VS Pro Studio

Sequencing and Audio software for Roland VS-880, VS-880EX, VS-1680, VS-1880, VSR-880 and VS-890 workstations

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This manual was prepared using Corel Ventura

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Section One

Preliminaries

VS Pro Introduction

System Requirements

Computer

To run VS Pro, your computer must meet the minimum specifications detailed below -

- Pentium™ 90MHz or faster
- 16 Mb RAM
- 10 Mb free disk space
- Windows 95™, Windows 98 ™ or Windows NT 4.0 ™
- SVGA (800 x 600) display
- One MIDI in / out port for each VS Workstation

MIDI

VS Pro requires one MIDI input and one MIDI output port for each Roland VS Workstation connected. These connections are dedicated, and cannot be used simultaneously for any other purpose. You will also need at least one extra MIDI input and output port if you plan to do any MIDI sequencing while using the Roland VS workstation.

VS Workstation

In order for VS Pro to communicate with the VS, you will need to check a couple of items. Each of these is **essential** for correct operation, so please take a few moments to check.

- You must have a recent Operating System in your VS. For VS-880, the operating system must be 2.0 or later, For VS-880EX, you will require version 1.007 or later, while for VS-1680, version 1.025 or later is needed. You may wish to check the Roland web site www.rolandus.com for the latest version.
- Your MIDI connections to the VS must be dedicated i.e. no thru connections

- You must ensure that MIDI SysEx Transmit and Receive are turned on. Note this is a song specific parameter ie you will need to do this each time you create a song

Product Overview

The VS Pro suite of programs are designed to work with the VS880, VS880EX, VS1680, VSR880, VS890 and VS1880 Roland VS Digital Audio Workstations. Each program detects what VS Workstation(s) are connected to it and will configure itself automatically. All connections are via MIDI and each VS Workstation must have its own dedicated MIDI in and out.

There are 7 programs in the suite, and each is described briefly below.

VS Pro Score - This is the top-level program and combines MIDI sequencing and notation with the full editing, mix and effects control of your VS Workstation in a fully-integrated environment.

VS Pro Studio - This program combines MIDI sequencing with full editing, mix and effects control of your VS Workstation in a fully-integrated environment.

VS Pro Lite - This program combines MIDI sequencing with cut and paste editing of your VS waveforms for the active virtual track of each VS track.

VS Pro Tool Box - This program gives full editing, mix and effects control of your VS Workstation. It will work alongside your favourite MIDI sequencer.

VS Pro Audio Tools - This program gives you 'cut and paste' editing of your waveforms on-screen for all virtual tracks across all tracks on your VS Workstation.

VS Pro Mix Tools - This program gives you full scene and dynamic automation of all your mix parameters, track arming and input routing on your VS Workstation.

VS Pro FX Tools - This program gives you complete control of all the effects in the VS Workstation. Each

effect algorithm has a dedicated window and complete librarian function for saving your favourite settings.

Program Overview

VS Pro is a sophisticated MIDI sequencing**and** notation program as well as an interface to your Roland VS Digital Audio Workstation. It has many features and options. Please note that MIDI sequencing is only available in VS Pro Lite, Studio and Score. The notation section is only available in VS Pro Score.

The **menu system** is built dynamically based on the VS Pro product that you have purchased. It contains menu entries for those functions which are available to you. Some of the menu entries contain a keyboard shortcut that assist you in moving quickly to the desired function.

The **main tool bar** is a quick way of working with the most common editing functions, editing windows and dialogue boxes. As you move your mouse pointer over each button, the title of the button will appear on the status line at the bottom of the screen and balloon text where you are. There are four main groups of buttons.

File Functions and Printing
Editing Tools and Functions
The Different Editors (or Views) available
Filters & Preferences

This toolbar is built dynamically based on the VS Pro product that you have purchased. It contains icons for those functions which are available to you.

The **transport bar** is a floating group of buttons and information that can be moved to any part of the screen that suits you. It can be removed under the Window menu. Its main buttons allow you to start and stop the "tape recorder" functions of play and record. It also contains buttons and readouts affecting loops, cue, sync and metronome functions.

Acknowledgments

Datasonics would like to thanks some people, without whom this program would not have been possible.

- Firstly to Roland Corp Japan for providing valuable information about communicating with the VS products.
- Secondly to Roland Australia for the loan of the VS Workstations during the development of this software
- Thirdly to Dave Dwyer from Roland Australia for his valuable input during the development phase.
- Next to Chuck Vandeman at Roland USA for providing the excellent sketches of the effects and mixer sections in the VS workstations.
- Finally to all our friends who tested the software and made valuable input.

Installing VS Pro

The following instructions are for installing the VS Pro software on your computer.

Software Installation

1 To install VS Pro you must be first running Windows.

2 Close all other applications when installing the software.

3 This software is provided on a CD-ROM. Insert it in the CD drive of your computer.

4 Choose [RUN] from the [START] menu. (Note CD versions should autorun with Windows 95, 98 and NT 4.0, so you shouldn't need to do steps 4 and 5).

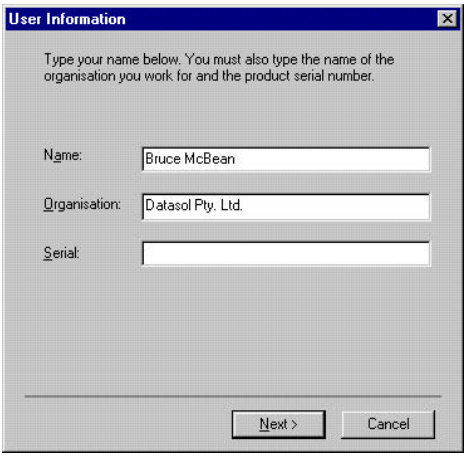
5 In the Command Line Text Box, type **D:SETUP**, then click on [OK].

6 The installation program will then take you through the steps to install the software on the hard disk.

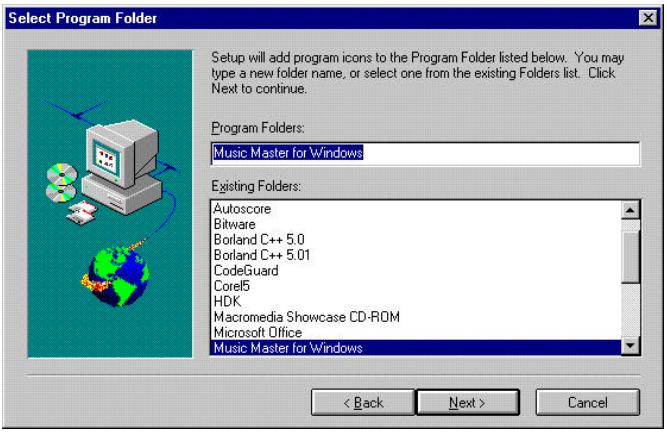
After the Welcome window the next window advises you of the directory into which this software will be placed. The default is C:\Program Files\Datasonics\VS Pro. By clicking on Browse you can select a different directory if desired. Click on [Next] when ready.

During the installation you may get a window advising you of the need to install DirectX on your computer. If the option is "Reinstall" or indicates that you have a later version of DirectX already installed, then you should not proceed with this installation option, but if the option is "Install" then this is required to allow audio to be recorded and played back andyou MUST install this option.

Next appears a window that displays the name and organization for your computer.VS Pro uses this when displaying the License information. You can change the



default if desired. To prevent software piracy, this software uses a software keylock. In the serial number box, type in the serial number of your software. Enter



the number exactly, including the dashes. Click on the [Next] button to proceed with the installation. If you entered the serial number wrongly, you will not be able to proceed.

- A window will now appear allowing you to select the Program Folder into which the icons will be placed.
- VS Pro will then install to the hard disk.

7 Once the software transfer has finished,VS Pro may ask you to look at a READ.ME file. This file contains information about features that have been added or changed in the software that are not covered in the manual. You may find it useful to print this file and put it in your manual for future reference.

Registering your Software

We suggest you register as soon as you have purchased VS Pro. Any information provided will be treated in strict confidence. By registering, you are able to obtain telephone support for this software. Registered users are also able to obtain software updates at prices much less than the price of a new copy.

Connecting to the VS Workstation

VS Pro has been designed to be as easy to hook up as possible. However there are a few possible hitches, so a little time spent reading this chapter could save you a lot of frustration.

Cabling

VS Pro can talk to up to any number of VS Workstations simultaneously. Each VS Workstation will require its own MIDI In and Out connection to your computer. These connections can NOT be “thru’ed” to any other devices or conflicts may occur.

Additionally, you will probably need at least one extra MIDI In and Out for your keyboard and sound modules. For a basic setup with one VS Workstation and one keyboard and / or sound module, two sound cards with MIDI ports will suffice. You will have to install them correctly so that there is no conflict with address or interrupts. Before running VS Pro you should check your Windows Control Panel | System screens to ensure the cards are correctly installed. From our experience, it is best to avoid using cheap MIDI adapter cables with Sound Blaster or compatible cards - they often give unreliable MIDI performance. Once the cards and drivers are correctly installed, this software will be able to find them.

For a more complex setup, the best way to connect all this MIDI to your computer is with a multi port MIDI card made by a reputable manufacturer e.g. Mark Of The Unicorn ™.

Configuring the VS Workstation

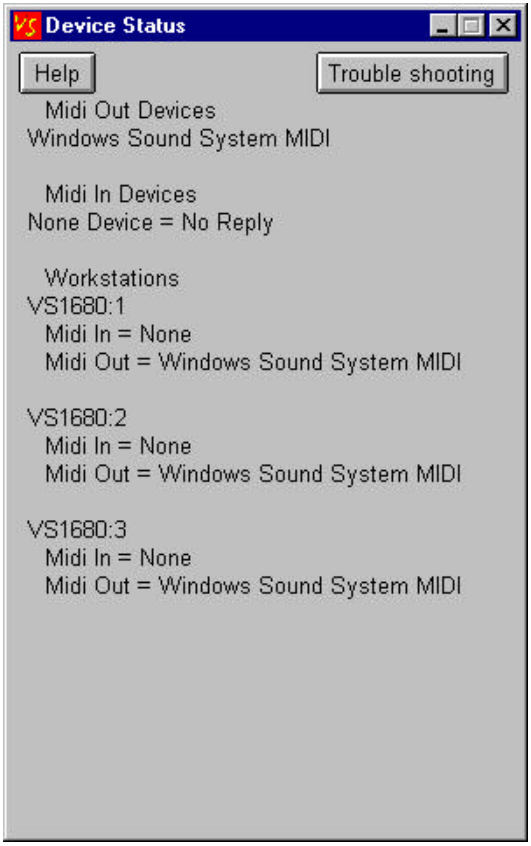
Each time you turn on the VS Workstation, you must enable it to communicate with this program. This

basically involves enabling the VS Workstation to send and receive System Exclusive commands.

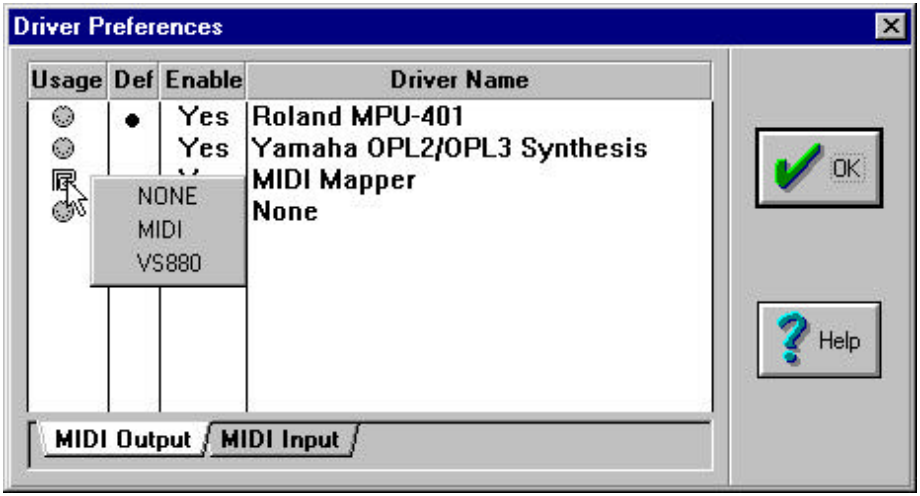
On the VS, set the System | MIDI | SysEx.Rx and SysEx.Tx parameters to On. Note these are Song parameters and are saved with the song. You must set them each time you want to work with a new song.Once you have saved these settings with a song you will not need to set these next time you load this song.

Setting the Drivers

Once you have cabled your computer to the VS Workstation, run VS Pro. It will interrogate all the MIDI ports for VS workstations and will automatically set these as VS usage. If you get the Device Status window



immediately then VS Pro could not find any VS workstations. Press the trouble shooting button and follow the procedures outlined.



Select Drivers from the Preferences menu. Here the MIDI drivers available are listed. You should set the default input and output driver to one marked with MIDI usage if one is spare. To reassign a Driver from MIDI to VS, right click on the MIDI plug and select VS as the Driver Usage. Make sure that you do this for both MIDI In and MIDI Out.

A note about Software Versions

As with all software development, the internal operating software of the VS Workstations is constantly being improved. Some earlier versions may give incorrect operation when used with VS Pro.

Earlier versions have some inconsistencies in their MIDI implementation that can cause problems when running with VS Pro. In particular, the Undo and Redo commands do not operate correctly when performing more than one level of Undo/Redo. (Note this bug ONLY applies to MIDI control - front panel operation works correctly).

We recommend for best operation with VS Pro that you use the latest software for your VS Workstation. Contact your Roland distributor or for an update, or download it from the roland website (www.rolandus.com).

Windows Basics

Using Windows

This section is intended for people who have little or no experience with Windows. It is not meant to be a complete tutorial on Windows, but should give the user sufficient guidance to run applications under the Windows environment.

