beat. The range is 0% - 100%.

➥ *At the prompt, enter a time unit followed by a percentage correction.*

Time Units Sets the interval of beats to which notes are quantized. (eg, quarter notes, eighth notes, etc.)

Percent Correction Determine how far the note will be moved onto the interval.

The exact amount each note is moved is relative to each note's distance from the nearest Quantize Grid point. If Quantization Strength is set to 50%, a note 24 clicks away from the bar:beat will be moved 12 clicks towards the quantize position. A note in the same range only 8 clicks from the nearest Quantize Grid point will only be moved 4 clicks.

- A 100% correction means that the notes in the range will be moved all the way to the to the time unit setting. Thus, all notes may be moved to the 8th note beat position.
- At 75%, notes will be moved three quarters of the way to the quantization unit. Thus, all notes may be moved to 25% of the 8th note beat, which is 1/32nd less than the previous example.

- ❑ At 50%, notes will be moved half way to the quantize beat.

Although similar to the QUANT column in the Main screen, the Quantize transform can quantize a section of a track instead of the entire track. You can move the notes closer to a division of the beat, instead of exactly onto it.

The transform does not affect non-note MIDI data such as pitch bend, aftertouch, etc. Thus, quantizing a track containing MIDI data will make the notes and the controller data no longer match up. This can be corrected in the MIDI Edit screen or by using a MIDI transform to realign the MIDI data.

When quantizing from the Main screen, the MIDI controller data is quantized during playback, along with the note data. This can be a source of timing problems, as dozens of MIDI events are scheduled to play at the same time. If you're sure that you want to quantize a track, use the Quantize transform instead of the Quantize column on the Main screen to avoid this problem. If two or more notes on the same track are the same pitch, and are quantized to the same Start-Time, all but one will be automatically deleted.

Super-Quantize Super-Quantize is a powerful transform that provides detailed control over quantization. It is documented in detail at the end of this section.

Quantize-Dur (Quantize Durations) Changes the length of all notes in the range by moving their durations to the closest selected time-unit division of the beat.

➥ *Enter the time unit, then the percentage correction.*

Time Units Sets the interval of the beats.

Percent Correction Sets the percent of the beat that notes will be quantized

Side-effects of Quantizations

While the Quantize functions in the transforms and on the Main screen can be very helpful in achieving certain goals, there can also be side effects.

Suppose, for example, you've recorded a bass line and want to make it play back with even 16th notes, quantized from the Main screen's Quantize column. You then decide to play the bass one measure at the end of every chorus, with the last two beats played as 8th-note triplets. Because the track is quantized to 16ths, this poses a problem that can be solved two ways:

- ❑ Leave a blank space for the 8th-note triplets in the original track, then record a second track with those triplets and nothing else. Quantize the new track to 8th-note triplets, and assign it to the same channel as the first track. Then play both tracks together.

— Or —

- ❑ Use the Non-Bar Bounded option to quantize each part of the measures separately.

Set-Dur (Set Duration) Makes all notes in the range the same length as specified by the user. The same note-length restrictions described for Adjust Duration also apply to Set Duration.

➥ *Enter the new note duration in quarter notes and clicks.*

Adjust-Dur (Adjust Duration) Adds or subtracts a given number of clicks from each note duration while maintaining the differences in length.

➥ *Enter the change in duration in quarter notes and clicks.*

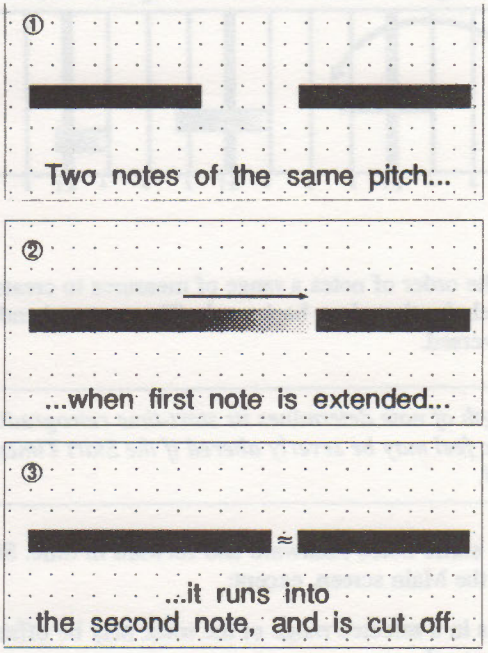
For example, it could be used to increase the length of all notes by an extra 16th note, making a staccato passage more legato.

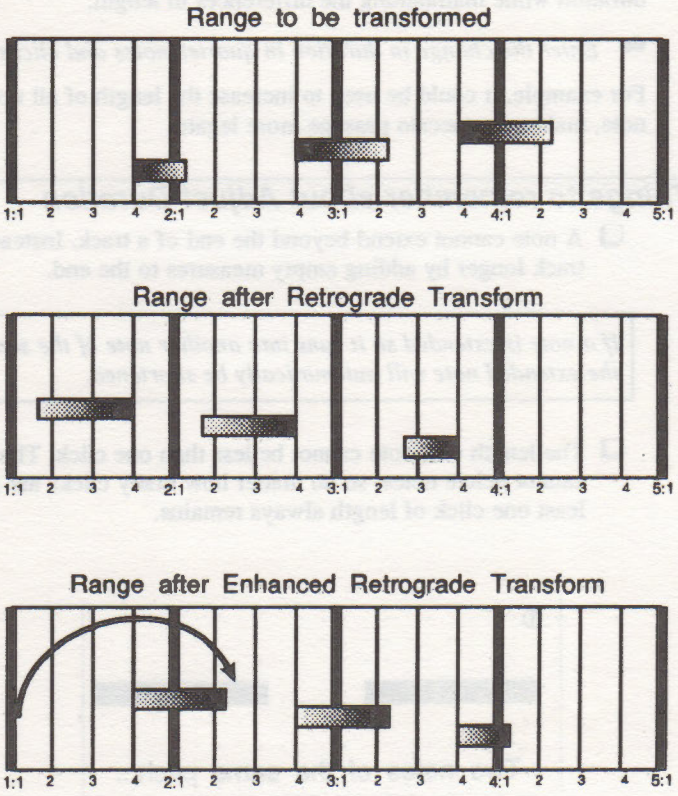
Things to remember about Adjust Duration

- ❑ A note cannot extend beyond the end of a track. Instead, make the track longer by adding empty measures to the end.

> *If a note is extended so it runs into another note of the same pitch, the extended note will automatically be shortened.*

- ❑ The length of a note cannot be less than one click. The transform cannot delete notes, so no matter how many clicks are removed, at least one click of length always remains.





Retrograde Reverses the order of notes a range of measures to create a mirror image of the original melody, that plays backwards. The start and end times, or start times only, may be reversed.

> *The length of note determines its start-time retrograding. Thus, the rhythmic feel may be severly altered if the Start Times Only option is not used.*

Offset Moves the entire notes backward and forward in time. Similar to using the Offset column in the Main screen, except:

- ❑ Notes in a selected range of the track may be offset instead of the entire track.
- ❑ Notes only may be offset while leaving the MIDI data in their original positions.

➥ *Amount to delay events in quarter notes and clicks. (Negative value moves data earlier, positive value moves data later.) Answer Y to the prompt: "Offset MIDI data too?" to optionally offset MIDI data with the notes.*

Comp-Ex (Compress/Expand) Adjusts the position between notes in the range as a ratio of their normal postion to the new position. Non-note MIDI events may be optionally affected.

Fractional Scaling Ratio A fraction (1/2 or 1/3 or 4/3) that expresses the amount of ***new time*** compared to ***original time.*** The numbers in the ratio can be any number between 1 and 4000.

➥ *At the prompt, enter fractional scaling value n/o, where "n" is the new value and "O" is the original value.*
At the prompts: "Do you want to compex the note durations?" (y/n) and "Do you want to compex the MIDI too?" answer Y or N.

- ❑ For example, to *expand* a measure of four evenly spaced quarter notes into two measures of four equally spaces half notes, the new time would be 2 while the original time would be 1. Thus, the ratio would be 2/1.
- ❑ To *compress* the same notes into the space of one-half measure, you would enter 1/2.

CompEx can be extremely useful in adjusting your music to hit film/video cues. The transform, particularly used in conjunction with the Range Rebar functions, allows you to keep your original tempo and note order, yet place note sequences exactly where you want.

Pitch Transforms

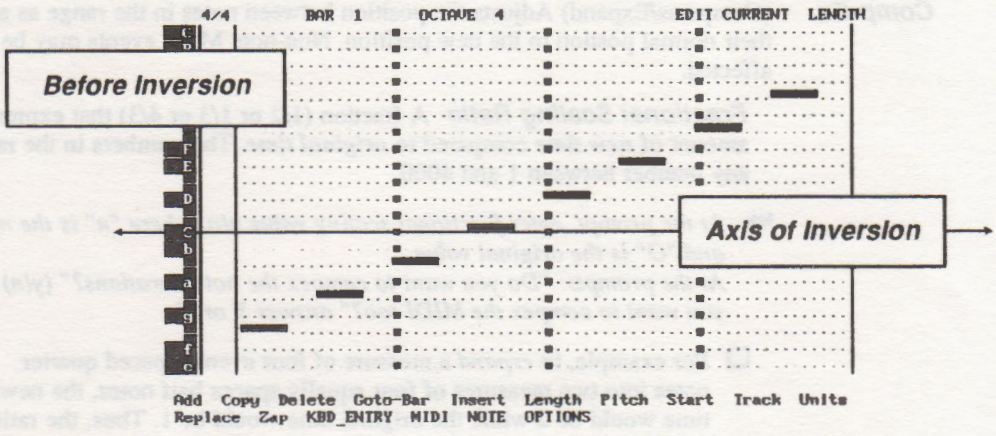
Transpose Changes the pitch of notes in the range up or down by octaves and semitones. It works like the TRANS column in the Main screen, except you can transpose a section of a track instead of the entire track and the change is permanent.

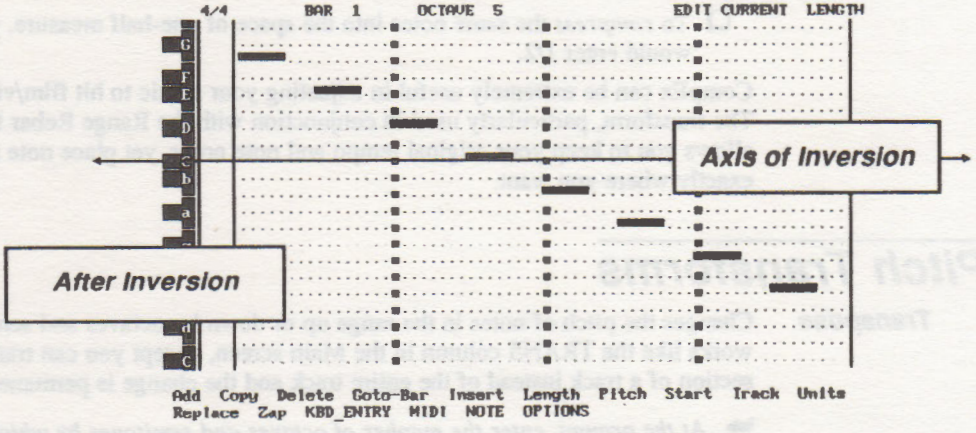
➥ *At the prompt, enter the number of octaves and semitones by which to transpose. Enter "Up" or "Down" to set whether the pitch is raised or lowered.*

Harmonic Transpose Same as Transpose except the new pitches remain in a selected key signature that is entered with the Key Signature window. (See the section on the Key Signature window later in this section for details.)

➥ *Press K to open the Key Signature window and select the appropriate key signature. Then follow the same procedure as Transpose, above.*

- ❑ A common use for this transform is transposing a melody to match a different chord while keeping it in the same key. However, you can also use it for certain tricks, like changing music from one mode to another. However, Harmonic Transpose does not instantly change music from one key to another.
- ❑ You can get some interesting results from this transform if you deliberately enter the wrong key signature before transposing. This method is a great way to experiment with your music, and twist it into new patterns that you might not otherwise discover.





Inversion Flips the notes about an "axis of inversion", i.e. the pitch used as the center of the flip. (See illustration.)

➥ *Enter the Pitch axis for inversion as NOTE:OCTAVE.*

Using Transpose and Harmonic Inversion to Change Majors Into Minors

① Select the major key passage and use Harmonic Transpose to take everything up to a relative minor (i.e., up a major 6th).

② Use Transpose to lower everything a major 6th, bringing the root note back and leaving the music in a minor key.

Harmonic Inversion Same as inversion above, but keeps the new notes in the key set by the Key Signature window. (See Key Sig Window later in this section).

➥ *Press K to open the Key Signature window and select the appropriate key signature. Then follow the same procedure as Inversion, above.*

As with Harmonic Transpose, deliberately telling Sp Gold the wrong key signature can produce some very interesting and useful results.

When you select an area to be transformed or inverted and identify it by key signature, Sp Gold does the following:

① Identifies all notes within the selected scale, and transposes or inverts them so that the resulting notes stay within that scale.

② Identifies all notes not within the selected scale, and transposes or inverts them chromatically by the specified number of semitones.

Map Converts notes of a selected pitch into a new pitch.

➥ *Enter a value to pitch to map "from" as NOTE:OCTAVE. Then enter a value to pitch to map "to" as NOTE:OCTAVE.*

For example, you might want to convert all the G notes in octave 5 into G-Sharps. You enter the Pitch to Map From and the Pitch to Map To.

> *This transform is an effective way to alter the root notes of related chords or move a particular drum track from one sound to another (converting a low tom-tom to a mid tom-tom, for example).*

Velocity Transforms

Set Gives all the notes in the selected range the same Note-On Velocity.

This can be used to set the upper velocity limit on all notes.

For example, to limit the note velocities at 100, add 27 so that notes above 100 would be clipped off at the top of the range. Then, lower everything by 27 so all the notes would be transformed to a velocity no greater than 100.

➥ *At the prompt, enter the Note-on velocity in the range is 1 to 127.*

Adjust Increases or decreases the Note-ON Velocity by a specific amount.

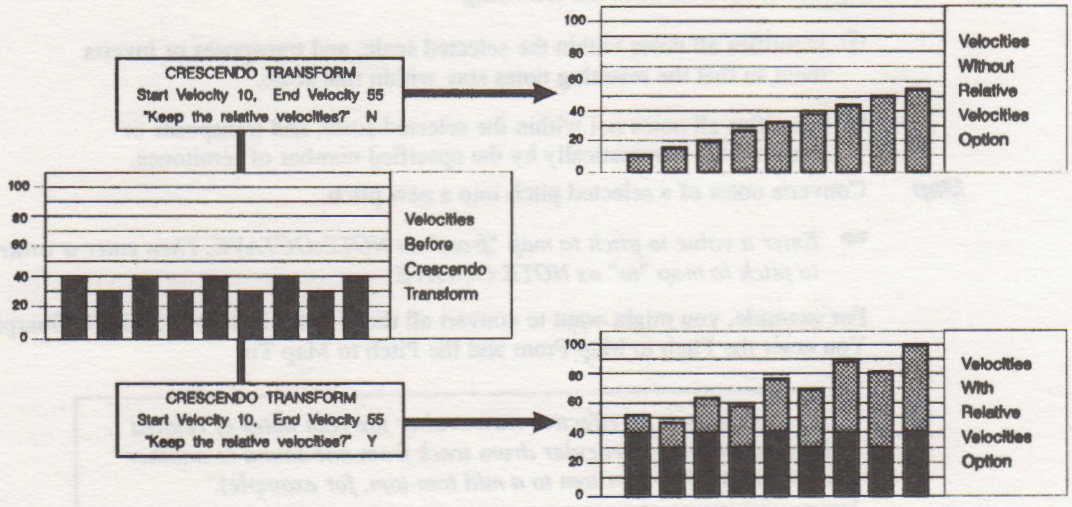
➥ *At the pompt, enter the change in "Note ON" velocity in the range -126 to 127.*

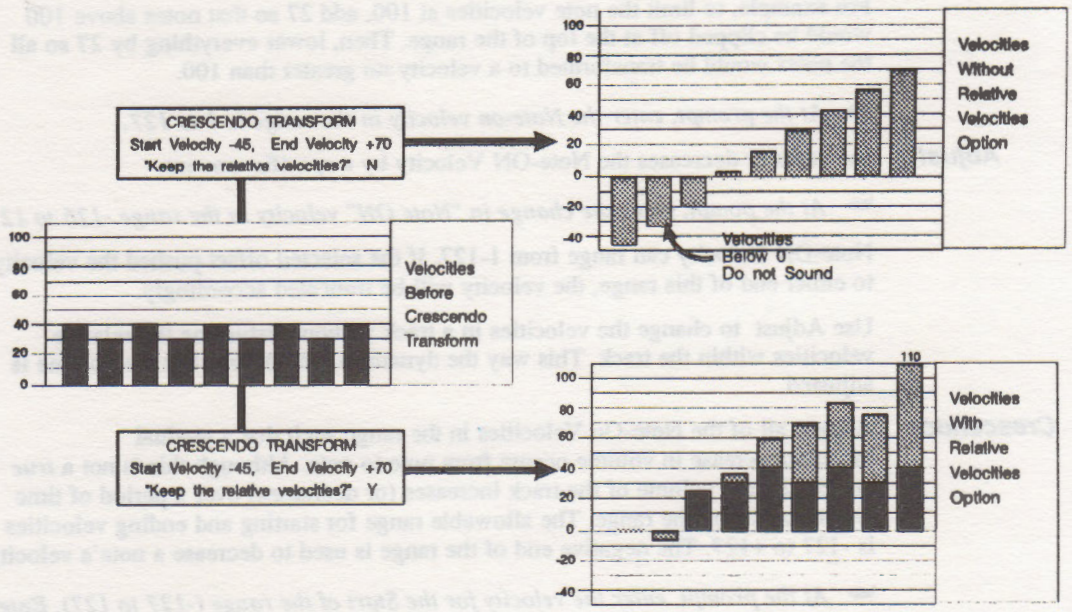
Note-ON Velocity can range from 1-127. If the selected offset pushed the velocity to either end of this range, the velocity will be truncated accordingly.

Use Adjust to change the velocities in a track without disturbing the relative velocities within the track. This way the dynamics are not lost, but the volume is adjusted.

Crescendo Adjusts all of the Note-On Velocities in the range such that a gradual increase/decrease in volume occurs from note to note. Although this is not a *true* crescendo, the volume of the track increases (or decreases) over a period of time encompassed by the range. The allowable range for starting and ending velocities is -127 to +127. The negative end of the range is used to decrease a note's velocity.

➥ *At the prompt, enter the velocity for the Start of the range (-127 to 127). Enter the velocity for the End of the range (-127 to 127.) Answer the prompt: "Do you want to keep velocities relative?" Y/N*


CRESCENDO TRANSFORM
Start Velocity 10, End Velocity 55
"Keep the relative velocities?" N
Velocities Without Relative Velocities Option
Velocities Before Crescendo Transform
CRESCENDO TRANSFORM
Start Velocity 10, End Velocity 55
"Keep the relative velocities?" Y
Velocities With Relative Velocities Option


CRESCENDO TRANSFORM
Start Velocity -45, End Velocity +70
"Keep the relative velocities?" N
Velocities Without Relative Velocities Option
Velocities Below 0 Do not Sound
Velocities Before Crescendo Transform
CRESCENDO TRANSFORM
Start Velocity -45, End Velocity +70
"Keep the relative velocities?" Y
110
Velocities With Relative Velocities Option

Relative Crescendo The range -127 to 0 are used when keeping velocities relative. With the relative velocity option the relative velocities of the notes in the range are preserved and the velocities required for the crescendo/decrescendo are added or subtracted to/from them. (See Illustration.) In the same crescendo as below (velocities 1 to 127) the crescendo's velocities will still progress from 1 to 127, but these velocities will be added as necessary to the original note's velocities.

❑ By preserving the original velocities of the range and adding the crescendo values to them, the sound of the range from note to note, as far as velocity is concerned, is maintained while the crescendo's velocities steadily increase or decrease.

Normal Crescendo Use only 0 to 127 when not keeping velocities relative. In a normal crescendo transform, the velocities are replaced by the new velocities required for the crescendo. If a crescendo starts at velocity 1 and ends at velocity 127, the velocities will be changed to increase progressively from 1 to 127 with no regard for the original velocities.

Set-NoteOff This works like Set Velocity, except that it only changes the notes' *off-velocity.* Off-velocity is the speed with which you release a key on the instrument. Most instruments don't transmit this data, but if yours does, the note off-velocity may affect certain note characteristics, such as decay time.

➥ *At the prompt, enter the change in note off velocity. Range is from -127 to 127.*

For elaboration on how your synthesizer uses note off-velocity consult your instrument manual.

Adjust-Note Off This works like Adjust Velocity, except that it changes the notes' *off-velocity* .

➥ *At the prompt, enter the change in note off velocity. Range is from -127 to 127.*

CompEx Compresses or expands the dynamic range of the selection by moving the note's velocities closer or further away from the average velocity in the range.

Use this to limit the dynamic range of a track without removing it entirely.

Like the CompEx time transform, you're asked to enter two numbers, expressing the ratio of the new velocity range to original range as a fraction, such as 2/1, 1/2, etc..

➥ *At the prompt, enter the fractional scaling value n/o, where "n" is the new velocity and "o" is the original velocity.*

Working with the Velocity Transforms

Different synths respond to velocity data in various ways. This also applies to different programs in the same synth. Velocity transforms can help compensate for these differences.

For example, the Roland MKS-20 digital piano module sounds great when you send it a MIDI velocity above 110, but if you use a Yamaha DX7 as a master keyboard, you may have to hit the keys quite hard to generate MIDI velocities that high. When this happens, the MKS-20 doesn't sound its best, and your hands hurt from pounding the keyboard.

An easy way to solve this problem is to play the DX7 at a reasonable level, then use the Adjust Velocity transform to nudge all the notes up in volume until the MKS-20 sounds its best.

As another example, some keyboards have signal-to-noise ratio problems at low volumes and distortion problems at high volumes. In this situation, it can be difficult to control the volume in the recording studio. It's much easier to use velocity transforms to raise the low levels and lower the high ones.

The Split transform (See Split Transforms in this section) can be especially helpful when combined with Velocity transforms. If your problem is a sampler with uneven volumes across the keyboard, use Split to isolate those sections that are the worst offenders, and then individually apply velocity transforms until you've brought them all into line.

Split Transforms

Split transforms move any notes that lie within a given range of values onto a new track.

There are five ways to split a track:

Pitch Moves notes within a given pitch range out of one track and into another track.

➥ *At the prompt, enter the Destination track for the split. Enter the LOW pitch cutoff as NOTE:OCTAVE. Enter the HIGH pitch cutoff as NOTE:OCTAVE.*

After selecting the transform, you will be prompted to enter the upper and lower boundary notes in the range. The boundary notes are inclusive, so if you set the upper boundary to A4, all notes in the range, including A4, are split out from the track. Some common uses for this transform include:

- ❑ To split the left-hand and right-hand parts into separate tracks;
- ❑ To extract a single sound from a drum machine part;
- ❑ To extract a range of sounds(all the tom-toms, or all the cymbals).

Once a track has been split, the individual tracks can be independently offset, transposed, inverted, quantized, assigned to other instruments, etc.

Quantize Moves any notes that are close enough to the beat onto another track.

➥ *At the prompt, enter the destination track for split. Enter the New Time Units value to set the interval to quantize to. Enter the percentage tolerance to determine which notes will be split based on clicks from nearest beat.*

Quantize Interval Which time unit (quarter notes, etc.) to use.

Percentage Tolerance. Determines if a note is within an acceptable number of clicks to the time unit to be considered on the beat.

The following example shows how to use the Quantize Split transform to program a swing rhythm into a track.

① Use the regular Quantize transform on the track to move all the notes to the nearest 1/16th notes.

② Transform the track with Quantize Split, using 1/8 note intervals and a small percentage of tolerance (1 or 2%). This moves all the odd-numbered 1/16 notes onto a new track.

③ Offset the original track by 12 clicks (6 clicks at 96 PPQ), and play them together: The even numbered 1/16 notes will be delayed, giving the tracks a swing feel.

> *The Super-Quantize transform includes a Swing feature that is much easier to implement than the above instructions.*

Velocity Moves notes that are within a range of velocities onto a new track.

➥ *Enter the Destination track for split. Enter the LOW cutoff velocity (1 to 127) and the HIGH cutoff velocity (1 to 127.)*

You can use this transform to find notes that are too loud or too soft. move them to a new track and adjust them. You could also use this transform to find notes with high velocities and assign them to alternate drum samples.

Duration Moves any notes that are over a certain length to a new track.

➥ *Enter the Destination track for split. Enter cutoff duration in quarter notes and clicks.*

You enter the length of notes that you want to move, and all notes of that length or longer are moved to the destination track.

Modulus Moves every 'Nth' note to a new track.

➥ *Enter the destination track for split. Enter the first note to begin counting from. Enter the Modulus number.*

The first note is also moved.

For example, if the modulus is set to the number 5, and first note is set to the number 2, every fifth note, starting with the second note, will be moved to the destination track.

Try using this transform to generate accent patterns. Do a modulus split, adjust the note velocities up, then merge the tracks together again. You can also get interesting effects by assigning the split track to a new channel, and program.

Random Transforms

These transforms use random numbers to adjust note pitch, velocity, duration, or start time, respectively. The random numbers are generated first, then modified by the degree of randomization selected.

Pitch Randomizes pitch harmonically based upon the key selected in the Keysig window. Small percentages generate slight melodic variations, and large amounts generate random melodies.

➥ *At the prompt, enter the degree of randomness (1 - 100) followed by the Start Time.*

Start Time Randomizing start-time by a slight amount can add human feel, but can get sloppy if over-used. Using extreme randomization will make random start time variations, after which you can quantize the track to get the random variations onto the beat.

Velocity Randomizes Velocity of all notes in the range. This transform also gives a good human feel when you randomize the velocity data a small amount. A large amount generates random accents.

Duration Randomizes the duration of all notes in the range. A small amount of randomization on note durations can also add to a more human feel on some tracks.

Miscellaneous Transforms

Merge Combines MIDI data from a Source track into a Destination track. The Source track remains intact. The Destination track is the current track. The Destination track is selected by moving the cursor to the track you want to merge to.

Use this to merge data that was previously split out and modified.

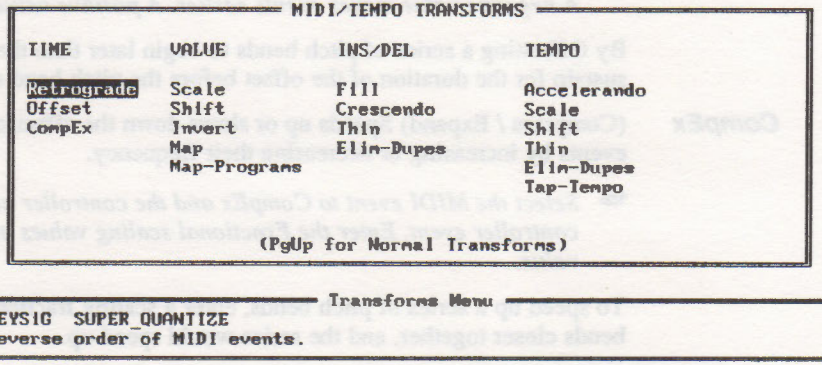
> *If notes in the chosen tracks overlap, the conflicting notes are truncated or deleted as needed. If the Source track is longer that the destination track, the notes past the end of the Destination track are not merged.*

Track ReBar The Track ReBar and Range ReBar transforms allow you to change the locations of bar lines without changing the timing of the music. The ability to move the bar lines affects the use of almost every feature in Sp Gold. Record, Play, Punch-In, and Edit features always work in relation to measure boundaries in your tracks, so all these features are affected by the ReBar Transforms.

The Track ReBar transform changes all the time signatures in the current track to match those in another track. You specify which other track to use as a time signature source. This is particularly useful if you've accidentally recorded a track in the wrong time signature.

Range ReBar The Range ReBar transform changes the time signature in a range of measures to any new time signature you specify. This is useful if you want to remove a single beat from a measure, or convert measures of tightly packed data into a series of one-beat measures so the details of each beat appear on the Edit screen.

For example, a measure of 4/4 time can be turned into one measure of 3/4 and one measure of 1/4. Once the original measure is transformed, the measure of 1/4 can be deleted, punched-into, inserted somewhere else, etc. None of these things would have been possible otherwise, because these features only work with complete measures.



MIDI/Tempo Transforms

➥ *From the View screen, press X to activate the Transforms screen. Press [PgDn] to see the list of MIDI and Tempo transforms.*

MIDI transforms affect MIDI data rather than note data.

The following types of MIDI data can be transformed using MIDI Transforms:

- ❑ Pitch Bends
- ❑ Key Aftertouch
- ❑ Program Changes
- ❑ Aftertouch
- ❑ Controllers.

Time Transforms

Retrograde Reverses the order of MIDI events. The transformed MIDI events will be backwards after the transform.

➥ *Enter MIDI event to retrograde and the controller number to use, if using controller event.*

Retrograding MIDI data, but not note data, produces largely experimental effects. Experimentation with this transform is suggested because explicit examples will not always have the same effect.

> *The new Start Times Only Option of the Normal Retrograde Transform does not apply to the MIDI Retrograde Transform because duration does not apply to MIDI data.*

Offset Moves MIDI events ahead or behind in time, such as modulation wheel or volume.

➥ *Enter the MIDI event to offset and the controller number to use, if using a controller event. Enter the amount to shift MIDI events in quarter and clicks. A negative value moves events earlier. A positive value moves events later.*

By Offsetting a series of pitch bends to begin later than the note, the note will sustain for the duration of the offset before the pitch bend affects the note.

CompEx (Compress / Expand) Speeds up or slows down the effect of a series of MIDI events by increasing or decreasing their frequency.

➥ *Select the MIDI event to CompEx and the controller number to use, if using controller event. Enter the Fractional scaling values as new value / original value.*

To speed up a series of pitch bends, enter a scaling fraction of 1/2 to move pitch bends closer together, and the series would speed up.

A scaling fraction such as of 2/1 would move the pitch bends farther apart, and the series would slow down.

Value Transforms

Scale Multiplies the value of MIDI events by a specific value.

➥ *Enter the MIDI event to Scale and controller number to use, if using controller event. Enter the Fractional scaling values as new value / original value.*

To decrease a pitch bend's value by 50%, enter a scaling value of 1/2.

To increase a pitch bend's value by 100%, enter a scaling value of 2/1.

Shift Adds a specified value to MIDI data. Possible values range from -127 to 127, with the exception of benders which has a range of -8192 to 8191.

➥ *Enter the MIDI event to Shift and controller number to use, if using controller event. Enter amount to shift events. Range is -127 to 127.*

Invert Subtracts a MIDI event's value from its maximum value, the result becomes the MIDI event's new value.

➥ *Enter the MIDI event to Invert and controller number to use, if using controller event.*

To transform a crescendo into a decrescendo use the MIDI Invert transform. By Inverting the decrescendo's values, the highest value is subtracted from 127 leaving a relatively low value. The start of the crescendo is transformed into the start of the decrescendo.

Map Transforms one type of MIDI event into another.

A series of pitch bends could be transformed into a series of controller events.

➥ *Enter the MIDI event to remap from and controller number to use, if using controller event. Enter the MIDI event to remap to and controller number to use, if using controller event.*

Map-Programs Transforms MIDI Program Change values.

➥ *Enter the Program number to remap from followed by the Program number to remap to.*

To change the program from Acoustic Piano to Electric Piano you could do so by remapping the program change number of the Acoustic Piano sound to the program number of the Electric Piano.

Insert/Delete Transforms

Fill Inserts MIDI events in the specified range. The values of the events inserted can increase or decrease across the range, depending on user specified values.

The starting and ending values of the Fill transform will determine the basic slope of the curve used to insert MIDI events.

By entering a high number of events per beat, transitions will be smoother. However, more controller events will use more song memory, and if they are too dense they will clog MIDI playback.

Fill can be used to insert any type of MIDI data into a range. A series of pitch bends of progressively increasing values could be inserted. A crescendo could be inserted using controller number 7.

Required Parameters

① MIDI event to fill

② Controller number to use, if using controller event.

③ Starting value. Range is from 0 to 127, exept for benders which is -8192 to 8191.

④ Ending value. Range is from 0 to 127, exept for benders which is -8192 to 8191.

⑤ Number of events per beat to insert. Range is from 0 to192 (or a maximum of 96, depending on the song's ppq setting.)

⑥ Curvature. Range is from -100 to 100. (See MIDI fill curve diagrams.)

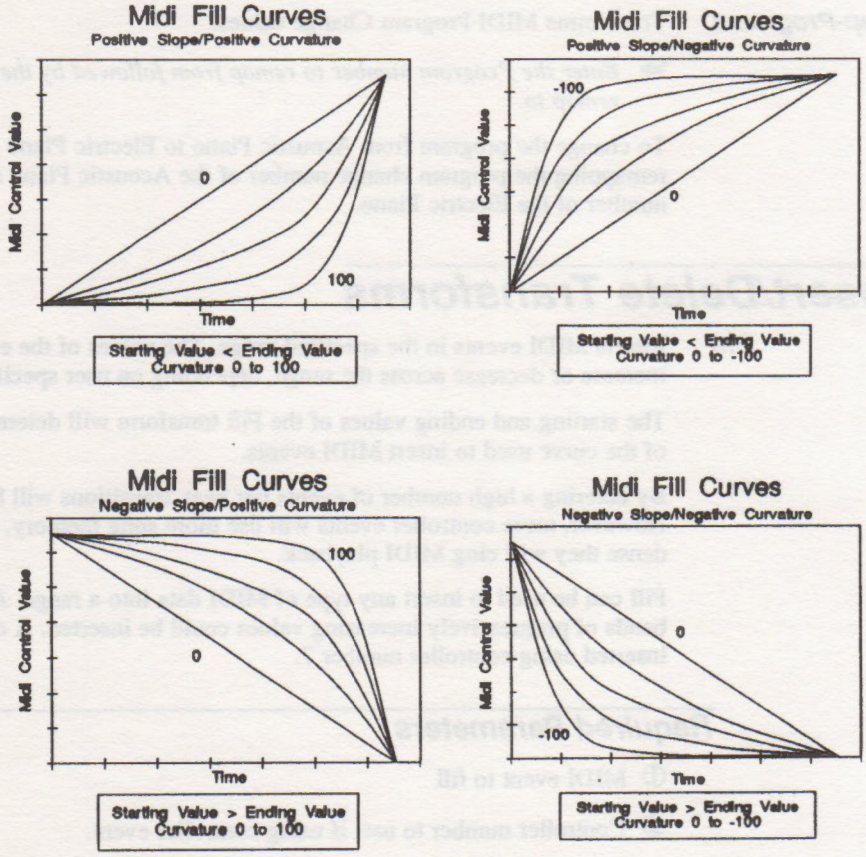
Crescendo Creates crescendos using controller number 7 (volume).

➥ *Enter the Start volume in the range 0 to 127. Enter the End volume in the range 0 to 127.*

By using MIDI controller 7, the notes' original velocities remain unchanged, but they are superseded by the MIDI controller.

Since crescendo is a MIDI fill transform, a thorough reading of the Fill transform's method of insertion will make it easier to understand this transform.

Crescendo requires you to enter starting and ending values for the controllers. However, the curvature value is fixed at 0, and events per beat is fixed to 8.



Crescendos are created by typing a lower starting value than ending value. Decrescendos are created by specifying a larger starting value than ending value.