Using the Mouse

Most Windows functions can be performed using the mouse. Moving the mouse makes the mouse cursor move around the screen. Each editor has a section of the display that shows the position of the mouse cursor in the song (displayed in measures i.e. bars, beats and clocks) whenever the cursor is positioned over MIDI data.

Most Windows procedures are performed by clicking with the left mouse button. Select different functions by moving the mouse cursor over the appropriate screen button, then click (i.e. quickly press and release) with the left mouse button. You can move or select multiple objects by clicking and dragging. To do this click and hold down the left mouse button then drag the object to where you want it.

To select a number of objects, position the mouse cursor at one side of the objects to be selected, press and hold down the left mouse button, and drag the cursor across the objects to be selected. As you move the mouse cursor, the objects will be highlighted or surrounded by a box (depending on the software you are using and the function being performed).

Moving a single object is done in a similar way. For example, to move an icon in Program Manager, click on it with the left mouse button, drag it to where you want it, and then release the button.

Working with Windows

Everything that you do in Windows is done in a window. To open a window, you must initiate a command. For example, this application runs inside a window, which opens when you click on the icon on the Desktop. Resize a window on the screen by moving the mouse cursor to the edge of the window. You will see the mouse cursor change shape to a double-headed arrow. Click and drag the window's border using the left mouse button.

To move a window, click on the title bar at the top of the window, and drag the window to where you want it. Windows can arrange a number of windows automatically for you. You can "tile" a number of windows by selecting Tile from the Window menu. This will lay the windows out side by side. Likewise you can Cascade windows. This will layer the windows one on top of the other, with the title bar of each window showing at the top.

To bring any window to the top (i.e. to display it), simply click on the title bar of the window that you want.

To close a window, click on the [X] button at the right end of the window's title bar. You can also minimize most windows, which means that they are reduced and placed on the Start Bar at the bottom of your screen

Optimizing Windows

There are a few things you can do to make this application work better. Each is detailed below-

Make the Start Bar auto hide. Go to Start | Settings | Task Bar and tick auto hide. This will maximize the space available to this and other programs. When you move the mouse to the bottom of the screen the Start Bar will reappear.

Make sure your display is set to the highest resolution available. Again this will allow you to see more. Right click on a blank section of the desktop, select Properties

then Settings and slide the Desktop Area slider to the right.

When running this program it is usually best to close other programs. Sequencing is “real time” and uses a lot of processor power, so it is best to give the full power of your processor to this application.

Every few months you should defragment you hard disk. This will speed up disk access, so you can load your songs a bit quicker.

The Windows menu contains a number of items which help you organize the layout of your screens.

Cascade all opened editors are placed in smaller windows and stacked overlapping.

Tile all opened editors are enlarged so all fit on the screen without white space.

Arrange Icons any editors that are iconised have their icons tidied at the bottom of the screen

Close All all editors and songs are closed

Main Tool Bar toggle the Main tool bar on or off

Edit Tool Bar toggle the Edit tool bar on the current editor on or off

Transport Bar toggle the transport bar on or off

Status Bar toggle the Status bar (at the bottom of the window) on or off

Window list all opened editors are listed. The current editor is ticked. Click on a different window name to bring it to the top of a stack of windows

Using On Line Help

This program has a powerful context-sensitive help system. Context-sensitive means that the program knows where you are working, and will bring up the help topic appropriate to what you are currently doing.

To get **context-sensitive help**, simply press **F1** on the keyboard. Alternatively, many windows have a help button that you can click on with the mouse.

In addition to the context-sensitive help, there is a **help menu system**. This works the same as help in most Windows applications. To access the help system, pull down the help menu at the top right of the menu, or type **Alt H**. You can look at the contents of the help system, search for help on a topic, get help by referring to a key word, or see an overview of the program.

The help menu allows you to access all the functionality provided in the Help System.

Contents A list of all the topics in the Help System

Search You can search for a word in the Help System, then jump to topics containing that word

Overview This will jump to the Help topic “Overview of Application”

How to Use This will jump to the Help topic “The Application Help System” which gives you a brief tutorial on how to use the help system

About This option will display a screen showing the version of thhis program you are running

Mouse Cursor

As you move the mouse around the screen, the cursor changes shape over different sections. This tells you what things you can do.

The arrow is the standard point and select cursor. When you move it over a note or other event in the editors, you can double click to edit the event. This cursor is also used to select Windows objects such as menus and scrollers.

The hand symbol means you can move the object under the cursor. Click and drag the object with the left mouse button to the desired location.

The double-headed arrow tells you that you can directly alter a numeric field. Click with the left mouse button to decrease the value or with the right button to increase it. If you double-click on the field, a box will open, into which you can directly type the desired value.

This cursor will appear when there is a drop-down list available. If you click with the right mouse button, you can move to the desired item in the menu and release - all in one step.

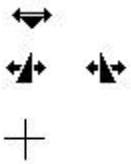
This symbol means that a window will open if you click here.

The I Beam appears wherever you can enter text. Click, then type your text. When you have finished, press **Enter** to close the box

This cursor appears when the mouse is over a locator. You can click and drag the locator to a different position..

This cursor allows you to move a Part Boundary. Click and drag the Part Boundary to the desired location.

The pen cursor appears when you draw a note velocity curve in the grid editors. Also it appears when you drag the length of a note in the grid editors.



The Song Position, In Locator and Out Locator cursors allow the moving of these items by clicking and dragging along the Ruler.

The Paste cursor shows where you are about to paste some MIDI data.

Mouse Cursor Position

The top of each editor has a box that displays the position of the cursor whenever it is in your song. It is displayed in measures, beats, steps and clocks. (Clocks are the smallest unit of time in a MIDI system).

Note that the cursor position display reflects the “step” that has been selected in the box just next to the cursor position display. Step determines how fine the placement of the cursor is in your MIDI data, and is useful when moving notes and sections of your song around.

For example, if you set the step to BAR, you can accurately move a section to an exact bar boundary. To set the Step, click inside the step box and the Step Value window will appear. Click on the desired step, or [OFF] then click on [OK].

In the Notation Editor, the mouse cursor often changes to the symbol you are about to insert e.g. D.S. al Coda - this is to help you to know what step you are up to.

Menu System

As with all Windows applications, a menu system is used to access all of its functions. You can also use the toolbars to access some of the features.

The menu system is built dynamically based on the product that you have purchased. It contains menu entries for those functions which are available to you.

Some of the menu entries contain a keyboard shortcut that assist you in moving quickly to the desired function.

The menu bar is located at the top of the application window. It contains the following menus - file, edit, song, track, view, controls, preferences, plug-ins (optionally), window and help. To access a menu, click on it with the left mouse button. Alternatively, press **Alt** plus the first letter of the menu you want e.g. to access the File menu, press **Alt F**.

Listed below is a brief comment on each drop-down menu.

The **File** menu is similar to other Windows programs, and gives you access to file saving and loading, printing (if notation present) and the Exit point.

The **Edit** menu does not link you to the different types of Editor... see View menu or use the Tool Bar. In Edit, you can access the normal Cut, Copy and Paste functions, plus other special functions to help you alter your MIDI data and / or audio data.

A **Song** consists of MIDI data in one or more tracks. Each song is a separate file on disk. The items in this menu affect the *current song* (showing on the status bar and ticked at the bottom of this menu). The settings you create will be saved and loaded with the song, and can be different in each song you have open on the screen.

A **Track** is like a track on a tape deck: a row of notes and data that can be edited and heard separately to the other tracks in your song. These menu items affect only the tracks you apply them to. Each track can have different settings. These settings are saved and loaded with the song.

The **View** menu gives you access to the different editors. Each gives a different "view" of the raw MIDI data. One might edit only drum sounds, while another is designed to help you control volume information. You can access these editors from the Tool Bar as well, or by using the keyboard shortcuts. This menu also contains a list of Roland VS Workstations connected to your system.

This menu gives you access to all of the sequencer **controls**. It provides an alternative to the Transport Bar for most items. Also you can go to the Syncronization window for "syncing" with external devices.

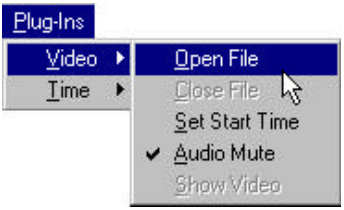
With **Preferences** you can adjust the way the system works. These settings do not affect MIDI data directly. These settings are saved with the program, and will be available next time you open the application.

This menu will only be present if you have one or more **Plug Ins** installed such as the Large Time Code Display or Video plug in for synchronising with AVI and MPEG files.

You can quickly adjust the layout of your screen and move and close **windows** with this menu. Tiling causes the current editors to fill the screen completely. Cascading puts them in same sized windows stacked like overlapping cards from the top left.

The **Help** menu lets you get context-sensitive help on the function you are currently doing.

Plug Ins



If you have installed any Plug Ins, such as the Large Time Code Display, or Video Plug In, this menu will appear. Otherwise it will not be present on your screen. Note the Large Time Code Display Plug In is available free from the Datasonics web site - www.datasonics.com.au

Toolbars

As with most Windows programs, this application comes with a menu system that allows you to access all functions of the program. It also contains a main toolbar, which is a faster way to access commonly used functions. Using this toolbar will speed up your work noticeably. The main toolbar is dynamically allocated depending on the product that you purchased. The one shown above is “fully loaded” based on the highest level product.

Each editor has its own toolbar with buttons specific to it. Each editor toolbar is fully described in the chapters on that particular editor.

Hint Text & Toolbars

When you point the mouse cursor at any button and leave it for a moment, a small “balloon text” will appear under the cursor containing the name of the function that the button will perform or the toolbar it will open, also a hint text will appear on the lefthand end of the status bar at the bottom of the screen containing similar information.

When working in the various editors it is sometimes desirable to create extra work space. This can be achieved by means of floating, dockable toolbars. All the toolbars in every editor can be moved, reshaped, and or “docked” to allow you to customise the work space to your requirements. A docked toolbar is one that has been placed along any frame edge of the work area and becomes part of the work area frame.

If you are working in a window which is smaller than the screen size it is even possible to place your toolbars outside the window without affecting their function.

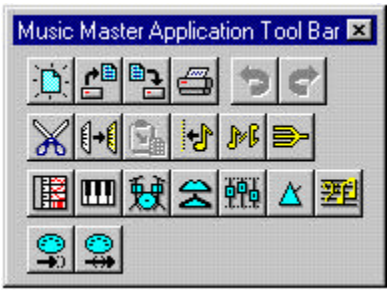
However you can only dock a toolbar to the frame of the editor to which it pertains.

Moving & Docking Toolbars

When you first enter this program or any of its editors all the toolbars will be docked at the top of the editor frame. To move any toolbar using the left mouse button click and hold just inside the edge of the toolbar. A border or outline will appear around the toolbar, you may now drag the toolbar outline to any location on the screen you desire. As you drag the toolbar outline away from the top edge of the frame it will automatically change shape, when you release the mouse button the toolbar will be filled in at the location and shape in which it was left.

To dock a toolbar to any frame edge of the editor drag it right onto the edge, the outline will change to the shape necessary and when you release the mouse button it will dock onto that edge, it may be necessary to drag the toolbar sideways, or up, or down to align the tools within the frame. Note that in smaller screen modes docking to the side frame of the editor will make some buttons inaccessible at the bottom of the frame.

Changing Floating Toolbar Shapes



Once the toolbar has been moved if it is not docked it is a floating toolbar and will probably require reshaping. This is done by placing the mouse pointer on the very edge of the toolbar, a double arrow will appear. When the double arrow appears click and drag with the left mouse button, an outline of the toolbar will appear and change shape as it is dragged.

Note that the groups of buttons and windows in the toolbar will remain in their groups. This is done for ease of locating the various items but it does restrict the amount of shapes you can use for your toolbars.

Hiding & Closing Toolbars

The Window menu contains a section to allow you to hide and show the various toolbars. These are:

- Main Tool Bar
- Editor Tool Bar
- Transport Bar
- Status Bar

The main toolbar is the one at the top of the application window. It can be shown or hidden by ticking or de-ticking it on this menu.

The editor toolbar is for the currently focussed editor. It can be shown or hidden in the same manner as above.

The status bar is the small bar at the bottom of the application window which displays hint text and the currently active song for sequencing. This can be shown or hidden in the same manner as above.

Any floating toolbar can be closed or hidden by clicking on the [X] box in the top right hand corner of the toolbar. A docked notation toolbar can only be turned off by first making it a floating toolbar.

Section Two

Sequencing

Loading and Saving

File Types

Songs are normally saved on the computer's hard disk as a file with the extension "MSW" e.g. demo.msw. Files with this extension are stored in a propriety format. This software can also load and save MIDI files.

Creating a New Song

If you want to start with a "fresh sheet", you can open a new song. This loads the default song called "default.msw". It is a song that has no note information in it. If no default is present, a blank song is created.

To create a new song, select **File | New Song** or click on the [New Song] button on the toolbar.

Opening a Song

To open a song, select **File | Open** from the pull down menu (keyboard shortcut **Ctrl O**). A window will appear from which you can choose from the songs on your computer's hard disk. You can look in a different drive by clicking on the drive button at the bottom right of the window. Click the cursor over the desired song, then click on **[OK]** and your song will load.

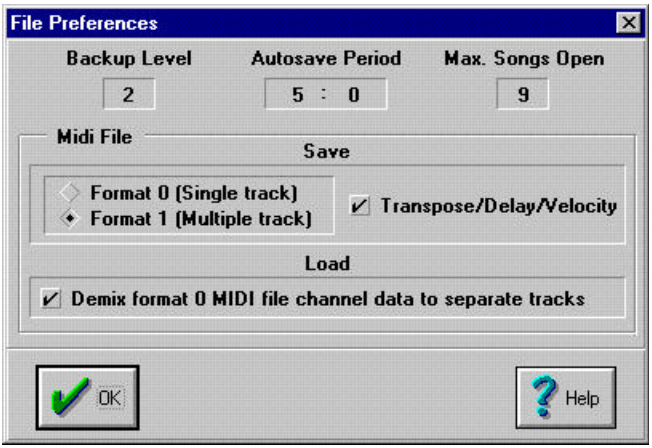
One of the songs stored in the installation directory is called default.msw. This is the default song and is an empty song that is loaded each time you load this application. This song contains no MIDI or audio data, but all the default settings.

When you want to record a new song, load the default song, then immediately save it with a new name (see below). This way, you will not affect the default song when you perform a save.

Saving a Song

To save your song, chose **File | Save** from the pull down menu (keyboard shortcut **Shift S**). You can also use the [Save] button on the toolbar. The song will be saved with the same name. If you want to save your song with a different name, select **File | Save As** from the pull down menu in the window that appears, enter a new name, and click on [OK].

You have the option to save as a song file (this is what you would normally use) or a MIDI file in Format 0 (single track) or 1 (multiple track). Of course, saving as a MIDI file will lose any audio data present in the song. The **Preferences | File** menu selects the MIDI file type.



Please note that this window is only available in the products with an integrated MIDI sequencer. This menu allows you to set the time between auto-saves. You can set the autosave to, say 15 minutes and your songs will be saved every 15 minutes. Note that the autosave is stored on your hard disk as separate files to the song files. If there is a problem, you will be prompted to recover the saved files next time you run this program. You can also set the file backup level and the maximum songs open. Both of these can be set from 0 to 9. File backups are written as *filename.~b1*, *filename.~b2* etc. and are available in the Open dialog depending on the

backup level set here. The Max. Songs Open field will prevent you from opening more songs simultaneously than the number shown here. This only becomes an issue when you have a small amount of RAM for loading songs.

The File Preferences window also has a number of settings for loading and saving MIDI files. You can set whether MIDI files are saved as Format 0 (single track) or 1 (multi-track), and whether they save Transpose / Delay / Velocity settings. When you load a MIDI file that is Format 0, you can demix the MIDI channels to all 16 tracks.

Close

Choose close when you have finished with a song. The keyboard shortcut is **Shift C.** You will be prompted to save it if you have made changes since the last save. If you wish to discard the song, simply select [No] when asked if you wish to save the changes. Note if you have several editors open on a song, they will all be closed.

Recently opened songs

In the File menu is a list of the 5 most recently opened songs or MIDI files. Simply click on one to open it.

Exit

Closes the application and returns you to Windows. If you haven't saved your work since making changes, you will be prompted to do so. You can also exit by typing **Alt F4**, or by clicking on the [X] box at the top right corner of the application window.

Moving Around the Program

There are a number of editors with which to create and edit MIDI songs. Wherever possible, all editors use similar commands to make learning and using the program as easy as possible.

Moving Between Editors

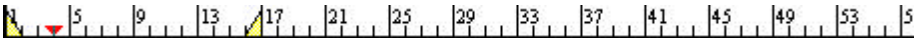
To open other editors, you can click on the appropriate icon in the toolbar, access the View menu, or press the keyboard shortcut.

Moving Around Your Song

Each of the sequencing editors is a “grid editor”.

Though they perform different tasks, they all operate in the same way. Each Grid Editor comprises a Song Position Ruler, a Locators and Parts Ribbon and an Edit Grid Area. Also, the Toolbar for each editor has a cursor position display.

Song Position Ruler



The song position ruler is displayed at the left side of the Keyboard Editor, and at the top of other editors. It is divided into measures (i.e. bars). Zoom in (magnify the data) by pressing **Shift Z**, or zoom out by pressing **Alt Z**.

On the song position ruler is a red triangle which is the current song position. When you play the song, the triangle will move, and the edit grid will be updated each time the pointer reaches the edge of the window.

You can directly jump to a position and play by double clicking in the Song Position Ruler.

Timing

The timing preferences dialog allows you to set two items -

- Song Position Refresh Rate - sets how frequently the song position display on the Transport Bar is updated. This also sets how frequently the red song position arrow in the editors is updated.
- Song Time Refresh Rate - sets how frequently the song time display on the Transport Bar is updated.

Locators and Parts Ribbon

The Locators and Parts ribbon is shaded in blue and placed adjacent to the Song Position Ruler. Locators are a quick way to move through your song, while parts are used for editing in each grid editor.

Locators

In the locators and parts ribbon, the locators are shown as yellow ovals with a number inside them. The locators are numbered from 1 to 9 and 0. When you load the default song, they will be spaced evenly over the first 72 measures (unless you have changed them in the default song). You can move them by clicking on them with the left mouse button and dragging them to the desired position. (Note that the step value will cause the locator to “snap” to the chosen steps). Each locator can also be

set by pressing Ctrl 0 - 9 and that locator will be set to the current song position.

When playing the song you can press a number on the keyboard and in order to jump to that location and continue playing. It will do this immediately unless you have enabled Delay Locator in the Sequencer Preferences dialog. When this is the case, the sequencer will jump to that location only when the currently playing section is complete. Additionally the start and end of the song can be located with the **Home** and **End** keys.

Parts

Parts are defined on the locators and parts ribbon. Clicking with the right mouse button in this area allows you to insert a part boundary, which appear as a vertical black line. You can drag these lines with the left mouse button to adjust their position. Parts are used for editing.

If you drag a part over another part boundary, the one "underneath" will be erased if the Preferences are set to Replace Mode. In Overdub Mode, the two sets of data would be combined.

To delete a part boundary, move the cursor over it until the cursor changes to a special part boundary shape. Now drag the part boundary onto an adjacent boundary or to the edge of the song and release.

You can name Parts. Simply double click on the part in the locators and parts ribbon, and a window will appear into which you can type the part names.

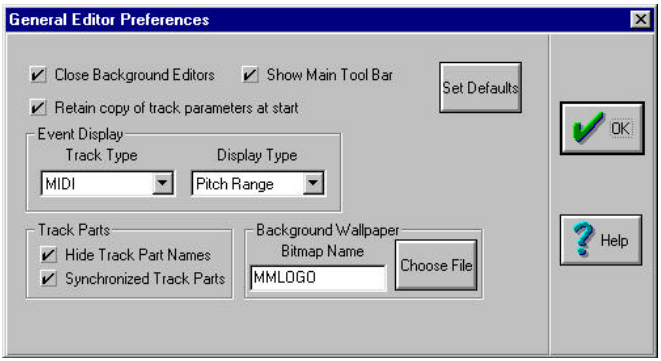
Before you can edit a section, you must first define it as a part. Clicking with the left mouse button inside a part will highlight it ready for editing.

Clicking on the Locator and Parts Ribbon, will cause the same section in all tracks to be highlighted. Clicking on a track will highlight the track part only. Hold down the **Shift** key and click on other parts to include them in the edit. Hold down the **Shift** key and click on highlighted

parts to remove them from the list to be edited. The parts do not have to be in the same bars as each other.

Edit Grid Area

This area contains the events and parts to be edited. The format of this area varies depending on the particular editor. The background of some of these grids is dependant on the bitmap chosen from the Editor Preferences window.



Moving Between Windows

You can have a number of Windows open at once. You may not be able to display all the windows at once due to the size of your computer screen. Some windows may be reduced and others will be partially or fully hidden.

There are a couple of ways to move between edit windows. You can use the editor buttons on the Toolbar. If the [Close Background Editors] box is ticked in Editor Preferences then the current editor will be closed as the new one is opened. Another way to move between the open editor windows is to click on the desired one in the Window pull down menu. Here you will find a list of the open windows. You can also use the standard Windows command **Ctrl Tab** to flip between the editors.

Handling Multiple Songs

You can have more than one song open at a time. This allows great power and flexibility in editing. You can even play one song while editing another. It is quite easy

to manage more than one song at a time once you understand a couple of concepts.

Note that the **Preferences|File** window allows you to set the maximum number of songs open at any time.

Current Song

The current song is the one that the sequencer portion operates on i.e. the one you will hear when you press Play. The current song is identified with a tick next to it in the Song menu. To make a different song the current one, simply click on it in the Song menu or select it from the Window menu. The active song for sequencing will not change if you are playing. It will switch as soon as you press stop.

Editing Across Songs

A major advantage of being able to open more than one song simultaneously, is that you can easily copy tracks or song segments from one song to another. This is done using the standard operations of Copy, Cut and Paste.

For example, if you wanted to copy a part from one song to another, click on the desired part to highlight it, and select Copy from the Edit menu (or type **Ctrl C**). Then go to the other song (you may have to display it by clicking on its name in the Window menu) and Paste the part where you want it. This will only work with MIDI tracks.

Starting a Song

You can use your VS Workstation with VS Pro, or you can use it by itself to record your song. This chapter explains the best methods of starting a new recording in different circumstances.

....when VS Pro is linked with the VS Workstation

Often you will want to commence recording a song with the VS Workstation connected to VS Pro. Then you can freely add MIDI or audio tracks to the song in the most convenient manner. In a home studio setup, this will be the most common method of operation.

To start a new song, firstly select New Song on the VS Workstation. Set the desired sample rate and song mode, then save the song with a name. Next, run VS Pro and open a new song. This automatically happens at startup. To add the VS tracks to the song, select **New VS Tracks** from the Track menu. (If you have more than one VS Workstation, this will add VS tracks for each). Next open the VS Workstation Controls window (found in the View menu). Confirm that the correct song name (that you created in the VS) is loaded. Finally, save the song in VS Pro with an appropriate name.

You are now ready to start recording audio and MIDI tracks in the most convenient order.

....when you commenced on the VS Workstation

A major advantage of the VS Workstation is its portability. You might take it to your next live performance and record some songs directly as multitrack songs. Later, you can connect it to VS Pro and add MIDI tracks, then mix the performance.

To connect the VS Workstation to VS Pro after you have started recording audio is quite straightforward. Firstly, open the song in the VS Workstation. Then open a new song in VS Pro (this happens automatically when you run the program). To add the VS tracks to the song, select

New VS Tracks from the Track menu. (If you have more than one VS Workstation, this will add VS tracks for each).

Next open the VS Workstation Controls window (found in the View menu). Confirm that the correct song name (that you created in the VS Workstation) is loaded. If you have more than one VS Workstation, you should have a different song name in each unit so that VS Pro can correctly identify them.

Now you will have to wait a while for the event list and amplitude profiles to be downloaded. It is possible to commence operation before they are downloaded (downloading is a background task) but you will find it more useful to be a little patient here - a typical download takes several minutes - just enough time to make a coffee.

Once the amplitude profiles have downloaded, now is a good time to do a "Save As". You don't have to use the same name as the song in the VS Workstation. From this point on, you can add VS audio or MIDI tracks as appropriate, or you can disconnect and take the VS Workstation away as described below.

....when you commenced in VS Pro

Sometimes you might want to record the MIDI sequences of a song first, then connect the VS Workstation later (you lent it to a friend.....). This method is appropriate for dance music for example, where the main component of the song is the sequenced tracks.

To record in this manner, lay down then edit the MIDI tracks (you can only do this if you have VS Pro Lite, VS Pro Studio or VS Pro Score as these 3 products have integrated MIDI sequencing with the VS interface).

When you are ready to connect the VS Workstation, select Init Song on the VS Workstation, set the sample rate and recording mode and save the song with an appropriate name. To add the VS tracks to the song,

select **New VS Tracks** from the Track menu. (If you have more than one VS Workstation, this will add VS tracks for each). You are then ready to start recording audio tracks.

the VS Workstation remote from VS Pro

Many home studio users will be able to achieve most of the sounds they want in the bedroom, lounge room, kitchen or whatever. But if an opportunity to record the vocal in a nearby concert hall arises, you will most likely grab it !

You can disconnect the VS Workstation from VS Pro any time (save the song first !). You can then take the VS Workstation elsewhere to record one or more tracks on the song, and re-connect afterwards. When you reconnect and load the song, VS Pro will see the extra track(s) and automatically update the computer - you don't have to do anything. It could take a few minutes to download the amplitude profiles, but you can commence editing straight away, as downloading is a background task and the information is not essential for operation.

Saving your song

As you record, it is a good idea to save your song frequently. Every 15 minutes or so would be an appropriate time for most musicians. To save the song, select Save from the File pull down menu, or use the keyboard shortcut **Shift S**.

When you save, all information related to the song being worked on is stored to the hard disk in your computer. You should also perform a save on the VS Workstation itself.

VS Pro has an auto save facility. If there is a "crash" or power failure etc., VS Pro will ask if you want to reload when you next load the program. You should not rely on this as a substitute for frequent saving though. If the malfunction occurs, when some processes are being

performed, the Autosave might not restore the system fully - so be sure to save frequently.

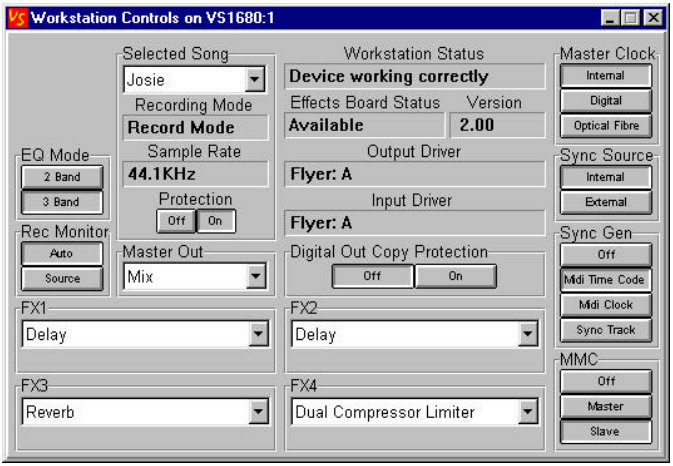
Selecting and Saving songs on the VS Workstation

By now you have probably noticed that you have to select and save VS songs from the front panel of the VS itself. Why can't VS Pro allow you to perform this operation from the computer ?