> ***The MIDI Crescendo does not allow a user specified curvature value. For a MIDI crescendo with a curvature value other than 0 use the Fill transform with controller number 7.***

Thin **Reduces density of MIDI events in a specified range.**

➥ ***Enter the MIDI event to thin and controller number to use, if using controller event. Enter the maximum number of events per beat. Range is 0 to 192, (or a maximum of 96, depending on the song's ppq setting.)***

The MIDI Thin transform uses a maximum number of events per beat to determine the minimum number of clicks allowed between events. When the Thin transform detects fewer clicks between two MIDI events than allowed it deletes the second of the two events.

If any MIDI events that are being thinned have a value of 0, they will not be deleted. This will ensure that pitch bends and other controllers are not left at unreasonable values in sparse sections of MIDI data.

Entering a density value of 0 will delete all the selected MIDI events in the range.

Elim-Dupes Eliminates duplicate MIDI events.

➥ *Enter the MIDI event to eliminate duplicates of and controller number to use, if using controller event.*

In a series of MIDI events of the same type, with the same value, only the first event will actually have any effect. Elim-Dupes will eliminate the duplicate events that have no Effect.

> *Although Elim-Dupes and Thin may sound similar, Thin deletes events based on a minimum number of clicks allowed between the same type of MIDI events. Elim-Dupes deletes MIDI events of the same type and value regardless of their interval or the density of data at a particular point in a song.*

Tempo Transforms

Tempo transforms affect tempo events instead of note or MIDI data. Since tempo events can be embedded in any track, tempo transforms can be used on any track containing tempo events just as if they were true MIDI data.

> *Tempo Transforms will have no audible effect unless the track containing the transformed Tempo Events is currently selected as the Tempo Track in the Options window.*

Accelerando Creates a controlled increase or decrease in tempo. The Accelerando Transform is the equivalent of a Fill Transform for Tempo events.

➥ *Enter the Starting tempo (16 to 255) and ending tempo. Enter the number of tempo events per beat to insert (1 to 192 for 192 PPQ, 1 - 96for 96 PPQ.) Enter a curvature value (-100 to 100.)*

Value range is specified in Beats Per Minute.

Entering a higher starting value than ending value will cause a decrease in tempo. Entering a lower starting value than ending value will cause an increase in tempo.

> *Refer to MIDI Fill transform on page 113 for an in depth discussion of slopes and curvature values.*

Scale Multiplies the value of Tempo events by a specified ratio.

➥ *Enter the Fractional scaling value as new value/original value.*

To scale a song's tempo events to play half as slow, enter a scaling value of 1/2. If you wanted to double a song's tempo event and values you would enter a scaling value of 2/1.

> *Tempo events must already exist in a track for tempo Scale and Shift to have any effect.*

Shift The Shift Transform adds a specified value to all tempo events in range.

➥ *Enter the amount to shift events. Range is from -239 to 239.*

If a section of a song has a good flow of tempo changes, but the entire section is too fast, shifting the tempo down will slow the tempo without affecting the flow of tempo changes.

Thin Reduces the density of tempo events

➥ *Enter the maximum number of tempo events per beat. Range is from 0 to 192, (or a maximum of 96, depending on the song's ppq setting.)*

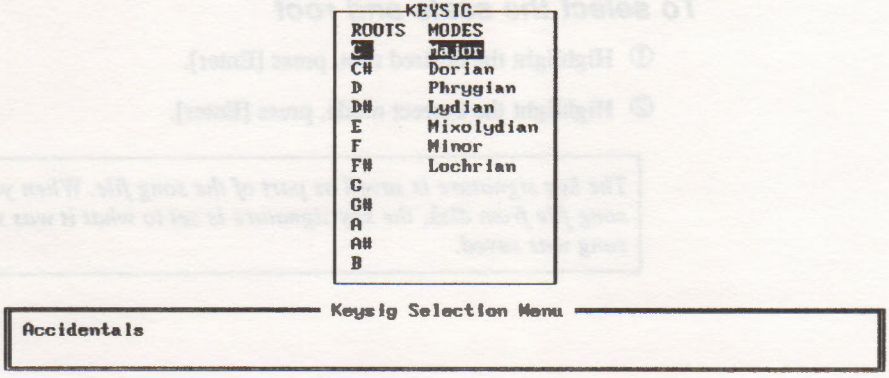
Thin will reduce the number of events to a specified number of tempo events per beat.

> *Entering a density value of 0 will eliminate ALL tempo events in a range.*

Elim-Dupes Eliminates duplicate tempo events.

In a series of Tempo events with the same value, only the first event will actually have any effect. Elim-Dupes will eliminate the duplicate events that have no affect.

Tap-Tempo Tap-Tempo is documented at the end of this section.



Key Signature Window

➥ *Press K from the Transforms window. [Esc] to close.*

The Key Signature window is used to keep the music in the correct key when using harmonic or random pitch transforms, or experiment with new keys.

There are two columns in the Key Signature window, one for Roots and the other for Modes. On the basis of this setting, Sp Gold is able to correctly transform the music harmonically.

> *Deliberately telling Sp Gold the wrong key signature can produce some interesting results.*

The settings in the Root and Mode columns can be used to select any one of 77 different musical scales. To select a root and a mode, highlight it in the list and press Enter.The seven modes have different scale patterns of steps and half-steps, arranged as follows.

Key Signatures

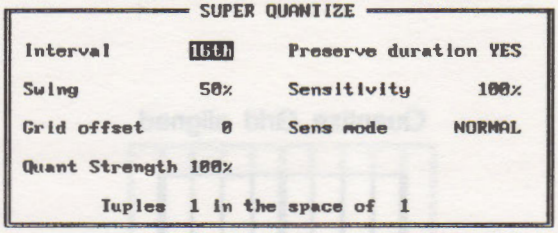
MODE	Number of Half-steps
MAJOR	Root 2 2 1 2 2 2 1
DORIAN	Root 2 1 2 2 2 1 2
PHRYGIAN	Root 1 2 2 2 1 2 2
LYDIAN	Root 2 2 2 1 2 2 1
MIXOLYDIAN	Root 2 2 1 2 2 1 2
MINOR	Root 2 1 2 2 1 2 2
LOCHRIAN	Root 1 2 2 1 2 2 2

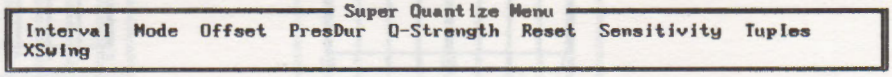
To select the scale and root

① Highlight the desired root, press [Enter].

② Highlight the correct mode, press [Enter].

> *The key signature is saved as part of the song file. When you load a song file from disk, the key signature is set to what it was when the song was saved.*





Super-Quantize Transform

➥ *To access the Super Quantize window, press S from either of the two Transforms windows.*

Super Quantize provides quantization with eight controls for fine tuning effects that can be used to:

- Quantize with Swing to experiment with rhythm.
- Quantize off the beat.
- Adjust the Sensitivity of quantization to affect only the notes you want affected.
- Create tuples.
- and more.

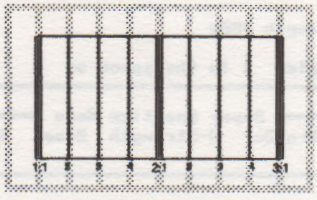
Because the settings in the Super Quantize window are maintained each time they're changed, it's a good idea to check them before using each transform.

These Super Quantize settings are also saved in the CONFIG.SEQ file.

Quantize Grid

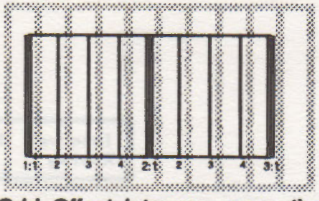
Super Quantize functions are realtive to the position of a virtual array of grid points called the *Quantize Grid* which can be thought of as a set of points on a time line superimposed over the normal beats.

Quantize Grid aligned



Quantize grid points usually fall on the beat, as shown above.

Quantize Grid offset



Grid Offset lets you move the Quantize Grid an arbitrary number of clicks, as shown above.

By varying the spacing between the grid points and the position of the grid, various quantizations effects are possible.

Interval Sets the interval between Quantize Grid points in Super-Quantize.

➥ *Highlight Interval in the Super Quantize window and use the +, - keys to toggle through the following interval settings:*

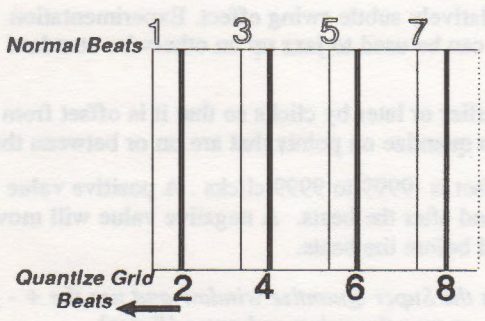
Super-Quantize Grid Interval Settings

Normal	Triplets
4th	4T
8th	8T
16th	16T
32th	32T
64th	64T

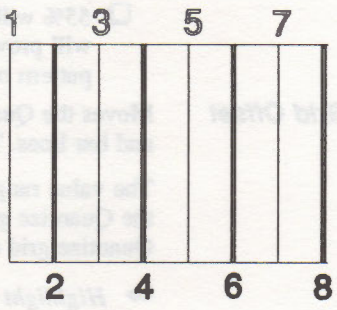
❑ For instance, an Interval setting of 8th sets a Quantize Grid point at every eighth note, a setting of 16th sets a Quantize Grid point at every sixteenth note, etc..

Swing Swing creates a swing feel by moving every other Quantize Grid point earlier or later, and quantizing to those grid points.

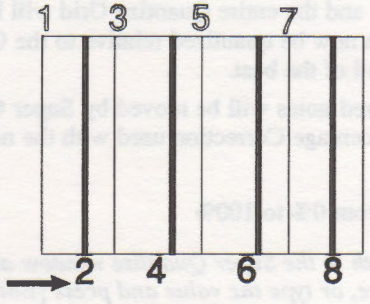
Swing is controlled by a percentage value from 1% to 99%.



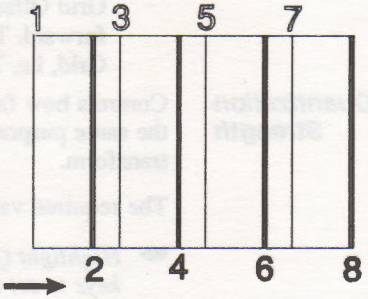
25% Swing



50% Swing



55% Swing



75% Swing

➥ *Highlight Swing in the Super Quantize window, and use the +, - [ ] keys to toggle to the new value, or type the value and press [Enter].*

- ❑ For a conventional Swing effect, a setting from 55% to 66% is best.
- ❑ A Swing percentage between 1% and 49% moves every other grid point earlier, closer to its predecessor.
- ❑ With a Swing percentage setting of 50%, there is no alteration. The Quantize Grid points are evenly spaced, based on the interval setting.
- ❑ A Swing percentage between 51% and 99% moves every other grid point later, closer to its successor.
- ❑ With the Super Quantize Interval set to 16th, and Swing set to 55%, the Quantize grid points will not be evenly spaced.
- ❑ After the Super Quantize transform is applied, the notes near the odd (1, 3, 5, etc) Quantize Grid points will fall exactly on the beat. However, notes near the even (2, 4, 6, etc) Quantize Grid points will fall a few clicks behind the beat because of the Swing setting of 55%.

- 55% will produce a relatively subtle swing effect. Experimentation will prove how swing can be used to jazz up an otherwise standard pattern of music.

Grid Offset Moves the Quantize Grid earlier or later by clicks so that it is offset from the beats and bar lines. This is used to quantize on points that are on or between the beats.

The value range of Grid Offset is -9999 to 9999 clicks . A positive value will move the Quantize grid later, to land after the beats. A negative value will move the Quantize grid earlier, to land before the beats.

➥ *Highlight Grid Offset in the Super Quantize window and use the + - [ ] keys to toggle to the new value, or type the value and press [Enter].*

- For example, if you have played an entire track a few clicks late and you want to quantize the track but don't want to bring it onto the beats, Grid Offset can help. If your track is 7 clicks late, enter a Grid Offset value of 7 and the entire Quantize Grid will be shifted forward. The track can now be quantized relative to the Quantize Grid, i.e. 7 clicks ahead of the beat.

Quantization Strength Controls how far the quantized notes will be moved by Super Quantize. This serves the same purpose as the Percentage Correction used with the normal Quantize transform.

The required value ranges from 0% to 100%

➥ *Highlight Quant Strength in the Super Quantize window and use the + - [ ] keys to set the new value, or type the value and press [Enter].*

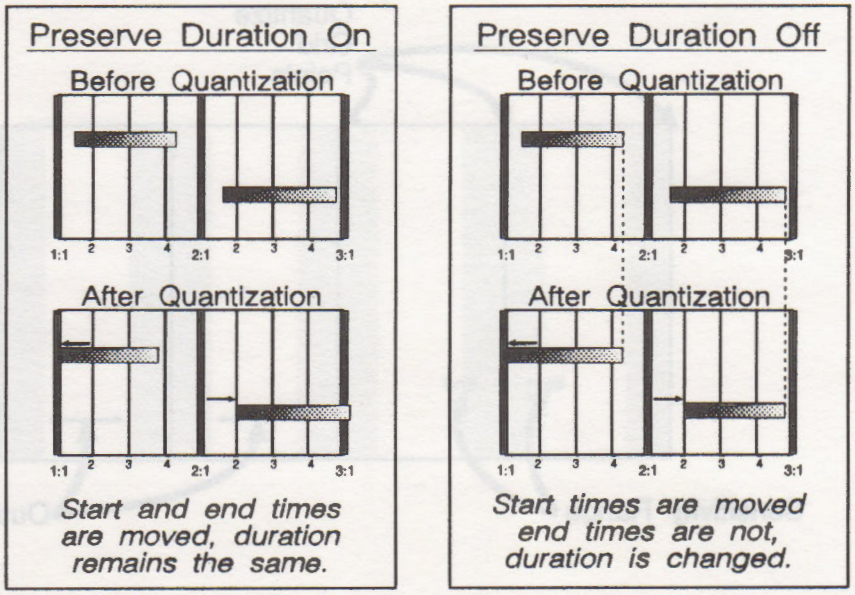
- At 100%, notes will be moved all the way to the nearest Quantize Grid point.
- At 75%, notes will be moved three quarters of the way to the nearest Quantize Grid point.
- At 50%, notes will be moved half way to the nearest Quantize Grid point.
- For example, if Quantization Strength is set to 50%, a note 24 clicks from the nearest Quantize Grid point will be moved 12 clicks towards that grid point, but a note in the same range only 8 clicks from the nearest Quantize Grid point will only be moved 4 clicks. The exact amount each note is moved is relative to each note's distance from the nearest Quantize Grid point.

Preserve Duration Controls whether a note's duration is preserved or altered during Super Quantize.

➥ *Highlight Preserve Duration in the Super Quantize window, and press P to toggle Preserve Duration ON and OFF.*

ON Notes will be moved without altering their duration.

OFF Only the note start times will move, the end times remain intact. Depending upon the start time positions relative to the end times, the note durations will be increased or decreased. The degree of change depends on how far the start time is moved and whether it is moved away from or towards the end time of the note.



- For example, if Preserve Duration is set to OFF, and a quarter note is quantized to start later by one eighth note, the note's new duration would be decreased by an eighth note (ie. it loses a value equal to the distance it was moved.) This is because its start time is moved, but its end time is not.

- If the same note was quantized to land earlier by one eighth note, the note's new duration would be increased to a dotted quarter note. It gains a value equal to the distance it was moved because, again, its start is moved, but not its end time.

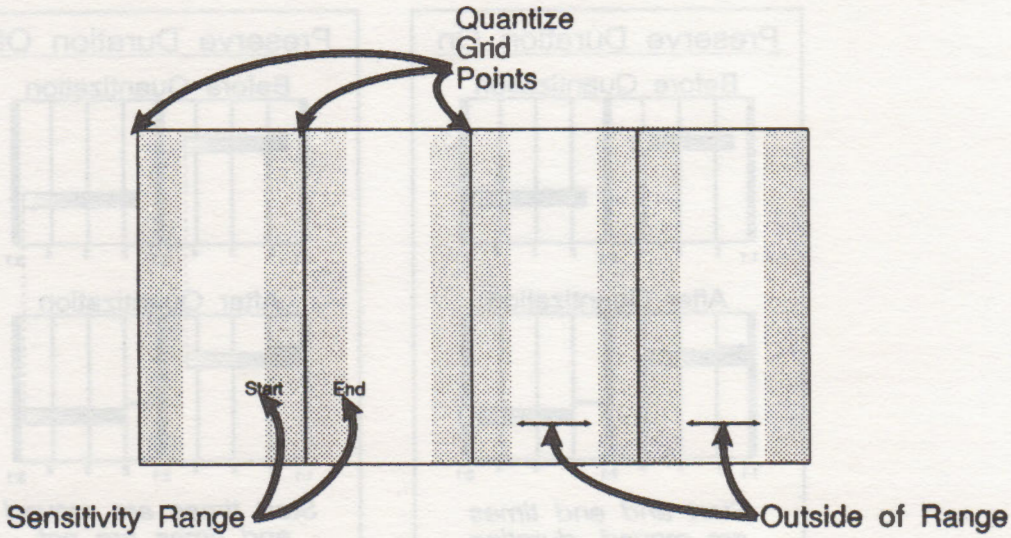
Sensitivity Controls which notes will be quantized by setting a Sensitivity Range from 0% to 100%. This is useful to quantize only notes that land close to the beats while leaving notes further from the beats unaffected.

➥ *Highlight Sensitivity in the Super Quantize window, and use the + - [ ] keys to set the new value, or type the value and press [Enter].*

A track that is predominantly sixteenth notes, but also includes triplets, can be difficult to quantize. With normal quantization the triplets would be quantized to eighth or sixteenth notes, and no longer be triplets. By setting Sensitivity so that only notes very close to the beat will be quantized, the triplets could remain intact depending on their location relative to the Quantize Grid points.

The Sensitivity range begins before, and ends after each Quantize Grid point. How soon the range begins or ends after the quantize grid points is determined by the Sensitivity setting.

Normally notes that fall inside of this range are quantized and notes that fall outside of it are not.



- If the Interval setting is 8th and Sensitivity is set to 50%, the Sensitivity range would be a sixteenth note in duration, or 50% of the 8th note Interval.

The Sensitivity range is centered across each Quantize Grid point.

- With Sensitivity set to 100%, the end of the previous Sensitivity range would meet the beginning of the next Sensitivity range. Every point on the grid would then be inside a Sensitivity range.

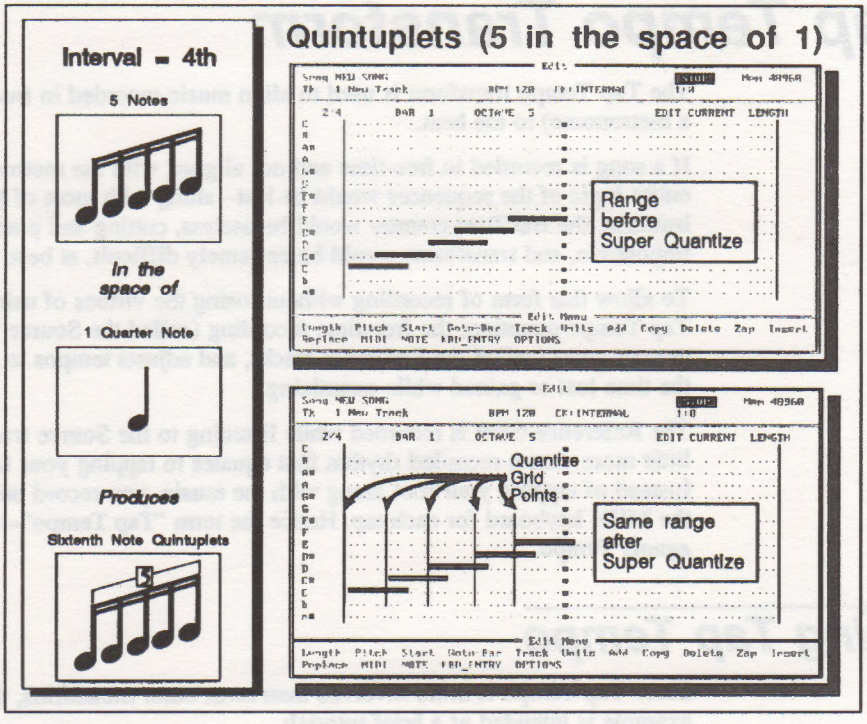
> *The primary difference between Quantization Strength and Sensitivity is that Quantization Strength determines the distance all notes will be moved, while Sensitivity determines* ***which*** *notes will be moved.*

Sensitivity Mode Reverses the function of Sensitivity, i.e. what was to be quantized will *not* be and what was not to be quantized *will* be.

> *Sensitivity mode is a function of the Sensitivity setting, above. It is necessary to understand Sensitivity before using Sensitivity Mode. If you are not familiar with Sensitivity, take the time to learn it now and return to this section later.*

NORMAL All notes that fall inside any Sensitivity range are quantized, and any notes that fall outside any Sensitivity range are not quantized.

OUTSIDE All notes that fall inside of any Sensitivity range are NOT quantized, and any notes that fall outside of any Sensitivity range ARE quantized.



Tuples A Tuple is the category of time divisions such as duples, triplets, quintuplets. Tuples is used to quantize to time units that are not in the Interval settings of Sequencer Plus.

In Super Quantize, Tuples are created by placing Quantize Grid points at the required intervals, and quantizing to those grid points.

To set Super Quantize Tuples

① Highlight the Tuples field in the Super Quantize window, and type the number of Quantize Grid points to be inserted, press [Enter].

② A prompt appears in the menu area. Type the space the Quantize Grid points are to be inserted into, i.e. 3 would represent three of the current Super Quantize Interval.

Although you could create triplets with Super Quantize Tuples, for historical reasons they are already in the interval setting. Quintuplets, however, are not.

Tuples inserts Quantize Grid points at otherwise strange divisions of the current interval. To create quintuplets 5 Quantize Grid points are placed in the space of 1 quarter note and notes are quantized to them. A Quantize grid point is inserted every 38.4 clicks. To do this manually would be difficult at best.

Reset Resets the values in the Super Quantize window to their defaults.

➥ *Press R from the Super Quantize Window.*

Tap Tempo Transform

The Tap Tempo transform is used to align music recorded in free-time (i.e. without a metronome) to the beat.

If a song is recorded in free-time and not aligned with the metronome beats, the entire logic of the sequencer would be lost– along with most of its features! For instance, the Bar:Beat counter would be useless, cutting and pasting would be impossible, and transforms would be extremely difficult, at best.

To allow this form of recording without losing the virtues of using the sequencer, Tap Tempo quantizes the free-time recording (called the Source Track) to a set of quarter notes (called the Reference track), and adjusts tempos to compensate for the time lost or gained while quantizing.

The Reference track is recorded while listening to the Source track. and amounts to little more than a recorded rhythm that equates to tapping your foot while listening. Instead of tapping your foot along with the music, you record one quarter note at the MIDI keyboard for each tap. Hence the term "Tap Tempo"– or even better, Tap *equals* Tempo.

Using Tap Tempo

Since Tap Tempo is more involved than most other transforms, the following example is intended as a brief tutorial:

To record the Source Track

① Record a source track without the metronome. Begin with four quarter notes at the start of the track– these will be used to indicate when to start the Reference track later.

It doesn't matter where the track begins; you can be totally off the bar or beat. Just play in a relaxed manner. Play a smooth rhythm.

The tempo can vary, but don't be too extreme, at least not for this example. Tap Tempo can deal with any rhythm or tempo changes, but the more complex your Source Track is, the more difficult it will be to create a Reference track for it.

To record the Reference Track

② Before recording the reference track, access the Edit Window and take a look at the notes in the source track. They're probably scattered all over the place, on and off the beats. Try to get a mental image of the Edit Screen to compare it to the results of the transform.

③ Play back the track and get the feel for the rhythm you played. Then, in a different track, record the Reference track of quarter notes, also without the metronome. Pick up the Source track by listening for the four quarter notes you played at the start of the track. Record while

listening to the first track, playing one note at every point where you want to place a beat in the Source track.

> *It's important that every "beat" of the Source Track be reflected by a quarter note in the Reference track. If you skip a beat or hit two keys by mistake, re-record the reference track. You may be able to compensate for a missed beat, but your PC will think you skipped the beat intentionally and the results will be unpredictable.*

Run the Tap Tempo transform

① Highlight Tap Tempo in the MIDI/Tempo Transforms window, press [Enter].

② Highlight the Source Track as the range to be transformed. Press [Enter].

③ Type the Reference Track's track number, press [Enter].

What happened?

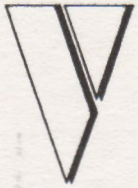
- ❑ In the Edit screen the notes of the source track now roughly line up with the bar lines.
- ❑ In the MIDI Edit screen of the reference track a tempo change is aligned on every beat. The tempo values will be randomly spaced, unless you happen to be a very steady player.

To hear the transformed track

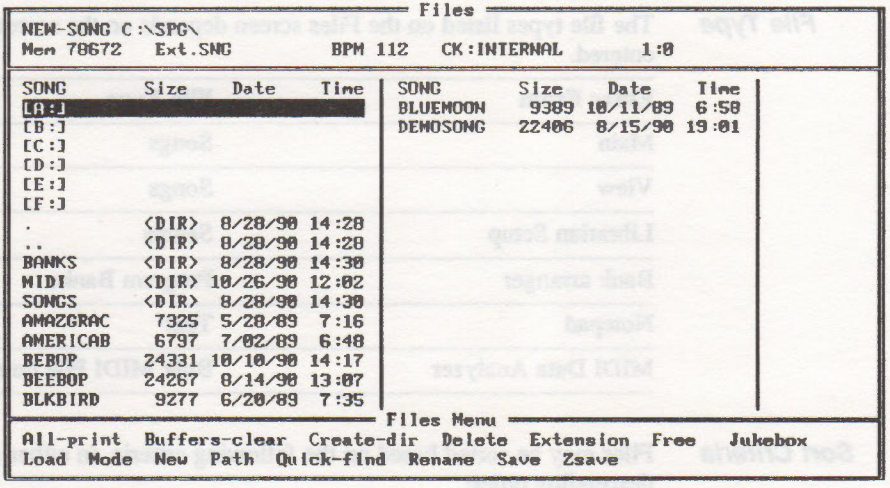
① Call up the Options window, [F3], and set the tempo track to the number of your reference track.

② When you play back, watch the tempo indicator in the status window at the top of your display. It is probably moving all over the place, but the music will have the tempo you originally played.

③ If you turn off the tempo track (mute it), and set the tempo from the Main Screen to a rough average of the tempo of the reference track (i.e. if the tempos ranged from 95 - 120, the average is about 105 to 110), you will get a steady tempo, but you will still have some of the human nuances. In many ways, this will sound more natural and tighter than quantizing.



Global Functions V



Files Screen

➥ *F to enter from Main, View, Librarian Setup, MIDI Data Analyzer, or Bank Arranger screens. [Esc] to return to previous screen.*

➥ *[Ctrl] F to enter from the Notepad. [Esc] to return.*

The Files screen is used to manage the various files associated with Sequencer Plus. The first 125 files with matching extension in the current directory are displayed . The number of files listed may be increased with the /dr: Command Line Option.

File Display The following levels of file information can be displayed at any one time:

- ❑ Name, Size, Date, Time
- ❑ Name, Date, Time
- ❑ Name, Size
- ❑ Name

To set the Files Displayed

① Activate the Configuration Window [F4].

② Select D for Display.

③ Use + - to toggle through the four options.

Choosing a display configuration with less information will leave room to display more files.

When a column of filenames reaches full height, a new column is started to the immediate right. Use the cursor keys to move from one column to another.

File Type The file types listed on the Files screen depends on the screen from which it was entered.

Enter From	File Type
Main	Songs
View	Songs
Librarian Setup	Setups
Bank arranger	Program Banks
Notepad	Text
MIDI Data Analyzer	Bulk MIDI File dumps

Sort Criteria Files may be sorted based on the following criteria, in either ascending or descending order:

Name Alphabetically by name.

Extension Alphabetically by extensions.

Size By file size, in bytes.

By file creation date and time Oldest to newest.

None Order of files on disk.

To set the Sort Order

① Activate the Configuration Window [F4].

② Select C for Sort Criteria.

③ Use + - to toggle through the options.

Files Screen Status Area

File Name The name of the file currently loaded. File type may be either SONG, BANK, SETUP or TEXT as determined by the file extension.

Path The drive and directory the Files screen is currently logged on to. See Path command.

Mem Remaining song memory.

Ext.(xxx) Extension of the files listed in the work area. See Extension command for a listing of the file extension types.

BPM Current tempo setting in Beats Per Minute (BPM) as set in the Main screen.

CK Clock source as set in the Sync Window [F6]. Can be set to INTERNAL, SMPTE, NO SPP, SONG PTR or MTC.

Bar:Beat Current song position displayed as bar:beat.

Files Screen Work Area

➥ *The [Enter] key is the primary navigation tool in the Files Screen. Use it to select Disk Drives, and Change Directories.*

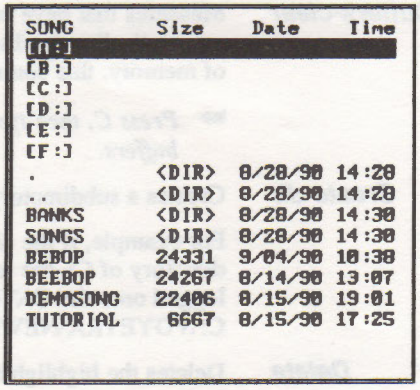
Song This column displays disk drives, sub-directories, and file names. The title depends on which screen the Files screen was accessed from:

Title	Screen accessed from
Song	Any sequencer screen
Setup	Setup screen
Bank	Bank Arranger Screen
Text	Notepad Screen
MIDI Data	MIDI Data Analyzer

Disk drives and sub-directories are displayed first in highlighted text.

Files are displayed next, in plain letters.

➥ *To view the contents of any subdirectory or drive, highlight the name and press enter.*



❖ ***If you have a mouse...***

The contents of any drive or directory can be listed by double clicking the left button on the name.

To load any file, double click the left button on the file name.

Size Displays file size in bytes.

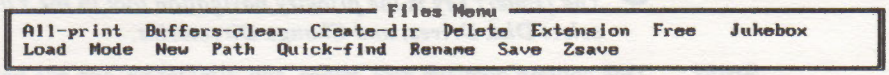
Date Displays the Date the file was last saved to disk.

> *Your computer's date and time must be set correctly for this function to work.*

Time Displays the Time the file was last saved to disk.

> *Drives and subdirectories do not show Date and Time, and Size.*

Files Screen Menu Commands



❖ ***If you have a mouse...***

You can access the Files commands by pressing both buttons to activate the Mouse Menu Window.

All Print (Available only when entering the Files screen from the Bank Arranger). Prints all the program names in all the bank files for the current instrument. The Report command in the Setup screen prints the programs in just one bank.

> *Be sure to set up the correct printer port using the Configuration Window [F4] before using this command.*

Buffers-clear Measures that have been moved into memory buffers (0 - 9 and Temp) are automatically saved to disk as part of the song file. Because they may take up a lot of memory, this command allows them to be cleared before saving the song.

➥ *Press C, then type the number of the buffer to clear, or press A to clear all buffers.*

Create-dir Creates a subdirectory below the current directory.

For example, if the directory NEWDIR was created when logged onto the root directory of C:, the result would be C:\NEWDIR. If NEWDIR was created while logged onto the C:\VOYETRA directory the result would be C:\VOYETRA\NEWDIR.

Delete Deletes the highlighted file or sub-directory from disk.

➥ *Highlight the file or directory to be deleted, press D, then Y to verify. Pressing any other key will prevent the deletion from being made.*

> *A directory cannot be deleted if it contains files.*

Extension Determines the extension of the files listed. Normally, only one type of file is listed, depending on which screen was used to enter the Files screen.

➥ *To change the current directory extension, press E, then type the desired extension (without a period), and press Enter.*

➥ *To see all files, enter an asterisk (*) as the extension.*

Sequencer Plus can load the file types listed below.

> *Although the Files screen can display any file on a disk, this does not mean any file can be loaded into Sp.*

The following default filename extensions are added to files when saved:

Sp Gold File Extensions

File type	Extension used
Song files	*.SNG
MIDI Song files	*.MID
Personal Composer files	*.S
Single Track files	*.TRK
Notepad Text files	*.TXT
Librarian Setup files	*.STP
MIDI Data Analyzer files	*.MDI
Librarian Bank files	*.B## or *. C## (where ## is a two-digit number corresponding to an instrument type.)

Free Lists how much free memory is on the disk and whether the song in RAM will fit on the disk.

If the song won't fit, try the Clear Buffers command to reduce its size, delete some files from the disk to make room, or replace the current disk with a formatted disk that has sufficient room.

> *The Free command can only determine the size of songs saved in standard Sequencer Plus format. When using MIDI file format the Free command will not function.*

Jukebox Plays the list of song files in succession.

To use Jukebox mode

> *In order to use Jukebox, SpG must be run with the /dr: command line option — (see the section on Command Line Options.)*

➥ *Highlight the first song to play and press J. Songs from that point on will begin to play in order, with a short pause between them.*

➥ *To halt playback, press [Esc].*

Using the " _" character as the final character in a song's filename (e.g. MYSONG_) will make song pause at the end. The next song will not begin to play until the [Spacebar] is pressed.

Pressing the [Spacebar] while the song is playing causes it to immediately stop playing. The next song in the list will then load and begin playing.

Load Loads the highlighted file from disk.

➥ *Highlight the name, press L, then [Enter] to load the file or [Esc] to abort loading the file.*

When loading MIDI files, the type does not have to be specified. Sp will automatically choose the correct MIDI type as the file loads.

When saving MIDI files, choose the format type that is used by the program with which you intend to read the file.

For instance, if the file will be used with a program that reads only Type 0 MIDI files, save the file as Type 0. If you're not sure about the type, save the file as Type 1, since it retains the most information.

> *Sp can load type 0, 1, 2 MIDI Files but can only save Type 0 and 1 MIDI files.*

To play a song from the Files Screen

① Start SpG with the /dr: command line option.

② Press F to access the Files Screen.

③ Highlight the file names, press L and [Enter], (the file screen remains).

④ Highlight the file name and press the [Spacebar] to play it.

> *The command line option /dr: does two things. One, after a file is loaded you remain in the Files screen, instead of being returned to the Main screen. Two, files can be played from the Files screen.*

To Merge Song Files

Sequencer Plus .SNG files cannot be merged by loading one file into the file in RAM. When a new song file is loaded, the one in memory is erased. In contrast to this, when a MIDI file is loaded, its tracks are merged with the song in RAM. This feature may be used to combine two or more songs.

> *To avoid merging songs when loading a MIDI file, use the Main Screen Delete command to delete all tracks before loading the MIDI file.*

To merge single tracks into song files

> *Unlike song files, track files can be merged into song files.*

① Load the song that you wish to merge from the Files screen.

② Move the highlight to an empty track.

③ Return to the Files screen and use the Mode command (press M) to select the .TRK extension. (.TRK will be displayed in the status area once it is selected.)

④ Highlight the track file you wish to merge into the currently loaded song, press L and [Enter].

⑤ The track will be loaded into the song, at the cursor location.

Mode Toggles through Sp compatible song file formats as listed below:

Compatible File Formats

File Extension	Description
*.SNG	Sequencer Plus format
*.TRK	Track File Format
*.MID	Standard MIDI file format
*.S	Personal Composer™ format
*.ROL	Ad-Lib™ format

> *The mode selected is indicated by the file extension shown in the status area. Once selected, only files with that extension will be listed.*

Unless the song file is to be transferred to another program, it is best to use standard Sp file format.