The reason is that current versions of the VS operating system do not allow you to select or save a song via MIDI. Therefore VS Pro has no means of providing this function.

To synchronize with the VS Workstation, you must also set the Master / Slave and clock modes - see below for details

The VS Workstation Window



Found in the View menu within the VS item, the VS Workstation Controls Window allows you to monitor and modify key parameters of the VS. Each of the areas of this window are described below -

Mixer Mode

This parameter applies only to the VS-880. Here you can select from the three mixer modes available on the VS-880. Input Track is normally used when recording, while Input Mix and Track Mix modes are typically used for mixing a song when recording is complete.

Note that Input Mix assigns the first 6 faders on the VS-880 to the 6 inputs, while Track Mix mode assigns the 8 tracks to the 8 faders. In the Mixdown Editor all 14 faders are present in either mode, so it makes no difference which of these two modes you select.

Bank Switch

This parameter applies only to the VS-880EX. Here you can select from the two banks A and B to play. Bank A is virtual tracks 1-8, while Bank B is virtual tracks 9-16.

EQ Mode

When in Input Mix or Track Mix modes, the VS Workstation allows you to assign a 2 band EQ to all channels, or a 3 band EQ to a select number of channels (with no EQ on the rest). The EQ mode button is how you set the option. Note if you select 3 band, you can only turn on a select number of EQs in the Mixdown Editor. If you turn on a 9th, the 1st one will be turned off.

Record Monitor

When recording, the VS Workstation will switch to Source i.e. Input). When a track is armed, but not recording, you can choose to hear Source or Auto Input i.e. Track when in Ready and Source when in Record. The Record Monitor button allows you to choose the preferred mode.

Selected Song

This shows the currently selected song in the VS Workstation, plus you can see in the pull-down menu all the available songs. Note the VS Workstation does not

allow MIDI selection of the song, so VS Pro cannot change the selected song.

The Recording Mode and Sample Rate indicate the operating mode of the VS Workstation once it has loaded a song. Note - you must set these values on the VS Workstation itself. The VS does not allow these values to be "remote controlled", and you cannot change them for a song that has already been recorded.

The Protection On button enables the VS Workstation Song Protect function - this needs to be off to edit your song.

Master Out

Here you can select what signal you want to send to the Master Output connectors on the VS Workstation. You can choose from Mix, Mix + AuxA, Mix + AuxB, Mix + AuxA + AuxB, AuxA, AuxB, AuxA + AuxB.

Workstation Status

If VS Pro is having trouble communicating with the VS Workstation, it will be reported here. If you get a problem, it is often best to re-start VS Pro and / or the VS Workstation. If you are having continuing problems, check the FAQ pages on the Datasonics web site - www.datasonics.com.au Some MIDI drivers have problems and the web site can advise you of your best solution.

Effects Board Status

This box reports the presence of the VS-Expanded Effects Board in the selected VS Workstation. To use the effects busses, this option must be fitted.

Version

This reports the version of the VS Workstation's operating software. Note for correct operation, we recommend that you update to the latest version which can be found on Roland's website (www.rolandus.com).

Input and Output Driver

This area reports the MIDI Input and Output port used for communicating with the selected VS Workstation.

FX

For each of the VS-Effects, you can select the desired effect algorithm.

Also for each VS-Effect on the VS-880 only, you can select whether its output is sent to the Mix Bus or the Aux Bus (this only applies if the VS-Effect is used on the FX1 or FX2 busses). For VS880EX and VS1680 this is done from the routing window in the Mix Editor.

Master Clock

This allows you to select the VS Workstation's internal clock or to lock to an external digital source (via the SPDIF connector).

Sync Source

This determines whether the VS Workstation sends or receives a synchronizing signal. For operation with VS Pro, the preferred setting is Internal.

Sync Gen

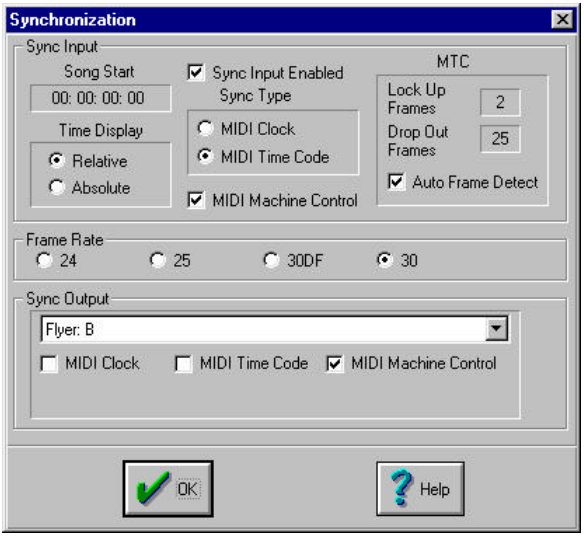
Here you can set what type of synchronizing signal is used - for operation with VS Pro, set it to MIDI Time Code

MMC

This is short for MIDI Machine Control - a communications standard for controlling audio and video devices. For use with VS Pro, set it to Slave.

Finally, to enable correct operation with VS Pro and the VS Workstation, set VS Pro (in the Synchronization window) to MIDI Time Code and Sync Input Enabled, and set the frame rate to the rate you are using in the VS Workstation.

Synchronizing



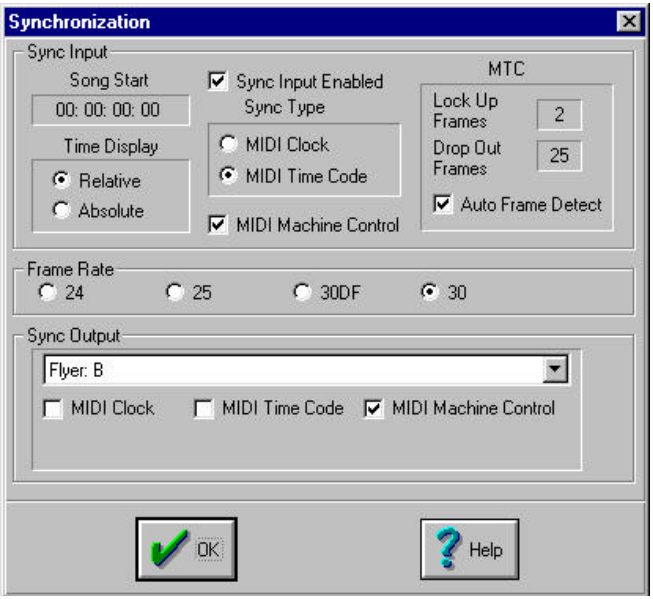
You can run your system with either VS Pro or your VS Workstation as the master. In the VS Workstation Controls Window (found in the View menu) are the controls to set the synchronizing options on the VS Workstation, while the Synchronizing window (in the Controls menu) **Ctrl J** sets VS Pro's sync options.

Synchronizing more than one VS Workstation

VS Pro can operate with an unlimited number of VS Workstations. To do this, you must select one as the master. This unit must be set to send MTC, and all others must be set to receive MTC.

Once the VS Workstations are set up, VS Pro will distribute the MTC to all the slave units and will all operate smoothly.

Synchronization



Often you may wish to play (or record) your song simultaneously with some other device such as your VS Workstation. This is done by synchronization. There are two ways of synchronizing to an external device:

- MIDI Clock
- MIDI Time Code

In each case, the idea is to ensure that the program starts playing at the same Time as the external device providing the reference signal, and that it keeps exact Time. A device that sends the synchronizing signal is known as a Master, while the device that locks to a synchronizing signal is a Slave. You can have several Slaves in MIDI or audio-visual setup, but only one Master at any Time. The various options for synchronization are available in the Synchronization window, which can be opened in the [Controls] pull down menu, or by the keyboard shortcut **Ctrl J**.

MIDI Clock

MIDI clock is used to synchronize to other sequencers. It is a code that is included in the MIDI data stream. You can lock to incoming MIDI Clock or generate MIDI Clock so that another device can lock to your software. MIDI Clock comprises basically of a message identifying the start of the song, and subsequent messages identifying the number of pulses (a small portion of a usical beat) from the start of the song. As MIDI Clock is beat related you are able to record the tempo if you wish. This method is the preferred method of synchronization to another sequencer.

Locking to External MIDI Clock

Firstly, enable external MIDI Clock by enabling the check box marked “Sync Input Enabled” and the button “MIDI Clock” under “Sync Type”. Also you must set the source of the MIDI Clock by selecting the appropriate input from the pull down menu, thus allowing the software to lock to MIDI Clock. When you are ready just put the sending device into Play mode and it will automatically start when it detects the MIDI Clock signal. If the sending device has sent a MIDI Clock Song Position Pointer message then the software will jump to the correct location in the song before it “locks up”.

Sending MIDI Clock

Rather than lock to external MIDI Clock, you may wish the program to be the Master, and generate the MIDI Clock to send to some other MIDI device. To do this, select the MIDI port through which you want to send the clock, and enable the sending of MIDI Clock by selecting it at the bottom of the Synchronization window. Once enabled, the program will send out MIDI Clock whenever it is playing your song. MIDI Clock is a part of the MIDI standard, so other MIDI devices will not have a problem locking to your internal MIDI clock.

MIDI Time Code

MIDI Time Code (MTC for short) is a more sophisticated method of synchronizing devices via MIDI. MTC is a System Real Time message that is sent many times per second containing a Time identification. MTC is divided into Hours, Minutes, Seconds and Frames, where frames can be 1/24, 1/25 or 1/30 of a second. Unlike MIDI Clock, MTC is not dependent on tempo.

Locking To External MTC

To lock to an external source of MTC, the program must be enabled to receive MTC, and it must know at what value of hours, minutes, seconds and frames the song is to commence.

To enable locking to external MTC, select the MIDI port that will receive the signal from the pull down menu, check the "Sync Input Enabled" button and select MIDI Time Code as the sync type. Then set the Song Start Time - move the mouse cursor over the numbers and it will change to a double-headed arrow. Click with the left mouse button to decrease the value or the right button to increase it. You must set the start Time to match the value of MTC that the Master will send to the program at the beginning of the song. This song start Time is often known as an offset.

As soon as MTC is received, the program will jump to the location of the incoming Time code and commence playing. To stop, you must stop the MTC code from the sending device.

Lock Up Frames

This is an option to set how long the program waits until locking to the incoming Time code and playing. Some devices constantly send the same Time code value when stopped, so setting the lock up to 1 frame may cause problems. Setting the lock up to a high value will cause a significant delay before play starts. The best value for this is 2 or 3 frames.

Drop Out Frames

If there is a "drop out" on the tape supplying the Time code or a dirty cable connection, the code sent to your computer will be momentarily interrupted. When this happens, the program is able to "flywheel" to maintain lock.

The Drop Out Frames value sets how long the application will flywheel after incoming code ceases. This value will directly affect how long the application keeps playing when you deliberately stop the source of Time code, so don't set it too high. A value of 6 to 25 frames is usually appropriate.

Sending MTC

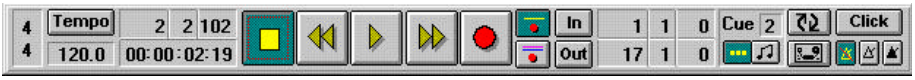
As with MIDI Clock, the program can send out MIDI Time Code whenever it is playing. To do this, you must enable the function and set the Time code value for the start of the song.

To enable your program to send MTC, you must select the MIDI port from which it will be sent out. In the Synchronization window, select the output port from the pull down list of available MIDI ports at the bottom of the window, then click on the enable button marked MIDI Time Code.

MIDI Machine Code MMC

MMC is a set of commands for controlling the transport of audio and video recorders. It allows commands such as Play, Record, Rewind etc, but does not contain a synchronizing signal. You can send or receive MMC. As an example of use - you have a multitrack such as a Fostex G24S, which uses MMC. You can set the application to send MMC and lock to MTC. This way you can control the multitrack from your computer, while "slaving" your software to the Time code. To enable your program to send MMC, select the MIDI port from which it will be sent out from the pull down list of available MIDI ports at the bottom of the window, then click on the enable button marked MMC.

Transport Bar



The Transport Bar is a window that contains the buttons needed when recording or playing MIDI songs. Just like a tape recorder, you will find buttons for Stop, Rewind, Play, Fast Forward and Record.

Hiding the Transport Bar

As most of the buttons on the Transport Bar have a direct keyboard command, you may wish to hide the Transport Bar. Pressing **F3** on the keyboard will alternately hide and display the Transport Bar. Otherwise, you can use the pull down menu labelled "Window" and turn it on and off from there.

Please note that when displayed, the Transport Bar is always on the top of your Windows screen (i.e. it covers over all other windows).

Note - the Transport Bar affects the current song - this is not necessarily the song that has its window highlighted. The current song is shown with a tick in the Song pull down menu. This application is designed this way so that you can edit one song while playing another.

Moving the Transport Bar

If you wish to move the Transport Bar, position the mouse over the border of the Transport Bar so that the mouse cursor changes to a hand. Then click and drag the Bar to the position you want it.

Transport Bar Functions

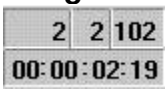
The Transport Bar is divided into a number of sections. They are covered in order from left to right below.

Time Signature

At the left of the Transport Bar you will find the Time Signature Box. You can set the time signature for the current song directly here. Move the mouse cursor over the upper or lower time signature number and the cursor will change to a double headed arrow. Click with the left mouse button to decrease or the right mouse button to increase the number. You can also double click the mouse button to open a box that allows you to directly type in the desired value.