> *Sp file format is much more efficient than standard MIDI file format and you can always reload a song and later save it in another format.*

New Rereads the current directory.

This is useful when attempting to read a directory from a floppy disk with the drive door open, or to insert a new floppy disk and re-read the directory.

Path Sets the drive and directory the Files screen will be logged onto. This path setting is saved in the current config file.

> *The [Enter] key and mouse are the easiest way to navigate through disks, directories and files.*

Quick-find Used to search for a specific filename. As the filename is entered, Quick-find reads each letter and jumps to the first file with a matching name. The search continues for each new letter entered, or until [Enter] is pressed.

Rename Used to rename the highlighted file.

Save Used to save the currently loaded the currently displayed disk and directory.

➥ *Press S, type a file name, press Enter.*

Files names must follow DOS's rules. File names can be a maximum of 8 characters long. Sequencer Plus adds the extension automatically.

Filenames should be chosen carefully, otherwise it will be difficult to keep track of them.

> *Placing an exclamation point ! at the beginning of a file name will cause that file to be displayed at the top of the files display.*

To overwrite a file

➥ *Press S, then [Enter]. A prompt will ask you to confirm that you want to overwrite the file, and the file will be overwritten with the same name.*

Never give a file the same name as one already stored on the disk unless you want to replace the old file with the new one. If the computer sees an existing file with exactly the same name, it thinks they are the same file, and will ask you if you want to replace the old with the new. If you make a mistake at this prompt, the file on the disk will be wiped out.

❑ Always keep backup copies of your storage disks. It's even wise to keep a backup copy of a song that you know is only a work-in-progress. If you somehow lose the latest version and its backup, you'll be glad you have the early version. Using Sort date comes in handy when checking for oldest or newest versions of your work.

To save the Files Screen options settings

① Activate the Configuration Window [F4].

② Select S for Save, then Y to confirm. Saving changes will overwrite the previous configuration file.

Zsave This format should only be used for file compatibility with Sequencer Plus version 2.0 (pre-1986) or programs that require this format, such as Dr. T's The Copyist.

> *Zsave doesn't save Setups, Notepad text, or the high resolution (192 PPQ) setting. Songs recorded at 192 PPQ are automatically converted to 96 PPQ.*

About Song File Formats

Songs may be saved in three different file formats selected by the MODE command in the Files screen.

Sequencer Plus Format

This is the standard file format for the Sequencer Plus series and should be used in all situations except when transferring songs to other programs. Songs saved in Sp format can always be resaved later in a different format if necessary.

> *Files saved in Sp format cannot be read by earlier versions of Sequencer Plus. However, files saved in earlier versions of Sequencer Plus can be loaded into Sp version 4.0 or higher.*

MIDI File Format

A MIDI file is a standardized song file format used for sharing songs between different sequencer programs. The MIDI file format is the universal standard agreed upon throughout the industry. Third party music files are available in this format.These files are stored in one of three types. 0, 1 or 2.

> *If you experience problems transferring MIDI files to or from a non-Voyetra program, it may be that the developer used an earlier specification of the MIDI files standard, making it slightly incompatible with ours. If this occurs, please check with the developer to see if an update is available.*

Each Sequencer Plus track contains data for only one MIDI channel. Because of this, the Sequencer Plus file format only needs to deal with one channel per track when it saves and loads a .SNG song file.

In contrast to this, the MIDI file format allows up to 16 channels per track to be saved in a MIDI file. Thus, when a MIDI file is loaded, one track chunk must be split into as many as 16 tracks; one for each channel in the MIDI file track chunk.

Format 0 Contains only one track chunk.

Format 1 and 2 Have no limit on the number of track chunks they may contain.

AdLib File Format

The Adlib file format is used only by the Adlib sequencer products. Sp can load these files, but not save them. Once an Ad Lib file is loaded, it may be saved as either a Sequencer Plus file or a MIDI file.

Personal Composer Format

Sp can save any of your song files in Personal Composer format for use in that program. However, the reverse is not true. Sp does not read or load Personal Composer format files.

File Format Summary

The following table summarizes the pros and cons of the various file formats supported by Sp Gold:

File Type	Ext	Pros	Cons	Note
Sequencer Plus	*.SNG	Very fast file load and save	Compatible only with Sequencer Plus	Sp can load files saved in earlier versions of Sp.
		Saves all song data and options		
		Easy to deal with if only using Sp		Earlier versions of Sp can not load files from later versions of Sp.
		Can use file Sp command line options		
MIDI	*.MID	Allows songs to be transferred between different programs	Must deal with three different file types	Sp doesn't save MIDI FIle type 2.
		Can merge songs together	Generates large files	Sp can load type 0, 1 or 2.
			Possible compatibility problems with programs that support different rev of MIDI File spec	
			Can't use Sp command line options.	
			Slow file load and save	
Ad Lib	*.ROL	Access to AdLib song library	Compatible only with AdLib programs	Sp can load but not save in AdLib format

Using MIDI Files

To load a MIDI file

① Press F to access the Files Screen.

② Press M for Mode until MIDI file format is selected. Locate the MIDI file by finding the appropriate directory, etc.

③ Highlight the MIDI file name, press L, and [Enter].

Before loading the file, you'll be prompted for information regarding time signatures. Since a MIDI file can be merged with a song in RAM, you may not want the time signatures of the new MIDI file merged along with the existing music. You will be prompted:

accept both tempo and time sigs?

To respond press the first letter of your choice, or highlight your choice and press [Enter] to load the MIDI file.

To Save a MIDI File

① From the Files screen, use Mode to select MIDI.

② Choose SAVE from the menu and enter the filename to use.

③ Several options are available while saving MIDI files; these are outlined below.

To make a selection, press the first letter or highlight the desired choice for File Type, then press [Enter].

MIDI File Save Options

Choice 1

Type 0 or Type 1? Choose a format type that is compatible with the program(s) to which you intend to export the file.

Choice 2

Include data from? All, Group, Single, Tempo This choice determines which tracks' data is included in the output file. You may include all tracks, or a single track.

Choice 3

Use or Ignore? This choice determines whether the playback variables on the Main screen will affect the output MIDI file data. If you select Use, then quantization, transposition, initial program changes, mute, and solo become relevant.

For instance, when Use is selected, only tracks that are not muted are included. Also, all the playback variables are performed on the tracks as they are converted.

If you select Ignore, all tracks within the parameters selected in choice #2 are used, whether they are muted or not. Also, Main screen playback variables will have no effect on the MIDI file data.

Choice 4

Verbose, Terse, or MIDI Only This choice controls the range of non-note or "meta events" that appear in your output file.

Verbose Generates all supported events.

Terse Suppresses all but very common MIDI data.

MIDI Only Suppresses all "meta events." This may be useful for exporting files to sequencers that support an earlier version of the MIDI files specification.

Theoretically, any program that supports MIDI files should be able to deal with any meta event, even if it wasn't defined when the program was released. For that unforeseeable case, however, "MIDI Only" should eliminate problems caused by meta events by taking them out of the picture altogether.

Transferring Sp Songs to a Mac with MIDI File Format

MIDI Files provide a uniform format to exchange song data between programs—even if the programs are for different types of computers. For instance, if you want to get Sp songs into a Mac, MIDI files can do it (with a little effort on your part.)

Unfortunately, Mac disks are incompatible with PC disks, so you can't just stick a Mac disk into a PC or vice versa (even if your PC has 3.5" disks.)

This incompatibility means that MIDI files won't help unless you have something that will let you transfer disk files between a Mac and PC. Possible solutions to this dilemma include:

- ❑ Use a Mac drive that reads PC disks (included with some Mac models.)
- ❑ Buy a drive for the PC that reads and writes Mac disks
- ❑ Use MacLink to transfer files between the PC and the Mac. (This product consists of a cable that connects the serial ports between the computers, and two disks: one for the Mac, one for the PC.)
- ❑ If you have a modem, you can upload the MIDI song file to PAN with one computer, then download it to the other computer.

Using Personal Composer Files

The best known notation software program is called Personal Composer. Sp has the capability of saving any of your songfiles in Personal Composer format, so you can load them directly into that program. (Sp cannot read Personal Composer files.)

When you convert Sp files to Personal Composer files and read them into the Personal Composer program, the data is exactly the same as it was in Sp form. You may, however, need to make some adjustments to reflect the accurate notation of these files. See the upcoming section on adjustments for Personal Composer files for specific instructions.

Transferring Files to Personal Composer

To save in Personal Composer Format:

① From the Files screen, use the Mode command until the file type is Personal Composer. This is indicated in the heading over the filenames.

② Choose Save from the menu.

③ Enter the filename to use.

④ You will then be presented with some choices. Press the first letter or highlight the desired choice, then press Enter. You may press Esc at any time to cancel saving the MIDI file.

Choice 1

1.35 or System/2 Make this choice according to the version of Personal Composer you own.

Choice 2

All Tracks, One Group, One Track, or Tempo Only This choice determines which tracks' data is included in the output file. You may include all tracks, one group letter of tracks, a single track, or the tempo track only.

Choice 3

Use or Ignore This choice determines whether the playback variables on the Sequencer Plus Main screen will affect the Personal Composer file data.

If you select "Use" then quantization, transposition, offset, initial program changes, mute, and solo become relevant.

In this mode, only tracks that are not muted are used. Also, all the playback variables are performed on the tracks as they are converted. If you select "Ignore" all tracks within the parameters selected in choice #2 are used, whether they are muted or not. Also, Main screen playback variables will have no effect on the file data.

Tips for using Personal Composer with Sp Gold

Since Sp cannot load Personal Composer files, you should save your songs in both Sp format (Save command) and Personal Composer format.

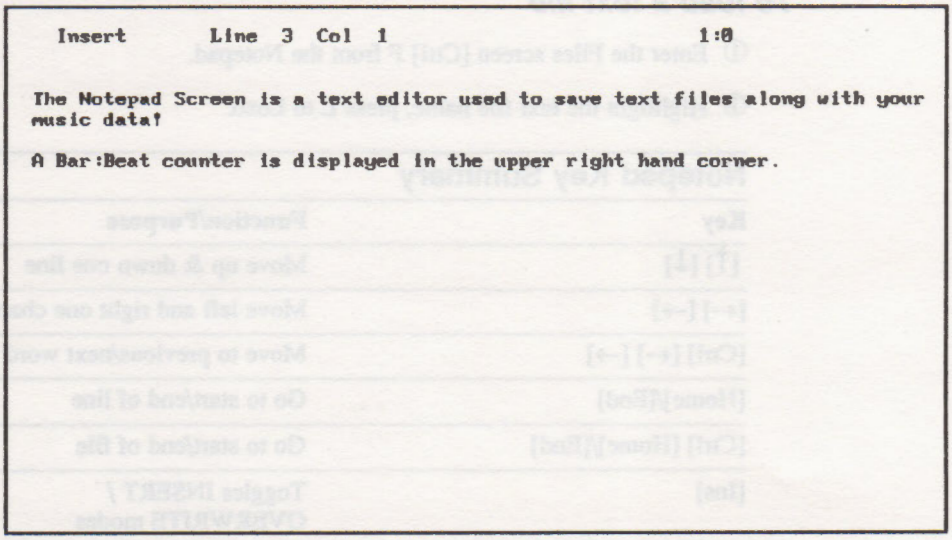
The track channel settings in Sp's Main screen determine the Personal Composer track number. Consequently:

- Sp tracks can be merged into the same Personal Composer track (staff) by setting them to the same channel. This limits the maximum number of Personal Composer tracks which may be exported to 16, even though Personal Composer allows up to 32 tracks.

Because Sp puts channel 1 data into Personal Composer track 1, channel 2 data into track 2, etc., lower numbered channels will be higher on the system when converted to a score. Thus, before saving a song in Personal Composer format, you should set the channel assignments to arrange the tracks in the order you want them in Personal Composer

- Avoid tracks with several continuous bars of rests — Personal Composer sometimes will not convert them.
- Due to the way Personal Composer deals with time signature changes, they will always start on a new line. If the time signatures in different Sp tracks do not match, the music will be scored according to the time signature source track and all the other tracks will be track-rebarred.
- Because notes faster than 16th notes will not be transcribed by Personal Composer , you should avoid playing trills. Instead, you should notate them later with the tr~~ symbol.

Personal Composer Version 1.35 will not recognize tempo or time signature changes.



Notepad Screen

➥ *[F7] to enter from any screen (even when a sequenceis playing). [Esc] or [F7] to Exit.*

The Notepad is a text editor used to save a single-page textfile along with the song. Notepad text can also be saved and retrieved as a separate file.

Text is normally entered in *overwrite mode*, whereby corrections are made by typing over existing text. The Ins key activates *insert mode*, where text inserted at the cursor position pushes existing text to the right.

Words do not wrap around from line to line. [Enter] must be pressed at the end of every line to avoid odd word breaks.

To insert the current bar number at the cursor position

[Ctrl] B inserts the current bar number at the cursor position on the Notepad. Holding down this key combination during playback inserts the bar number repeatedly.

To save text as a separate file

① Enter the Files screen [Ctrl] F from the Notepad.

② Press S for Save. When the file is saved, blank lines in the text are removed and tabs are converted into 5 spaces.

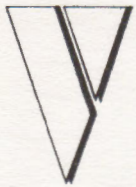
To load a text file

① Enter the Files screen [Ctrl] F from the Notepad.

① Highlight the text file name, press L to Load.

Notepad Key Summary

Key	Function/Purpose
[↑] [↓]	Move up & down one line
[←] [→]	Move left and right one character
[Ctrl] [←] [→]	Move to previous/next word
[Home]/[End]	Go to start/end of line
[Ctrl] [Home]/[End]	Go to start/end of file
[Ins]	Toggles INSERT / OVERWRITE modes
[Del]	Deletes the character under the cursor
[Backspace]	Deletes the previous character
[PgUp]/[PgDn]	Beginning of next/previous line
[Ctrl] [PgUp]/[PgDn]	Top line/bottom line
[Ctrl] Y	Deletes the current line
[Ctrl] Z	Deletes to the end of the line
[Ctrl] T	Deletes word
[Ctrl] F	Go to files page
[Ctrl] B	Inserts the current bar number into the text
[Tab]	Inserts five spaces
[Esc] or [F7]	Return to previous screen

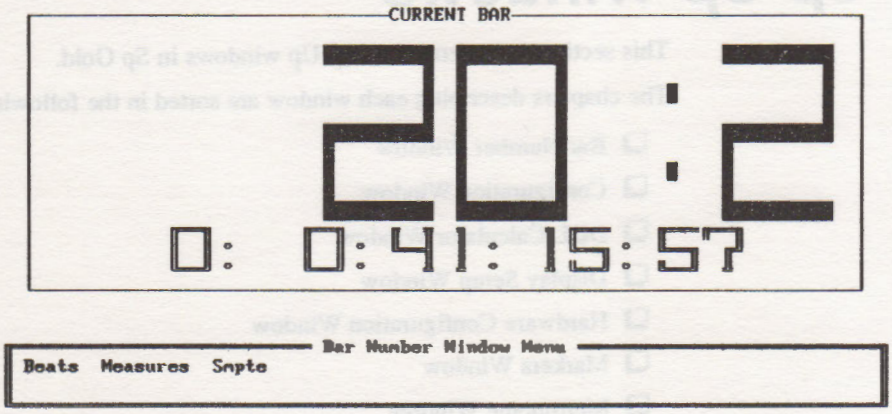


Pop-Up Windows

This section documents the Pop-Up windows in Sp Gold.

The chapters describing each window are sorted in the following order:

- Bar Number Window
- Configuration Window
- DDL Calculator Window
- Display Setup Window
- Hardware Configuration Window
- Markers Window
- Metronome Window
- Options Window
- Play Range Window
- QWERTY Synth Window
- Sync Window



Bar Number Window

➥ *[F8] to open from any screen except Files and Notepad. [Esc] to close.*

The Bar Number Window shows any combination of the current measure number, beat number, and SMPTE counter in a format large enough to see from a distance.

It is initially set to display measure and beat numbers only.

Menu Area Commands

Beats Toggles Beat display ON and OFF.

Measure Toggles Measure display ON and OFF.

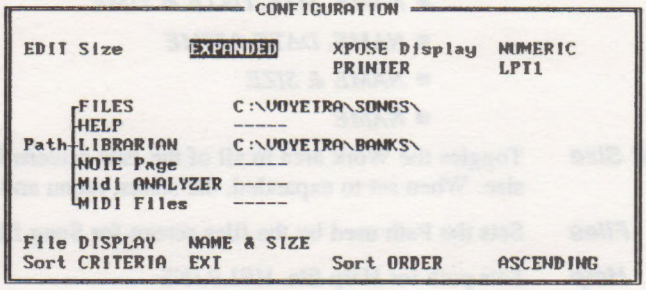
SMPTE Toggles SMPTE display ON and OFF.

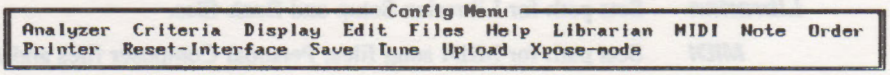
> *The SMPTE Counter must be activated from the Sync Window to display SMPTE time.*

To display SMPTE numbers

④ Turn ON the SMPTE counter from the Sync window [F6].

② Return to the Bar Number Window and use the SMPTE command in the menu.





Configuration Window

➥ *[F4] to enter from any screen. [Esc] to close.*

The Configuration Window is used to control certain aspects of the screen displays, file paths, and printer ports. The settings are saved from the Configuration window by pressing S for save and Y for yes.

Configuration Window Menu Commands

Analyzer Sets Path to MIDI-Analyzer files.

Criteria Sets sort criteria for file display in the Files Screen.

Sort Criteria	
None	Sorted by DOS.
Name	Alphabetically by file name.
Date	Date Order.
Size	File Size.
EXT	Alphabetically by file extension.

Sort Order determines if name, date, and size are sorted in ascending or descending order.

Display Sets file display information in the Files Screen, including:

- *NAME, SIZE, DATE & TIME*
- *NAME, DATE &TIME*
- *NAME & SIZE*
- *NAME*

Edit Size Toggles the Work area in all of the Edit screens between normal and expanded size. When set to expanded, the status, menu and borders are removed.

Files Sets the Path used by the files screen for Song files.

Help Sets path for Help file, HELP.INS

Librarian Sets path for Librarian Setup and Bank files.

MIDI Sets path for MIDI song files, Personal Composer files and AdLib .ROL files.

Note Sets path for Notepad files.

Order Sets Sort Order of files listed. Can be set to Ascending or Descending.

Printer Sets the printer port used by the Librarian print functions.

➥ *Press P, then use the + - keys to toggle between the printer port options*

- *LPT1/ LPT2/ LPT3*
- *COM1/ COM2*

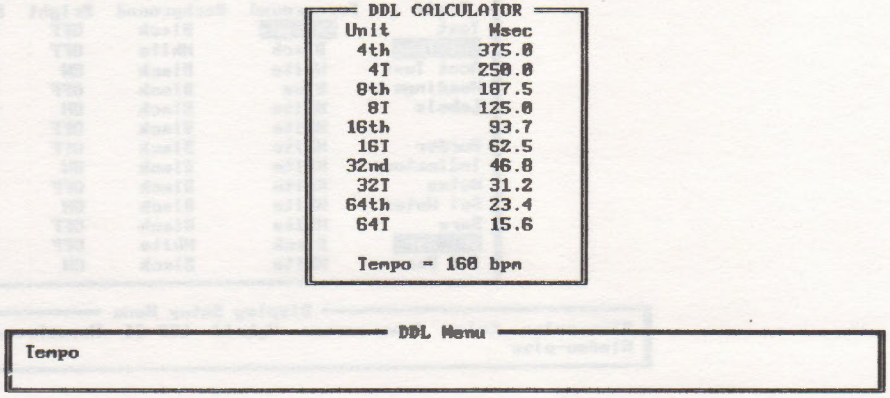
Reset-Interface Sets the MIDI interface to the default configuration if it has been altered by a software application.

Save Saves the current configuration as the CONFIG.SEQ file. Prompts as to whether the current configuration file should be overwritten.

Upload Loads a configuration file from disk.

Xpose-Mode Toggles the Transpose display mode on the Main screen between Numeric and Chromatic format.

➥ *Press X, use the + - keys to toggle.*



DDL Calculator Window

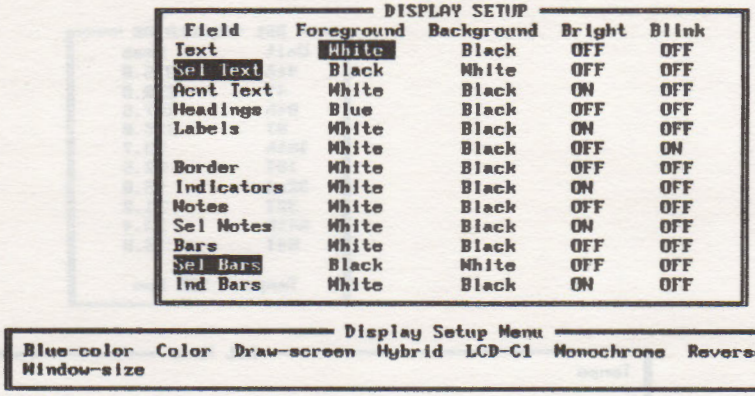
➥ *[Shift][F10] from any screen. [Esc] to exit.*

The Digital Delay Length Calculator shows the number of milliseconds per beat for any given tempo. This is useful to accurately set a digital delay effect to the timing of the song.

When activated, the DDL column in the calculator window will be instantly updated based on the song's tempo setting.

Tempo Same as Main and View screen tempo command. Allows the song tempo to be conveniently set from the DDL window.

When the song is not playing, the tempo command can be used to set various tempo settings for the purpose of checking the related DDL times.



Display Setup Window

➥ *[Shift][F6] to open from any screen except Notepad. [Esc] to exit.*

The use of color in the text and graphic fields is designed to improve recognition of functions and markers. Text fields are displayed at the top of the window, graphic character fields at the bottom.

As the settings in the Display Setup window are changed, a preview of the color combination is displayed. To use the preview settings throughout the program, use the Draw-Screen command.

To save the color and window size settings, use the Save command in the Configuration window [F4].

Text Fields

Text This category covers most text characters, including screen background in the View and Edit screens.

Sel Text (Selected Text) Selects the color of the highlighted text.

Acnt Text (Accented Text) Text used for warning messages, group, and block menus.

Headings The "Name" displayed at the top of a pop-up window.

Label The "Name" displayed at the top of screens.

Flash Warning or error messages in the menu or status areas.

Graphic Characters

Borders Screen and window borders.

Indicators Octave-markers in the Edit screens.

Notes All notes in the Edit screens except for the selected note.

Sel Notes (Selected Notes) Highlighted note in the Edit screens.

Bars The bars in the View screen.

Sel Bars (Selected Bars) The bar under the cursor, or the bars in a range in the View screen.

IndBars (Indicator Bars) Every 8th bar in the View screen.

Field attributes

Foreground Color The color of the letters, numbers, graphic symbols, etc. There are eight possible colors black, blue, green, cyan, red, magenta, brown, and white.

Background Color The same colors are possible as with Foreground.

> *If the foreground and background colors are the same, you won't be able to read the text.*

Bright On/Off Assuming the monitor's contrast and brightness are properly set, it should be obvious whether or not Bright is ON.

Bright only affects the foreground colors, and sometimes has unusual effects on certain colors. For example, white only looks white if you turn Bright ON; otherwise it appears grey. On a color screen, yellow appears brown unless Bright is ON.

Blink On/Off Toggles the flashing messages and indicators setting on/ off.

Display Setup Window Menu Commands

Color A preset setting for a color monitor, using a dark background.

Blue-Color A preset setting for a color monitor, using a bright blue background.

Draw-screen Makes the display match the preview inside the Display Setup window.

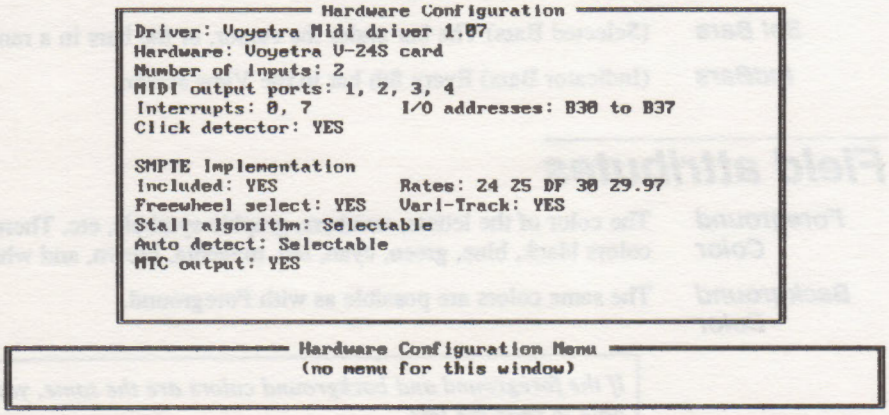
Hybrid A preset setting for a hybrid color/monochrome display, such as the Compaq portable, and many laptop computers.

LCD/C1 A preset for LCD displays and the Yamaha C1.

Monochrome A preset setting for a PC monochrome monitor.

Reverse-color A preset setting for a color monitor, using a light grey background.

Window-size Toggles the work area in all screens between normal and expanded size.



Hardware Configuration Window

➥ *[F3] to activate options window, then H. [Esc] to return to Options.*

The Hardware Configuration window lists all of the features supported by the MIDI interface installed.

Driver Shows the VAPI driver version loaded into memory.

Aux Driver Shows the SAPI driver version loaded into memory, if any. *(Not shown in illustration.)*

Hardware Shows the model of the MIDI interface installed.

 # Inputs Number of MIDI inputs detected on the interface.

Active Output Ports A list of all active port numbers detected, including 'virtual' ports provided by SAPI.

Interrupt IRQ setting detected on the interface.

Address I/O address setting for the interface.

SMPTE Implementation

If the installed interface supports SMPTE the supported features are listed in the options below this heading.

Included (Yes/No) Indicates if installed interface supports SMPTE.

Rates Lists SMPTE frame rates supported.

Freewheel Select (Yes/No) Indicates if Freewheel select is supported.

Vari-Trak (Yes/No) Indicates if Vari-Trak is supported.

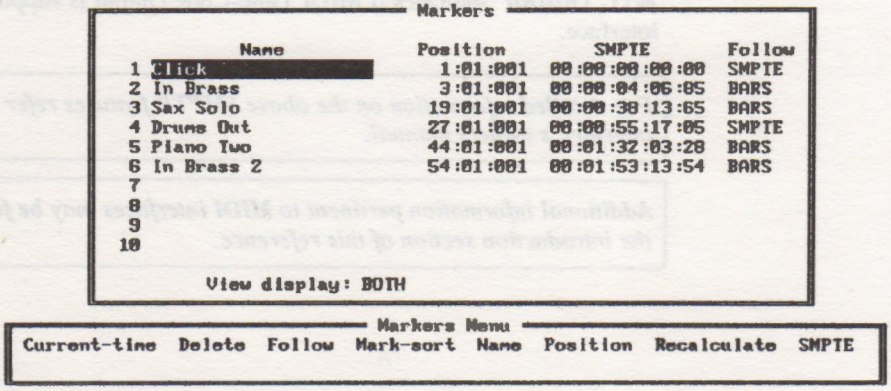
Stall Algorithm Indicates if and how Stall Algorithm is supported.

Auto Detect Indicates if and how SMPTE rate is detected by Auto Detect on installed interface.

MTC Output Indicates if MIDI Time-Code Output is supported by the installed interface.

For detailed information on the above SMPTE features refer to the interface's owners manual.

Additional information pertinent to MIDI interfaces may be found in the introduction section of this reference.



Markers Window

➥ *[Shift][F4] to enter from any screen. [Esc] to exit.*

Time Markers are the equivalent to bookmarks for music in that they provide an easy way of jumping to preset locations in the song with one simple keystroke. Up to 10 separate marker points may be defined.

> *Markers are only supported in the View and Edit Screens, they have no effect from the Main Screen.*

To assign Markers

① Press[Shift][F4] to access the Marker window.

② Press N for Name.

③ Name the Marker by entering up to 20 characters, and Press [Enter].

④ Press P for Position to enter a location in [Bars:Beats:Clicks]

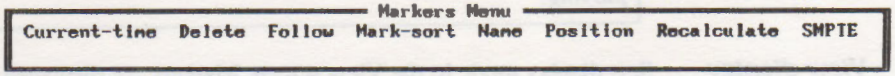
Or

⑤ Press S for SMPTE to enter a location in SMPTE time in [Hours:Minutes:Seconds].

To jump to a defined marker

① From the View or any Edit screen, press [Shift] and the number of the marker.

Markers Window Menu Commands



Follow Determines which of the two types of marker locations, Bars or SMPTE, are updated, and therefore always correct. Follow is set individually for each single marker.

➥ *From the Markers window, move the cursor to the Marker you wish to set the "Follow" type. Press F, and select Bars or SMPTE with the + - [ ] keys.*

Two notes:

- ❑ If Follow is set to BARS for a particular marker, that marker's location, as defined by bars:beats, is maintained even if you change the tempo, switch to another tempo track, or edit the current tempo track. SMPTE will not be updated, and could possibly go out of time.
- ❑ Likewise, if Follow is set to SMPTE for a marker, that marker's location, as defined by SMPTE time, is maintained, even if you change the tempo, switch to another tempo track, or edit the tempo track. Position will not be updated and could possibly be wrong. Use Recalculate to remedy this.

Recalculate Updates changes in Marker's locations.

➥ *To update the current Positions and SMPTE times, press R from the Markers window to recalculate Marker locations.*

For example, if Follow has been set to SMPTE, and the song's tempo has since changed, Markers located by Bars will be incorrect.

Delete Permanently removes the selected Marker from the song and the Marker's window.

➥ *Highlight the Marker's line in the Markers window, and press D. To delete all markers press D, then A for All.*

Mark-Sort Sorts Markers based on their location in the song. from first to last. If Markers are set to different Follow options you must Recalculate before you sort.

➥ *Press M to sort all Markers.*

In other screens, the bar number will be inserted, and the beat and click will each be set to 1 if not playing. When playing, the current bars, beats and clicks will be inserted.

Current-Time Creates or changes a Marker based on the location of the cursor.

➥ *From the Edit Screen, place the cursor on the location you want to mark, access the Markers pop-up window [Shift][F4], and press C. for Current-time. The cursor's position will be recorded into the Marker window.*

> *Current-Time works from any screen, even while the sequencer is playing.*

View-display Sets display mode in the View screen. Markers are displayed above the grid of the work area, and can be displayed in any of the following modes.

Bars Displays Bars without markers.

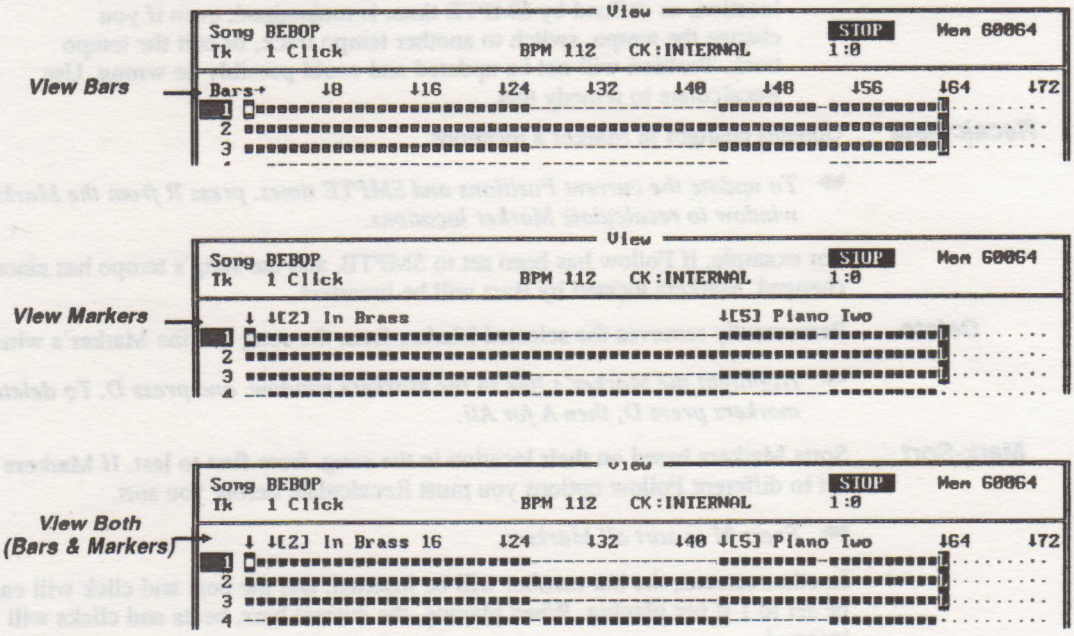
Markers Displays Markers without Bars.

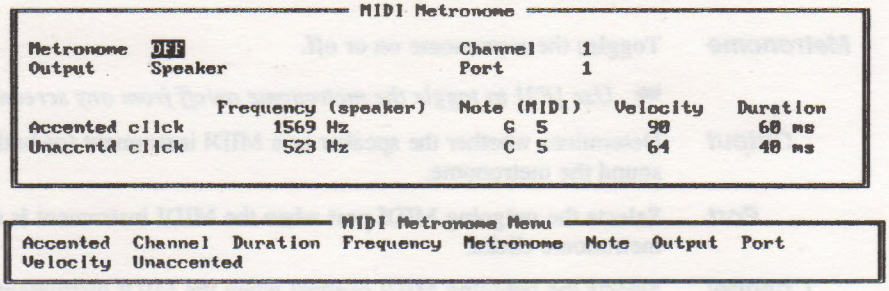
Both. Displays Markers and Bars

> *Markers that are too close to display will overlap.*

➥ *From the Markers window press V to toggle the View-Display modes.*

Markers are always displayed in the Edit Screen.





Metronome Window

➥ *[Shift][F2] to enter. [Esc] to exit.*

The metronome window provides direct control over the sequencer metronome function.

The metronome may be sounded by the PC speaker or by an external MIDI device (usually a drum machine) or both. Full control over pitch and duration of the accented and unaccented metronome beats allows the sound to be tailored to any recording situation.

In professional setups, the metronome is usually assigned to a drum machine and the accented/ unaccented notes are assigned to particular drum sounds. For instance, the downbeat sounds best when assigned to a bass drum sound, while the upbeat sounds best when assigned to a rim shot or high tom tom sound.

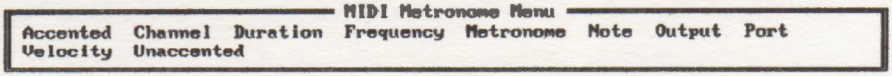
The port and channel assignment in the metronome window should be matched to the port and channel of the MIDI device used to sound the metronome.

The menu items in the metronome window are selected by pressing the first letter of each menu choice, except for two choices: Accented and Unaccented.

- When **Accented** is selected, the cursor moves into the row controlling the accented clicks and may be moved horizontally with the arrow keys.
- When **Unaccented** is selected, the cursor moves into the row controlling the unaccented clicks and may be moved horizontally with the arrow keys.

After setting the metronome parameters, the metronome may be toggled on/off from any screen using the [F2] key.

Metronome Window Menu Commands



Metronome Toggles the metronome on or off.

➥ *Use [F2] to toggle the metronome on/off from any screen.*

Output Determines whether the speaker or a MIDI instrument (or both) will be used to sound the metronome.

Port Selects the outgoing MIDI port when the MIDI instrument is sounding the metronome clicks.

Channel Selects the outgoing MIDI channel when the MIDI instrument is sounding the metronome clicks.

The bottom portion of the window has two rows, each with the same four fields: frequency, note, velocity, and duration.

Top row: Controls the accented (downbeat) click (ie., the first beat of a measure in 4/4 time.)

Bottom row: Controls the unaccented click. (ie., the second, third, and fourth beat of a measure in 4/4 time.)

Frequency Sets the frequency of the accented and unaccented metronome pitch sounding on the speaker.

Minimum frequency is 100 Hz, maximum is 5,000 Hz.

Note Sets the pitch of the accented and unaccented metronome pitch when using the MIDI output.

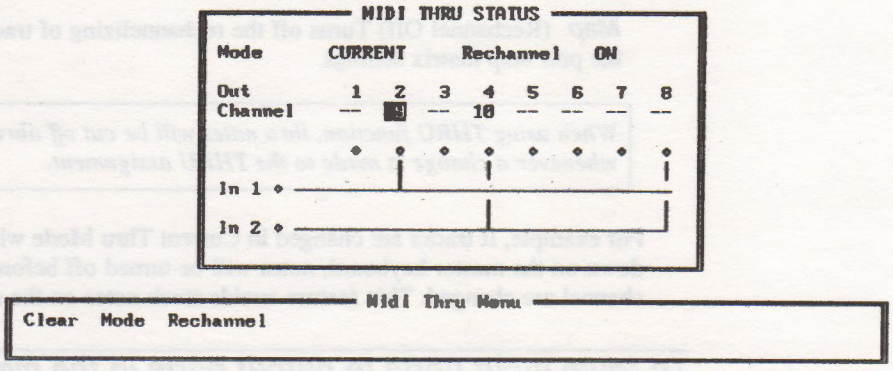
Minimum note number is 1, maximum is 127.

Velocity Sets the velocity of the MIDI notes used for the accented and unaccented metronome pitch.

Minimum velocity is 1 (soft), maximum is 127 (loud).

Duration Applies to duration of the accented and unaccented pitch used for both MIDI and speaker output.

Minimum duration is 5ms, maximum is 999 ms (approximately 1 second).



MIDI Thru Window

➥ *[Shift][F9] to enter from any screen. [Esc] to exit.*

The MIDI Thru Window is a matrix showing the inputs and output ports on muli-port MIDI interfaces. It is used to route the incoming MIDI data to multiple MIDI output ports.

> *Most MIDI interfaces do not have multiple ports. Check your interface's documentation to find out.*

MIDI Thru Window Menu Commands

Clear Clears all settings in the matrix.

Mode/ Rechannel Toggles the MIDI Thru function to one of three options: Off, Current or Map.

The specific effect of these modes depends upon the Rechannel setting.

Off Defeats the THRU function on all ports so that no input ports are routed to any output ports. The rechannelizing is also defeated.

Current (Rechannel ON) Both input ports are merged, rechannelized to the current track's channel setting, and echoed to the track's port setting. The map settings are ignored.

- *This option allows the master keyboard to automatically re-route its output to the port and channel of the active track.*

Current (Rechannel Off) Turns off the rechannelizing of track data and ignores the port map settings. Both input ports are still merged, routed to the current track's port setting.

Map (Rechannel ON) Maps the two inputs into the desired outputs (according to the matrix) and allows each port to be re-channelized. Ports assigned to both inputs will send merged input data.

Map (Rechannel Off) Turns off the rechannelizing of track data and maintains the port map matrix settings.

> *When using THRU function, thru notes will be cut off abruptly whenever a change is made to the THRU assignment.*

For example, if tracks are changed in Current Thru Mode while notes are held down on the master keyboard, notes will be turned off before the port and/or channel are changed. This feature avoids stuck notes on the slave instruments.

To route input ports to output ports in the matrix

Place the cursor at the desired point and use the + - keys to connect or disconnect the points.

- *The open circle character "o" indicates that no tracks are set to play from that output.*
- *The solid diamond character ♦ indicates that one or more tracks have been assigned to play from that output.*
- *MIDI inputs not connected in the matrix are not echoed to any of the output ports when Map is selected.*

To set channel numbers on the output ports

① Move the cursor to the desired location and enter the channel number using the + - [ ] keys or type the numbers directly.

- *Two dashes -- in the channel column indicate no rechannelization.*
- *Entering a 0 sets channel to --.*

Using the MIDI Thru Feature

In order to hear recorded tracks and control slave synths from a master keyboard, the MIDI data from the master must be merged with the sequencer tracks data . Turning on the MIDI thru feature activates this merge function on a "per-port" basis.

When using a master keyboard that doesn't make any sound

Connect its MIDI out to the PC's MIDI in and the PC's MIDI out to the MIDI inputs on the slaves. If MIDI thru is ON for the ports driving the slaves, they'll respond to the master keyboard as well as the track data. It doesn't matter which channel the master is transmitting on, since the MIDI thru window lets you rechannelize the data as it echoes it.

When using a single synthesizer

Connect the synth's MIDI out to the PC's MIDI in and the PC's MIDI out to the synth's MIDI in. In this case, the MIDI thru function would be left OFF since you can already hear what you're recording (ie. the synth plays it itself, without MIDI.)

MIDI Echo Problems

If you hook up a synth this way, and turn the thru function ON, each note will be played twice. Once from pressing the key, and another time as the MIDI note passes through the PC and comes back out to the synth.

You won't hear this as two separate notes (it happens too fast), but you'll notice that the synth only seems to have half the polyphony it should! (ie. your 8 voice synth will only have 4 voices!)

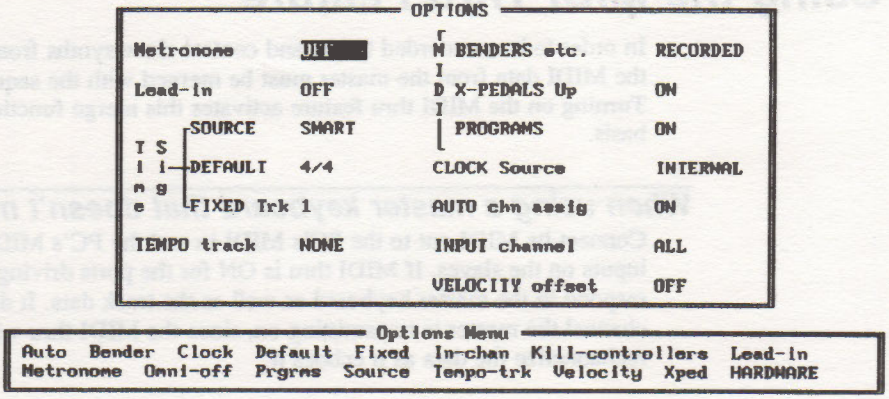
Using Local Mode

Some keyboard synths allow the keyboard to be separated from the sound generator (ie. MIDI wise, not physically!) by separating the synth's receive and transmit channels. This feature is called "Local mode."

With Local Mode OFF, MIDI data is transmitted while playing the keyboard, but the internal synth voices don't play. Instead, the internal voices are controlled by external MIDI coming from the PC. Thus, if MIDI thru on the PC is turned ON, half of the voices won't be lost.

The ability to specify separate MIDI channels for transmit and receive lets you leave the synth's receive channel fixed, so you can hear all the tracks that are supposed to be played on it. You can then set the transmit channel to whatever you need for recording without disturbing the slave settings.

If you happen to have a keyboard with local mode control, but without separate transmit and receive channels, use the MIDI Thru window to rechannelize the PC MIDI output ports.



Options Window

➥ *[F3] to enter from any screen. [Esc] to exit.*

– Or –

➥ *Press O to enter from Main, View, or Edit screens.*

The Options Window contains settings for certain aspects of the recording/ playback environment. These settings are saved along with the song as part of the CONFIG.SEQ file.

The following settings are saved in the CONFIG.SEQ file

- ❑ Config window settings
- ❑ Edit Screen:
  - ■ *Accidentals*
  - ■ *Freeze*
  - ■ *Note trigger*
  - ■ *Preset Note Durations*
  - ■ *Time Units*
- ❑ Key Signature window settings
- ❑ Librarian Options window settings
- ❑ Main window size
- ❑ Metronome window settings
- ❑ Midi Data Analyzer Clock Enable setting
- ❑ Midi Data Analyzer strings
- ❑ Options window settings

- ❑ Screen Color settings
- ❑ Solo
- ❑ Step Entry settings
- ❑ Super Quantize settings
- ❑ Sync window settings
- ❑ Tempo

Options Window Menu Commands

Auto (Automatic channel assign)

ON When a track is being recorded, its channel is automatically assigned to the channel setting of the input MIDI device.

OFF Track channels must be set manually.

Bender Determines whether certain classes of MIDI events (eg. pitch bends, controller data, aftertouch, key aftertouch, etc.) will be recorded. Because MIDI events such as pitch bends and aftertouch can consume significant song memory, they should not be recorded unless necessary. The options include:

Ignored Only notes, program changes, and switch data will be recorded.

No Press Notes and all MIDI controllers (except aftertouch) will be recorded.

Recorded All types of MIDI data will be recorded.

Clock Sets the clock source.

Clock source options (except No-SPP) may also be set from any screen using the [Alt] key combination in the table below.

Refer to the Sync window for further information on Clock Source.

Clock Source Options

Source	Key Combination
INTERNAL	[Alt] I
SMPTE	[Alt] T
NO SPP	n/a
SONG PTR	[Alt] S
MTC	[Alt] M

In-chan Sets which MIDI Channel will be recorded. Options include ALL or any MIDI channel between 1 - 16.

Kill-controllers If playback is stopped while a MIDI controller value is changing, the controller may stick at the wrong value. If this happens, controllers can be reset with the Kill-controllers command.

➥ *Press K to send the following Controller codes on all channels:*

#	Name	Action
1	MOD WHEEL	reset to 0 (off)
2	BREATH CONTROLLER	reset to 0 (off)
7	MASTER VOLUME	reset to 127 (maximum)
64	DAMPER PEDAL	reset to 0 (off)
65	PORTAMENTO PEDAL	reset to 0 (off)
n/a	PITCH BEND	reset to 0 (off)
n/a	AFTERTOUCH	reset to 0 (off)

Lead-In Sets the number of lead-in measures (from 0 to 4) that precede recording and playback.

A Lead-In measure is the same as counting out loud "1, 2, 3, 4" before starting to play or record, except the metronome does the counting.

Metronome Toggles the Metronome on and off.

➥ *[F2] may be used to toggle the metronome on/ off from any screen .*

The metronome settings may be changed with the Metronome Window.

Omni-off Sends an Omni-off command to MIDI instruments so they only respond to the MIDI channel they're set to, rather than *all* MIDI channels.

Although an Omni-off command is sent when Sp boots, if an instrument is turned on after booting, it may be necessary to send one manually.

Prgms Controls the transmission of Program Change commands as follows:

On All program change commands are transmitted. (ie. the initial program change shown on the Main screen, and any program changes embedded in the tracks.)

Off All program change commands are disabled.

> *By setting Program changes to OFF, the song will start instantly, when the [Spacebar] is pressed.*

Dynamic Only program changes embedded in a track are transmitted. Initial program changes are ignored.

When the Dynamic Program Change option is ON, Sp Gold delays the song so that all of the instruments in the MIDI setup will have ample time to receive the program change commands. This short delay will only be a concern when Sp Gold is used in situations where the song must start immediately after pressing the spacebar.

Time Signature Options

The Time Signature setting consists of three fields: Source, Default and Fixed.

The Source setting determines what will be used as a source of meter changes for the song. While Source may also be toggled to one of four settings (see below), the Default and Fixed are used to display the specific values assigned to two of those settings.

Although each track can have a meter change in every measure, only one source of meter changes can govern the metronome beats and overall song rhythm. The meter changes in other tracks will play against the source, resulting in "polyrhythms" as the song plays.

> *The track selected as a source of meter changes should always be the track with the most measures.*

Source Determines which of four sources is used as the time signature reference during record or playback. (Also see the topic later in this section called "Working with Smart Time Signature source".)

CUR TRK (Current Track) When the current track is selected as the time signature source, the meter changes embedded in the highlighted track will be used as the template for meter changes throughout the song.

➥ *Press S for source, toggle to Current with + -. Press [Enter] to confirm.*

FIX TRK (Fixed Track) The "Fixed Track" option can be used to specify one particular track as the meter map. The track designated as the Fixed Track will appear next to the "FIXED" field indicator.

➥ *Press S for source, toggle to Fixed with + -, then enter the desired track number to use as the Fixed meter map source. Press [Enter] to confirm.*

DEFAULT When recording the first track, the meter should remain constant. In this case, the time signature specified in the Default field may be used. The value selected for the Default Meter will appear next to the "DEFAULT" field indicator. It can be set to one of the following time signatures:

- *1/2 through 10/2 (10/2 is not a valid meter setting at 192 ppq.)*
- *1/4 through 21/4*
- *1/8 through 32/8*
- *1/16 through 32/16*

➥ *Press S for source, toggle to Default with + -, then enter the desired meter value. Press [Enter] to confirm.*

Once a bar is recorded, it will keep it's time signature until it is re-barred. Changing the time signature in the Options Window won't change the time signatures in recorded bars.

SMART The "Smart" option will automatically select the best meter map to use during record and playback. This helps to avoid puzzling situations where Sp Gold is acting technically correct but contrary to what your intuition tells you should be happening.

- *During **Playback**, Smart will select either the current track or the longest track.*

During ***Record***, Smart will select either the longest track or, if no tracks have been recorded, the Default Field Setting.

Tempo-trk Selects which track is used as a tempo reference track. Any track can be designated as the Tempo track by entering the track's number in this field.

➥ *Press T, followed by the track number.*

❑ See the MIDI Edit screen for details on entering and editing tempo information embedded in a track.

❑ See the Tempo Track Window for details on using tempo in Sp Gold.

Velocity Sets the value of the Velocity Offset that is subtracted or added to the incoming velocity.

Velocity Offset Range

Setting	Effect
-127 to 127	All incoming velocities are offset by this value. Velocity will peak at 127.
OFF	Velocities are unaltered during record.

Xped When activated, automatically sends damper pedal up and pitch bend 0 messages every time playback stops. Used when recording with a sustenato pedal and stuck notes appear during playback.

HARDWARE Activates the Hardware Window showing the MIDI Interface Hardware status. See the Hardware window section.

Working with Time Signatures

Clicks and PPQ

The smallest unit of time in Sp Gold is the "click," which is measured in Pulses per Quarter Note (PPQ). For instance, if the PPQ setting in the Sync Window [F6] is set to 192, then each quarter note will be divided into 192 units. If it is set to 96, then each quarter note will be divided into 96 units.

At 192 PPQ, with a tempo of 120 BPM, one quarter note will equal 1/120 min = 0.5 sec. Thus one PPQ equals (0.5)(1/192)=2.6 ms (ms = millisecond = 1/1000 sec.)

> *At 192 ppq the smallest fraction of time in a song is 1 click = 2.6 ms.*
> *At 96 ppq the smallest fraction of time in a song is 1 click = 5.2 ms.*

Time Signatures and Clicks

The Time Signature of a measure determines how many clicks will be contained in that measure at a particular tempo and PPQ setting.

For instance, at 120BPM @192PPQ resolution, a track set to 3/4 meter will contain 3 x 192 = 576 clicks per measure, while a track set to 4/4 will contain 768 clicks per measure. Thus, the measure boundaries on these two tracks will not be aligned.

> *Although both tracks indicate that bar 5 is the fifth bar in each track, the number of clicks from the start of the song to that bar will be different in each track. Therefore, the music in bar 5 will not start at the same time in both tracks.*

Mismatched Time Signatures

Unintentionally mismatched time signatures can be caused by cutting and pasting song sections with varying time signatures into a region with time signatures that don't match on either end.

– Or –

Unintentionally mismatched time signatures can also be caused by recording with a time signature that's different from the one originally set for the bar.

Re-bar Xform

Mismatched time signatures may be corrected with the *Re-bar transform.*

By using a reference track with time signatures that are known good, a track re-bar on the bad track using the good track as a reference will correct the bad track. See the Transforms section for details on the Re-bar transform.

Check Bar Sync

[Shift][F7] activates the *Check Bar Sync* feature, which indicates at which measure the tracks go "out of sync" because of mis-matched meters.

Some of the side effects of mismatched time signatures include:

- ***Mismatched bar lines:***
  For instance, if one track is in 4/4 and another track is in 3/4, the bar lines won't match up in time.
- ***Bars that are visually aligned on the screen play for different lengths of time:***
  For instance, at a tempo of 120BPM, a bar in 4/4 meter plays for 2

secs. However, a 3/4 bar that is visually aligned with it plays for 1.5 secs because it has one less quarter note per measure.

To avoid these types of inconsistencies and retain flexibility in choosing time signatures, the Options window provides several settings to control time signature information.

When to use the Rebar transform

Example #1 Assume that you have been intentionally working on a song in 4/4 time and later decide to shorten bar 30 to 2/4, making it flow better into bar 31.

To do this, you would go to bar 30 and use the range re-bar to make it into 2 bars of 2/4 each. (Bars following 31 will not be changed.) By deleting Bar 31, bar 30 will have been turned into 2/4 time.

Example #2 Suppose that in the middle of the song, bar 54 sounds like it is in 2/4, but everything was recorded in 4/4. As a result, the bars after bar 54 look shifted when you try to edit them.

This situation can occur if a sequence containing meter changes is dumped from a drum machine into Sp Gold. In this case, you don't want to remove any music, you just want to move the bar lines to match what you are hearing. Make a new time sig track with the desired time signatures in it and use track re-bar to make the old track match the new reference track.

Working with the SMART Time Signature Source

As an example of how the "Smart" function operates, consider a particularly puzzling situation that can occur when playing from the cursor position in View while using tracks with multiple meter changes. In this case, if the meter reference track has different time signatures than the current track, playback from View won't start on the measure highlighted by the cursor.

For example, assume that the tempo is 120 bpm, the time sig source is Default 4/4, and all of the bars in track 12 are set to 1/4. To start playing from bar 33 in the View screen, one would intuitively place the cursor on track 12, bar 33 and press the [Spacebar]. If this is done, here is what actually happens:

- Since the reference meter is 4/4, bar 33 actually occurs about one minute into the piece (2sec/bar x (33 - 1) bars = 64 sec). Thus, positioning the cursor at bar 33 tells Sp Gold to play the song approximately one minute into the piece.
- However, since track 12 is in 1/4 time, bar 33 will not occur at the same point in time as was calculated for bar 33 at 4/4. Instead the track with 1/4 time lines up at bar 129 ((33 - 1)bars x 4 beats + 1 bar). Thus, if the cursor is placed on bar 33 of track 12, it won't play from the point that would normally be expected, but actually plays further into the piece!

This situation is corrected by using SMART time sig source, which corrects for situations where time is affected by varying meters by interpreting what is actually meant by your actions rather than what is technically correct. With Smart Tsig, placing the cursor at a particular bar tells Sp Gold: *"play from that bar, regardless of the Time Signature calculations."*

Thus, Smart would automatically select the Current track (12) as the meter map source and the song would play from measure 33 as expected.

To record or play using changing time signatures

① Create a reference track with changing time signatures, by using the Add command in the View screen. (Unlike the [Ins] key, the Add command allows specifying the meter of each bar inserted.)

② Press [F3] to access the Options Window.

③ Press S, for Source, and toggle to FIX TRK using the + - keys.

④ Press F, for Fixed. Enter the track number of the track you created with different time signatures using the Add command, and press [Enter]. When finished press [Esc] to exit the Options window.

⑤ Turn on the metronome [F2]. The Fixed track's time signature's will drive the metronome, allowing you to listen to the time signature changes during play and record.

Play or record as usual, taking care not to record over the meter changes in the Fixed track.

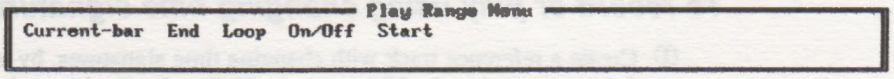
To Change the Time Signature of a recorded track

① Use Range Re-bar to make all the bars in a range match a specified time signature. (See Transforms section.)

– Or –

② Use Track re-bar to make all of the time signatures in one track match those in another track. (See Transforms section.)

The re-bar transforms won't change the way the music sounds, but it will change the bar alignments.



Play Range Window

➥ *[F5] to open from any screen except Notepad. [Esc] to close.*

Play range is used to repeatedly play a specified section of the song. The play range always starts and ends at the beginning of a measure.

> *When used with Punch-In Recording, the Start Bar in the Play Range Window overrides the setting for Lead-In measures in the Options Window. As a result, playback always starts with the first measure of the range, continues through the Punch-In/ -Out points, and stops at the end of the range.*

Play Range Window Menu Commands

Current Bar Copies the current bar number into the window's Start and End settings.

Start/ End Bar Sets the first/ last bar in the range.

Loop Unlike a Track Loop, play range looping has a short pause between repeats of a looped range. When ON, a LOOP ACTIVE indicator appears in the status area.

ON Repeats the measures in the Play Range.

Off Range plays once and stops.

Status Flashing RANGE ON appears in the status area when the Play Range is on.

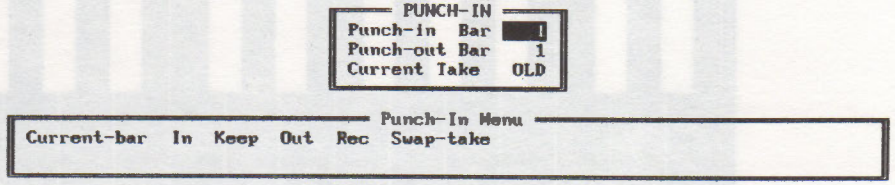
On Play range is activated. Once a Play Range has been set and turned on, you can close the window by pressing [F5] again or the Esc key.

Off Play range is deactivated.

To play a selected range

① Set the Start and End measures.

② Turn Play Range ON and press the [Spacebar] to play.



Punch-In Window

➥ *P to open from Main or View screens. [Esc] to close.*

Used to re-record a section in the middle of a track. Punch-In recording always starts at the beginning of a measure and concludes at the end of a measure. The punch-in/-out points are always on measure boundaries.

> *When using Punch-In, set a lead-in in the Options window. The lead-in will play before the Punch-In record begins.*

Punch-In Window Menu Commands

Current-Bar Copies the current bar number into the In and Out settings.

In Sets the measure at which recording begins.

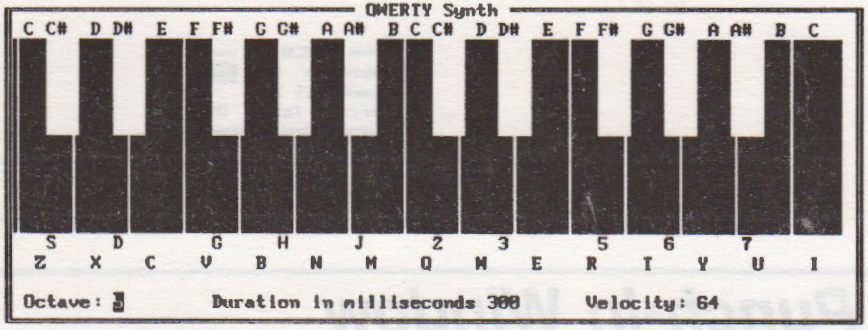
Keep Saves the take you decide to keep.

Out Sets the measure at which recording ends.

Record Sets up for recording a take.

Swap-Take Toggles between new and old takes.

> *You cannot punch-in to unrecorded bars. To start recording from an existing measure and stop past the end of the track, record directly into the track from the View screen.*



QWERTY Synth Window

➥ *[Shift] [F1] to activate from any screen. [Esc] to close.*

The QWERTY Synth window allows you to monophonically play and record the Sound Blaster FM synth or an external MIDI synth from the PC keyboard.

To move from field to field in the QWERTY window you must use the cursor keys. Since so many letters are used to play the keyboard, it is not possible to choose fields using the first letter.

QWERTY Synth Commands

Octave Range The QWERTY synth has a two octave range at any one time. Which octaves are in that range depends on the setting in the Octave field.

Octaves range from 1 through 8, 1 being the lowest pitch,and eight being the highest.

➥ *Highlight the OCTAVE field and use + - to change the octave number.*

Duration The QWERTY Synth can only play notes of a fixed duration. Duration is set in milliseconds. A millisecond is a thousandth of a second. One thousand milliseconds equal one second.

➥ *Highlight the DURATION field and use + - to change by 100 MSEC or [ ] to change by 1 sec.*

Velocity The velocity of QWERTY Synth notes can be set anywhere in the range 1 to 127.

➥ *Highlight the VELOCITY field and use + - to change the velocity value by 1 or [ ] to change by 10.*

To record with the QWERTY Synth

① Press [Esc] to return to the Main Screen.

② Move the cursor to the track you wish to record.

③ Press R to activate record mode.

④ Call up the QWERTY synth window by pressing [Shift][F1].

⑤ Set Octave, Duration and Velocity as desired.

⑥ Press the [Spacebar] to start recording into the current track.

> *QWERTY synth will always record to the current track regardless of the tracks channel setting.*

To play along with MIDI

① Cursor to a track. Set the Port to port 1, set the appropriate channel and program.

② Activate the QWERTY Synth by pressing [Shift][F1].

③ Press the [Spacebar] and start playing along.

To play along with the Sound Blaster's FM sounds

> *Before playing along with the Sound Blaster's sounds certain settings need to be set.*

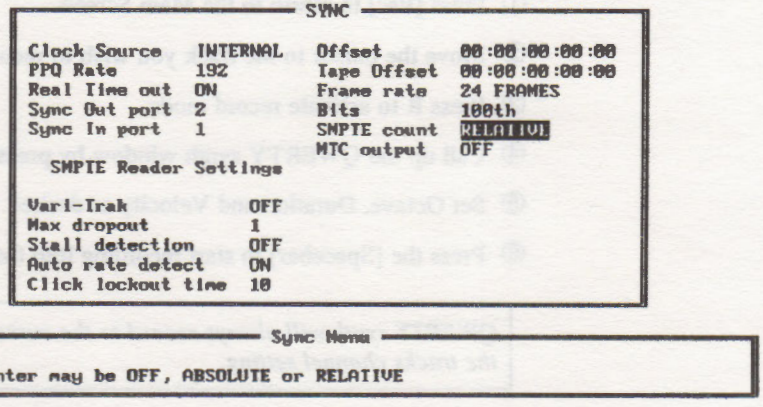
① Cursor to a track.

- *Set the track to Port 2 to play the Sound Blaster FM sounds.*

② Set thru mode to CURRENT, and Rechannel to ON (See MIDI Thru Status Window [Shift][F9])

③ Activate the QWERTY Synth by pressing [Shift][F1].

④ Press the [Spacebar] and start playing along.



Sync Window

➥ *[F6] to activate from any screen. [Esc] to close.*

The Sync Window provides control over the SMPTE and external sync functions.

Sync Window Commands

Generate (In the menu area) Activates the SMPTE generator on the MIDI Interface to generate SMPTE at the frame rate set by the Frame Rate indicator.

> *Not all MIDI interfaces have a SMPTE generator.*

Clock Source Determines clock source used for synchronization.

➥ *Highlight and toggle through the following options with the + - keys:*

SMPTE The MIDI interface SMPTE reader is used as a sync source. When sync'd, the song jumps to the correct point in the track and starts to record or play in sync with the external device.

MTC Incoming MIDI Time Code is used as a sync source. When sync'd, the song jumps to the correct point in the track and starts to record or play in sync with the external device. .

No SPP (MIDI Clock) Ignores song pointer information and treats all Continue messages as Start so the song will always start playing at the beginning of the track (in the Main screen) or where the cursor is (in the View screen).

Song Position Pointer (MIDI Clock) When a Song Position Pointer is received, the song jumps to the correct point in the track and starts to record or play in sync with the external device. To record in this mode, the MIDI Interface must be able to merge the MIDI data from the keyboard with the SPP data.

- ❑ Syncing with SPP is a method often used to lock Sp Gold to external devices that use a proprietary synchronization "time code" (sometimes called "smart FSK".)

- ❑ When using either of the two available MIDI clock source settings, press the [Spacebar] to initiate the record or playback process. When Sp Gold receives a START command from the external MIDI device it will begin recording or playing back as programmed. It stops either when it receives a MIDI STOP command from the external device or when the [Spacebar] is pressed.

INTERNAL When Sp Gold is not syncing to an external timing source, the PC's internal clock is used as a timing reference. Whenever the [Spacebar] is pressed to start recording or playback, the following MIDI timing messages are transmitted (if Real Time Out is ON):

- *When starting from the first measure, a MIDI Start message is sent. When not starting from the first measure, a Song Position Pointer and MIDI Continue message are sent.*
- *MIDI Clock pulses are constantly transmitted at a rate of 24 pulses per quarter note.*
- *When the [Spacebar] is used to stop recording or playback, a MIDI Stop message is sent.*

The clock source options may also be activated by using the following [Alt] key combinations:

Clock Source Options

Source	Key Combination
INTERNAL	[Alt] I
SMPTE	[Alt] T
NO SPP	n/a
SONG PTR	[Alt] S
MTC	[Alt] M

PPQ Rate Determines the timing resolution in Pulses Per Quarter Note (ppq).

➥ *Highlight the PPQ Rate filed, use + - to toggle between 192 ppq and 96 ppq.*

In earlier versions of Sequencer Plus, a setting of 96 PPQ allowed Tempo settings up to 240 BPM, and 192 PPQ allowed tempo settings of up to 155 BPM, both of which were a limitation of the MPU-401 intelligent mode. The tempo can now be set to 255BPM in either resolution.

Changing the PPQ Rate transforms the entire song into the new PPQ rate. If old songs are loaded, a message asks if you want to transform the file to the new PPQ rate.

If a file is saved in the ZSAVE format, it's automatically converted to the 96 PPQ Rate.

See the Options Window section for details on how ppq affects meter settings in a bar.

Real Time out Sets MIDI real time message transmission from the sync out port to one of the following options:

On MIDI real time commands (MIDI Start, Stop, Clock signals, and SPP messages) are transmitted from the sync out port during playback or record.

Off MIDI Start, Stop, CLK, the SPP are not transmitted.

No SPP SPP is not transmitted when the song plays back. Start, Stop and Clock are still transmitted.

Sync Out Port Chooses which port (on a multi-port interface) is used for transmitting SPP Sync.

➥ *Highlight Sync OUT port, toggle with the + - keys to choose a port number.*

- ❑ In Sp3/C1, SPP sync was transmitted on the Yamaha C1 port 8 when real time out was set to ON. The port is now selectable.
- ❑ On the Voyetra V-24S, MTC is always sent from port 4 when enabled.

Sync In Port Sets MIDI input port (1 or 2) for receiving SPP, MIDI and MTC sync.

Offset Adjusts the SMPTE counter so that the beginning of the song can correspond to the SMPTE time of an external SMPTE reader.

This is a "display only" feature. It has no effect on the actual timing of the song.

Tape Offset When *generating* SMPTE, Tape Offset corresponds to the first frame number at which recording begins.

When *reading* SMPTE or MTC, Tape Offset corresponds to the frame number at which playback will begin.

To stripe a tape using Tape Offset

① Set the desired SMPTE frame rate.

② Enter the tape offset value.

③ Start recording with the tape deck

④ Press G to generate SMPTE starting at the time specified as the tape offset.

*For best results, start striping a little before the hour (eg. 00:01:00:00), and plan to have the music start on the hour (eg. 1:00:00:00.) It's **not** a good idea to start from zero (00:00:00:00.00) or from any SMPTE time that makes the display "cross over" from 23:59:59:29:99 to zero.*

To sync using a tape offset

Assuming that the tape is striped with good SMPTE code:

① Set the clock source to SMPTE or press [Alt]-T.

② Set the desired tape offset.

③ Press the [Spacebar] to begin, or press [F9] to activate Chase mode.

④ If playback is started before the desired start point, the menu displays *"Waiting for Offset"* until the tape reaches the correct time and playback starts.

If playback is started after the Tape Offset, Sp Gold searches for the correct start point, then starts playback.

❑ With SMPTE sync, the Tempo Track is active.

❑ (Display) ***Offset*** only affects the screen display of SMPTE time, while ***Tape Offset*** actually affects the sync point.

Frame Rate Sets the SMPTE Frame Rate.

➥ *Highlight the Frame Rate field, use the + - keys to choose one of the Frame Rates in the following table:*

SMPTE Frame Rates

Frames Per Second (fps)	Common Use
24	Film Only
25	European TV and Video
30 Drop	Network Television
30 Non-Drop	Black and White TV, General Music
29.97	Jingles and Video

Frame rate selection works in two ways:

Auto-Rate detect OFF The specified frame rate will be used; this must be manually set.

Auto-Rate detect ON Sets the current Frame Rate to be the same as the rate detected by Auto Rate Detect so that it will match the Frame Rate of SMPTE read from a tape.

- Drop frame is used for color work when the SMPTE time must match the wall clock.
- 29.97 is easier to work with than 30 drop, but it will drift from the wall clock by a small amount. It is generally used for color video work in the U.S., other than network features.

> *Not all MIDI interfaces generate all five frame rates. Refer to the Hardware Configuration Window to find out which rates your hardware supports.*

Bits Determines if SMPTE will display fractional time in 80ths or 100ths.

SMPTE Count SMPTE Counter setting, toggled to one of the following settings

Off SMPTE counter is deactivated.

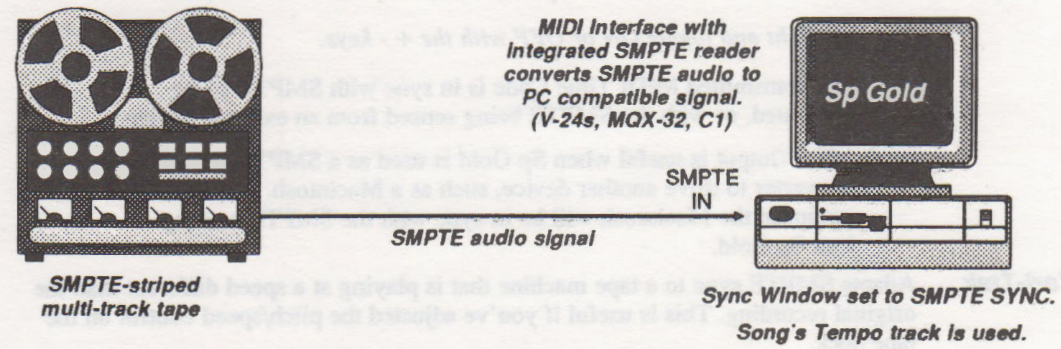
Absolute Works as follows:

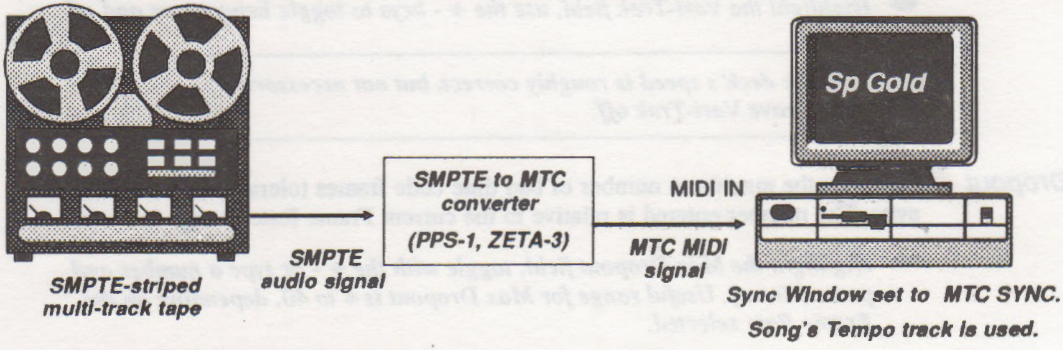
- When the song is playing, the SMPTE counter displays the SMPTE time read from the tape stripe
- When the song is playing, and sync is set to INTERNAL, the SMPTE counter displays the time that *would* be there if the song were sync'd to SMPTE.
- When the song is stopped, the SMPTE time in the Note Edit screen corresponds to the position of the cursor. As the cursor is moved, the SMPTE display is recalculated based on the tape offset, frame rate and other variables. That way, it always shows where the cursor would be if the song were playing.