Your song may have time signature changes in it. If this is the case, the time signature display will show the time signature for the current song position. If you want to enter more than one time signature for your song, you must do this in the Notation Editor.

Song Position



To the right of the tempo area is the song position area. The song position tells you where the song position pointer is (the little red triangle at the top or side of the editor(s) containing the current song). The song position is shown in measures (i.e. bars), beats and clocks.

Clocks are the smallest unit of time in MIDI systems. They are defined as “pulses per quarter note”, or “PPQ”. This program sets the clocks to 192PPQ.

The song position is also displayed in hours, minutes, seconds and frames. A frame is 1 / 24th, 1 / 25th or 1 / 30th of a second as determined by the time code type in the Synchronization dialog, which you will find under the pull down menu Controls.

The synchronization window also allows you to set the time display as Absolute or Relative. Normally, you would use relative. The absolute time is used when you are synchronizing to a tape recorder etc. and the external time code has a value other than zero at the start of the song. (For more information on time code see the chapter on Starting a Song.)

Note: The song position displayed here is different to the cursor position shown at the top of the editors. The song position shows where the sound would start if you clicked on the Play button, while the cursor position is the location of the mouse cursor whenever it is over part of your song.

Tempo

At the top of the tempo area is the Tempo Enable Button. Clicking on this button enables the tempo map set in the Tempo Editor to operate. (See the chapter on the Tempo Editor for a full description.)

If the tempo enable button is not pressed, the tempo displayed beneath the button determines the speed the song is played at. You can change the tempo by moving the mouse cursor over the tempo value and click with the left mouse button to decrease the tempo or the right mouse button to increase it. Alternatively, if you double click on the area, a box will appear that allows you to directly type in the tempo you want. Press the enter key after you have typed in your tempo.

Another way to change the tempo is by using the + and - keys on the keyboard.

Transport Buttons

From left to right the transport buttons are Stop, Rewind, Play, Fast Forward, Record. These work just like the buttons on a tape recorder.

Each of the transport buttons has a keyboard shortcut -

- Stop **Space bar**
- Rewind (previous screen) **Page Up**
- Rewind (fast) **[**
- Rewind (slow) **{**
- Play **Enter**
- Fast Forward (next screen) **Page Dn**

- Fast Forward (fast) **]**
- Fast Forward (slow) **}**
- Record *****

Additionally, pressing **Home** and **End** on the keyboard will take you to the start and end of the song respectively.

Recording

To the right of the transport buttons are the record mode buttons. The top one is the Replace mode button. When you are recording on a track with this button selected, the MIDI data on that track will be replaced with the new MIDI data that you just recorded i.e. the old data is lost. When you record with the Overdub button selected, the new MIDI data is added to the data already on the track. In this way, you can "build up" your track with more and more notes or other types of MIDI data.

To monitor and record on a track, you must first prepare the track that you wish to record on. For example, we have a MIDI module as our sound source and a synthesizer is used as our keyboard. First activate the track you wish to record on by clicking on it. Now set the Output Device in the output box at the left of the window, and set the MIDI channel next to it.

With your keyboard and sound module patched correctly to your computer's MIDI ports, you will now be able to audition the sounds in the module when you play the keyboard.

When you are ready to record, check that the IN and OUT locators described below are set to the measure (i.e. bar) numbers that you wish to record on, and confirm that the Out button is down. Then simply press the [RECORD] button followed by [PLAY].

Rehearsing a Drop-in

Suppose you have recorded your track but wish to re-record a couple of measures because they are not

quite right. You can rehearse a drop-in to see if you can play that section better.

First set the IN and OUT locators to the measures that you want to re-record (see below). Check that the [OUT] button is down. Ensure the Rehearse Mode box is ticked in Sequencer Preferences.

Now instead of pressing the [RECORD] button, press the [IN] button followed by [PLAY]. The song will pre-roll a couple of measures (as set by the number of measures in the Cue box). You will hear the previously recorded track up until the IN point. The previously recorded track will mute during the measures between the IN and OUT points, then you will again hear the MIDI recorded on the track until you press stop.

After practising a few times you will be ready to actually record the drop-in. Just press the [RECORD] button followed by [PLAY].

You should detick the Rehearse Mode box in Sequencer Preferences after completing the drop-in, so that the active track will play when looping between the in and out positions (see below).

IN and OUT Locators

This area has a dual role. When you are recording, you can use the IN and OUT locators to drop a track or tracks in and out of record for a predetermined time. You can also use the locators to set the start and end for "looping" i.e. playing a section then jumping back to the beginning of the section repeatedly.

Setting the IN and OUT Locators

To set the IN and OUT times, move the mouse cursor over the area you want to change. Then click with the left mouse button to decrease the number or the right button to increase. Alternatively, you can double click and a box will appear into which you can directly type the desired value.

Another way to set the IN and OUT locators is to **Ctrl** click with the left and right mouse buttons respectively in the song position ribbon at the top or left of the editors (the area the little red triangle moves along when playing). Depending where you clicked, a new In or Out point will be set.

You can enable the IN and OUT locators directly from the keyboard. Press **I** to enable the IN locator and **O** to enable the OUT locator.

When recording....

Press the record button and you will see that the [IN] button automatically goes down. At the same time the Song position jumps to the In point and the Song position ribbon at the top or side of the editor highlights to show the section of the song that will be recorded on.

If you want to automatically stop recording at a particular point, click on the Out button, and you will see the song position ribbon indicate the section of the song that will be recorded on.

Press the play button and recording will commence after the Cue (see below) on the tracks that you have armed.

When looping....

To use the IN and OUT locators as the start and end points of a loop, click on the [LOOP] button near the right end of the transport bar (keyboard shortcut **l**). You will see the IN and OUT buttons go down and the song position ribbon in the editor will highlight to show you the section that will loop.

Looping can be useful if you are having difficulty recording a section of your song. Arm the appropriate track and loop while recording (in replace record mode). When you manage to play the section correctly, just press stop before the next loop is completed, and your perfect performance will be the one added to the song.

Cue

This section allows you to set the count-in prior to playing or recording. It is displayed in bars. To set the cue, click with the left mouse button on the number or decrease it, or the right button to increase the number of bars. You can also double click and type in directly the value you want (up to a maximum of nine).

There are two buttons - CLICK mode and PLAY mode. These are used to set the type of cue you hear. CLICK will give you MIDI click prior to the music starting, while PLAY will play the number of previous measures set in the Cue box. If you are at the start of the song, you will hear a click for that number of measures.

Metronome

This area allows you to turn the metronome on and off. At the bottom are three buttons - metronome off, metronome on, metronome on with accentuated beat. The metronome will sound through your computer's speaker.

Above the metronome buttons is the Click button. This enables MIDI click, which makes a sound each beat to help you play in time. The keyboard shortcut for Click is **k**. The MIDI notes and velocities used for accent and beat can be set in the Metronome dialog in the Song menu for those products which have this option. You can also set the MIDI channel and output driver.

Synchronization Button

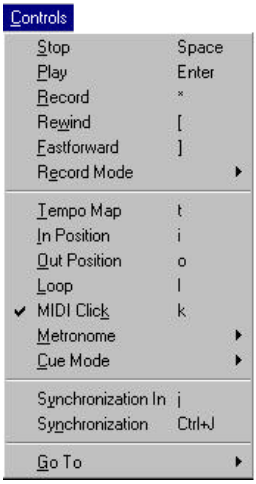
You can synchronize to MIDI Song Position Pointer (MIDI clock), and MIDI Time Code (MTC).

When you press the [SYNC] button, the program will wait for an external signal before playing. For normal use, make sure this button is not pressed. The keyboard shortcut for toggling in and out of sync mode is **j**.

For Music Master Performa and Prelude users, the synchronization method used when the [SYNC] button is pressed is MIDI clock, which is a tempo based

synchronization method. This allows you to synchronize to other sequencers as the slave. For other products there are a number of options and full information on this is in the Synchronization chapter.

Controls Menu



The Controls menu gives you access to all the Transport controls. Most of the options in this menu are “direct action” ie selecting them will directly perform the function rather than open a window.

Record Mode

You can choose to replace existing MIDI data as you record (replace mode), or to add the new MIDI to what is already on the track (overdub mode).

Metronome

The metronome can be turned off here. You can choose from accented beat or normal beat.

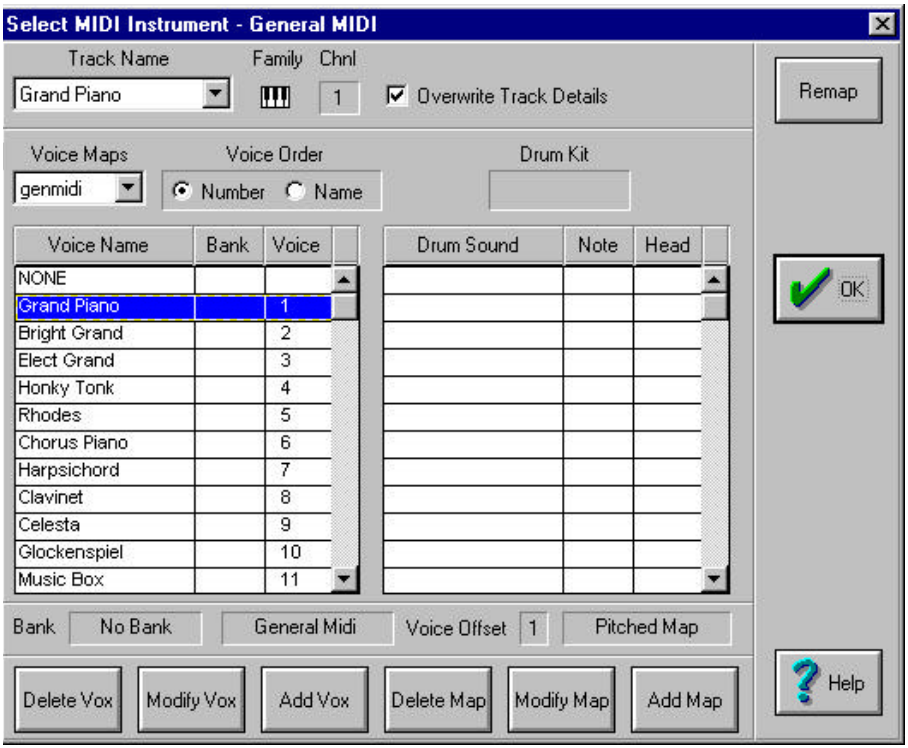
Cue Mode

The Cue mode determines what cue in you get when you start recording. Cue Click will give you a metronome cue in, while Preroll will allow you to hear some bars of what you have already recorded. You can set how many bars of Click or preroll on the Transport Bar.

Synchronization

Synchronization In will enable you to sync to an external timing reference. The Synchronization menu option will open the Synchronization window - refer to the Synchronization chapter for more information on this.

Getting Sounds



One of the first tasks when using you MIDI system is to choose the appropriate sounds for all the tracks in your song. This can be a bit tricky. Even though General MIDI is bringing some standardisation to selection of sounds, every synth has a different “voice map” for selection of sounds. This chapter shows how to select the voice map and voices for your setup (we can’t tell you what sounds best though!).

Voice Maps

This program provides you with powerful tools to make accessing the sounds in your keyboard or sound module quick and easy. The program includes voice maps for

most of the common devices, and new ones are available from Datasonics via the Internet.

How Voice Maps Work

Virtually all modern keyboards and sound modules have a number of sounds in them. The list of sounds, and the details on how to access or enable these sounds is known as a Voice Map. Typically, each track of a song contains MIDI notes that are sent out on one MIDI channel (channels range from 1 to 16).

When you select a Voice Map for a track, this tells the sound module that all the notes on a particular MIDI channel are to be played in a certain voice. This command is sent to the sound module(s) each time you start playing, or whenever you change the voice in the Voice Map window or the Active Track Details area of the Global Editor.

If you have Polyphonic Voicing on a track, it just means that there are MIDI notes on more than one MIDI channel on that track. The sound module can still play each note with the correct voice because the MIDI channel of the note determines its voice.

A Voice Map contains the following information -

- Bank Type - if the sound module or synthesizer has more than 128 sounds, this defines how they are accessed
- General MIDI flag - if the sound module is General MIDI compliant, this flag will be set to on
- Voice Offset - defines whether the voices in each bank start at 0 or 1
- A List of Voice Entries - each voice entry equates to one instrument in the MIDI device

Each voice entry contains: -

- Voice Name - the name of the voice e.g. Grand Piano
- Bank - the MIDI standard allows for up to 128 voices in a bank. If the sound module has more than 128

voices, they will be spread across more than one bank.

- Voice Number - this is the number that is sent out to the sound module to tell it what voice to use.
- General MIDI Number - many modern sound modules use the General MIDI standard for allocating voices to their voice numbers

Setting the Default Song

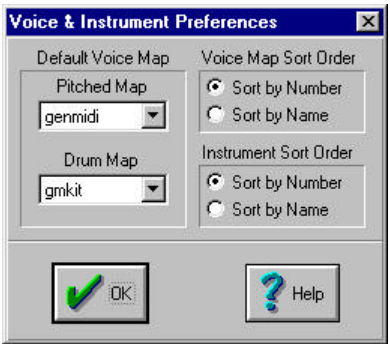
The default song is what is loaded each time you open the program. It does not contain any music, but can be used to store the information about your MIDI setup. This saves having to enter the voices each time you run the application.

When you install this software on your computer, it is configured to use the General MIDI Voice Map. You should choose the voice map that suits your sound modules and remap all tracks on the default song then save this to the hard disk. Do this in the following order

- run the application - the default song will automatically be loaded
- open the Voice Map dialog - available from the Track menu
- click on the [REMAP] button and the Remap Voice Map dialog will open
- select the correct voice map from the drop-down list under “Remap To”
- tick the “All tracks with same map” check box
- click on the [OK] button
- close the Voice Map dialog by clicking on its [OK] button
- open the Voice and Instrument preferences dialog - available in the Preferences menu
- choose the same voice map that you have just remapped to. This is the voice map that will be allocated when you add a new track to a song
- close the Voice and Instrument Preferences dialog by clicking on its [OK] button

- save the default song to the hard disk - select **File | Save** or click on the [SAVE] button on the main toolbar. Save it with the name “default.msw”

Voice/Instrument Preferences



This menu entry opens a window that allows you to set the Default Voice Map. You can use the voice map to select different sounds in your sound module. You can also set whether the voices are listed by number or name in the window they are displayed in.

When you carry out the above operation, it is best to exit then restart to allow the settings to be used in your work.

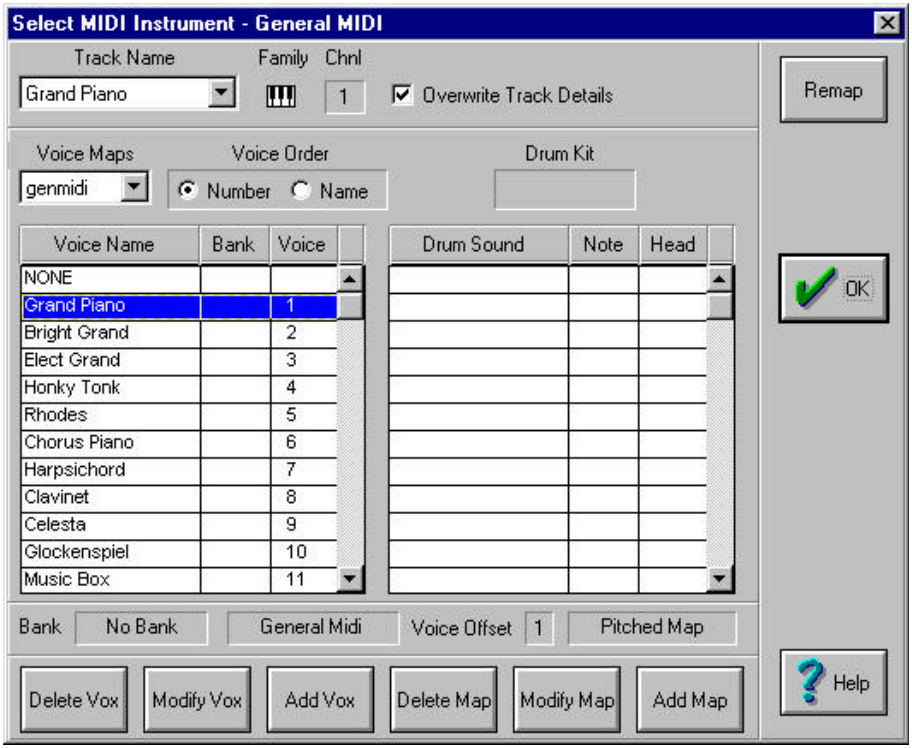
Remapping a Track

If you load a song or MIDI file that was made for another type of sound module, it is likely that the voices will be incorrect, and your song will sound rather strange. You can remap the song to suit your sound module using the Remap facility.

The program can intelligently remap voices. It does so by relating every voice map to the standard General MIDI Voice Map.

To remap a track, click on the [REMAP] button in the Voice Map dialog. A new window will open, that shows the currently selected Voice Map, and a pull down menu allowing you to choose a new Voice Map. Also there is a Check Box that allows you to automatically remap all tracks in the song that have the same Voice Map as the track you are currently on. Once you have selected the correct map, click on the [OK] button and it will be done!

Selecting the Voice



If there is a voice map for your keyboard or sound module (most likely), you can quickly access the voices in it with the Voice Map window. Select the Voice Map option from the Track menu, or use the keyboard shortcut **Ctrl U**. You can also open the Voice Map window by clicking on the Voice Name box in the Active Track Details area of the Global Editor. The Voice chosen

will become part of your song, so next time you open the song, the same Voice will be loaded.

If there is no Voice Map for your keyboard, see below for how to create one.

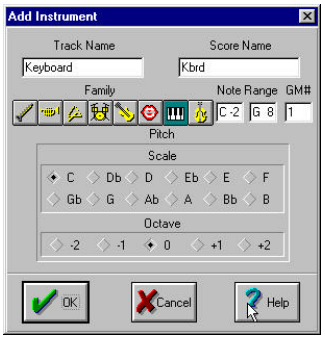
Overwrite Track Name

If you select this option, the name of the track you are working on will be changed to match the name of the voice you select. You can rename the track later in the Track Details area if necessary. It is usually best to leave this option selected so that the Family, Instrument Transposition and Note Range settings for the track can be automatically updated.

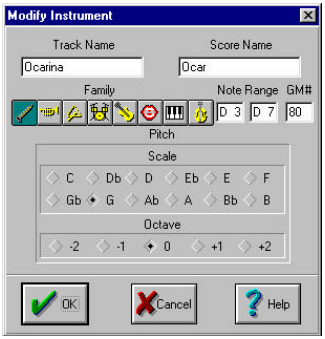
Musical Instrument

Choosing the Musical Instrument option from the Track Menu will open the Musical Instrument window. This window also allows you to select an instrument from a list. When you change the instrument, it will change on the track and you will hear that change if you are playing. The keyboard shortcut to open this window is **Shift T**.

Adding, Modifying and Deleting An Instrument

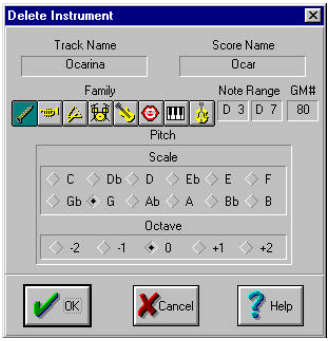


You can add an instrument to the instrument library by clicking on the "Add Inst" button. This will open a window where you can give the new instrument a name, a Score Name which will be used as the start of the line in notation when this instrument is selected, a family, a note range, and a General MIDI voice number (GM#). The note range is the range of MIDI notes that the instrument can play. The GM# is the voice number that this instrument is in the General MIDI set of instuments. (See Appendices.)



You must also supply a Pitch which is made up of a Scale and Octave. This tells the Notation Editor what written transposition to use when this track is taken into notation eg a Trumpet is Bb.

To modify an instrument, select the desired instrument and click on the "Modify Inst" button. This will open a window with the same fields as mentioned above. Modify the desired field(s) and press [OK]. If you press [CANCEL] the instrument will not be modified.

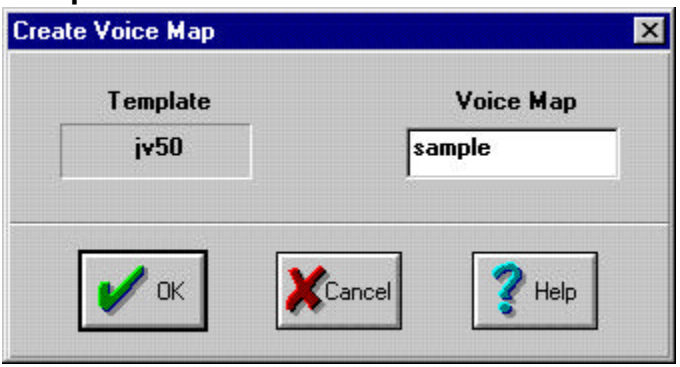


To delete an instrument, select the desired instrument and click on the "Delete Inst" button. This will open a window with the same fields as mentioned above. To delete this instrument press [OK]. If you press [CANCEL] the instrument will not be deleted.

Deleting a Voice Map

If you need to delete a Voice Map from your computer's disk drive, select the map from the Voice Map dialog box in the Voice Map window. Then click on the [DELETE MAP] button adjacent. Note that the voice maps are typically only a few kBytes in size, so you will save very little disk space by removing unwanted maps. Normally you would only remove a Voice Map if it is corrupt or totally incorrect.

Creating a Voice Map



If you need to create a Voice Map, there are tools provided to help you to do so. Note that before you do this, it is worthwhile checking Datasonics' Internet site, as the Voice Map you want to create may have already be done for you.

To create a new Voice Map, click on the [CREATE MAP] button in the Voice Map window. The template will be set to the voice map currently showing in the voice map

drop down list. The new Voice Map will be copied from the template, and then you can edit the voices as appropriate. For this reason, it is best to make the template a keyboard or sound module that is as similar as possible to the device you are creating the new Voice Map for. When possible use a map for the same brand, and a model of similar age. This will usually minimize the editing to be done on the new map. In particular the three items that should match are the Bank Type, General MIDI Flag and Voice Offset.

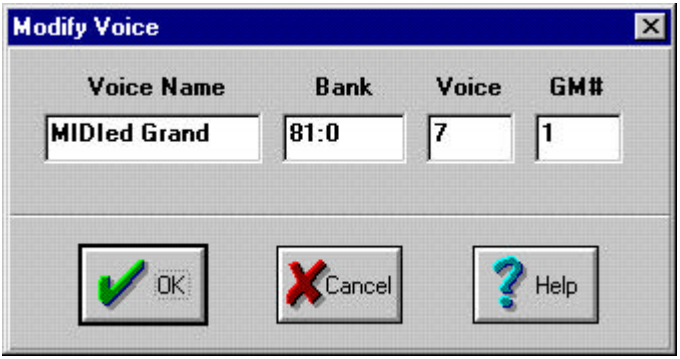
Once you have created the new Voice Map, you will probably need to edit the voices, add some and/or delete some. See below on how to do this.

Deleting a Voice

If you have created a new Voice Map, you will have copied the map from a template. In this case some of the Voices in the template may not exist in the new sound module so you may need to remove them from the map.

To remove a voice, simply click on the voice in the list that you wish to remove, then click on the [DELETE VOX] button. A window will appear confirming the details of the voice to be removed from the map. Click on the [OK] button and the voice will be removed. Note that the Undo function does not extend to Voice Map editing, so take care.

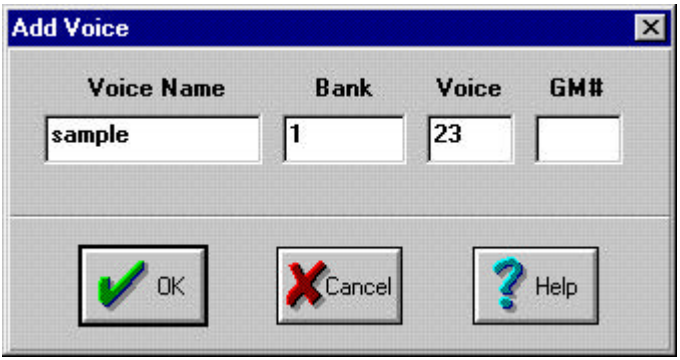
Modifying a Voice



After creating a new Voice Map from a template, you will probably need to change the details on a number of voices.

To modify a voice, click on the desired voice in the list to highlight it, then click on the [MODIFY VOX] button. A window will appear that shows the current details of the voice. When you move the cursor over the details of the voice, it changes to a text entry cursor. You can enter the new details directly. Then click on the [OK] button and the changes will be saved.

Adding a Voice



If your new Voice Map does not contain all the voices in the sound module, you will need to add the extra voices.

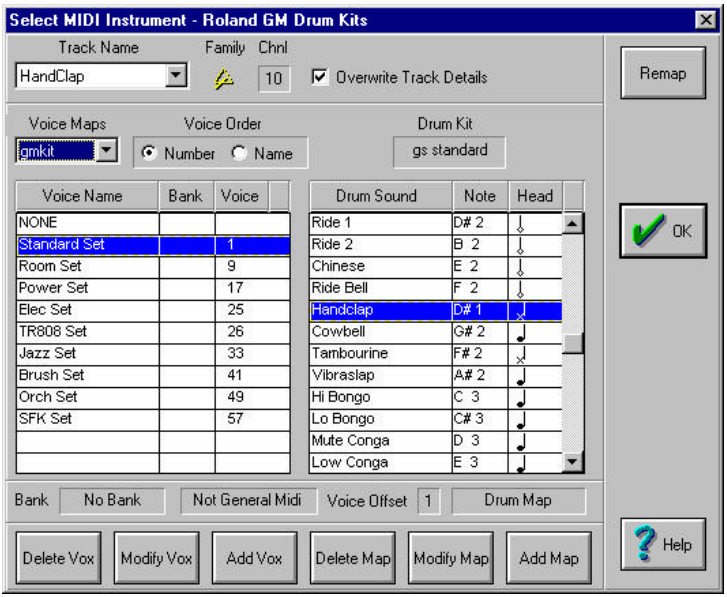
To add a voice, click on the [ADD VOX] button. A window will appear with spaces for you to enter -

- Voice Name
- Bank
- Voice Number
- General MIDI Voice number

The program is able to intelligently remap voices. It does so by relating every voice map to the standard General MIDI Voice Map. Therefore when adding a voice, you should identify the closest voice in the General MIDI Voice Map and place its voice number in the General MIDI Voice Number field.

When you have finished, click on the [OK] button to save the new voice. Do this operation as many times as necessary to complete the Voice Map for the sound module.

Drum Sounds



You may want to assign one or more tracks to be drum or percussion tracks. For some synthesizers this is done by selecting a voice as described above. For all General

MIDI, GS and XG synths channel 10 is assigned to drums and percussion and you can choose a drum kit of sounds for each song. To do this you must select a voice map, not with a set of tuned instrument, but with a set of different drum kits. For General MIDI synths, choose gmkit as your voice map. When you choose a map file that is for drum sets, there is a link for each to a particular drum kit that contains the set of drum sounds and their corresponding played notes. As you select a different drum set from the voice map, the drum kit will change in the right hand window. This allows you to select a particular drum sound for naming a track and for entering drum / percussion notes directly in notation format. It also defines the staff required for that drum or percussion sound.