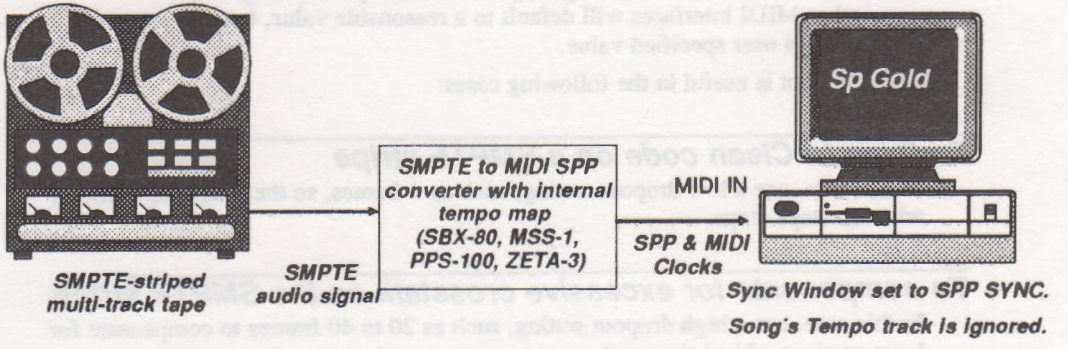
Relative Used to specify the SMPTE time to be displayed on the counter for the first beat of the song. This makes it easy to see the song's elapsed time, especially when the song begins at an absolute SMPTE time that's not 0:0:0:0.

➥ *Set the (display) Offset to zero and the Counter to Relative mode. The SMPTE counter on the screen will then display time relative to the start of the song.*

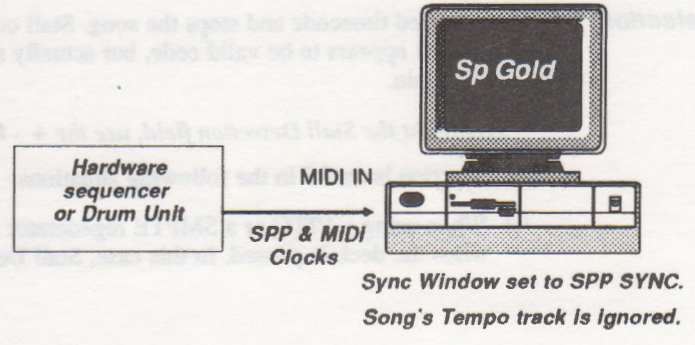
- Relative mode makes it easy to see the song's elapsed time, especially when it begins at an absolute SMPTE value that's difficult to use, such as 0:23:43:12:11. The display offset is added to the internal numbers when editing. When syncing, the display offset is added to the SMPTE time coming in, then the tape offset is subtracted.
- Relative Mode is also useful for feature film work, since the music is usually composed in short sections. In this case, absolute time is meaningless because everything must be calculated relative to the start of the cue you're working on.
- Absolute mode is useful when working on a short video spot, since you'll probably need to lay hits to match frame numbers matching the SMPTE counter.







Setting the Clock Source for various recording situations.



MTC Output Enables transmission of MTC on port 4 of the Voyetra V-24s Interface.

➥ *Highlight and toggle ON or OFF with the + - keys.*

- ❑ The transmitted MIDI Time Code is in sync with SMPTE being generated, or with the SMPTE being sensed from an external device.
- ❑ MTC Output is useful when Sp Gold is used as a SMPTE to MTC converter to drive another device, such as a Macintosh. The MTC output to the Macintosh will be in sync with the SMPTE coming into Sp Gold.

Vari-Trak Adapts SMPTE sync to a tape machine that is playing at a speed different than the original recording. This is useful if you've adjusted the pitch/speed control on the tape deck.

➥ *Highlight the Vari-Trak field, use the + - keys to toggle between on and off.*

> *If the tape deck's speed is roughly correct, but not necessarily perfect, leave Vari-Trak off.*

Max Dropout Specifies the maximum number of bad time code frames tolerated before losing sync. The number entered is relative to the current Frame Rate. Range is 1 - 127.

➥ *Highlight the Max Dropout field, toggle with the + - or type a number and press [Enter]. Useful range for Max Dropout is 4 to 40, depending on the Frame Rate selected.*

- ❑ The Voyetra VS-24S can specify the Max Dropout setting. Most other MIDI interfaces will default to a reasonable value, but not allow a user specified value.

Max Dropout is useful in the following cases:

To Sync to Clean code on a SMPTE stripe

In this case, use a low dropout setting, such as 4 frames, so the song stops quickly when the tape stops.

To compensate for excessive crosstalk on the SMPTE stripe

In this case, use a high dropout setting, such as 20 to 40 frames to compensate for large sections of bad time code.

Stall Detection Detects stalled timecode and stops the song. Stall occurs when SMPTE continues to send what appears to be valid code, but actually sends the same numbers over and over again.

➥ *Highlight the Stall Detection field, use the + - keys to toggle on and off.*

Stall detection is useful in the following situations:

- ❑ When using a VITC or a SMPTE regenerator stalled code can occur when the deck is paused. In this case, Stall Detection should be ON.

- When syncing to a bad stripe, Stall Detection should be OFF, since it may inadvertently detect errors in the code and stop, even if the error is not a stall and there is no reason to stop.

> *Check the Hardware Configuration Window, [F3], H, to see if the installed MIDI interface supports Stall Detection.*

Auto Rate Detect When syncing to SMPTE, Sp Gold needs to know the frame rate setting. Frame rate can be manually entered in the Sync window, or Auto Rate Detect can read the incoming SMPTE and set the Frame Rate automatically.

➥ *Highlight the Auto Rate Detect field, use the + - keys to toggle between on and off.*

ON SMPTE reader in the MIDI interface will read and set the frame rate to match that of the incoming time code.

OFF The frame rate must be manually set before attempting to sync. If Auto Rate Detect is OFF, double check the Frame Rate setting to insure that it is correct.

In most cases Auto Rate Detect can be left ON.

- The advantage of turning Auto Rate Detect OFF and manually entering the Frame Rate is that Sp locks onto the time code faster. The frame rate does not have to be read, which takes at most one second.
- With bad or particularly noisy time code, Auto Rate Detect should be OFF. Manually entering the Frame Rate can result in more reliable synchronization.

Click Lockout Time Sets the interval allowed between clicks in milliseconds when "listening" to an external click, see Beat-Learn. Range is from 1 to 127.

➥ *Highlight the Click Lockout Time field, use the + - keys to toggle to desired amount of milliseconds.*

If the audio click were a long, slow sound, the detector may mistake one click for two; setting Click Lockout Time to the length of the long, slow sound will prevent this from happening.

> *Click lockout time is only applicable if you have a click detector on you MIDI interface (e.g.Voyetra 24S). Check the Hardware Configuration Window by pressing [F3], H, to see if your interface supports this feature.*

Using External Sync

When Sp Gold is synchronized to an external timing reference, it's tempo, starting and stopping are controlled by the timing reference source (eg. tape recorder, drum machine, another computer, video recorder, etc..) The Sync Window [F6] *Clock Source* setting determines the type of external timing reference used: Song Position Pointer (SPP), SMPTE or MIDI Time Code (MTC).

- SPP and MTC are both sent via MIDI, so they're often readily available and no extra hardware is required.
- SMPTE is an analog signal that requires a MIDI interface with a SMPTE reader (eg. MQX-32, MQX-16s, V- 24s or C1.)

MIDI Time Code (MTC) Sync

MTC is a MIDI message that encodes SMPTE time code into MIDI format that continuously sends hours, minutes, seconds and frames over MIDI. MTC sync works exactly like SMPTE sync, in that the tempo is determined by the tempo track in Sp (unlike SPP sync). The start offset is determined by the tape offset field in the sync window.

MTC is useful in the following cases:

- The MIDI interface doesn't have a SMPTE reader attached to it. In this case, an inexpensive SMPTE to MTC converter may be used to sync directly to SMPTE.
- The MIDI interface has a SMPTE reader, but it doesn't support the desired frame rate.
- Some professional recording studios are wired up with MTC, making it easier to use MTC than run an audio cable to the PC to access the MIDI interface's SMPTE.

Tempo Track

The most significant difference between SMPTE/ MTC and SPP is that the tempo track settings in Sp Gold are ignored when syncing to SPP. Instead, a tempo map stored inside the sync box is used to generate tempo changes. This internal tempo map is called a "*beat map*."

Beat Maps

A tempo map is important when synchronizing music to video, or to another audio track that does not have a fixed tempo. While SMPTE and MTC allow you to use the song's tempo track, some SPP synchronizers use an internal beat map which lists the tempo changes required for the song. With the "beat map" method, it isn't possible to save the tempo changes along with the song.

Both SMPTE and MTC use Sp Gold's tempo track to alter the song tempo. Since the tempo map is part of the song, it can be easily changed after the sync tone is recorded onto tape.

If you are currently using a SMPTE to SPP converter, you should consider a MIDI interface that locks directly to SMPTE, for the following reasons:

- A SMPTE to SPP converter makes it very tedious to construct and save tempo maps.
- Sp Gold will lock in a small fraction of a second with SMPTE, while some SMPTE converter boxes typically require several seconds to achieve lock.

Sync Techniques

To sync playback to SPP

① Record the time code output from the synchronizer onto tape. Then check that the synchronizer can read the time code when the tape plays back. Because the method for striping a tape varies considerably for different devices, consult the owners manual for details.

> *When using SMPTE, never stripe a tape with an offset such that the SMPTE time will wrap thru zero. For example, don't use a tape offset of 23:59:30:0:0. Most SMPTE hardware does not like to see time go backwards!*

② If using a SMPTE synchronizer, create a "*beat map*" for it to follow. (Refer to the manual for details.)

③ Set the Sync Window CLOCK SOURCE to SPP.

④ Press the [Spacebar]. The "Waiting for external sync" message appears in the menu area.

⑤ Roll the tape from anywhere in the song. Sp Gold should immediately lock to the MIDI SPP signal coming from the synchronizer and play back from the correct measure. When the tape is stopped, the synchronizer sends a MIDI STOP command, and Sp Gold stops playback.

⑥ To start up again, press the [Spacebar], and start the tape deck.

To sync playback to SMPTE or MTC

① Connect the sync signal: Audio in the case of SMPTE, MIDI in the case of MTC.

② Set the Clock Source in the Sync Window to SMPTE (or MTC.)

③ Set the tape offset to correspond to the point on the tape where you want to start. Use a SMPTE time that's higher than the one used to stripe the tape so that there will be a leader before the song starts.

For example, to allow a 15 sec leader, stripe at 0:59:45:0:0, then set the tape offset to 1:0:0:0:0.

④ Press the [Spacebar] and the message; "Waiting for external sync" will appear. Or, if the tape was started before the start of the song, a message "Waiting for tape offset" will appear.

⑤ Start the tape from any point in the song, or from before the start. When the tape has started, and the sync box (or MIDI interface) has settled, the "Waiting" message will go away.

⑥ If the song wasn't started at the beginning, the message "searching for first bar to play" will appear. The bar:beat counter and SMPTE counter (if enabled), will go to the location corresponding to the tape position, and the song will start playing.

To sync while recording

This is very similar to playback, with the following additions:

- ❑ You must tell Sp Gold where you to start recording new data.
- ❑ You must start the tape before the point you specified.

Follow the first three steps in the playback process above and then:

④ To record from the start of the song, from the Main screen press R, then the [Spacebar].

– Or –

To record in the middle of a track, from the View screen, position the cursor in the first bar to record, press [Ctrl]-R and [Spacebar].

⑤ Start the tape from a point several bars before the selected bar. Once tape lock is achieved, the REC indicator will still be flashing, indicating that Sp Gold is ready to record, but still waiting to reach the first bar to be recorded.

⑥ When the bar counter reaches the bar selected in step 4, the REC indicator turns solid, indicating that data is now recording.

To sync midi drum machines

If a MIDI drum machine receives a timing message, it will usually will start playing its internal rhythm patterns.

To try different drum patterns, put the drum machine in Pattern Mode, in which case Real Time Out should be set to NO SPP. This setting won't send a Song Position Pointer, so the drum machine will start at the beginning of its pattern regardless of the measure from which playing begins.

> *Since most drum machines ignore Song Position Pointer messages while in Pattern Mode, if you do want a drum machine to start anywhere other than the beginning of its sequence, set it to Track Mode (also called Song Mode).*

If you want to use MIDI timing messages for any other purpose (like feeding into a MIDI to SMPTE conversion box or using smart FSK), Real Time messages should be ON (so there will be something to convert).

To Sync a Drum Machine with SPP

① Connect a MIDI cable from one of the PC MIDI outputs to the MIDI input on the drum machine.

② Set the drum machine to sync to SPP (May be called MIDI clock, or EXTERNAL or Song Pointer, etc...).

③ In the Sync Window, set Real Time Out to ON (this enables transmission of sync messages from Sp Gold).

④ If you're using a multi-port MIDI interface, set the Sync Out port in the Sync Window to the port number connected to the drum machine. This would be port 1 for single port MIDI interfaces.

⑤ As soon as the [Spacebar] is pressed, the MIDI start or Continue command will be sent by Sp Gold, starting up the drum machine.

To transmit MTC while syncing to SMPTE

This requires a V-24s or another MIDI interface that can generate MTC from SMPTE.

① Set the Sync Window to SMPTE and MTC Out ON.

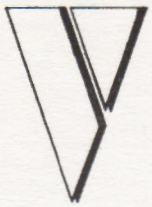
② Start the song playback. When the MIDI interface locks to SMPTE, it will start sending MTC.

The V-24s sends MTC out port 4.

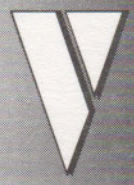
To Sync with Chase Mode

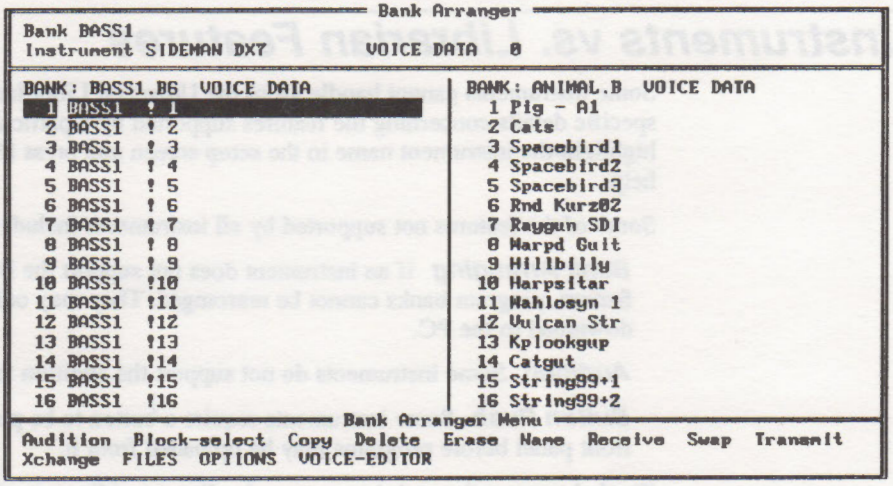
Chase mode [F9] avoids having to press the [Spacebar] to start each time.

Chase Mode stays on until any key is pressed on the PC keyboard. When it's ON, Sp Gold is always "Waiting for external sync," so that Sp Gold may be operated with "hands off."



Universal Librarian/ MIDI Data Analyzer





Bank Arranger Screen

➥ *A to enter from Setup Screen. [Esc] to return to the Setup screen.*

➥ *[F1] activates instrument help for the active instrument.*

The Bank Arranger offers a variety of functions that are used to:

- ❑ Transmit and receive a bank of programs from the selected instrument.
- ❑ Rename programs in a bank.
- ❑ Rearrange programs by deleting, swapping and copying them between locations in the same bank or a new bank.
- ❑ Audition programs from the PC keyboard.
- ❑ Create a new bank of programs from programs in other banks.

> *Because the Sound Blaster MIDI port cannot simultaneously receive and transmit MIDI Data, Bank Uploading cannot be initiated when using the Sound Blaster's MIDI Interface.*

To take full advantage of the Universal Librarian, use a bi-directional MIDI interface in place of the Sound Blaster MIDI interface. See the Introduction section concerning MIDI interfaces for details.

Instruments vs. Librarian Features

Some instruments cannot handle all of the Universal Librarian features. For specific details concerning the features supported by a particular instrument, highlight the instrument name in the setup screen and press [F1] for instrument help.

Some of the features not supported by all instruments include:

Bank Arranging If an instrument does not support the Bank Arranging feature, program banks cannot be rearranged. They may only be uploaded and download to the PC.

Audition Some instruments do not support the audition feature.

Button Push Some instruments require a button to be pushed on instrument's front panel before programs may be uploaded from it.

The help screen for each instrument also lists any idiosyncratic traits or switch settings you should be aware of.

File extensions The Universal Librarian distinguishes instrument data types by adding a specific extension to the filenames used for the instrument's bank files. See the instrument help for the extension used with each instrument.

Bank Arranger Status Area

Instrument The name of the instrument assigned to the active setup line.

Bank The filename of the bank listed on the screen.

Block Data Type Some instruments use multiple "blocks of data" (eg. program, multi-patch, etc.) that may be uploaded in several different sections. The type of data currently displayed is shown as the Block Data Type.

Program The MIDI program number assigned to the highlighted program in the bank listing.

MODIFIED This indicator appears in the status area whenever changes have been made to the bank.

IN-INST This indicator appears in the status area after a bank is transmitted to or received from the instrument.

Bank Arranger Work Area

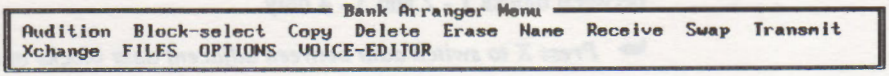
The work area lists the contents of data banks called "blocks." In most cases these correspond to instrument programs. Because some instruments use several types of data blocks, the type of data listed in the work area will vary with different instruments. (See later section on this subject.)

The left and right sections of the work area can hold separate banks so programs may be swapped between and within them.

➥ *To switch between the left and right sides, use the left and right cursor keys*

> *Because the structure of program data in various MIDI devices is not standardized, banks for certain instruments can't be worked with as extensively as others. For details on these limitations, see the Help screens for the specific instruments. [F1] activates instrument help for the instrument in the active setup line of the setup screen.*

Bank Arranger Menu Commands



Audition Transmits the highlighted program to the instrument's Scratch Buffer so it can be auditioned.

➥ *To audition the highlighted program, press the [Spacebar] to send a Note On message to the instrument.*

> *If the instrument does not have a scratch buffer, this command will have no effect. Refer to the instrument's Help screen, [F1], to see if instrument supports audition feature.*

Block-select Switches both sides of the work area to display the different data blocks for certain "multi-block" instrument banks (eg. Voice and Performance Data in a TX bank.)

> *If the instrument bank has only one type of block data, this command will have no effect.*

Copy Used to copy one (or more) programs into another part of the same bank or a different bank. Same as swap, except the source programs overwrite the target.

Delete Removes the entire bank from the selected half of the work area.

Erase Removes a highlighted range of programs from either bank. Select programs with the cursor and [Enter] keys.

Name Used for assigning program names of up to 32 characters.

➥ *Highlight the desired program, press N and type in a new name. Continue to enter program names using the cursor up/down keys. Press [Esc] or [Enter] to exit.*

Receive Uploads a bank from the instrument into the highlighted side of the work area.

> *If you have problems using this command, press [F1] for specific information about the particular instrument you're using.*

Swap Used to exchange a group of programs between two locations, either in the same or a different bank.

➥ *Select a target location in the same or different bank and press [Enter] to swap the two program regions.*

Transmit Transmits the current bank to the instrument.

Xchange This command appears only when using "multi-block" instruments containing adjacent data blocks that are identical in type and format. (eg. block 3 contains Voices 1-64, block 4 contains Voices 65-128). Xchange will swap the display between blocks 1 - 2 and 3 - 4 only.

➥ *Press X to switch data between adjacent data blocks of the same bank.*

If a bank doesn't have the correct structure for swapping data blocks, the following error message will appear in the menu area when X is pressed:

"This function cannot be used with this instrument" error message

OPTIONS Accesses the Librarian Options Window. See later section for details.

VOICE EDITOR Accesses the Sound Blaster FM Voice Editor window. See later section for details.

> *This feature functions only when the "FM1 Synth Cards" instrument is selected.*

To receive a Bank from an Instrument

① In the Setup screen, highlight the instrument name on the setup line and *be sure that the MIDI channel numbers and port settings are correct.*

② Check that all MIDI cables are properly connected. *You must have a MIDI cable from the OUT of your computer to the IN of your instrument, as well as a second cable from the OUT of your instrument to the IN of your computer.*

③ Press A to enter the Bank Arranger, use cursor keys to move to the side of screen where the bank is to be loaded. Press R to receive.

④ Because some instruments require a panel switch to be actuated in order to dump the data, press [F1] to access Instrument Help for the instrument. Check the proper switch settings and other idiosyncrasies for uploading from the instrument. Press [Esc] to exit the Help screen.

⑤ If everything is connected properly, the data in the instrument will be transmitted to the PC.

If nothing happens, it may be due to the instrument settings on the Setup screen or in the instrument itself. To check this, press [F1] to refer back to INSTRUMENT HELP.

If the bank in the work area is the one that is currently in the instrument (because it was just loaded from that instrument), the IN INST indicator will appear in the status area.

This method is used to upload a bank from any of the listed devices in the Instrument list, except Generic and Names Only. To create a Names Only bank, or to upload Generic instrument Bank, see the later section on Instrument Types.

To transmit a Bank to an instrument

① In the Setup screen, highlight the instrument name on the setup line and *be sure that the MIDI channel numbers and port settings are correct.*

② Check that all MIDI cables are properly connected. *You must have a MIDI cable from the OUT of your computer to the IN of your instrument, as well as a second cable from the OUT of your instrument to the IN of your computer.*

③ Check Instrument Help, [F1], for proper switch settings.

④ Press A to enter the Bank Arranger, use cursor keys to move to the side of screen where the bank is to be loaded. Press T for Transmit.

To Load a bank file from disk

① Press A to enter the Bank Arranger, highlight the left or right side of the work area to select the side to load.

② Press F to access the Files screen.

③ Highlight the desired bank file.

④ Press L for load, and [Enter].

To Save a Bank File to disk

① Press F to enter the Files screen from the Bank Arranger.

② Press S to save the bank file.

③ Type the desired bank name and press Enter. After the file is saved to disk, the bank name will appear in the files screen work area.

④ Press [Esc] to return to the Bank Arranger. Press [Esc] again to return to the Setup screen.

To swap single programs

① Highlight the source program field.

② Press S, then [Enter].

③ A prompt asks for a destination, meaning the program to swap with. Use the cursor keys to pick any program in either bank for a destination.

④ Press [Enter] to swap.

On a monochrome monitor, the source program will be highlighted in reverse video, while the destination will flash in normal video. On a color monitors, the source and destination will be shown in different colors.

To swap a group of programs

① Place the cursor on the first program in the source group.

② Press S, for Swap, then cursor down to the end of the source group.

③ Press [Enter] and highlight the first program in the destination range.

④ Press [Enter] to swap the source and destination groups.

> *None of the changes made with the bank editing commands are permanent until the bank is saved to disk.*

To copy programs

Press to C activate the Copy command. Procedure is exactly like Swap except source overwrites farget.

To erase programs

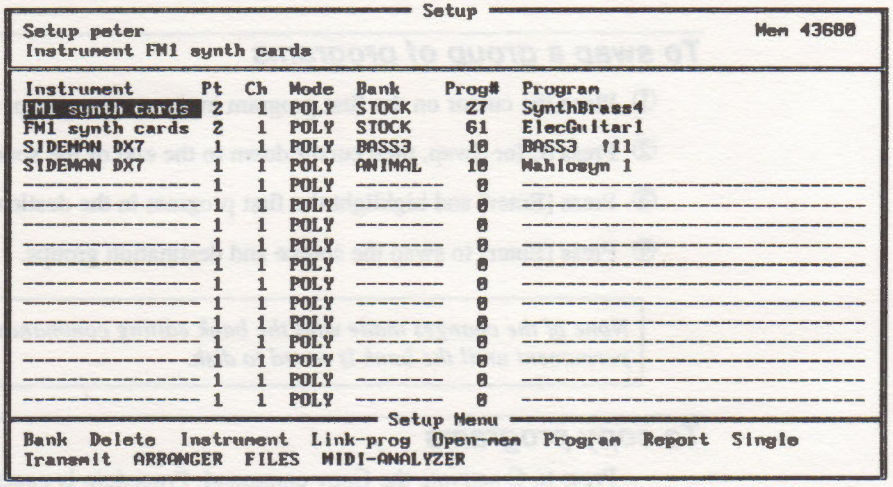
Press E to activate the Erase command (for Erase) which deletes a range of programs, leaving empty slots. Erase operates like Swap and Copy, but only works on one bank at a time.

> *Transmitting an empty bank to an instrument will erase the programs in that instrument.*

To clear an entire bank

① Place the cursor on the side of the screen containing the bank to be cleared.

② Press D for delete, then Y for "yes".



Librarian Setup Screen

➥ *X to enter from the Main screen. [Esc] to return to the Main screen.*

Provides control over the instruments in a MIDI network by creating a custom setup. A Setup will download the correct Bank and set Program Numbers and MIDI Mode for up to 32 MIDI devices (one per line). When a song is saved, the Setup is saved along with it. Setups can also be saved and retrieved from disk without the song.

Active Setup Line

The setup line containing the cursor is referred to as the Active Setup Line.

The number of lines displayed depends upon the type of monitor (EGA/VGA show more lines) and the Window-size setting in the Attributes Window [Shift][F6].

> *Before using the Librarian Setup screen to Transmit a setup to your instruments, you must first upload and save Bank files for each instrument from the Bank Arranger. If you do not have any banks saved in the Universal Librarian (i.e. you are only using the instrument's internally stored sound patches), it is not necessary to use the Librarian Setup screen. The Program settings can be controlled, (and saved), from the Main screen.*

➥ *Scroll one line at a time using the cursor up and down keys. Scroll by screens using PgUp / PgDn. Scroll to first and last line using Home / End.*

To create a Setup

① Assign an instrument to one of the setup lines by activating the Instrument Window from the desired setup line. (See Instrument Command)

② Set the proper port and channel assignments for the instrument. (See Port and Channel commands.)

③ Assign a bank for the instrument by activating the Banks Window. (See Banks command.)

④ Assign a program from the bank by activating the Programs Window. (See Programs command)

⑤ Repeat this procedure for all of the instruments in your MIDI setup.

⑥ The setup is automatically saved along with the song file. It can also be saved independently by entering the Files screen from the setup screen.

Using Quick Find

The Quick Find feature is used to quickly access a specific name in the Instrument or Banks windows. Quick-find is automatically activated whenever one of these windows is activated. When active, a prompt remains in the menu area until a letter key is pressed.

To use Quick Find in the Instrument Window

- Press the first letter of the instrument manufacturer's name. The list scrolls until that name appears at the top.
- If a non-letter key is pressed (cursor key, etc.), Quick-find disappears, and the keystroke does whatever it normally would have if Quick-find was not activated.

Quick Find works in a similar fashion in the Banks and Programs windows.

Setup Status Area

The status area shows information about the setup.

Instrument The name of the instrument on the active setup line.

Setup The filename assigned to the setup.

Note On Whenever a trigger note is sent, a message appears here. A trigger note can be sent to the active instrument by pressing the [Spacebar].

Prog Link Indicates if the "Link Programs" feature is active. See the Link-prog command.

Setup Work Area

Active setup line The highlighted row in a setup is referred to as the active setup line.

Instrument The name of the instrument assigned to the active setup line. (See Instrument command.)

Pt (Port) The MIDI Port number (1 - 8) on which the instrument is assigned to receive SysEx data. *This does not have to be the same as the Main screen port assignment for the instrument.*

- ❑ Port assignments are only valid for multiple port MIDI interfaces and the Yamaha C1. Check the Hardware Configuration Window for the number of ports in the MIDI interface installed in the system.

> *If the setup line port number is set higher than the number of ports available on the installed interface, it will not transmit or receive.*

Ch (Channel) The MIDI channel (1 - 16) on which the instrument connected to the port receives and transmits MIDI data in the Setup and Bank Arranger Screens. *This does not have to be the same as the Main screen channel assignment for the instrument.*

Mode Toggles between POLY and MONO MIDI modes in the receiving instrument.

> *If the receiving instrument does not have a MONO mode (many don't), this setting will have no effect.*

Bank The name of the bank file transmitted to the instrument as part of the setup. See the Bank command.

Prog # (Program Number) The MIDI program number to which the instrument will be set after the setup is transmitted. See Link Prog command.

Program The name assigned to the program number. See Program command.

> *Program names are assigned and edited in the Bank Arranger screen.*

Setup Menu Commands

Bank Activates the Banks window, which lists the names of all bank files on disk for the current instrument, allowing any one of them to be assigned to the active setup line.

To assign a bank to the Active Setup Line

① Place the cursor on the same line as the instrument. *(An instrument must be assigned before a bank can be selected.)*

② Press B to activate the Banks window, showing a list of all the banks on disk for that instrument.

– Or –

Activate the Banks window by putting the cursor in the BANK field, and pressing + -.

If there are more bank names than can fit in the window, Quick-find is automatically activated. Press the first letter of the bank name to relocate the window over a different section of the available bank filenames. *See the previous section for a detailed description of how this command operates.*

③ Highlight the desired bank using the cursor up/down and PgUp/PgDn keys, press Enter to load it into the highlighted position in the active setup line.

Delete Deletes the current instrument assignment from the active setup line, or all 32 lines of the setup at once, depending on the response to the screen prompt.

To remove a bank from the Setup

① Highlight the desired setup line.

② Press B to activate the Banks Window.

③ Press C to clear the bank from the active setup line.

Instrument Opens the Instrument window, used for assigning instruments to the setup.

To assign an instrument from the Instrument Window

① Move the cursor anywhere on the desired setup line.

② Press I to open the Instrument Window.

– Or –

Activate the Instrument window by putting the cursor in the INSTRUMENT column, and pressing + -.

③ Highlight the desired instrument name and press Enter to assign it to the active setup line.

Yamaha DX/TX series synths have more than one choice of instrument type. Refer to the section "Using Specific Instrument Types" .

To remove an Instrument from the setup

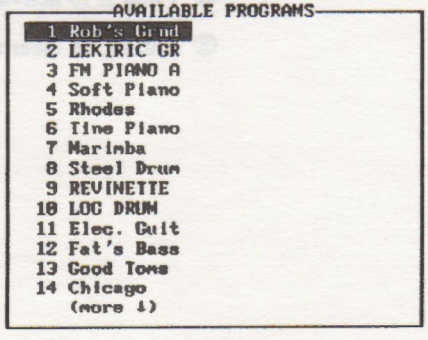
① Highlight the setup line.

② Press D for delete.

Link-prog Links program changes in the Main and Setup Screens so that changing the program number on the Setup will also change it on the Main screen.

Open-Mem If the PC is low on memory when using the Librarian functions, Open-Mem temporarily transfers the song data from RAM to disk so that RAM can be used for Librarian operations. The temporary file is automatically erased from the disk and reloaded into the computer's memory when exiting the Librarian.

Program Opens the Programs window, which is used to select a program from the active bank. It's quick accessibility ([Shift][F5]) from any screen makes it particularly helpful for seeing the available programs for the instrument assigned to a track.



To assign a program to the setup

① Press P to open the Programs window.

– Or –

[Shift][F5] opens the Program Window from any screen except the Notepad.

– Or –

Highlight the PROG NAME column and press + -.

② Highlight the desired program using the up/ down arrow keys and PgUp/PgDn keys, then press [Enter]. The corresponding program number is automatically assigned to the Prog# column.

To change an assigned program in the setup

Follow the same procedure as assigning a program.

– Or –

Highlight the Prog# field and use + - to change the number, or type the number directly.

To remove a program assignment from the setup

① Press P to activate the Programs Window.

② Press C for clear.

Report Prints a list of the programs in the highlighted bank. Also see the All-print command in the Files screen.

> *The printer port setting in the Configuration window [F4] must be correctly set before using this command.*

Single Sends a single bank to the instrument on the Active Setup Line (rather than sending the entire setup to all instruments).

Transmit Sends the current setup to the instruments in the MIDI network.

ARRANGER Accesses the Bank Arranger Screen. (See the Bank Arranger section.)

FILES Accesses the Files Screen to load and save Setups. (See Files screen section.)

> *Although setups are automatically saved along with a song file, they can also be saved and loaded as a separate Setup file.*

MIDI-ANALYZER Accesses the MIDI Data Analyzer. (See MIDI Data Analyzer section.)

To save a Setup as a separate file

① From the Setup screen, press F to enter the Files screen.

② Press S to Save.

③ Type in a name for the setup and press Enter.

To load a Setup file from disk

① Press F to enter the Files screen from the Setup screen.

② Highlight the name of the desired setup.

③ Press L to Load.

④ After the setup file is loaded into memory, the setup is ready for editing or transmitting to the network.

> *Because loading a setup will erase the setup currently in memory, a message appears in the menu area, asking if you're sure you want to load the new setup. Loading begins when you press any key except the Esc key.*

To send a setup to the instruments in the MIDI network.

① Load the desired Setup file into the Setup screen, or load a Song file that was saved with a setup.

② Make sure that the instruments are set to receive SysEx messages on the correct MIDI channels.

③ From the Setup screen, Press T for Transmit.

④ The Setup screen settings will download the Banks and call up the desired program number for each instrument.

> *If the setup contains Pause, Generic or Names Only instruments, see the next section Using Specific Instrument Types.*

To transmit a Bank to a Single Instrument from the Setup screen

① Place the cursor on the line that has the bank to be transmitted.

② Press S for Single Transmit.

Using Specific Instrument Types

This section contains information pertinent to certain instruments supported by the Universal Librarian.

PAUSE Instrument

The PAUSE instrument is assigned to a setup line whenever it is necessary to stop between instrument loading. When the transmit routine reaches the PAUSE instrument, it waits until any key on the computer keyboard is pressed before continuing with the setup transmission.

PAUSE is useful when using two (or more) identical MIDI devices that receive program data only in OMNI ON mode (ie. they listen for program data over all 16 MIDI channels). In this case, the PAUSE instrument can be used to make sure these separate instruments don't wind up with identical banks and programs.

The pause in the transmission of a Setup allows you to temporarily disconnect the first instrument's MIDI IN, so the bank that was just loaded into it won't be replaced by data intended for the other instrument. Later, after the entire setup is transmitted, you can reconnect the cables.

Generic Instrument

The Generic instrument is used for uploading and downloading from instruments that are not pre-defined in the instrument list.

The Generic instrument can be used to:

- ❑ Upload the contents of the non-supported device into the Bank Arranger.
- ❑ Save/load the uploaded data to disk.
- ❑ Name programs and Banks.
- ❑ Assign the bank files to the librarian setup screen to transmit along with other setup information.

In order to upload from a "generic" instrument, a "data dump" must be initiated either by pressing a front-panel button or by transmitting a MIDI System Exclusive message called a "dump request." When Generic Instrument is selected, a dump request string may be transmitted from the Bank Arranger screen using the MIDI Data Analyzer's "Transmit MIDI Strings function." (See the MIDI Data Analyzer section for details.)

> *With predefined instruments, the "dump request" message is automatically sent.*

To assign a "dump request" message to a MIDI Data String

① Consult the instrument's owner's manual to determine the dump request string.

② Assign the dump request string to one of the strings in the MIDI Data Analyzer. (See the MIDI Data Analyzer section for instructions on how to do this).

To receive a Generic Instrument Bank from an Instrument

① From the Setup screen, press I to activate the instrument list.

② Highlight GENERIC. Press Enter to assign it to the active setup line.

③ Press A to enter the Bank Arranger screen, then R for Receive.

④ Initiate the upload either from the instrument's front panel or by sending the appropriate MIDI Data String.

⑤ The Librarian will continue to receive data from the instrument until one of the following things occurs:

- ❑ [Enter] is pressed (normal completion)
- ❑ [Esc] is pressed (user abort)
- ❑ The buffer overflows (Status = Full)

⑥ Once the data is loaded into the Bank Arranger, program names may be edited and the bank may be saved as a file. No other changes may be made to the uploaded data.

- ■ *Once a Generic Instrument bank file has been uploaded and saved to disk, it can be selected from the windows in the Setup screen, just like supported instruments.*

Names Only Instrument

If an instrument does not support transmitting and receiving its sounds over MIDI, the Names Only instrument section may be used to make bank files containing names for the sounds in each cartridge, and the instruments internal presets.

To create a Names Only bank file

① From the Setup screen, assign "Names Only" as an instrument to the setup line.

② Enter the Bank Arranger.

③ Press R (for Receive) to create an empty bank file of 128 Program locations.

④ Fill the empty names with the names of the programs in the non-supported instrument.

⑤ Name and Save the Bank File as a disk file. *Once a Names Only bank file has been saved to disk, it can be selected from the windows in the Setup screen, just like supported instruments.*

> *A bank file for the Names Only instrument contains the program names intended to be used for reference purposes only. It does not contain data that can be transmitted to an instrument.*

Some instruments number their programs from 1 to 128 instead of using standard MIDI program numbers from 0 to 127. Although defined instruments have information about these program numbers, you'll have to keep track of the Names Only instrument program numbers. The first program number will always be 0.

Instrument Data Formats

To the microprocessor inside your MIDI instrument, programs and patterns are made up of computer data in the form of 0's and 1's. The device is programmed to understand, use, and store those 0's and 1's in specific ways, called data formats. Because these formats come in so many varieties Sp Gold must make some compromises in order to deal with as many devices as possible.

In order for Sp Gold to be able to use all of its Librarian features for a given instrument, the following things must be true about that instrument's bulk data dump format:

① Each instrument program must be a fixed number of bytes. Instruments with dynamic patch sizes can only be handled by Sp Gold if they have only one record (e.g. drum machines).

② The number of Sysex messages (non-MIDI spec messages) in which "n" records are transmitted must be either 1 or n. Otherwise, Sp Gold must compromise and prohibit full bank arranging. Usually, this compromise manifests itself as a block with a single record, even though the instrument may have many programs.

③ Blocks of data must be separate, i.e. voice data cannot be intermixed with sequence data (or something else) within the same dump.

Programs and Patterns

Most synth programs are stored in a way that allows Sp Gold to manipulate them. Drum machine programs are different, however.

Because drum patterns can be of any length and their data formats are dependent on each machine's approach to looping, quantizing, recording, editing, etc., Sp Gold must make the same compromise for drum machine patterns that it does for some synthesizer programs:

> Sp Gold will upload, download, and display whole banks of drum patterns, but it can't rearrange or rename their contents.

Cartridge Data

Many synth manufacturers use RAM cartridges to expand available program memory (Yamaha and Casio, for example). However, some manufacturers provide no easy way to reach that memory through MIDI, which means Sp Gold can't get to it. In many cases, to load or save RAM cartridge data with Sp Gold you'll have to move the data into the instrument's internal memory first.

Unusual Arrangements of Program Banks

Instruments with a single bank of programs are easy for Sp Gold to deal with. However, the bank configurations of some of the more complex instruments restrict Sp Gold to some degree.

For example:

- The CZ-101 has three banks of 16 programs: Internal ROM, internal RAM, and cartridge (if plugged in). However, because of the way the instrument is designed, Sp Gold can read and store to disk from any of the three, but can only send to the CZ-101's internal RAM.
- Our own Voyetra 8 synth has two blocks of memory (100 programs, and 100 arrangements of programs that we call "steps.") Sp Gold will save and load both these blocks (programs and steps), but because program change commands usually select programs in the V8, it is difficult to change steps over MIDI.

Unusual Arrangements of Program Numbers

Although the MIDI specification and Sp Gold designate program numbers in the range of 0 to 127, many synths don't. Because of this, you'll have to be aware of the differences to avoid confusion.

A simple example is the DX7, which starts counting from 1 instead of 0. More complicated is the CZ-101, which uses 0-31 for the 16 programs in internal ROM (looping through all 16 twice), then uses 32-63 to loop twice through the internal RAM and 64-95 (likewise) for the cartridge.

Scratch Buffers

A scratch buffer is a special section of the instrument's memory that's used for working with a pattern or a program without ever changing the original data.

In those instruments without scratch buffers, or with scratch buffers that do not conform to Sp Gold's protocol, the Audition command won't do anything.

Button Pushing

Some MIDI devices won't receive MIDI data at all unless a MIDI ON button on their front panel is pushed. Others can receive and send data all the time, except for program data, which is only transmitted by pressing a button.

These differences mean that some MIDI gear will require you to press buttons before Sp Gold can communicate with it.

Omni Mode

MIDI has 16 channels built into its specification, and most MIDI gear on the market today can listen to those channels in two different modes:

- The first (and most useful) is OMNI OFF, in which the device listens to the data on a single channel (usually the one of your choice) and ignores everything else.
- The second is OMNI ON, in which the instrument listens to everything coming into its MIDI line regardless of channel.

Since one of the advantages of MIDI is channel separation you may want to override OMNI ON mode.

Sp Gold has two ways to make sure that everything in your MIDI network is in OMNI OFF mode: The OMNI OFF signal is sent when Sp Gold boots up, or when you send the OMNI OFF command. However, some early MIDI instruments only work in OMNI ON mode, and will require special attention to work properly within a network. See the Pause command, in the Setup Screen section for more details.

MIDI Channels and Sysex Data

Some instruments and devices treat regular MIDI data (Note On and Off messages, Program Change commands, etc.) in OMNI OFF mode but treat system exclusive data only in OMNI ON mode. (ie., they'll pay attention to program data coming into them on any MIDI channel, not just the one you set them to listen to.)

This is only a problem when there are two identical devices in the MIDI network that work this way. If you try to load separate banks into them over separate MIDI channels, both will end up with the last bank that was sent unless you use the PAUSE instrument, which was created specifically to handle this kind of situation.

Instrument Data Blocks

Some instruments supported by the Universal Librarian have banks made up of several kinds of data grouped in *blocks*.

For instance, the Yamaha TX81Z uses four blocks to represent all of its internal data:

- One block contains 32 records of voice data
- Another block has 32 records of performance data
- Another includes one record of effects data
- The last block includes two records of program change tables.

Although not all instruments have banks with more than one block, those that *do* will require shifting from block to block in order to edit, rearrange, or rename the full program data structure.

Why Instruments use Blocks of program data

As more and more new features are added to today's programmable instruments, there is a parallel increase in the amount and various types of system exclusive (sysex) messages they must transmit and receive.

For instance, with simpler first-generation instruments, it used to be standard for an instrument to handle *only* voice data via sysex. Now that many instruments extend programmability to things such as program change tables, alternate scale tunings, and built-in effect settings, the program data that makes up the instruments sounds has become larger and more difficult to manage.

Consider, for example, that when the original DX7 was designed, it included a certain number of programmable parameters in each voice. To increase the number in subsequent instruments within the same family and yet retain sysex compatibility with the original DX7, new parameters were added, called Function data. This required a separate sysex message to upload and download this new data type from the instrument.

Linking Blocks of Data

With these complex instruments, it is desirable for the two blocks (voice and supplemental function) to be linked together when performing bank arranging. The Universal Librarian can deal with these instruments, and performs simultaneous swaps, copies, and deletions of these two data blocks when using them in the Bank Arranger.

Yamaha DX/TX Instruments

Most Yamaha six-operator synths have compatible voice data, so patches may be moved between them. However, some have additional voice data, called Function data, which is not directly compatible between models.

Sideman Instruments

The Universal Librarian can translate Function data from one instrument's format to another so that common files may be used with the DX7, DX7-II, TX7, TX8/16 and TX802. These files are also compatible with the Voyetra DX/TX editor Sideman DTX.

To do this, a Sideman instrument definition is used for the Yamaha instrument (eg. Sideman DX-7 for a DX-7). The Sideman instruments in the Instrument List all share a common file format and use the same file extension. This allows files uploaded from any Sideman DTX instrument to be sent to any of the other Sideman DTX instruments.

> *To maintain compatibility with Patch Master Ver 1.0 files, the Librarian lists the old file formats too. However, it is best to avoid these obsolete instrument types.*

The DX/TX Instrument Assignment Table shows which instrument definitions should be used to upload and download from specific Yamaha DX/TX instruments.

Note that the DX-7II and TX-802 each have *two* instrument types:

- Sideman DX-7II for 32 Voice/Function data on either the DX7-II or TX802

- ❑ Sideman DX7-II PF for 32 performance data on the DX7-II
- ❑ Yamaha TX802 PF for 64 performance data on the TX802

To upload/download both the performance data and voice data for either of these instruments, first assign the voice/function instrument type to a line in the Setup screen and follow it with the corresponding performance instrument type on the next line. *Only the first 32 voice programs of the 64 in the instrument will be affected.*

If the original version of Patch Master (ver 1.0, 1.05) was used to create bank files for the YAMAHA DX7, TX7 or TX816, these files should be updated into the new universal format definitions called "Sideman DX7" and "Sideman TX7." These are compatible with the Universal Librarian and Sideman DTX and thus allow bank sharing between all Sideman DTX instrument types.

To update instrument bank files

① Download the old version into your instrument using the old instrument definitions.

② Upload them back into the PC using the new definitions.

Refer to the individual help screens for these instruments for more details.

DX/TX Instrument Assignment Table Compatible With Patch Master Ver 1.0 and 1.05

Instrument Type	DX7	TX7/816	DX7II	TX802
YAMAHA DX/TX 32 voices only.	Y	Y	Y	Y
YAMAHA TX7/TX816	N	Y	N	N

DX/TX Instrument Assignment Table Use for Uploading/Downloading New Files

Instrument Type	DX7	TX7/816	DX7II	TX802
SIDEMAN DX7 * 32 voices, 32 Function data *** (In Universal format)	Y	N	N	N
SIDEMAN TX-7 * 32 Voices, 32 Function data *** (In Universal format)	N	Y	N	N
SIDEMAN DX7-II* 32 voices, 32 Function data *** (In Universal format)	N	N	Y	Y
SIDEMAN DX7-II PF** 32 DX7-II Performances (File compatible with Sideman DTX)	N	N	Y	N
YAMAHA TX802 PF 64 TX802 Performances	N	N	N	Y

* These Sideman bank files all use the same file extension and are, in a sense, the same instrument type. A Bank File saved as one of these instrument types may be freely exchanged between the three of them. Also, the bank files may be directly read and written by the Sideman DTX voice editor program.

** Sideman DX-7II performance bank files can be directly read and written by the Sideman DTX voice editor program.

*** Since the original DX7 does not support these function data, this block must be simulated on this instrument in the following ways:

UPLOADING: Function Data block is initialized with the records of all default values. These will be transmitted if the bank file is later sent to a TX7 or DX7II or TX802.

DOWNLOADING: Function Data block is not transmitted to the Sideman DX7 instrument.

Roland Instruments

Roland D50

Patch Master Plus ver 1.5 supported the Audition feature on the D-50, but PM+ ver 1.0 did not. D-50 bank files created with PM+ ver 1.1/1.5 are NOT compatible with Sp Gold or with versions of Sequencer Plus earlier than ver 2.0.

Although D-50 bank files created with PM+ ver 1.0 can be loaded and transmitted by PM+ ver 1.1/1.5 and Sp Gold, they must be re-saved to disk in the newer format in order to see program names in the Programs window.

Roland D-10/-110

The D10 is stored as two separate instruments with the extensions .C00 for the D-10 instrument (tones, timbres, patches and system) and .B98 for the D-10 RHY instrument (rhythm patterns, setups and track).

The D-110 instrument definition uses the extension .C03 for patches, timbres, tones, rhythm setup.

Uploading the entire contents of a D10 requires the use of both the D10 *and* D10RHY instrument definitions, thus using two files. *However, since the rhythm section is rarely changed, it saves time and disk space to only use the D-110 instrument.*

Versions prior to Sp ver 3.02 only work with older D10/110 ROM versions and use .B45 for D10 files and .B58 for D110 files. These B45 and B58 files can be converted to the new .C00, .B98 and .C03 formats by sending them to the synth and reloading them as new version files.

When using a D10/110 with an older ROM, or to access the old ROM instrument files, use the instruments ROLAND D10 OLD or ROLAND D110 OLD in the instrument list.

IBM Music Feature Card (MFC)

To use the Universal Librarian with MFC FM sounds, use the "FB-01" instrument. Also, see the Introduction section for further details relevant to the MFC.

Sound Blaster and AdLib FM Synth Cards

➥ *To use the Universal Librarian with FM sounds:*

① SAPIFM1 must be loaded. This loads 128 initial FM programs (sounds) into the FM sound card.

② Assign the "FM1 synth cards" instrument to the setup line. The file extension is .C35.

③ The setup screen should be set as follows:

- *Omni mode (so channel setting doesn't matter.)*
- *Set the port to the active SAPIFM1 port. The default is port 2.*
- *Set the "Upload Port" in the Librarian Options window to 1.*

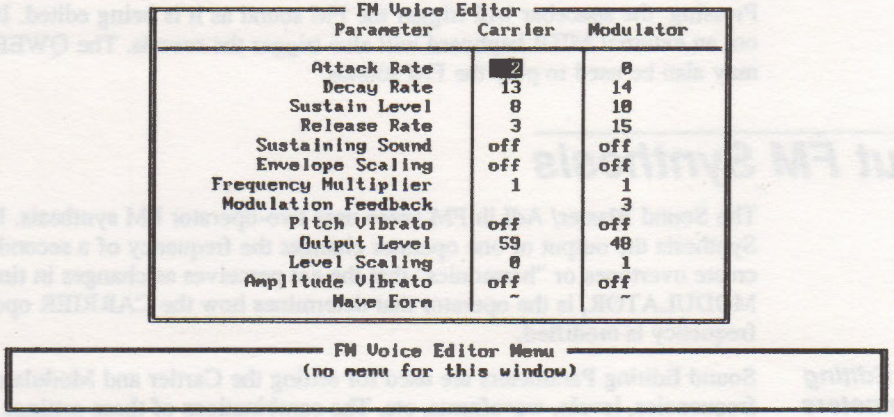
④ To upload the FM programs, press A to enter the Bank Arranger from the Setup screen. Then press R to receive.

Once the FM bank is in the Arranger, it may be treated as any other bank file and saved, rearranged, etc.

> *Although "initial" sounds are re-loaded into card every time SAPIFM1 is run, they should still be uploaded and saved as a bank file. This is necessary in order to use the FM Voice Editor. Also, it provides a convenient way to re-initialize the sounds in the card without having to quit the program and run SAPI again.*

➥ *To Download an FM bank file from the Arranger or Setup screen:*

Follow the same procedure as with other instruments using the proper settings as outlined above.



FM Voice Editor Window

The FM Voice Editor window is used for editing Sound Blaster or AdLib FM voice programs

To access the FM Voice Editor

① Position the cursor on a track assigned to the active SPAIFM1 port in the Main Screen. Set the MIDI Thru Status as follows: Mode CURRENT, Rechannel ON.

> *If the cursor is not on a track assigned to the FM synth, you will not be able to trigger sounds with an external MIDI device or the QWERTY Synth.*

② Press X to enter the Set-up Screen and I to activate the Instrument List.

④ Press F to jump to the **FM1 synth card** instrument. Press [Enter] to assign the instrument to the setup line.

⑤ Press B for banks. Highlight the desired bank and press [Enter] to assign to the active setup line.

⑥ Press A to access the Bank Arranger which lists all of the programs in the selected bank.

⑦ Highlight the program you wish to edit, and press V to access the FM Voice Editor.

To edit the FM parameters

Highlight the parameter value and edit using the standard methods (ie. number keys, + -,] [, etc.)

To hear the sound while editing

Pressing the spacebar will trigger the FM sound as it is being edited. If MIDI IN is on, an external MIDI keyboard will also trigger the sounds. The QWERTY synth may also be used to play the FM sounds.

About FM Synthesis

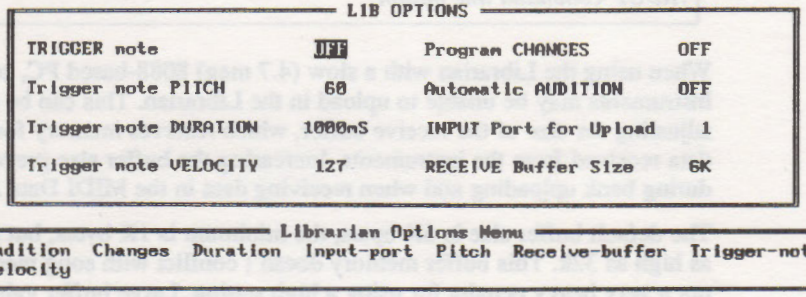
The Sound Blaster/ AdLib FM voice uses two-operator FM synthesis. In FM Synthesis the output of one operator changes the frequency of a second operator to create overtones or "harmonics" that the ear perceives as changes in timbre. The MODULATOR, is the operator that determines how the CARRIER operator frequency is modified.

Sound Editing Parameters

Sound Editing Parameters are used for setting the Carrier and Modulator frequencies, levels, waveforms, etc. The combinations of these settings determine the final sound.

Sound Editing Parameters

Envelope Parameters	Range
Attack Rate	0 - 15
Decay Rate	0 - 15
Sustain Level	0 - 15
Release Rate	0 - 15
Special Envelope Parameters	**Options**
Sustaining Sound	on - off
Envelope Scaling	on - off
Oscillator Parameters	**Options**
Frequency Multiplier	0.5, 1 through 10, 12 and 15
Modulation Feedback	0 - 7 (Modulator Only)
Pitch Vibrato	on - off
Waveform	Sine, double peak sine, single peak sine, and triangle
Level Controller Parameters	**Options**
Output Level	0 - 63
Level Scaling	0 - 3
Amplitude Vibrato	on - off



Librarian Options Window

➥ *[Shift][F3] to enter from any screen. [Esc] to return to the previous screen.*

The Librarian Options Window is used to set the Universal Librarian's operating parameters. The settings are saved along with a song or setup file.

Librarian Options Menu Commands

Audition (Automatic Audition)

ON: Any time a program is highlighted in the Bank Arranger screen, it's automatically transmitted to the instrument's scratch buffer and "played" with the "trigger note".

OFF: Programs are not sent to the scratch buffer until the Audition command is issued.

> *This feature will not work on instruments that do not have a scratch buffer.*

Changes (Program Changes)

ON: Sends MIDI program change commands to the current instrument whenever the cursor is moved within a bank in the Bank Arranger.

OFF: Program changes are not sent automatically, but continue to be sent when making changes to program assignments in the Setup screen.

Duration Sets the length of the trigger note from 10 milliseconds (mS) to 10,000 mS (i.e., 10 seconds) in 10 mS steps.

Input-port Sets the input port number used by the Librarian and MIDI Data Analyzer to receive data from instruments.

Pitch Sets the Trigger note pitch.

Receive-buffer (Receive-Buffer Size)

> *In earlier versions of Sp, this command was implemented with the /RBUF command line option.*

When using the Librarian with a slow (4.7 meg) 8088-based PC, certain instruments may be unable to upload in the Librarian. This can be corrected by adjusting the size of the receive buffer, which reserves memory for the incoming data received from the instruments. Increasing the buffer size prevents overflow during bank uploading and when receiving data in the MIDI Data Analyzer.

The default buffer size is 6K bytes, the minimum is 1K bytes, but it can be set to as high as 32k. This buffer memory doesn't conflict with song memory, so there is not a very heavy penalty for using a high setting. Large buffer values may sometimes cause the librarian to run out of memory. This may be cleared by using the ***Open-mem*** command.

➥ *For instance, to set the buffer to 20K bytes, press R, type 20, then [Enter].*

Note also that 80286 and 80386-based PC's do not need large buffers because they can process the incoming data faster than the 8088 type PCs.

If, during a patch upload, the following error message appears:

Upload error, receive buffer too small. Press [Shift][F3]

Set the receive buffer to 32K. If the Librarian runs out of memory, try decreasing the number until the error does not occur.

Trigger-note The trigger note is used to sound an instrument's program from the PC keyboard.

ON: A trigger note is sent automatically whenever a change is made to, or the cursor is moved in, the Bank Arranger screen.

OFF: A trigger note is transmitted only when the spacebar is pressed.

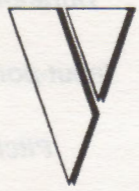
Velocity Sets the MIDI velocity value of the trigger note (Range 1 - 127). Synthesizers that are not velocity-sensitive will not respond to changes in this setting.

To transmit a Trigger Note

① Set the Trigger Note to ON in the Librarian Options window [Shift][F3].

This makes the Trigger Note automatic: i.e., a note will be sent every time programs are changed in the Bank Arranger screen. Whenever a trigger note is sent, a NOTE ON message appears in the status area at the top of the screen.

② Regardless of whether the trigger note option is ON or OFF, a Trigger Note can always be sent by hitting the spacebar from the Setup or Bank Arranger screen. The Trigger Note settings for Pitch, Duration, and Velocity, can be set as necessary for various instruments and sounds.



MIDI Data Analyzer

➥ *M to enter from the Setup Screen. [Esc] to return to Setup.*

The MIDI Data Analyzer is used to view, store and transmit bulk MIDI data. This is useful for the following:

- ❑ Checking which channel a MIDI device is transmitting on.
- ❑ Observing the range of velocities transmitted by a MIDI keyboard.
- ❑ Determining if a sync box is correctly sending song pointer information.
- ❑ Examining what MIDI messages are sent when activating sliders and knobs on a MIDI synth.
- ❑ Debugging and designing MIDI software.

Strings of MIDI commands may also be transmitted from the PC keyboard by assigning them to the number keys. (See the MIDI Output Strings section.)

The input port for the MIDI Data Analyzer is set in the Librarian Options Window [Shift][F3]. The output port is determined by the port setting in the XSetup screen on the line where the cursor is located.

The MIDI input data stream may be saved in a history buffer for viewing later on, or it may be saved to disk and later retrieved. The contents of this history buffer may be transmitted in bulk form.

The MIDI Data Analyzer can be toggled between three different display formats:

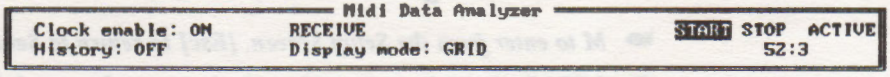
Grid: For viewing channelized data in a structured, matrix-style format.

Formatted: For viewing streams of data with relevant command descriptions.

Bulk: For examining large bulk dumps of data in raw form.

Although the Work Area differs for each of these modes, each share the same menu commands. The status area is the same in all three display modes, except for the MIDI real time monitor in the Grid Mode.

MIDI Data Analyzer Status Area



Clock Enable Toggled on/off by the Clock Enable command in the menu area.

ON MIDI clock and active sense messages are displayed in the Work Area.

OFF MIDI clock and active sense messages are not displayed in the Work Area to avoid cluttering the screen in situations where they are unimportant.

History Toggled by the History command in the menu area.

ON: The contents of the History buffer is displayed. Incoming MIDI information is ignored.

OFF: Incoming MIDI information is saved in the History Buffer.

History Pointer With History ON, this pointer indicates what part of the History Buffer is being displayed (i.e. how many bytes ago the message at the top of the screen was received).

➥ *Use PgUp/ PgDn to scroll through the buffer.*

Display Mode Indicates which of the three display modes is active: Grid, Formatted, or Bulk.

Receive, Full Overflow Indicates the status of the MIDI Data Analyzer receive buffer:

RECEIVE: MIDI Data Analyzer is successfully receiving data

FULL: Buffer is full and cannot receive further data.

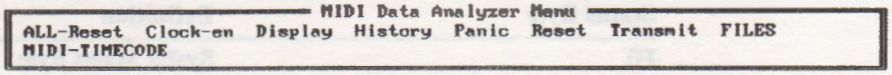
> *Use /MT:x command line option if the "FULL" message appears.*

OVERFLOW: Data was input data faster than the computer could process it, indicating that data may have been lost. Check the History Buffer to see how much data was actually received. If you have overflow problems, try using Grid Mode, since it's the least likely to overflow on slower PC's.

> *Increase the Receive buffer size in the Librarian Options Window or use the /RBUF:x command line option if overflow messages occur.*

Start, Stop, Active (MIDI real time message monitor.) Appears in the GRID and MTC screens only. Shows the current status of the incoming Song Position Pointer data.

MIDI Data Analyzer Menu Commands



The MIDI Data Analyzer menu commands are common to the Grid, Formatted, and Bulk Hex mode screens.

➥ *Press the first letter of a command to activate it.*

❖ ***If you have a mouse...***
To access the menu commands with a mouse, pressing both mouse buttons simultaneously to activate the mouse menu window.

All-Reset Similar to the Reset command, except that it also clears the History Buffer.

Clock-en Filters Clock and Active Sense messages so they don't clutter up the screen.

Display Toggles between Grid, Formatted and Bulk display modes.

History Enables the History Mode function.

Panic Sends "Note Off" and "All Notes Off" commands to reset all synths. This is particularly useful to turn off notes that are stuck "on."

Reset Clears the work area of all displayed data. Does not affect the History Buffer.

Transmit Transmits the contents of the History Buffer to an instrument.

FILES Activates the Files Screen to save or load the history buffer as a file.

MIDI TIME Code Activates MIDI Time Code screen.

About the MIDI Protocol

To understand how the MIDI Data Analyzer operates, consider this short synopsis of the MIDI protocol.

MIDI Message Format MIDI messages can contain two types of bytes:

Status bytes Define the type of message and its MIDI channel.

Data Bytes Follow certain types of status bytes which require specific information in the message. For example, in the following Note On message:

92 55 32

The status byte, 92, indicates that the message is a Note On message for MIDI channel 3. The second and third bytes are data bytes defining the pitch of the note as 55 and the velocity as 32.

MIDI messages have a maximum of two data bytes, except for System Exclusive messages, which can contain any number of data bytes.

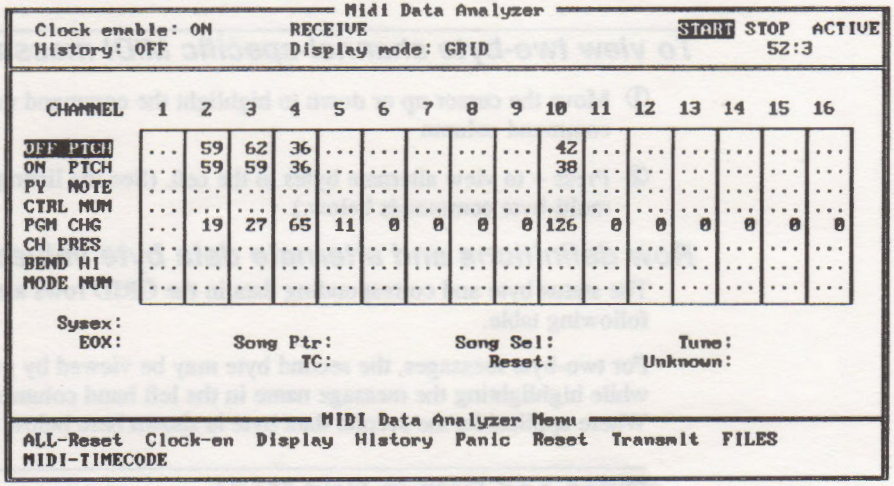
System Exclusive Format: F0 <ID> xx xx F7	
Status Byte	**Definition**
F0	SysEx Status Byte
<ID>	Type of SyEx Message
xx xx xx ...	Any number of Data Bytes
F7	End of Exclusive Status Byte

MIDI Message Types

MIDI messages also occur in two basic types:

Channel specific messages These are used to route data to specific instruments via channel assignments. For instance, note information and program change information would be channel specific.

Non-channel specific messages Certain commands are not meant for a specific instrument, but instead are available to any instrument in the MIDI network. For example, the MIDI Clock message would be accessible to every instrument that could sync to MIDI clock.



Grid Mode

➥ *M to enter from the Setup Screen. [Esc] returns to Setup.*

Grid Mode Shows channel related MIDI data as 16 columns (one per MIDI channel) and 8 rows (for the 8 types of channel specific MIDI commands.)

Grid mode is useful for viewing channel-specific information, such as locating stray notes from an external hardware sequencer or another computer, checking what a master keyboard or other controller is sending, etc..

The contents of the grid may be cleared with the Reset command in the menu area.

Channel-specific MIDI messages

Channel specific MIDI messages are displayed in decimal (rather than hex) form in their respective MIDI channel column in the Grid area.

Columns Each column corresponds to one of the 16 MIDI channels.

Rows Each row corresponds to a specific class of MIDI status byte.

By observing the data activity in each of the grid cells, it is easy to decipher the density of data passing through each MIDI channel.

Examining two byte MIDI Data

Some MIDI commands have two data bytes. While Grid MODE can show one byte at a time, you can select which of the two bytes will be displayed.

When the MIDI instrument sends a Note On message , for example, it sends two data bytes: one for the pitch of the note, and the other for the velocity. The default setup of Grid Mode will display the pitch, but this can be changed to display the velocity by highlighting the ON PTCH command and toggling the + - key to display ON VEL.

To view two-byte channel-specific MIDI messages

① Move the cursor up or down to highlight the command name in the command column

② Press + to view alternate bytes in the cell. (See the listing of multi-byte commands below.)

Row definitions and alternate data byte values

The status byte and corresponding data in the GRID rows are listed in the following table.

For two-byte messages, the second byte may be viewed by pressing the "+" key while highlighting the message name in the left hand column of the GRID display. Where applicable, the second data byte is shown here below the primary data byte.

Bytes and Data in Grid Mode

STATUS BYTE	First DATA BYTE** Second DATA BYTE ***
8x*	OFF PTCH (Note-Off Pitch) OFF VEL (Note-OFF Velocity)
9x	ON PTCH (Note-On Pitch) ON VEL (note-On Velocity)
Ax	PY NOTE (Poly Pressure Note Number) PY PRES (Poly Pressure Value)
Cx	PGM CHG (Program Change)
Dx	CH PRES (Channel Pressure)
Ex	BEND HI (Pitch Bend, High Byte) BEND LO (Pitch Bend, Low Byte)
Bx (121 or less)	MODE NUM (Mode Change Number) MODE DAT (Mode Change Data)
Bx (122 or above)	CTRL # (Controller Number) CTRL VAL (Controller Value)

* x = channel number in all instances above.

** Normal designation

**Alternate designation

The status byte Bx can be either a control change command or a mode change, depending on whether the first data byte is greater than 122. Refer to the MIDI spec for details.

Non-channel specific MIDI messages

MIDI data that does not pertain to a specific channel is displayed below the grid as follows.

MIDI messages with no data bytes (e.g. the tune message) will display an X when received.

Sysex Refers to System Exclusive Messages. Can be followed by any number of data bytes. If they won't all fit on the screen, only the first 16 data bytes are displayed.

EOX An X is displayed here when the End Of System Exclusive Message is received.

Song Ptr The Song Position Pointer message has two data bytes that together make up the song position . The value displayed indicates the number of elapsed sixteenth notes from the beginning of a song. When received, the two data bytes are combined to make one 14-bit number displayed in decimal.

MTC Displays the single data byte of a MIDI Timecode message (1/4 frame type).

Because this message has a short duration, the displayed value is very difficult to see and should be observed with the MIDI Timecode screen.

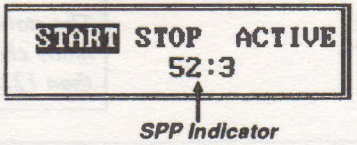
Song Sel The single data byte Song Select message (song number) is displayed in decimal.

Reset The System Reset message has no data bytes. (An X is displayed here when it's received.)

Tune The Tune Command has no data bytes. (An X is displayed here when it's received.)

Unknown If a MIDI message that is not currently defined is received, its status byte is shown here. This can happen in two cases: A malfunctioning MIDI device, or a currently undefined MIDI command has been received from a MIDI device.

MIDI Real Time Monitor



The right hand portion of the Grid Mode status area lets you monitor MIDI real time commands transmitted by an external device without having to study clock commands in the work area.

> *The Real Time Monitor is also displayed in the MIDI Time Code screen.*

SPP Indicator Shows the current value of the Song Pointer Position in the following format:

MIDI Beats:MIDI Clocks

The Song Position Pointer value indicates the number of MIDI Beats that have elapsed since the beginning of a song.

One Quarter Note = 24 MIDI Clocks

One MIDI Beat = 6 MIDI Clocks (1/16th Note)

The SPP Indicator responds to MIDI Sync in the same way that other devices do:

- ❑ MIDI clocks are ignores if the device is stopped.
- ❑ It will reset to 0:0 when start messages are received.
- ❑ It will not reset when a continue message is received.

Start The START indicator is highlighted whenever the external device issues a Start or Continue command, ie. the device is running.

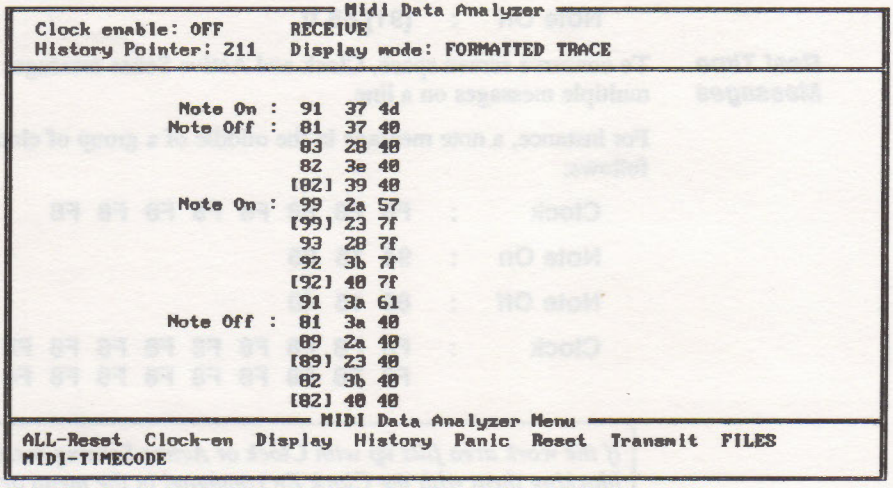
If the device sends a Start message, the current position is set to zero.

If it sent a Continue message, the current position is not reset.

Stop The STOP indicator is highlighted whenever the external device issues a stop command, i.e the device is stopped.

Active (Active Sensing) Flashes whenever an Active Sensing message is received. (An Active Sensing message is sent periodically by some synths to show that they are still active.)

MIDI-TIME code Activates the MIDI Timecode screen.



Formatted Trace Mode

➥ *D to enter from the Grid Mode Screen. [Esc] returns to Setup.*

Formatted Trace Mode displays MIDI messages in the order they're received as hexadecimal bytes, along with an English translation. As the screen fills, the oldest commands scroll off the top of the screen.

This mode is useful for analyzing MIDI data streams, such as those transmitted by a synthesizer when a panel button is pressed.