Recording MIDI

The application gives you two ways of recording MIDI data into a song - real time and step time. This chapter describes how to use both methods. Of course, you can also create a song purely by inserting notes in one of the editors - some users who are proficient with music manuscripts are able to rapidly and accurately create songs purely in the Notation Editor.

Real Time Recording

Recording in real time means playing the track or track segment that you want to record in time with the other tracks. You are provided with a number of tools to make this as easy as possible.

Replace and Overdub Modes

When recording notes onto a track, you may want to replace the data that is already there because it is not right, or you may want to add some extra notes e.g. cymbal crashes, to the fine performance already recorded. The Replace and Overdub modes give you control over this.

Replace mode - click on the Replace Mode button on the Transport Bar to enable this mode. When you record on a track, the notes already there will be erased as the song moves along. Any new MIDI data received will replace the old data.

Overdub mode - likewise to select Overdub Mode, click on its button on the Transport Bar. In this mode, when recording on a track, the existing data will be unchanged. Any new notes or other events will be added to the track.

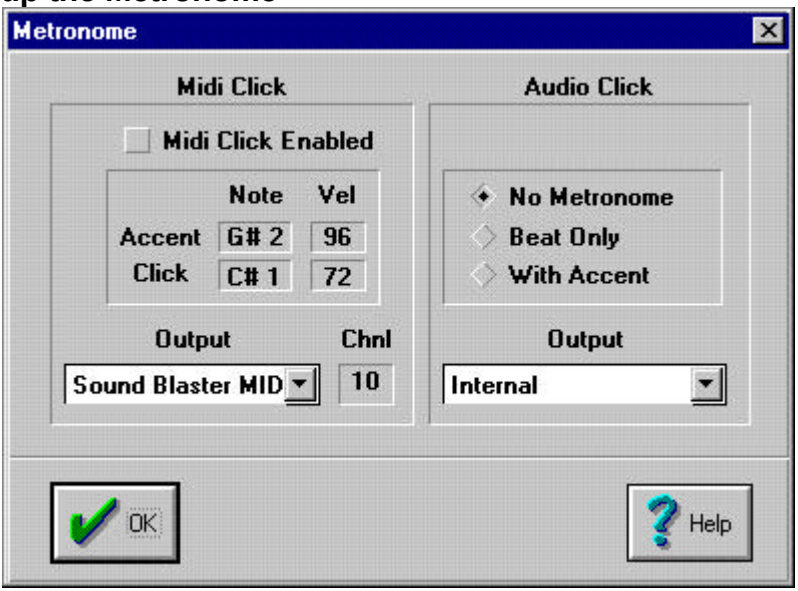
Cue Click

This field is used to select how many bars of cue are played before the record function drops in, and whether they are to be played as preroll (music) if any exists or as metronome clicks. To toggle between metronome click or preroll, click on the desired button. To select the desired number of bars edit the value in the value window to the desired quantity of bars.

Metronome

At the bottom right of the Transport Bar you can see three metronome symbols. These are, from left to right, Metronome Off, Metronome On and Metronome On with Accented Beat.

Setting up the Metronome



To set up the metronome for your MIDI system, select the Metronome option from the Song pull down menu.

To set the MIDI Click, you must select a note each for normal and accented beats. Choose short percussive sounds, such as woodblock. (Note that the defaults

provided will suit most sound modules.) The note velocity must also be set for each - set them so they have the same apparent loudness. You will also need to set the MIDI Output Port and Channel so the notes are sent to the appropriate sound module in your MIDI setup.

The Audio Click can be set up independently of the MIDI Click. At the right of the Metronome window, are the choices of No Metronome, Metronome, or Metronome with Accented Beat. At the bottom is a pull down list of the available sound producing devices in your computer - click on the appropriate one.

Once you have set the metronome and click options, click on the [OK] button to exit the dialog. These settings will be stored in the currently active song.

In and Out Locators

In and Out Locators are used to set the portion of your song that are played or recorded. They operate in conjunction with the Song Position ribbon (shaded in blue) located at the top or side of the various editors. The In and Out buttons are located on the Transport Bar.

Setting the In and Out Positions

To the right of the In and Out buttons are their respective song position settings. They are displayed in measures, beats and clocks. When you move the mouse cursor over the numbers, it changes to a double headed arrow.

You can click with the left mouse button to decrease the value or the right button to increase it. Alternatively, you can double click and type in the value directly from the keyboard - press **Enter** when done.

Another way to change the In and Out Locators is to simply click and drag them on the Song Position Ribbon. They are yellow triangles and the cursor will change to a black triangle when over the pointers.

Note that you must always set the Out Position to a later value than the In Position.

Using the In and Out Locators

You can operate the In and Out buttons singly or together.

Dropping In - when you click on the In button you will see a section of the Song Position Ribbon from the selected In point to the end change color. Also you will see the current song position jump to the In point. (the current song position will jump to a position ahead of the In point if a preroll is in use.)

Loop Mode

Loop mode operates in conjunction with the In and Out Locators described above. In loop mode, the song will play between the In and Out points, then jump back to the In point and instantly start playing, over and over.

Loop mode can be useful if you want to critically listen to a section, but its main use is loop recording. If a section is very hard to "get right", you can arm the track, and set record in loop mode until you play the piece correctly. As long as you click on the Stop button (or press **Space bar**) before the end of the next loop, your perfect playing will be saved. Best of all, no-one need know this is how you did it !

Recording a Track

Before commencing recording, you must ensure that the MIDI setup is correct. Refer to the chapter Getting Sounds. It is good practice to have only the Global Editor open when recording as you can see and set the various track parameters, in particular, the voice sound and MIDI channel.

To record a track in real time, click on the track that you wish to use. Check that the In position (described above) is set to the correct location. Then click on the record button (or press *****). When you are ready to start recording, click on the Play button (or press **Enter**).

If you have set a cue then you will get a count in (described above). Then the program will drop into

record mode. As you play the notes, they will appear on the open editor(s). The other tracks in the song will be heard from the sound module, and you can play in the new notes in time. (If this is the first track being recorded in the song, use the click facility described above to ensure that you play in time.)

Once you have played in the section, click on the Stop button (or press **Space bar**). Note if you have set an Out point, the program will drop out of record mode, but keep playing.

Step Time Recording

The alternative to real time recording is Step Time recording. In this method, you play one note or chord at a time. Tempo is ignored, and the program will step to the next song position when you release the note. Step Time recording is ideal if your playing is not perfect, and very handy if you want to create manuscripts, as notes will be just where they should be.

You can record in Step Time mode in the Global, Keyboard, Drum, Event and Notation Editors. At the right of the toolbar on each of these editors is two buttons - Step Time Key and Step Time Velocity. Clicking on just the Key button will enable step time recording, and each note will have a set velocity. Clicking on the Velocity button will allow the velocity as you play the note to be recorded. If you record Step Time with the Velocity button off, each note will be assigned a velocity of 95.

Recording a Track in Step Time

To record a track using step Time before leaving the Global Editor set the channel number to the required value in the channel window of the active track details panel. This is especially important if you intend to insert drum notes or tracks of different channels for polyphonic voicing purposes. Enter the desired editor. Activate either the [KEY STEP TIME] button, or both the [KEY STEP TIME] and [VELOCITY STEP TIME] buttons on the editor toolbar. Place the song position cursor at

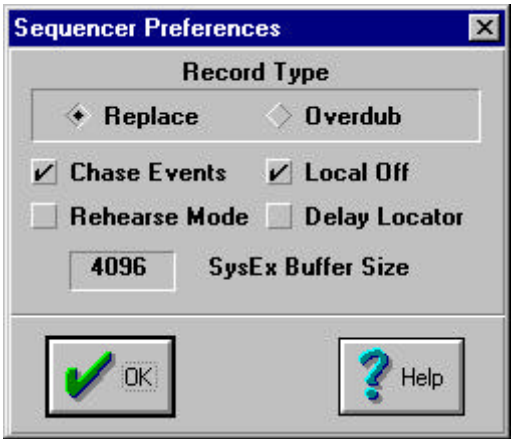
the position you require the MIDI data to start. Pressing **Shift <** or **Shift >** will move the song cursor to the nearest Bar line in either direction. Pressing **,** and **.** will move the song cursor by one "step" in either direction. This is also helpful for inserting a rest into your data. Select the required note length. This can be done in two ways :

- Click in the step box on the editor toolbar to bring up the step value dialogue box. Click on the desired note length then click OK . The chosen note length will now appear in the step box on the editor toolbar. Now when you press a note or chord on your synth a note or chord of the chosen step length will appear.
- The function buttons F5 to F12 correspond to each of the available step lengths. F5 = BAR, F6 = 2, and so on up to F11= 64, F12 = OFF. Now when you press a note or chord on your synth a note or chord of the chosen step length will appear. If you require a dotted or triplet note this can be achieved by holding the Shift key while pressing the function key to get a dotted note, or holding the **Ctrl** key while pressing the function key to get a triplet note. When the last synth key or keys are released the song position will automatically be advanced to the end of that note or chord. If you need to undo a note or chord the entire chord will be removed but the song position will not return. This must be done manually.

Sequencer Preferences

The Sequencer Preferences dialog allows you to set the preferences the way the sequencer functions -

- Record Type - when recording on a track, you can replace the MIDI data on the track with new data, or in overdub mode the new data is added to what is already there.
- Chase Events on Playback - if you jump to a point on a track and then play, the sound module may not have the correct voice or controller information for that point in the song. Selecting Chase Events will enable the program to search back through the song and send all the correct controller and voice change com-



mands to the sound module. Note this will cause a slight delay before playback commences on slower computers.

- Local Off - When activated, this will send a local off command to your connected MIDI devices.
- Rehearse Mode - When activated, this will mute the active track between the in and out positions.
- Delay Locator - When activated, this will delay the jumping to the locator selected until the current section is complete during playback.
- Sysex Buffer Size - This allows you to set the size of each Sysex buffer for recording in real time

Filtering

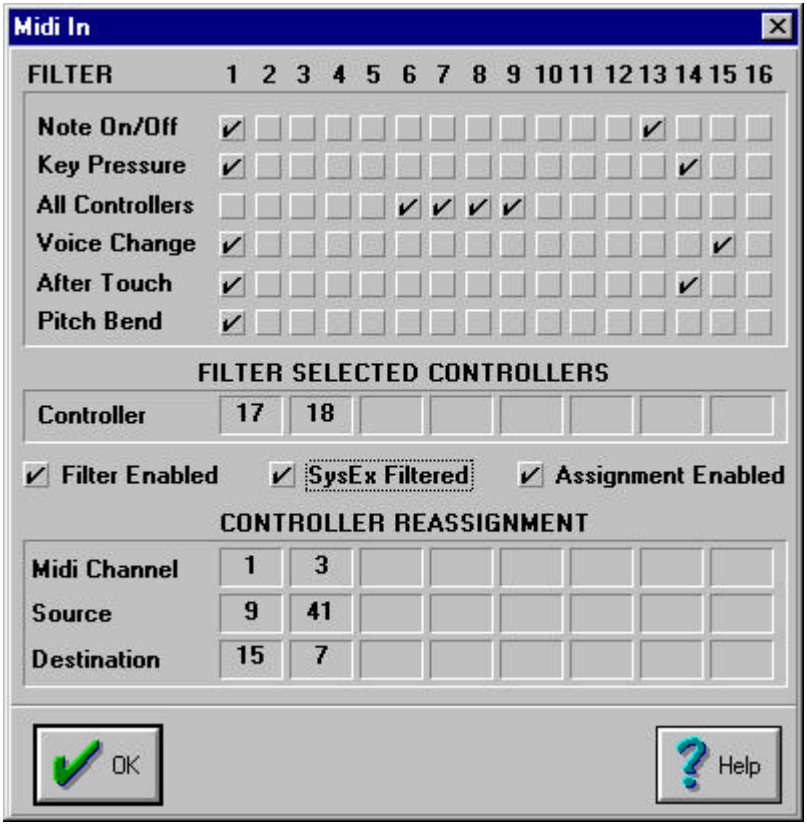
Filtering is a process of removing unwanted objects from a flow. In MIDI setups, unwanted MIDI data is filtered from the signals being sent between MIDI devices. The program allows you to filter certain types of data as they are received into your computer (MIDI In filtering), and to filter certain types of MIDI data that are sent directly to your sound modules as you play on the keyboard (MIDI Thru filtering). You can also filter MIDI data that is sent out from the program to your sound modules when you play a song (MIDI Out filtering).

Also, the program lets you modify the velocity of notes as they are sent from your computer to the sound module (Note Velocity Output). This is more of a modifying function, but is also covered in this chapter.

MIDI In Filtering

To turn MIDI In filtering on and off, use the keyboard shortcut **x**, or click on its button on the main toolbar.

MIDI In filtering is used to remove unwanted information from the MIDI flow coming into the program e.g. you may have a keyboard that sends Aftertouch information, but don't want this recorded as part of your song. You can choose what types of MIDI events are filtered in the MIDI In window. This window can be opened by choosing it from the Song pull down menu or by the keyboard shortcut **Ctrl F**.



Events

At the top of the window are the MIDI channel specific filtering options. The MIDI In dialog contains the MIDI channels from 1 to 16 across the top, and various MIDI events down the left, thus allowing you to specify what data is filtered. For example, you could have two keyboards connected to the computer, with each sending on a particular MIDI channel. You could then filter certain types of MIDI event from one keyboard, and different events from the other keyboard.