MIDI commands are displayed in their entirety, one command per line, in the following format:

command name : status byte data bytes

Formatted Trace Work Area

Successive Commands

For clarity, the command name is only printed if it differs from the previous one. For example, a group of pitch bend commands would be displayed as follows:

Pitch bend : e0 23 11

Pitch Bend : e0 23 12

Pitch Bend : e0 23 13

Running Status

If a message is received with running status, the implied status byte is displayed in brackets:

Note On : 93 54 70

Note On : [93]56 73

A special case of this is when a Note On with velocity zero is received. In this case, the MIDI Data Analyzer correctly interprets this as an implied Note Off as follows:

```
Note Off    :   [91] 65 0
```

Real Time Messages

To conserve screen space, Clock and Active Sense messages are displayed with multiple messages on a line.

For instance, a note message in the middle of a group of clocks is displayed as follows:

```
Clock       :   F8  F8  F8  F8  F8  F8  F8  F8
Note On     :   94  15  65
Note Off    :   84  15  40
Clock       :   F8  F8  F8  F8  F8  F8  F8  F8  F8
                F8  F8  F8  F8  F8  F8  F8  F8  F8
```

If the work area fills up with Clock or Active Sensing messages, try blocking them with the Clock En command in the menu area.

The MIDI protocol specifies that Real Time commands can occur in the middle of other messages.

For example, the MIDI string:

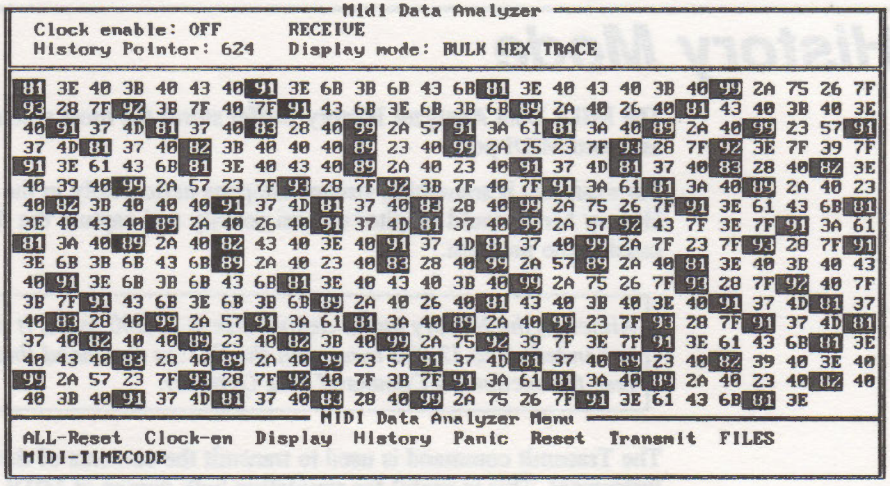
```
90  F8  35  77
```

defines a note on message with a clock in the middle of it.

Formatted display mode would show this stream as follows:

```
Note On                 :   90  35  77
Within last Message     :   F8
```

Please refer to the MIDI specification for additional information concerning MIDI protocol conventions.



Bulk Hex Display Mode

➥ *D to enter from the Formatted Trace mode screen. [Esc] to return to Formatted trace.*

Bulk Hex Display Mode shows as much MIDI data as possible for a raw and exact picture of all the hexadecimal MIDI bytes. This is useful for looking at long system exclusive messages (like patch dumps) or examining large numbers of successive MIDI commands. Bulk Hex Display Mode is also the only way to look at the order in which real time commands are received.

Status bytes are displayed in reverse video to help identify where the messages start.

MIDI Encoded ASCII

Bulk Hex Display Mode also displays MIDI encoded ASCII, allowing the MIDI Data Analyzer to display text sent over MIDI. The following message is used to encode an ASCII character:

f0 03 21 xx f7

where xx is the ASCII byte (0..7f). A carriage return (10) forces a carriage return/line feed.

Developers of dedicated microprocessor controlled boxes will find it very convenient to be able to write messages to an external screen.

History Mode

The MIDI Data Analyzer History Buffer stores the most recent data received in the assigned MIDI port.

For example, if something strange happens periodically in the MIDI network, History Mode could monitor system activity and capture the data that could be causing the problem.

> *Although the History buffer default size is 10,000 bytes, it may be expanded up to 32,000 bytes with the /MT:xx command line option (see the section on Command Line Options).*

The Transmit command is used to transmit the contents of the History Buffer to an instrument. This is useful for simulating bulk dumps of MIDI data.

Capturing MIDI data into the History Buffer

MIDI data is continuously loaded into the History Buffer (while any MIDI Data Analyzer mode is active) unless History Mode is turned on. The most recent bytes that entered the selected input port will be stored.

Formatted Trace Mode must decipher incoming MIDI commands as they occur, which makes it slower than the other two modes. Because of this, it can sometimes overflow when it's receiving vast amounts of MIDI data.

Since Grid Mode doesn't have to scroll or process the screen data, it rarely overflows.

Thus, to view a large burst of data in Formatted Trace Mode, use Grid Mode to capture the data, then view the History buffer in Formatted trace mode.

> *The History Buffer is not cleared each time History Mode is exited. It must be cleared manually with the All-reset option.*

To use the MIDI Data Analyzer for Bulk Data Dumps

① Refer to the instrument's owner's manual to find the MIDI command string definition for initiating a bulk dump to make the instrument send the contents of it's program memory over MIDI.

② Initiate the bulk dump by sending the message as one of the ten MIDI strings in the MIDI Data Analyzer.

③ After dumping the instrument memory into the MIDI Data Analyzer, save the contents of the History Buffer to disk by entering the Files Screen.

④ To transmit data, press load the desired MIDI file from the files screen and press T to transmit.

To view the History buffer contents

① Press H for History Mode in the menu area of any MIDI Data Analyzer screen.

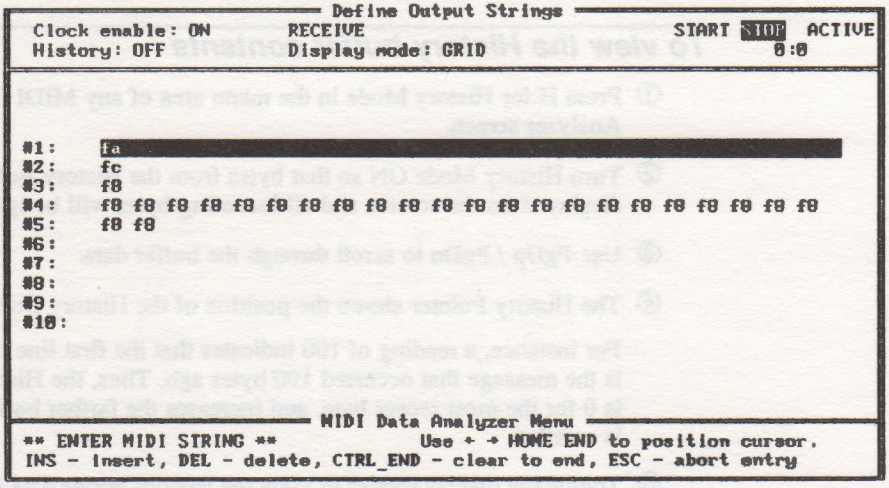
② Turn History Mode ON so that bytes from the History Buffer will be displayed on the screen, and all incoming bytes will be ignored.

③ Use PgUp / PgDn to scroll through the buffer data.

④ The History Pointer shows the position of the History Buffer.

For instance, a reading of 100 indicates that the first line of the screen is the message that occurred 100 bytes ago. Thus, the History Pointer is 0 for the most recent byte, and increases the farther back the buffer is scrolled.

⑤ Toggle the display modes to view the History buffer data in the three modes.



Define Output Strings Screen

➥ *From any MIDI Data Analyzer screen, press a number key from 0 through 9 while pressing [Shift]. [Esc] to exit.*

The Define Output Strings Screen may be used to define up to 10 strings of MIDI commands, one for each number key.

- MIDI Data strings may then be transmitted from any of the three MIDI Data Analyzer screen modes by pressing the number key assigned to the string.
- MIDI Data Strings may also be transmitted from the Bank Arranger screen when using Generic Instrument mode.

A typical use of data string transmission would be to send a SysEx dump request message to initiate a patch memory dump from a synth. It is also used with Generic Instrument.

> ***WARNING:** The ability to transmit any MIDI command means that you also have the ability to inadvertently alter or erase your patch memory by sending the wrong commands to your synth. SO BE CAREFUL!*

To Define a MIDI String

① Hold the [Shift] key while pressing the number key to be assigned to the string.

② The Define Output Strings screen appears, showing all 10 strings, with the desired string highlighted and ready to be edited.

③ Type the string of hexadecimal bytes. Edit using the keys listed below. Be sure to separate each Hex byte with a space.

④ When the string is completed, press [Enter] to return to Midi Data Analyzer screen.

> *A string may consist of up to 22 valid Hexadecimal Bytes, the value of which are Hex FE or less. An error message will flash in the menu area if a string is invalid.*

Define Output Strings Editing Keys

Key	Function/Purpose
[←] [→] [Home] [End]	Move cursor
[Backspace]	Delete character
[Del] [Ins]	Delete/insert mode
[Enter]	Done editing
[Ctrl] [End]	Delete to end of line
[Esc]	Discard new string definition/retain previous definition.

To Transmit a MIDI string

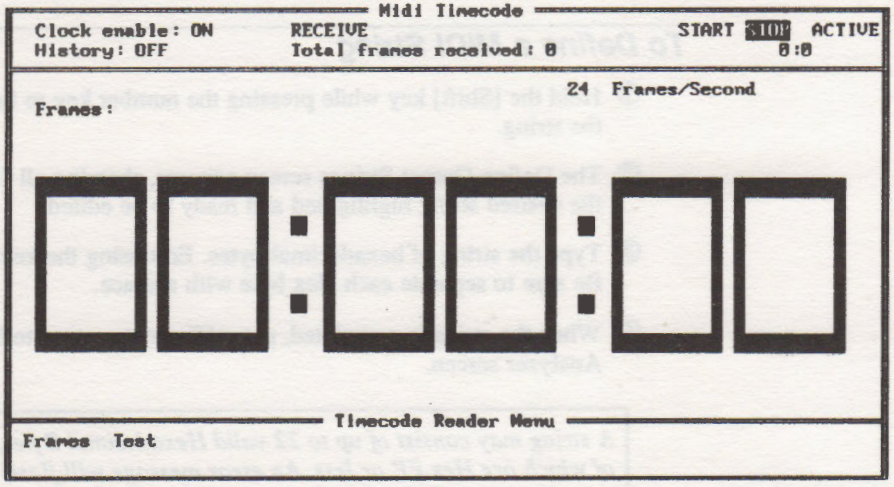
① Transmit the string from any of the MIDI Data Analyzer screens by pressing the number key corresponding to that string.

> *Data String key assignments can be saved in the configuration file. They are not saved with the song file.*

To save the Data String Assignments

① Activate the Configuration Window, [F4].

② Press S for Save, and Y for "Yes".



MIDI Timecode Screen

➥ *M from any MIDI Data Analyzer screen. [Esc] to exit.*

MIDI Timecode provides a way to transmit SMPTE time code via MIDI. When a frame number is received in the MIDI Timecode screen, it's displayed as:

Hours:Minutes:Seconds

Total Frames The status area shows the total count of frames received.

SMPTE Type The SMPTE frame rate (24 f/s, 25 f/s, 30 f/s drop frame, or 30 f/s non-drop), is displayed in the upper right-hand corner of the work area.

Frame Monitor Since the frames come in too fast to see individually, the individual frame numbers are displayed in a bar graph above the H:M:S display

Frames Turns the frame monitor on/off.

Test Activates the MIDI time code test, which generates MTC messages. The test generator only sends 30 f/s non-drop MTC. Note that the test messages are not meant to transmit an accurate timing reference, but they can be used to test any software you are working on that reads MTC.

READ Shows the SMPTE time being generated or read by the MIDI interface's internal SMPTE reader/generator. When in READ mode, the V-24s interface will generate MTC on output port 4, and the Yamaha C1 will generate MTC on output port 8.

Although this MTC will correspond to the displayed SMPTE time, it is not accurate enough to be used as a sync source.

Appendix V

Features Summary

This section provides a features summary for Sequencer Plus Junior, Sequencer Plus and Sequencer Plus Gold version 4.0.

Note: *Shading indicates new feature in 4.0*

Jr/ Sp/ G Screens/Windows

- ■■■ Main Screen for controlling track information.
- ■■■ View Screen for manipulating tracks and measures.
- ■■■ Note Edit Screen to edit note parameters.
- ■■■ MIDI Edit Screen to edit non-note MIDI data.
- ■■■ Configuration Window to set environment.
- ■■■ Options Window to set the operating default settings.
- ■■■ MIDI Interface Configuration Window shows features supported by the interface installed.
- ■■■ QWERTY Keyboard Window for playing and recording notes with the PC keyboard.
- □■■ Metronome Window for controlling metronome parameters.
- □■■ Sync Assignment Window for direct control over MIDI interface sync hardware.
- □■■ MIDI Thru Window for routing multiple MIDI input ports to any combination of MIDI output ports.
- □□■ Super Quantize Window (See super quantize transforms.)
- □□■ Digital Delay Length (DDL) Calculator Window computes the corresponding delay times for a given time unit relative to the current tempo setting.
- □□■ Sound Blaster (AdLib) FM Voice Editor Window for editing and creating new sounds using SB/Adlib FM Synth.
- □■■ Block Moves screen for easily cutting and pasting sections of track and measure data.
- □■■ Display Setup Window for setting video options.
- □■■ Punch-In Window to record within a section at any point.
- □■■ Transforms Window (See transforms.)
- □■■ Notepad Window to save text along with the song.
- □□■ Network Organizer (Setup Screen) for loading banks of programs to 32 instruments.
- □□■ Instrument Assignment Window for easily assigning instruments to the Network Organizer
- □□■ Instrument Banks Window to assign program banks to instruments in the setup.
- □□■ Programs Window for assigning programs to instruments in the setup.
- □□■ Bank Arranger Screen for uploading, downloading, archiving and arranging instrument patches.
- □□■ Librarian Options Window for setting up librarian-specific defaults.
- □□■ Bar Monitor for viewing song position from a distance
- □□■ MIDI Data Analyzer Screens for viewing, storing, sending and receiving MIDI data.
- □□■ MTC Monitor Screen for viewing MIDI Time Code.
- □□■ MIDI Strings Editor Screen

Jr/ Sp/ G Misc. Features

- ■■■ Mouse support for acccessing most program functions with a Microsoft compatible mouse.
- ■■■ Key Buffer Option and enhanced single-key cursor controls facilitate the use of third-party macro programs.
- □□■ Instrument Help for instruments supported by the Universal Librarian details the setup procedure for each device.
- □□■ Generic Sysex support for uploading bulk sysex data from instruments. Allows storing patches for instruments not defined in the Universal Librarian. Data block size is limited only by system RAM size.
- □□■ Bulk MIDI Data Upload and Download for uploading, storing, transmitting and analyzing large blocks of MIDI data.

Jr/ Sp/ G MIDI Interface Features

- ■■■ Voyetra V-22/-24s compatible.
- ■■■ Music Quest MQX-32/-16 compatible.
- ■■■ IBM Music Feature compatible.
- ■■■ Sound Blaster compatible with simultaneous playback using MIDI and FM synthesizer.
- ■■■ Ad-Lib FM synthesizer compatible.
- ■■■ Roland MPU-401/ Voyetra V-400x compatible *(UART mode only, FSK and Metronome are not supported).*
- ■■■ Yamaha C1 compatible.
- ■■■ MIDI Interface reset command initializes interface modified by misbehaving programs.
- ■■■ MIDI Port Select (Requires multi-port interface)
- ■■■ MIDI Rechannelizer sends MIDI inputs on one channel to any MIDI output on a different channel .
- ■■■ MIDI Input Merge for simultaneous recording from more than one MIDI input port. (Requires multi-port interface).

Jr/ Sp/ G Files support Features

- ■■■ Enhanced Files Screen allows instant access to any drive or subdirectory, create subdirectories, etc..
- ☒■■ File sorting functions for displaying files alphabetically or chronologically based on name, date, size and extension.
- □■■ Song List (Jukebox) Mode plays a list of songs directly from the files screen.
- ■■■ Load and save songs in Sp ver 4.0 File format
- ■■■ Load/ save songs in MIDI File format 0 and 1. Load in MIDI File Format 2.
- □■■ Save songs in Sp v1.0 format.
- □■■ Save songs in Personal Composer v1.35/ 2.0 format.
- □■■ Load and Save Ascii files as Notepad text.
- ■■■ Load songs in AdLib .ROL File format.
- □■■ Load and Save Tracks as individual files to keep libraries of drum patterns, bass lines, riffs, chord changes and MIDI special effects (such as sequences of program changes) on disk.

Jr/ Sp/ G Video Display Features

- ■■■ HIRes video modes to display 50 (43) lines of text on a VGA (EGA) monitor and up to 60 lines of text (51 tracks) with Video 7 VGA cards.
- ■■■ Magic Combo HIRes Monochrome mode displays 44 lines of text on a Mono Monitor w/ Magic Combo Card
- ■■■ Slow CGA option for eliminating "snow" on some CGA screens.
- ■■■ Automatic Display Scrolling in VIEW and EDIT always shows what's playing.
- ■■■ Scroll Freeze keeps edit display in the pitch range of your choice.
- □■■ Display options for changing the color of screen attributes and eliminating unimportant information you don't need.
- □■■ Chromatic/ Numeric Transposition Display shows transpose intervals in musical terms or in # of semitones (eg. M3 or 4 for Major third).
- ■■■ Note Display By Flats/ Sharps/ MIDI Note #/ Piano Keys to work in whatever form is appropriate for the task (eg. C#, Db or 61).

Jr/ Sp/ G Track Related Features

- 64 /500 /2000+ Independent Polyphonic Tracks, each with independent control over MIDI Port, MIDI channel, program number, track looping, transposition, non-destructive track quantize, mute and solo (while playing).
- □■■ Trackscan[tm] option selects the number of working tracks to optimize song memory.
- 3/ 6/ 11 Memory buffers to copy, insert, replace add, extend and delete parts of a track anywhere in the song.
- ■■■ Up to 50,000 Notes Per Song (with 640K RAM)
- ■■■ Loop Tracks of different lengths without unwanted gaps.
- ■■■ Mute and Solo while playing.
- □■■ MIDI Volume and Pan settings on each track.
- □■■ Velocity Scaling allows velocity data in each track to be shifted up or down from recorded value. Useful for controlling the volume of velocity sensitive MIDI synths that do not accept MIDI volume changes.
- □■■ Jump between active tracks in Main or View screen with Tab key or by entering track number.
- □■■ Automatic Track-Channel Assignment matches the track's MIDI channel to that of the device being recorded.
- □■■ Track Playback Offset shifts each track forward or backward from a single click to several bars.
- □■■ Multi-track Record Mode for simultaneous recording of up to 16 MIDI channels, each automatically assigned to its own track.
- □□■ Sub-master Track Grouping for creating up to 26 groups of tracks each controlled in one operation.
- □□■ Group/ Arrange Commands for manipulating groups of tracks.

Jr/ Sp/ G Play/ Record Features

- ■■■ Insert Notes from the computer keyboard or with a mouse.
- ■■■ Note Trigger plays notes in the Edit screen as they're highlighted for effortless song editing and scanning for specific sounds.
- ■■■ Non-destructive playback quantizing from quarter notes to 64th note triplets.
- ■■■ Global Program Chase sets the proper instrument program numbers when song is not started at the beginning.
- ■■■ MIDI record filter selectively blocks continuous controller data from being recorded onto a track.
- ■■■ Auto Sustain Pedal Up eliminates "hanging" notes if song stops before "Pedal Up" commands are sent.
- ■■■ Velocity Input record filter to block out velocity data from a track.
- □■■ Velocity Input scaling during record allows velocity data to be shifted as it's being recorded into a track.
- □■■ Advanced Step Entry mode for inserting notes in non-real time using a MIDI keyboard.
- ■■■ Dynamic Program Change disables every track's initial program setting without affecting program changes embedded in the tracks.
- □■■ Track assignable Dynamic Program Change allows dynamic program change feature (see above) to be assigned to particular tracks rather than affect all tracks.

□■■ Punch-In recording in any track to automatically start and stop the record process within a specified range.

□■■ Auto-Insert for inserting notes of fixed duration or user defined durations and note parameters.

□■■ Play Range to play and repeat a specific portion of the song.

□□■ View program names that correspond to program numbers embedded into a track by accessing the Programs Window in any screen.

Jr/ Sp/ G

Timing/Sync Features

■■■ Complete freedom of time signatures and polyrhythms. Any measure in any track can have a different meter.

■■■ Beat Counter displays song position in BAR:BEATS format to allow monitoring song position regardless of the complexity of time signatures.

■■■ Smart Time Sig updates the time signature reference track when using multiple tracks with differing time signatures.

■■■ Metronome on/off via function key.

■■■ Metronome beeps PC speaker at selected time signature rate. Duration, Upbeat and downbeat pitch are independently variable to customize the metronome sound.

□■■ Metronome transmitted as MIDI notes. Duration, Upbeat and downbeat pitch, channel and port are independently variable.

□■■ Sync Out Port selection for transmitting SPP sync on any MIDI output port. *(Requires multi-port MIDI interface.)*

□■■ Sync to SMPTE Time Code in all 5 frame rates (24/ 25/ 29.97/ 30/ Drop Frame) *(Requires V-24s or MIDI interface that supports this feature.)*

□■■ Sync to MIDI Time Code (MTC)

□■■ Tap Tempo mode to record "free-form" (without metronome) then move bar boundaries by playing beats on MIDI keyboard.

□■■ Beat Learn mode generates a tempo track from a metronome signal recorded as an audio click track. *(Requires V-24s or MIDI interface that supports this feature.)*

□■■ Click lockout mode sets lockout window for beat detection. *(Requires V-24s or MIDI interface that supports this feature.)*

□■■ Multiple Programmable Tempo Tracks: Insert tempo variations as dense as *one per click* (nearly *800 per measure!*) in any number of multiple tracks and select which track will be active. Experiment with various tempo map effects. Make the music match up with film cues. Push the beat as you swing into choruses and lay back during verses.

□■■ Sync to Song Position Pointer (SPP)

□■■ Real Time Spp Defeat to sync pattern mode drum machines.

□■■ Sync Chase Mode lets your tape deck run your song.

□■■ Selectable 96 or 192PPQ resolution.

Jr/ Sp/ G

SMPTE Features

□■■ SMPTE Calculator displays the SMPTE time of cursor position or current SMPTE time as song plays. Supports all frame rates. SMPTE *Calculations are accurate to 1/100th of a frame!*

□■■ SMPTE tape offset to start recording at any SMPTE time offset from tape stripe time. *(Requires V-24s or MIDI interface that supports this feature.)*

□■■ Absolute and Relative SMPTE counters for monitoring the frame numbers recorded on tape or viewing the song's elapsed time from any SMPTE offset.

□■■ Automatic SMPTE rate detector determines the incoming SMPTE rate and sets the internal frame rate for proper sync lock. *(Requires V-24s or MIDI interface that supports this feature.)*

□■■ Auto-rate defeat allows fast SMPTE locking and is less sensitive to the effects of bad SMPTE stripes. *(Requires V-24s or MIDI interface that supports this feature.)*

□■■ SMPTE dropout detector allows you to specify the number of frames of bad or missing time code before sync is lost. *(Requires V-24s or MIDI interface that supports this feature.)*

□■■ SMPTE stall detector senses redundant SMPTE code and optionally stop the song. *(Requires V-24s or MIDI interface that supports this feature.)*

□■■ Hit Point Locator finds any position in the song specified as [Hrs: Min: Sec: Frm: Subfrm]

□□■ Time Markers allow 10 song positions to be named and defined as SMPTE time or [Bar: Beat: Click] so they can be accessed with a single keystroke.

Transforms Summary

Transforms alter the selected MIDI data in a range of tracks and measures. Transform functions are non-bar bounded: Start and End points of a range can be defined down to the [BAR:BEAT:CLICK] level.

Time Transforms

Alters time related MIDI note data.

- **Quantize Start Time:** Move note start times towards the closest selected time-unit division of the beat. Degree can be adjusted from 1 to 100% for varying "tightness" of rhythm.
- **Set Duration:** Set all note lengths to the specified value.
- **Adjust Duration:** Add/ delete specified number of "clicks" from all note lengths.
- **Quantize Duration:** Alter note lengths by moving them towards the closest time-unit division of the beat.
- **Retrograde:** Reverse the order of notes and MIDI data so that the range plays backwards.
- **Retrograde Start Times:** Similar to retrograde but only affects the note start times.
- **Offset:** Time-shift notes and MIDI data forward or back.
- **Compress/ Expand:** Squeeze or stretch timing of events by a given ratio without changing overall tempo or affecting bar lines. (eg. 1:2 compression makes the range play in double time. 201:200 expansion makes it gradually "fall behind".)

MIDI Transforms

Alters specific MIDI controller data, such as pitch bends, velocity, aftertouch etc.,

- **Scale:** Multiply by a specified value. (eg. MIDI controller effect would be halved if multiplied by 0.5 or doubled if by 2.)
- **Shift:** Add a given value to shift controller effect up or down.
- **Invert:** Subtract initial value from it's maximum possible value.
- **Map:** Turn one type of MIDI event into another. (eg. turn a pitch bend into aftertouch.)
- **Map Programs:** Replace specified progam change values into a new value.
- **Fill:** Insert a series of MIDI events between two values. The taper and density of the fill curve is selectable.
- **Crescendo:** Fill volume events with a range of cresc values.
- **Thin:** Intelligently deletes MIDI data from dense sections.
- **Elim Dupes:** Delete redundant MIDI events.
- **Retrograde:** Reverses the order of non-note MIDI data.
- **Offset:** Time-shifts non-note MIDI data by a specified amount.
- **Compress/ Expand:** "Squeeze or stretch" the position of non-note MIDI data events in the range by a specified ratio.

Misc. Transforms

- **Merge:** Combine data from two separate tracks into one.
- **Track Rebar:** Change all of the time signatures in an entire track to be the same as the time signatures in another track.
- **Range Rebar:** Change time signatures in range to specified value. Useful for removing a single beat from a measure.

Split Transforms

Moves notes that fall within a specific range of values to a new track.

- **Pitch:** Split all notes within a specific pitch range.
- **Quantize:** Split notes within a specific distance from the beat.
- **Velocity:** Split notes within a specific range of velocities.
- **Duration:** Split notes exceeding a specific length.
- **Modulus:** Split every "nth" note. (eg. split every seventh note starting with the second one.)

Random Transforms

Randomizes MIDI data from 1% to 100%.

- **Pitch:** Randomize pitch, keeping all new notes in the specified key. (Small % generates slight melodic variations, large % generates random melodies.
- **Start Time:** Randomize note start times by a specified %.
- **Duration:** Randomize note lengths by the specified %.
- **Velocity:** Randomize velocity by the specified %. (Large % generates random accents.)

Jr/ Sp/ G Pitch Transforms

Alters note pitch values.

- ☐■■ **Transpose:** Shifts all notes up or down by the specified number of octaves and semitones.
- ☐■■ **Harmonic Transpose:** Keeps the transposed notes in one of 84 different keys (7 modes.)
- ☐■■ **Invert:** "Flips" notes over a specified axis.
- ☐■■ **Harmonic Invert:** Keeps the "flipped" notes in a specific key.
- ☐■■ **Map:** Turns specific notes in one octave into new notes in a different octave. (eg. turn all "C" notes into "G" notes.) Useful for changing drum assignments (eg. make all toms into snares)
- ☐■■ **Key Sig Window:** Specifies key for notes generated by harmonic transforms.

Jr/ Sp/ G Tempo Transforms

Alters tempo events embedded in a track.

- ☐■■ **Accelerando:** Generates various smooth tempo change curves between specific starting and ending tempo values.
- ☐■■ **Scale:** Multiplies tempo values by a specified amount to slow or speed the tempo within the range.
- ☐■■ **Thin:** Delete tempo data from dense ranges.
- ☐■■ **Shift:** add/subtract a specific value from all tempo values.
- ☐■■ **Elim Dupes:** Eliminates successive duplicate tempo events to reduce the density of redundant tempo values.
- ☐■■ **Tap Tempo:** For recording without a metronome or generating a tempo track from an audio click or drum beat.

Velocity Transforms

Alters note velocity values.

- ☐■■ **Set:** Sets all "note-on" velocities to the specified value.
- ☐■■ **Set Note Off:** Same as SET but for "note-off" velocity.
- ☐■■ **Adjust:** Add/ subtract from all "note-on" velocities.
- ☐■■ **Adjust Note Off:** Same, but for "note-off" velocity.
- ☐■■ **Compress/expand:** adjusts note velocites closer or further from the average velocity in the range by a specified amount.
- ☐■■ **Crescendo/ Decrescendo:** Adjust velocities to incrementally rise or fall between specified starting and ending values
- ☐■■ **Relative Crescendo:** Preserves original dynamics by adding or subtracting the crescendo/ decrescendo values.

Jr/ Sp/ G Super Quantize Transform

☐☐■ Alters note timing values based upon the settings for a "quantize grid." Features include:

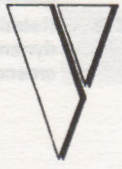
Swing: Creates a "swing feel" by moving every other beat forward or backward by a "swing %".

Preserve Duration: Keeps the initial duration while quantizing the note's start time position.

Sensitivity: Determines which notes will be moved during quantization relative to how close or far they are from the quantization grid points.

Sensitivity Mode: Selects whether notes that are furthest or closest to the beat will be moved.

Tuples: Fits a specified number of notes into the space of another number of notes. (eg. a setting of 2 in the space of 3 fits 3 notes into the space of two eighth notes.)



Sound Blaster and AdLib Cards

Sound Blaster

The Sound Blaster card, manufactured by Creative Labs, Ltd., is a multipurpose PC expansion card that provides a MIDI port, an FM Synthesizer, 8 bit Digital audio record/ playback and a dual joystick port. Sequencer Plus Gold may be used to record and playback using the Sound Blaster MIDI port as well as playback via the FM sound generator. Sp Gold's FM Voice Editor may also be used to edit the Sound Blaster FM sounds.

AdLib Card

The AdLib Game card is equivalent to the FM Synth section ofthe Sound Blaster Card. It may be used alone or in conjunction with a MIDI interface to provide the same features as the Sound Blaster Card with Sp Gold.

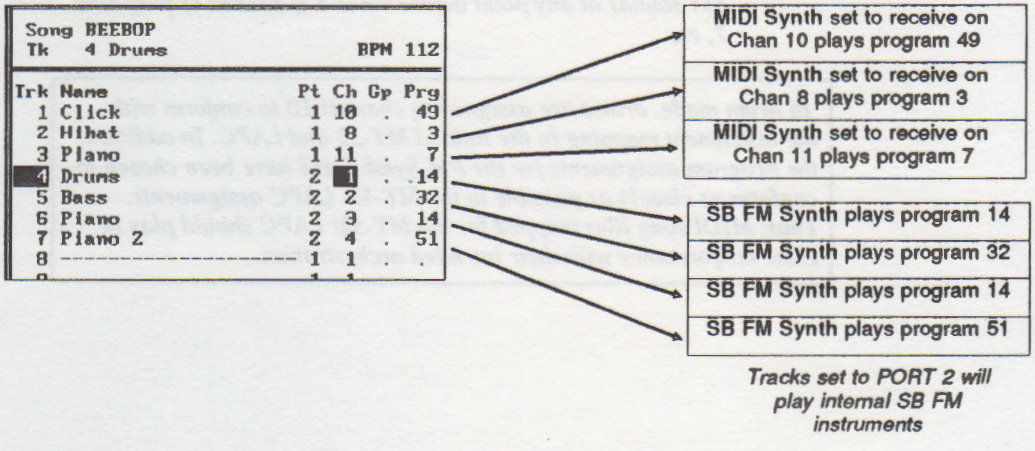
> *For instructions on how to install the Sound Blaster and AdLib Cards with Sp Gold, refer to the section called "Installation."*

Controlling FM Synth Cards

The Main screen track port setting is used to assign tracks to the FM synth card or an external MIDI synthesizer. When a recorded track is assigned to the FM synth (port 2), the track's channel setting determines the FM sound played by the track.

> *To set the FM sounds onto a different port, use the /PORT command line options described in the Command Line Options section.*

Main screen port, channel and program settings determine which instruments and sounds will be assigned to each track.



To play a track with the FM Synth sounds

① Set the track to Port 2 in the Main Screen.

② If several tracks are set to port 2, use different channel numbers to access different FM sounds (programs) for the track.

Tracks set to the same Port and channel will access the same sounds.

To play a track with external MIDI Synthesizers

The Sound Blaster includes a MIDI port that may be used with Sp Gold. The AdLib card requires a separate MIDI interface in order to control external MIDI synths.

① Set the track to Port 1 in the Main Screen.

② Set the track's channel so that it corresponds to the receive channel on the MIDI synth.

FM Synth Card Operating Modes

The FM Synthesizer cards can operate in one of two modes:

Instrument Mode *(Default Setting)* Provides 9 FM voices.

- *If at any point in the song, more than 9 notes occur simultaneously, FM voice 1 will be used to play note 10, losing note 1, etc.*

Drum Mode Provides 5 FM drum sounds on channel 10, and 6 monophonic instruments on the remaining 15 channels. Thus, drum mode is capable of simultaneously playing up to 11 sounds, which is two more than instrument mode.

- *As in Instrument mode, the 6 voices and 5 drums will be allocated as needed. Thus, the song may have a maximum of 6 FM sounds at any point before voice 1 is robbed to play note 7, etc.*

In drum mode, drums are assigned to channel 10 to conform with the instrument mapping in the Roland MT-32 and LAPC. In addition, the program assignments for the FM Synth Card have been chosen to conform as closely as possible to the MT-32/ LAPC assignments. Thus, MIDI song files mapped for the MT-32/ LAPC should play in close conformance with their intended orchestration.

Since voices are automatically allocated as needed, the FM sounds may be played by assigning 16 tracks to port 2 and setting each track to a different channel. In instrument mode, as long as no more than 9 notes play simultaneously in all tracks, it will seem as if there are actually more than 9 voices playing, even though SAPI is "juggling" the voices and programs as it needs them.

If the FM Synth Card is in Drum Mode, up to 6 notes may play simultaneously and the track assigned to channel 10 will play the 5 drum sounds.

To set the FM Synth Card to Drum Mode...

① Enter Program 126 on channel 10 of any track set to port 2.

② When the song plays, program change 126 will be transmitted to the FM Synth Card, switching it into Drum Mode.

To set the FM Synth Card to Instrument Mode...

① Enter program 127 on channel 10 of any track set to port 2.

② When the song plays, program change 127 will be transmitted to the FM Synth Card, switching it into Instrument Mode.

➥ *Instrument and Drum modes may also be toggled from any screen in the program with the [Alt] D key.*

> *Using the [Alt]-D key to toggle drum and instrument modes will not be saved as part of the song. Because of this, it is best to use the program change method to change modes so that the FM Synth Card will always switch in to the correct mode for the song.*

The table below summarizes how the two operating modes respond to channel settings on Port 2:

Port 2 Channels	Instrument Mode	Drum Mode
1 - 9, 11-15	9 FM Instruments (Default)	6 FM Instruments
10		5 Drum Sounds
To switch between modes, send program 126 (for drum mode) or 127 (for instrument mode) on channel 10 port 2. Or use the Alt [D] key.		

Drum Assignments

When the FM Synth Card is set to Drum Mode, all 5 drum sounds are controlled via channel 10. Each drum sound responds to a specific note in the Note Edit screen. Thus, to play a drum sound, simply insert a note at the proper note number as follows:

Drum Note Assignments

MIDI Note # / Drum Sound	MIDI Note # /Drum Sound
35 Kick Drum	50 Tom
36 Kick Drum	51 Cymbal
37 Closed High Hat	56 Closed High Hat
38 Snare	60 Tom
39 Closed High Hat	61 Tom
40 Snare	62 Closed High Hat
41 Kick Drum	63 Tom
42 Closed High Hat	64 Tom
43 Kick Drum	65 Tom
44 Closed High Hat	66 Tom
45 Tom	67 Tom
46 Closed High Hat	68 Tom
47 Tom	69 Closed Hi Hat
48 Tom	70 Closed Hi Hat
49 Cymbal	71 Closed Hi Hat
	72 Closed Hi Hat
	73 Tom
	75 Tom

The drum note mapping has been selected to correspond as closely as possible with the drum map of a Roland MT-32/ LAPC.

Sound Blaster MIDI In/Out* Modes

** This features applies to Sound Blaster's equipped with pre 2.0 ROM. If your Sound Blaster has ROM 2.0 or higher this feature will not be needed and will not be available.*

The Sound Blaster can send and receive MIDI. but not at the same time.

As a consequence of this:

- ❑ The Sound Blaster can't play external MIDI synths while recording. During record, tracks may be monitored by the Sound Blaster FM sounds.

Removing the IRQ jumper on the Sound Blaster disables the MIDI port. This allows a separate MIDI interface, such as the Voyetra V-22/-24s or MPU-401 compatibles, to be used in place of the Sound Blaster MIDI port. For details, see the introduction section concerning specific MIDI interfaces.

To toggle between MIDI in and MIDI out modes

① Use the [ALT]-X key combination to toggle the Sound Blaster MIDI port between IN and OUT modes.

② The current MIDI status is displayed in the status area at the top of the screen.

To play back any track over MIDI

① Use [Alt]-X to toggle to MIDI:OUT. This activates the Sound Blaster MIDI output path.

③ Press the spacebar to play the song.

To record from a MIDI keyboard...

① Use [Alt]-X to toggle to MIDI:IN. This activates the Sound Blaster MIDI input path.

② Port and channel assignment does not matter during record as long a s Auto-channel assign is turned on (see Options Window). To monitor the MIDI keyboard with the Sound Blaster FM sounds, set the track to port 2 and set MIDI Thru ON in the Configuration screen [F4].

③ Press R, then the spacebar.

Sound Blaster MIDI THRU Modes

The MIDI Thru function determines if the MIDI input signal is passed through to the FM port. In most cases, this will be left ON.

To monitor tracks with the FM sounds while recording

① Access the MIDI Thru Window [Shift][F9]. Set THRU to CURRENT and RECHANNEL to ON. This routes the incoming MIDI data to the current track.

② Use [Alt]-X to toggle to MIDI:IN. This activates the Sound Blaster MIDI input path.

③ Set each track to be monitored by the FM sounds to Port 2. Tracks set to port 1 during record will not play since MIDI cannot be transmitted during record.

With MIDI IN and Thru ON, the MIDI data from an external synth plays the FM synth assigned to the highlighted track (if the track is set to Port 2 for FM)

Turning MIDI Thru OFF blocks the MIDI data from passing through to the FM synth.

Setting the track to Port 1 also blocks the data, since the Sound Blaster can't send and receive MIDI at the same time.

④ Set each FM track to a different MIDI channel (1-15), then select a program number to change the sound.

⑤ Follow the "record" directions above and if the current track is set to Port 2, the FM sounds for that track will respond to the MIDI keyboard being recorded.

Using Multiple Sound Blaster Cards

Assuming that two Sound Blaster Cards, A and B, are inserted into the PC expansion slots, here is the procedure for setting SB A up for MIDI/ FM and SB B for FM only:

To use Two Sound Blaster Cards at Once:

① Set Sound Blaster A to the default Address and IRQ settings as described in the Sound Blaster Manual.

② Set Sound Blaster B to a different address and pull out the IRQ jumper to disable the MIDI port.

③ Modify the DRIVER.BAT batch file so that SAPIFM1 is loaded twice: Once with the default settings and again with the Port set to 3 and the address matching the address setting for Sound Blaster B.

For example, if Sound Blaster B is set to address 230, your batch file could include these commands:

VAPISB ***(Loads MIDI Driver for Sound Blaster A)***

SAPIFM1 /ADDR:230 /PORT:3 ***(Loads FM driver for Sound Blaster B)***

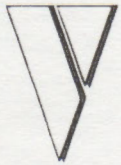
SAPIFM1 /PORT:2 ***(Loads FM driver for Sound Blaster A at Port 2)***

④ Using this example, the FM sounds on Sound Blaster A will respond to tracks set to Port 2, FM sounds for Sound Blaster B will respond to tracks set to Port 3 and MIDI will respond to Sound Blaster A's MIDI port 1.

FM Synth Card Program Listing

The program assignments listed below may be edited and rearranged using the Bank Arranger and FM voice editor window in Sp GOLD:

0) AcouPiano1
1) AcouPiano2
2) AcouPiano3
3) ElecPiano1
4) ElecPiano2
5) ElecPiano3
6) ElecPiano4
7) Honkeytonk
8) ElecOrgan1
9) ElecOrgan2
10) ElecOrgan3
11) ElecOrgan4
12) PipeOrgan1
13) PipeOrgan2
14) PipeOrgan3
15) Accordion
16) Harpsichord1
17) Harpsichord2
18) Harpsichord3
19) Clavinette1
20) Clavinette2
21) Clavinette3
22) Celesta1
23) Celesta2
24) SynthBrass1
25) SynthBrass2
26) SynthBrass3
27) SynthBrass4
28) SynthBass1
29) SynthBass2
30) SynthBass3
31) SynthBass4
32) Fantasy
33) HarmoPan
34) Chorale
35) Glasses
36) SoundTrack
37) Atmosphere
38) WarmBell
39) FunnyVox
40) EchoBell
41) IceRain
42) Oboe2000
43) EchoPan
44) DoctorSolo
45) Schooldaze
46) BellSinger
47) SineWave
48) Strings1
49) Strings2
50) Strings3
51) Pizzicato
52) Violin1
53) Violin2
54) Cello1
55) Cello2
56) Contrabass
57) Harp1
58) Harp2
59) Guitar1
60) Guitar2
61) ElecGuitar1
62) ElecGuitar2
63) Sitar
64) AcouBass1
65) AcouBass2
66) ElecBass1
67) ElecBass2
68) SlapBass1
69) SlapBass2
70) Fretless1
71) Fretless2
72) Flute1
73) Flute2
74) Piccolo1
75) Piccolo2
76) Recorder
77) PanPipes
78) Sax1
79) Sax2
80) Sax3
81) Sax4
82) Clarinet1
83) Clarinet2
84) Oboe
85) EnglishHorn
86) Bassoon
87) Harmonica
88) Trumpet1
89) Trumpet2
90) Trombone1
91) Trombone2
92) FrenchHorn1
93) FrenchHorn2
94) Tuba
95) Brass1
96) Brass2
97) Vibes1
98) Vibes2
99) SynMallet
100) WindBell
101) Glock
102) TubeBell
103) Xylophone
104) Marimba
105) Sweep
106) Martian
107) TwilightZone
108) NoTone
109) LostInSpace
110) Triangle
111) SteelDrum
112) SimmonSnare
113) RapScratch
114) BirdTweet
115) Ob'heim
116) Noise
117) LogDrum
118) Koto
119) Jump
120) Jaw Harp
121) Helicopter
122) Bell
123) BassDrum1
124) BassDrum2
125) Banjo
126) AnalogSynth
127) Wow



Command Line Options

Sp Gold accepts special codes after the program name on the DOS command line to alter its operation. These "command line options" can be combined on the same line as long as they're separated with a space and a forward slash (/). (The Filename option is the only exception that's not preceded by a forward slash.) For example:

```
SPG /F /ega /NH my_song
```

would start the program (SPG) while activating the song fixer command (F), the EGA board adjustment (ega), the no-help option (NH) and loading the song file called my_song (my_song).

Command line options can be entered with either upper or lower case letters.

Trackscan™ Options

Sp Gold's Trackscan command line options allow memory to be reserved for over 2,000 tracks. For most situations, however, the default setting of 64 tracks (for both recording and playback) is adequate. If extra track capacity is required later on, the song may be saved with the lower number of tracks and the program may be restarted with a Trackscsan command line option to increase the number of tracks. When the song is reloaded, it will contain the additional tracks along with the original recorded tracks.

> *There must always be enough tracks allocated to extend to the highest-numbered track, regardless of the total number of tracks used.*

For instance, if a song is saved with 73 recorded tracks, but the highest numbered track is 89, Sp Gold has to reserve at least 89 tracks when restarted in order to reload the song. In such a situation, all blank tracks may be easily deleted with the G-sort command.

> *Although song files can be transferred between SpJr, Sp and SpG, tracks numbered higher than 64 will be lost if loaded into SpJr.*

Sp Gold distinguishes between Working and Playable tracks as follows:

Working Tracks These are tracks that can be accessed with all of the screen functions.

Playable Tracks These are tracks that can be played back.

Since playable tracks require Sp Gold to process data relevant to the playback process, they require more memory than working tracks. Since it is likely that there will always be fewer "playable" than "working" tracks, Trackscan allows the number of playable and working tracks to be set separately.

/tk:xx ***Set the number of working tracks (where xx is the desired value.)***

➥ *Default = 64*

The number of working tracks must be greater than the number of playable tracks. Setting a small number of playable tracks and keeping a larger number of working tracks allows experimenting without taking up the additional memory required by working tracks.

/pl:xx ***Set the number of playable tracks (where xx is the desired value.)***

➥ *Default = 64*

Although the maximum number of playable tracks ultimately depends on how much RAM is available, a realistic maximum is a "few hundred."

For instance, to set the number of working tracks to 256 and the number of playable tracks to 100, type:

```
SPG /tk:256 /pl:100
```

The maximum number of playable tracks is determined in large part by the /tk setting. As the number of working tracks increases, the maximum number of playable tracks decreases.

Metronome Options

Metronome command line options perform the same function as the metronome window, [Shift][F2].

/MDN:xxxx ***Metronome Downbeat Pitch (where xxxx is the desired value.)***

➥ *Default = 1569 Hz, or G note. Range: 100Hz - 5KHz*

Used to change the pitch of the metronome's downbeat "beep" on the PC speaker. The setting for xx changes the pitch in increments. For example, the following command line option will change the pitch to 340 Hz:

```
SPG /MD:340.
```

/MUP:xxxx ***Metronome Upbeat Pitch (where xxxx is the desired value.)***

➥ *Default = 523 Hz, or Middle C note. Range: 100Hz - 5KHz*

Used to change the pitch of the metronome's upbeat "beep" on the PC speaker.

/MDUR:xxx ***Metronome Duration (where xxx is the desired value.)***

➥ *Default = 50ms. Range: 10ms - 200 ms*

Used to set the duration of the metronome's "beep" on the PC speaker. The setting for xx sets the duration in 1 millisecond (ms) increments.

For example, the following command line option will change the duration to 10ms, which is an unpitched "click" sound:

```
SPG /MD:10
```

Mouse Options

/nm ***"No-Mouse" option***

Normally, when Sp boots, it automatically senses whether or not a mouse is installed. However, in rare cases, Sp may be fooled into thinking that a mouse is installed when in fact it is not. In these cases, errors may occur. To avoid this, the /nm option may be used.

/sb ***Swap the function of the Left/Right mouse buttons.***

/hs:xxx ***Set mouse horizontal sensitivity (where xxx is the desired value.)***

➥ *Range: 3 - 200 Default: 20*

Sets the horizontal sensitivity of the mouse movement to control its relationship to the horizontal screen cursor movement. A lower setting makes the cursor move faster for small mouse movements.

/vs:xxx ***Set mouse vertical sensitivity (where xxx is the desired value.)***

➥ *Range: 2 - 100 Default: 30*

Same as /hs:xxx except for vertical cursor movements.

/hm:xxx ***Set horizontal multiplier (where xxx is the desired value.)***

➥ *Range: 1 - 100 Default: 6*

In some screens (i.e. View), the cursor moves in small increments, while in other screens (i.e. Main) the cursor moves in large increments. The horizontal multiplier is used to adjust the mouse movement sensitivity so approximately the same amount of motion is required to move the cursor from one side of the screen to the other in these screens.

Since the vertical movement in every screen is always one line at a time, there is no need for a vertical multiplier setting.

For example, using the default settings, the View screen will have a horizontal sensitivity of 20, while the Main screen horizontal sensitivity will be 20 x 6 = 120. Thus, the cursor will move 120/20 = 6 times as many cursor positions in the View screen as it does in the Main screen for the same mouse distance.

Song File Options

/f ***Fixing Damaged Song Files***

A damaged song file may cause Sp to "lock up" as soon as it is played. If a song file on disk has been damaged in some way, it may be partially salvaged by starting Sp with the "fixer" option. To do this, exit Sp and run it again with the /f option as follows:

```
SPG /f
```

When Sp is operating in this mode, any song loaded from disk is checked for errors, and the damaged sections are deleted. After a song file has been fixed in this manner, it should be saved (on another disk) and Sp may then be restarted in the normal mode.

This option should only be used if a song file is known to be damaged.

> *Damaged files may sometimes cause an "MSC2" message to be displayed on the Main screen.*

(FILENAME) ***Automatically Loading A Song***

To load a specific song file when booting Sp, the song's file name may be added after any other options, as follows:

```
SP (/OPTIONS) (FILENAME)
```

For example, to load a song called MY_SONG, start SPG as follows:

```
SP /EGA MY_SONG
```

Note that the filename extension is not necessary. The file will be loaded from the disk drive and path specified in the CONFIG file.

> *Only .SNG files may be used with this option.*

Video Display Options

/SLOW ***Slow CGA mode***

Allows slow screen drawing on CGA-type displays to prevent snow.

/EGA ***Displays normal text mode on VGA and EGA displays.***

Used to force high resolution displays to function in normal 25 line text mode. Without this option Sp will boot in high-res mode with a VGA or EGA display.

/CSR ***EGA Clone Cursor mode***

Used with incompatible EGA cards that lose the cursor in the edit screens. This option should not be used if the problem does not occur, since it may cause compatible cards to malfunction.

/ROWS:xx *Set Number of EGA/VGA Screen Rows (where xx is the desired value)*

➥ *Default = EGA: 43 lines, VGA: 50 Lines*

This command is use with EGA or VGA cards that have an incompatible BIOS.

When used with an EGA or VGA monitor, Sp normally draws 43 lines for EGA and 50 lines for VGA. With an incompatible BIOS, the card may not tell Sp the correct number of rows to use. Thus, the /rows:xx option is used to override the abnormal default settings.

For example, if Sp is used with a VGA card that only displays 43 rows, it may be set to 50 rows as follows:

```
SPG /rows:50
```

> *If this option is set for more rows than the video card supports, the menu area will be pushed off the screen.*

/V7:XX *Video 7 BIOS compatibility option (where xx is Video 7 mode)*

This option can only be used with video cards that have a BIOS compatible with Video Seven VGA Boards (eg. Fastwrite VGA and VRAM VGA). These cards support text modes that have more resolution than the standard 50 lines.

> ***This command should only be used with a multi-sync monitor.***
> *It alters the vertical scan rate to a non-standard speed, which may damage some fixed frequency monitors (like EGA and VGA).*

To use this command, type /v7:xx, where xx is the decimal number of the video mode you want to use. For instance,

```
SP /v7:67
```

will set the screen to 80 columns by 60 lines mode. (For decimal numbers of various video modes, and to find the one you'll want to use, consult the V7 manual.)

/multi *Block V7 Multi Message*

This option is only used in conjunction with the /v7: command to suppress the /v7 message that warns about the consequences of not using a variable frequency monitor.

/mg *Magic Combo Video Display Adapter Mode*

This option is used to activate high density display mode on a Magic Combo Video Display adapter, distributed by Voyetra Technologies. The Magic Combo card replaces a standard Monochrome video card, allowing a monochrome monitor to display the same number of tracks as an EGA monitor.

VAPI/SAPI Options

VAPI and SAPI are memory resident MIDI and FM Sound driver programs that are loaded before Sp is run. If the default IRQ and Address parameters on the MIDI interface have been changed, these command line options may be used to reconfigure VAPI and/or SAPI.

> *Note: SAPI cannot run without VAPI. If Sp is to be used only with an FM sound card and no MIDI interface is installed, a special version of VAPI called VAPINUL must be run prior to loading SAPI.*

/IRQ:x ***Set the VAPI interrupt (where x is IRQ #)***

➥ *Default = IRQ 2*

VAPI automatically searches the MIDI interface hardware and sets itself to the proper IRQ setting. The /IRQ command line option is used only to override the automatic setting.

> *Because SAPI does not use interrupts, it does not use this command line option.*

- One reason to override the automatic IRQ setting would be in the case where SAPI is required to run the FM card in a system where a MIDI interface is either not installed or has its IRQ setting defeated. Although in this case VAPINUL should be used, any VAPISB can be loaded and effectively used in place of VAPINUL by overriding the auto IRQ search feature.

If VAPISB is loaded without a MIDI interface, it will refuse to load after unsuccessfully searching for an IRQ setting. By using the /IRQ command line option, the auto search feature can be overridden, allowing VAPI to load and be available for use by the SAPI driver. For example, to set VAPI for IRQ 7, type:

```
VAPI /IRQ:7
```

/PORT:x ***Set the SAPIFM1 and SAPIMFC port assignment (where x is port #)***

➥ *Default for SAPIFM1 = Port 2. Range= 1 - 8*

This command line option tells the SAPI Sound driver program which port the FM sound card should be assigned to. For example, to set the Sound Blaster FM to port 3, load the sound driver by typing:

```
SAPIFM1 /PORT:3
```

To set the IBM Music Feature Card to port 2, type:

```
SAPIMFC /PORT:2
```

/ADDR:xxx ***Set I/O address (where xxx is address value)***

➥ *Default for Sound Blaster = 220*

This command line option tells VAPI and SAPI which address the MIDI Interface is set to. For example, if the Sound Blaster MIDI port is set to I/O 210H, type:

```
VAPISB /ADDR:210
SAPIFM1 /ADDR:210
```

/REM ***Remove SAPI or VAPI drivers from memory.***

This command line option is used to remove the VAPI and SAPI drivers from memory. If VAPI and SAPI are both loaded, SAPI must be removed before VAPI as follows:

```
SAPIFM1 /REM /PORT:X
```

(x = port number; default is 2; port must be specified for SAPIFM1 to be properly removed).

After removing SAPIFM1 type the following to remove VAPISB:

```
VAPISB /REM
```

/BEND:xx ***Setting the SAPIFM1 pitch bend range (where xx is the desired bend value)***

➥ *Default = 2. Range= 1 - 12*

This tells SAPIFM1 how to scale the pitch bends embedded in the song. For example, to set the Sound Blaster FM pitch bend range to +/- 12 semitones (one octave), load the sound driver by typing:

```
SAPIFM1 /BEND:12
```

Misc. Options

/dr:xxx ***Specifying the Directory Size (where xxx is the desired value).***

➥ *Default = 125*

The number "xxx" reserves only enough memory to display the specified number of filenames. The default setting uses the least amount of memory.

The /dr command line option is useful in two particular cases:

- It reserves memory space for a larger number of filenames in the Files screen, which normally shows up to 125 files. For instance, if a particular directory has 193 files, the /dr:193 option must be used to list see them all.
- It allows songs to be played from the Files screen, either singly or with the Jukebox command.

For example, to set the directory size to 43 files, use:

```
SPG /dr:43
```

/RES:xx ***Set internal clock resolution (where xx is the desired value).***

(xx =clock resolution in milliseconds, 1 through 10)

➥ *Defaults for 8088 = 6, for 80286, 386 or 486 = 1*

For turbo 8088 PC's, use a lower resolution number than the default. For slow 80286 PC's use a higher resolution than the default. A setting that is too low for the PC may lock up the program by demanding too much timing resolution from the system timer.

> *Since VAPI automatically sets the /RES option whenever Sp is run, the /RES option is used only to override the automatic setting.*

/R ***Disable use of running status on MIDI outputs.***

When using equipment that has an incorrect MIDI implementation, this option is used to correct potential problems. For instance, some early MIDI devices do not reliably change programs when this option is not set.

/nh ***No-Help Option***

Sp displays command specific help messages in the menu area when the ? key is pressed. In earlier versions the help messages were built into the program. In this version, these messages are loaded into memory from a separate disk file called BASHELP.SP0. When Sp starts, the help messages automatically load into memory.

If help messages are not needed, this option can be used to gain extra song memory.

/k ***Modifying the Key Buffer***

DOS provides a key buffer that stores keystrokes until they can be processed. Normally, Sp takes control of the key buffer and discards duplicate Del keystrokes to prevent the song from being destroyed when the Del key is held down.

Since most macro programs need to use a key buffer, starting Sp with he /k command line option retains the key buffer.

/grp ***Change the default track grouping to A***

➥ *Default = no group*

Earlier versions of Sp had Group A as their default setting. The current version defaults to the period (.) or "no group" setting. To have Group A as the default setting, use this option.

/KEEP ***Ignore Main screen options while deleting***

➥ *Default = Main screen options deleted*

Normally, when a track is deleted, the Main screen options are also cleared. The /KEEP option retains the Main screen option settings while the rest of the data is deleted.

The Delete All Tracks command will clear Main screen option settings, even if this command line option is used.

/Casio ***Casio Mode***

Adjusts for the way Casio instruments handle the MIDI running status protocol. You may have trouble recording into Sp with certain Casios if this is not set.

> *Since VAPI automatically asks if you want the /Casio option, the /Casio command line option is used only to override the automatic setting.*

/h /? /help ***Listing all of the Command Line Options***

To see a list of all the command line options, use either of these command line options when booting Sp.

/mt:xxxx ***MIDI Data Analyzer Buffer Size***

➥ *Default = 10,000 bytes*

Specifies the size of the MIDI Terminal History Buffer, up to a maximum of 32,000 bytes. For instance, to set the buffer to 20,000 bytes, type:

```
SPG /mt:20000
```

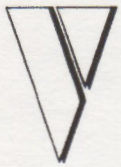
/rbuf:xxxx ***Override Librarian Options Buffer Setting. (where xxxx is number of K byte)***

Normally, the LIbrarian Options Window determines the size of the History Buffer. Using the /rbuf command line option, this setting may be overridden.

➥ *Default = 10,000 bytes*

Specifies the size of the MIDI Terminal History Buffer, up to a maximum of 32,000 bytes. For instance, to set the buffer to 20,000 bytes, type:

```
SPG /mt:20000
```



Troubleshooting

No matter how careful you are, things can go wrong. If they do:

- ❑ Go through the instructions carefully, to make sure you didn't miss anything.
- ❑ Save everything to disk that you can so you won't lose your song.
- ❑ Turn the computer off.
- ❑ Check the hardware connections to make sure they are all firm and correct.
- ❑ Turn the computer back on, and try the program again.
- ❑ Refer to this manual and carefully work through what you're trying to do.

Hardware Problems

MIDI interfaces and other PC expansion cards interact with the main circuitry of the PC in similar ways. Each time an interface or expansion card is added to a PC, there is the possibility of conflicts that will disable, but not damage, the MIDI interface.

The two most common conflicts involve the IRQ number and the I/O address.

IRQ Number

MIDI Interfaces, and other expansion cards gain access to the PC's main hardware through Interrupt ReQests numbers (IRQ). If two cards attempt to use the same IRQ number simultaneously, there will be a conflict, and one or both of the cards will not function properly.

Many cards can work with different IRQ settings to correct IRQ conflicts. VAPI automatically senses the IRQ setting of the installed MIDI interface so you won't have to worry about it once the IRQ conflict has been resolved. (See the command line option /IRQ:x for further details.)

I/O Address

Each expansion card in the PC uses an Input/Output (I/O) Address to access the PC's main circuitry. If two cards attempt to use the same I/O Address simultaneously, one or both of the cards will not function properly.

Many cards can have their I/O Address set in the event of an I/O Address conflict, Sequencer Plus can set the I/O Address of the installed interface by using command line options when loading the required VAPI driver. (See the command line option /ADDR:x in the Command LIne Options section.)

Common Questions

Video Display Problems

Q. ***Why does Sp boot with small screen characters?***

A. When used with EGA/VGA systems, Sp puts as much information on the screen as possible. If you don't want this "high density" screen, use the /ega command line option when booting Sp.

Q. ***Why does the cursor disappear in the Edit screen?***

A. This is caused by video cards that are not 100% compatible with the IBM standard. In many cases, it can be corrected by running the /csr command line option. If this doesn't work, try the /ega option to put Sp in 24 line mode.

Q. ***Why does Sp boot with the track list off the end of the screen, losing the menu?***

A. This happens when an EGA video card is used with a CGA monitor. The solution is to get an EGA monitor, or use the /EGA option.

Q. ***Why are the characters very large, and the right side of the screen missing?***

A. This happens when a CGA system is set up for 40 column mode. Either set your system board switches for 80 Column mode, or run the DOS command "mode 80" before using Sp. See the DOS manual for details on the MODE command.

Q. ***Why does is there "snow" on the screen during a redraw?***

A. Try removing the /fast option from the SEQ.BAT file.

Q. ***With a VGA system, there are fewer than 50 lines and the bottom of the screen is blank.***

A. Make sure you're using Sp version 3.0 or higher. Spv2.1 didn't have VGA support. Also, try the /rows:50 option.

Problems Running Sp Gold

Q. ***When I run Sp, the message "VAPI DRIVER NOT LOADED" appears.***

A. ① Did you run the program as SPG instead of running SEQ?

- *SPG is the name of the Sequencer Plus GOLD program, which won't run unless special drivers are first loaded.*
- *SEQ is the name of a batch file that first loads the necessary VAPI/SAPI drivers and then runs the Sp Gold program. In order to run SPG (eg. as part of a batch file), you must first load the VAPI/ SAPI drivers.*

② Is there a hardware problem that prevented the drivers from loading?

- *In this case the message "MIDI interface hardware is not working" would have also appeared.*

③ Did you bypass the VINSTALL batch file and copy the Sp Gold files directly to the hard drive?

- *Run VINSTALL to load the drivers automatically and generate the required batch files for running Sp Gold.*

Q. ***When I start Sp Gold, why are certain things set a particular way?***

A. The CONFIG.SEQ file is loaded every time Sp Gold runs. It contains all the settings from the Options and Configuration windows, as well as some other global parameters, like tempo. To have a particular setting in the config screen come up differently, reset them save the configuration.

Sequencer Related Problems

Q. ***Why is MIDI is not being recorded?***

A. ① ***Check the connections:***

Be sure the MIDI cables are tightly connected on the synth side and the MIDI interface side. If you're interface has a separate output box (eg. Sound Blaster, V-24s) check that the cable between the box and PC is tightly plugged in. Be sure the synth's MIDI OUT is connected to the interface MIDI IN and the Synth's MIDI IN is connected to the interface MIDI OUT.

② ***Check for an IRQ problem:***

Since VAPI automatically senses the MIDI Interface IRQ setting and sets itself accordingly, an IRQ problem may indicate that the IRQ jumper setting on the MIDI interface conflicts with another IRQ setting on a PC expansion card. If Sp stops while loading and prompts that a problem was detected with the IRQ setting, Sp won't record until the problem is corrected.

③ ***Try playing another MIDI synth with the master synth:***

Remove the MIDI cables from the PC and connect them to the another synth's MIDI jacks (OUT to IN and IN to OUT.) If the second synth

can't be played by the first one, check for a bad cable. Also, check the synth's owner's manual to see if it must be set to transmit MIDI.

> *The MIDITEST program is a good way to test for a bad cable since it can be used to loop the MIDI interface input to it's output with a single cable. (See the "Setting up" section in the Introduction.)*

Q. ***Why can't I record from my Casio Synthesizer?***

A. Casio synthesizers use MIDI "**Running Status**" which could cause Sp not to record. To correct this, when Sp is installed, VINSTALL asks if you are using a Casio. If so, it sets the /Casio command line option (see reference) to compensate for the Casio running status.

If you're using a Casio and you can't record, try changing a few programs on the Casio panel buttons. This will send a MIDI status byte to Sp and allow it to record. If the /Casio command line option has been removed from the batch file created by VINSTALL, you'll have to do this each time you reboot Sp.

Q. ***The bar/beat counter is erratic and sometimes doesn't work at all.***

A. This is usually caused by an IRQ (interrupt) conflict.

Q. ***I've tried to run my drum machine's internal patterns from Sp, but I can't get them started.***

A. You probably aren't sending the Start message to the drum machine because the Real Time Out option, in the Sync window, is turned OFF. To send the Start message, it must be turned to ON or NO SPP.

Also, with a multi-port interface, the MIDI clocks can be routed to a particular output. Be sure the drum machine is connected to the assigned output.

Q. ***When I try to insert notes or MIDI events, nothing happens, or the wrong thing happens.***

A. To insert and delete single events in the Note Edit screen, use the Ins and Del keys, not the letters 'I' and 'D'.

Q. ***How do I start working on a new song without leaving the program and re-booting?***

A. From the Main screen, type 'D' (for delete), then 'A' for ALL TRACKS. This will wipe out all the music, and let you start a new song. This procedure will NOT reset all the options info.

To get a totally clean slate, you should save a song, with all the options and channels set up to your preference. Call it "default", or whatever you like (eg. If you name it !DEFAULT, it will come up first in the files screen.) Any time you want to reset everything, just load this file.

Librarian Related Problems

Q. ***When I try to receive data from an instrument, the message "Upload Error..." appears.***

A. ① Are the MIDI cables connected correctly (Computer OUT to Instrument IN; Instrument OUT to Computer IN)?

② Have you set up your instrument correctly? Consult the instrument help screen?

③ Is the port setting in the setup assigned to the port connected to the instrument?

Q. ***When I transmit a bank to my instrument, it doesn't get there.***

A. Try the suggestions in the previous question.

Many instruments have no visual indication of successful receipt of MIDI bulk data. Also, many instruments keep the same voice that was previously loaded in memory (and on its display) until a new voice is selected (eg. the Korg M1 does this.)

Q. ***I've just uploaded data from my instrument but there's only one program on the Bank Arranger screen.***

A. This may be the normal case for your instrument. Check the instrument help and the Librarian section on Instrument Data Types. Not all instruments are compatible with Sp's Bank Arranger features.

Q. ***When I try to receive a bank from my instrument, the message "Uploading data from xx synth" appears and the upload process stops.***

A. The instrument may need to have the upload initiated with a button on it's front panel. Check the instrument help screen for details on specific instruments.

Q. ***When I press "I" to get the instrument list, I get an error message that says "Unable to find INSTMENT.LIB file." Where is it?***

A. Although Sp has full sub-directory support, it always expects to find its instrument library (the file called INSTMENT.LIB) in the default drive and directory (the ones you were in when you booted Sp. The intended technique for using Sp is to make the drive and directory that holds the program be the default ones. You then find your setup and bank files by setting LIBRARIAN-PATH in the Configuration window.

Problems with the Sound Blaster and AdLib cards

Q. ***Why doesn't the Sound Blaster initialize when I try to boot Sp?***

A. The Sound Blaster Card may not be connected properly. Check the Sound Blaster manual for the proper installation procedure.

Q. ***When I try to use a MIDI keyboard with the Sound Blaster (record, thru, etc...), nothing happens.***

A. Make sure that MIDI:IN/OUT is set to IN using the [Alt][X]* keys. Then, while recording, see if the memory counter in the status area of the Main Screen decreases as you play. If not, it means Sp is not responding to the incoming MIDI data. This could be caused by an interrupt conflict. Check the Sound Blaster Manual for details.

> ** This features applies to Sound Blaster's equipped with pre 2.0 ROM. If your Sound Blaster has ROM 2.0 or higher this feature will not be needed and will not be available.*

Q. ***Nothing plays when I try to use the FM voices.***

A. ① Is the Sound Blaster audio hooked up?

② Have you loaded the SAPIFM1 driver? (See question about "VAPI DRIVER NOT LOADED.")

③ Is MIDI Thru set to CURRENT (See MIDI Thru window section)?

④ Is the track set to Port 2 (FM)?

Q. ***I set a track to play back on port 3, but it doesn't play.***

A. The physical ports on the SB MIDI box all correspond to Port 1. In the default setup, everything assigned to port 1 comes out all 6 MIDI outputs on the SB box. Port 2 is sent to the Sound Blaster FM voices.

- *Any port set to a number higher than 2 will not play. Since Sp Gold can work with more than one Sound Blaster and with Multi-port MIDI Interfaces, the Port column can be set to a number higher than 2, but won't respond if there isn't any hardware there.*
- *You can change the Sound Blaster Port assignment with a command line option. See the Command Line Options section for details.*

Q. ***Can I use more than one FM Sound Card?***

A. Yes, but be sure to change the port number on the second board and make some other adjustments. See the Sound Blaster section for details.

File Related Problems

Q. ***Why can't I rename my bank files with a different extension, like .DX7 ? Why must they have extensions like .B68?***

A. Sp uses the file extension to tell it what instrument each bank file is for. This method is preferable to opening and reading each bank file to determine this.

Q. ***I saved some files the other day, but now when I enter the Files screen, they're not there.***

A. Is the path set correctly in the Configuration window? You may have inadvertently stored the files in another directory.

Did you enter the Files page in the correct mode? Entering the Files page from the Setup screen will only show you SETUP files; entering the Files page from the Bank Arranger will only show you BANK FILES. Only bank files for the current instrument are shown in the Files page when entered from the Bank Arranger. Use the extension command to look at others.

Q. ***I received some songs from a friend, but I can't load them since they don't show up in the Files screen.***

A. The files screen only lists the files in one directory at a time. To change it to see a list of files on your A drive, for example, put the cursor on [A:] and press enter.

- *Alternatively, you can use the DOS copy command to move all the songs into the directory where you normally keep them.*
- *Also, be sure that the file extensions are correct. Sequencer Plus files use the .SNG extension, MIDI files use the .MID extension and Ad Lib files use the .ROL extension.*

Q. ***I downloaded some songs from a BBS and they either won't show up in the files screen, or when I load them I get the message "Not a Seq+ song file."***

A. There are many different song file formats. In fact, each manufacturer's sequencer has it's own native format, which usually isn't readable by other programs. The only common formats that can transfer songs from one seq to another are MIDI files.

① The native file format of Sp is the .SNG file. If a file does not have the .SNG extension, chances are it isn't a Sequencer Plus song. Simply renaming it to have a .SNG extension won't help matters.

② If the song has a .MID extension, chances are that it is a MIDI file, and can be read (see the appendix section on MIDI files). It is also possible that the file was originally a .SNG or .MID file but downloading it by modem destroyed the data.

For a complete discussion on file formats, see the Files screen section.

If you still can't solve the problem...

Test each piece of equipment in your system and make sure everything is working correctly. Using a process of elimination, try to trace the problem backwards from the instruments, to your MIDI cables, to the interface, to the computer, all the way back to Sp.

Document the problem as best you can, write down error messages, etc. With all of this information in hand, call us. Our support staff will be glad to help registered owners (that's why we need your warranty card).

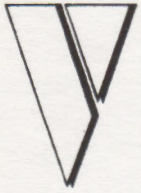
Our number is:

(914) 738-4500

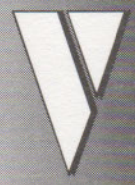
Tech Support is available 9 am. to 5 p.m., Eastern Standard Time, Monday through Friday.

We'll do our best to help you get things straightened out.

Make sure you have your program's serial number handy when you call. Telephone support is available only to registered users.



INDEX



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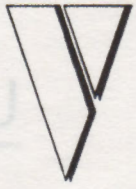

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