To filter, say, Pitch Bend information from MIDI channel 3, click on the third box from the left in the Pitch Bend row. It will then show a tick, and the program will then not store any Pitch Bend data coming in on MIDI channel 3 when recording. Note that to enable filtering,

you must also tick the button in the middle of the window marked [Filter Enabled]. This is a “master on / off” control.

Controllers

In the middle of the MIDI In window is an area that allows you to filter any MIDI controller information being received. For example Controller 7 is Main Volume, and your keyboard may send this signal out, but you don’t want to record it. Filtering controllers here will do so regardless of the MIDI channel they are on.

To filter a controller, you must know the number of the MIDI controller you wish to filter. See the appendix at the back of this manual for a listing. Move the mouse cursor over one of the eight controller boxes in the middle of the window (the cursor will change to a double-headed arrow), then you click with the left or right button to decrease or increase the number. Alternatively you can double click in one of the boxes, type in the number, and then press **Enter** on your keyboard. MIDI controllers are numbered from 0 through to 127. You can filter up to eight controllers simultaneously.

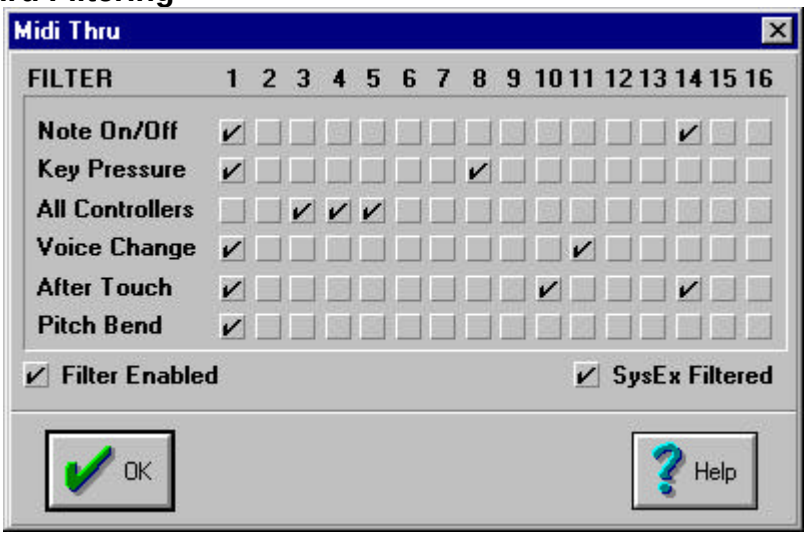
Reassigning Controllers

The program allows you to convert one type of controller event into another type.

To reassign controllers, you must first know what controllers you want to operate on. See the appendix in the back of the manual for a list of MIDI controllers. Up to eight controllers can be reassigned. First, select the MIDI channel the controller is on, by clicking in the MIDI Channel box with the left or right mouse button to decrease or increase the value. Then select the source controller and the destination controller in a similar fashion. Finally reassign the controller by clicking on the box marked Assignment Enabled in the middle of the window.

For example you may wish to reassign controller 1 which is modulation to controller 7 which is main volume thereby enabling the use of the modulation wheel of your synth (if it has one) to record volume changes.

MIDI Thru Filtering



To turn MIDI Thru filtering on and off, use the keyboard shortcut **y**, or click on its button on the main toolbar.

When the program is running on your computer, any MIDI data received is passed through to the MIDI output port. This is important, as you may, for example, connect the keyboard to the computer's MIDI input and the sound module to the MIDI output of the computer.

MIDI Thru filtering determines which type of MIDI events pass through to the sound module. The MIDI thru dialog, which is accessed from the Song menu or its keyboard shortcut **Ctrl H**, allows you to control what gets filtered.

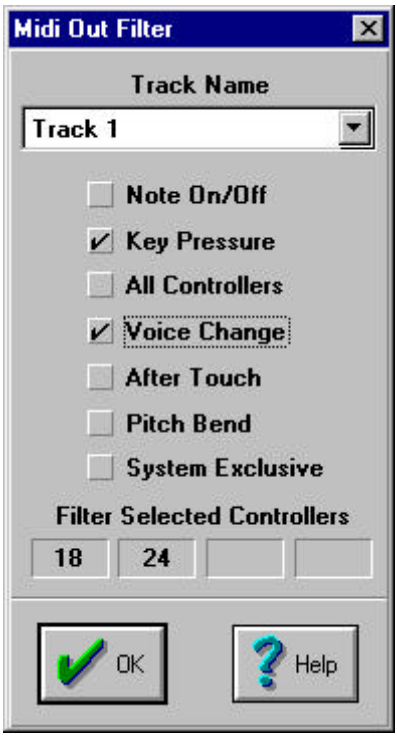
For each of the 16 MIDI channels, you can filter the following event types

- note on / off

- key pressure
- controllers
- voice change
- after touch
- pitch bend

Also, you can filter system exclusive events, which are independent of MIDI channel number.

MIDI Out Filters



Here you can filter any unwanted controller information from being sent out. There are direct options for the most common controllers and you can numerically select any other -

- Note On / Off
- Key Pressure
- Controllers - all controllers filtered or up to four can be selected numerically at the bottom of the window
- Voice change
- After Touch
- Pitch Bend
- System Exclusive

Click on the box and a window will appear. In this window you can select the desired controllers to be filtered. Click the check boxes next to the desired controllers or use the left and right mouse buttons to scroll through controller numbers in the boxes at the bottom of the window. Note to enable filtering of just these controllers, you must **not** have a tick in the box marked [Controllers].

Note Velocity Output

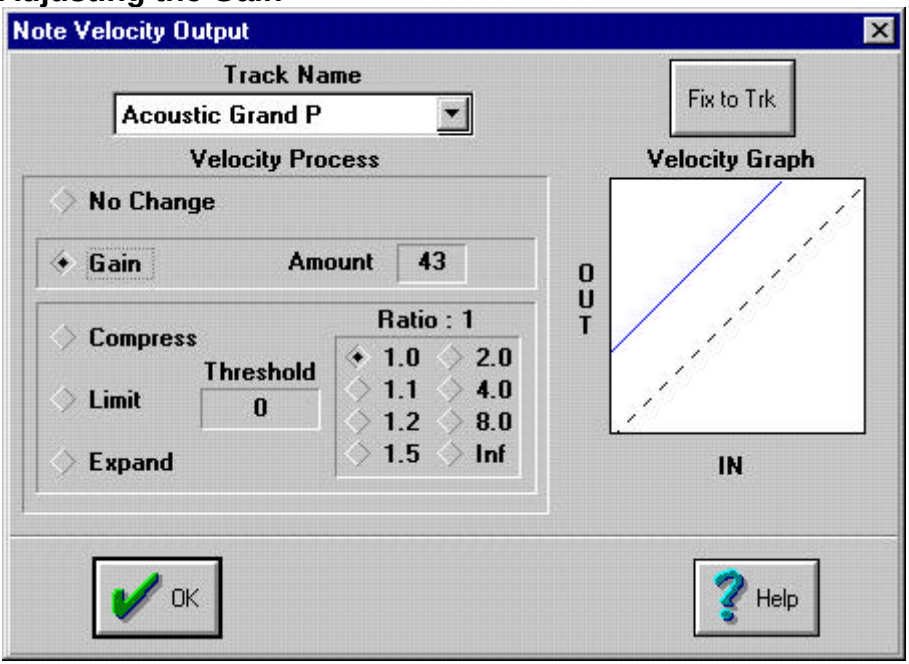
Every MIDI note contains information regarding the note's velocity. When you first played the note on a keyboard, thet velocity of the note is recorded along with the pitch and duration. Sound modules use the

note velocity to vary the sound of the note. Some sound modules simply set how loud the note is played, while more advanced units will also change the tonal characteristic to mimic a lead instrument such as a piano.

The program can control the note velocities as they are sent to the sound module. This is done in the Note Velocity Output window, which is accessed in the track pull down menu, or by the keyboard shortcut **Shift V**. The Note Velocity Output window will operate on the current track, but you can scroll through the tracks using a selection menu within this window.

The Note Velocity Output window performs one of two processes on your track - gain adjustment or dynamics processing.

Adjusting the Gain



If all notes in the track were recorded too softly, you can increase their velocity by a fixed amount. Likewise you

could reduce the velocity of all the notes if they were recorded too loudly.

To change the velocity of all notes on the track, first enable the function by clicking on the diamond marked [Gain]. Move the mouse cursor over the adjacent box marked [Amount], and the cursor will change to a double-headed arrow. Click with the left mouse button to decrease the gain or the right mouse button to increase it. Note velocities range from 0 to 127, so each unit represents slightly less than 1% change. If for example, you had a note with a velocity of 120 and a gain set to 10, the note would end up with a velocity of 127 as this is the maximum.

If you are playing the song, you will hear the effect of the changes in real Time. You can do this with the track Soloed, but this adjustment is usually best done while listening to all tracks simultaneously. Note that this function only operates as you play the song - your MIDI data remains unchanged in the song file.

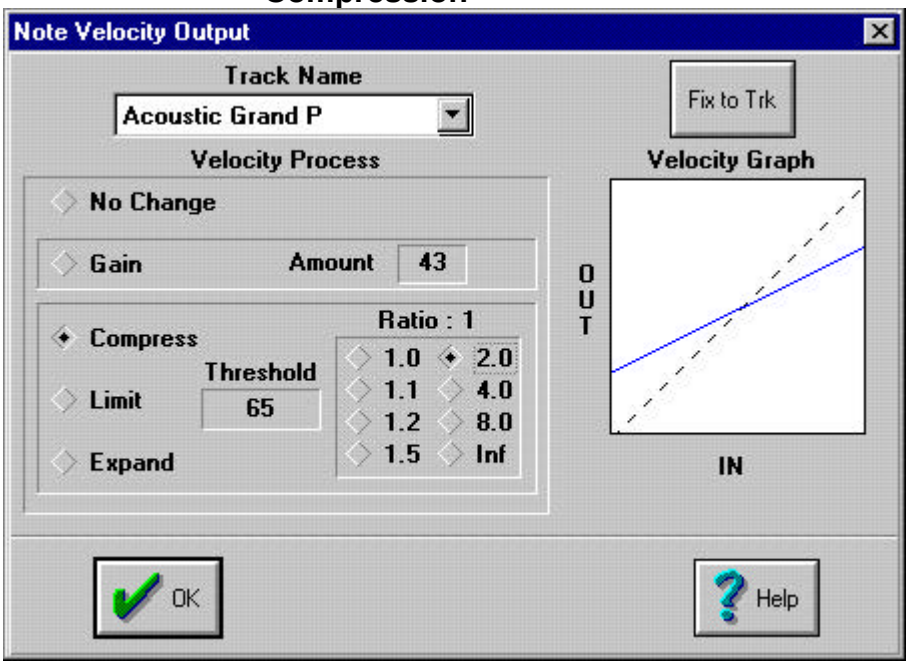
Changing the Dynamics

Changing the gain as described above will perform the same operation on all notes regardless of their velocities. Dynamic Processing is a more powerful method of controlling the sound. Here the amount of gain change depends on the initial note velocity. There are three types of Dynamic Processing - Compression, Limiting and Expansion.

Dynamic processing involves two related concepts - ratio and threshold. The ratio is simply “how much” the note velocity is changed, and the threshold is the note velocity value about which the change is made. This is easily seen in the graph at the right of the Note Velocity Output window.

The next pages show examples of each type of dynamic processing.

Compression

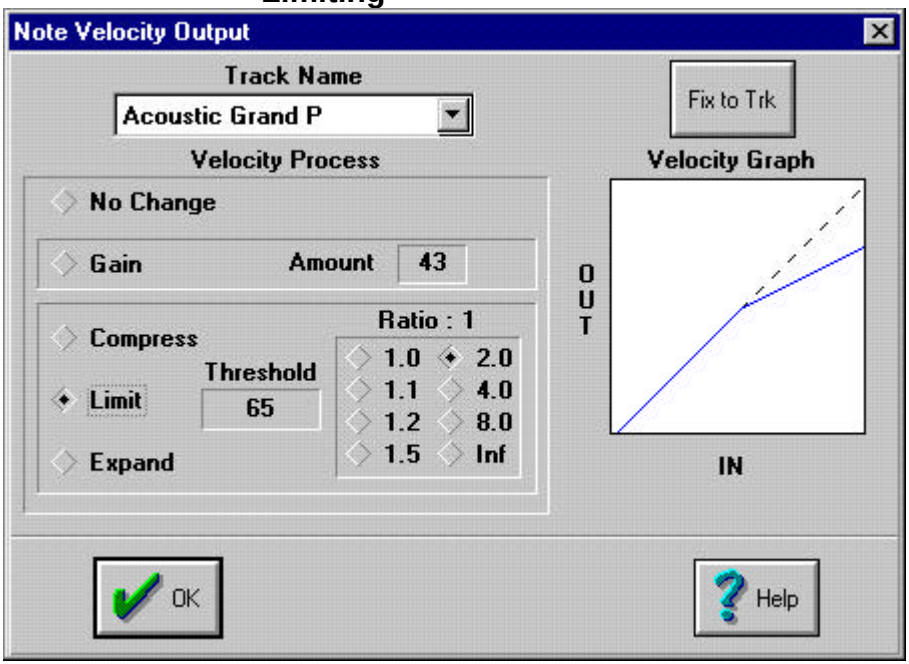


Compression reduces the dynamic range of the track (the variation from softest to loudest note). If you record a track, and the loudest note was too loud or the softest note was too soft, then compression would solve this problem.

To carry out compression, click on the diamond named Compression, then select a ratio by clicking on one of the eight choices available. As you do so, you will see the graph change. This graph shows the change from input to output values of note velocity that are being done. If you are playing the track, you can hear the effect immediately.

When the threshold and ratio are set, the graph indicates what is happening to the note velocities. Note velocities below the threshold will be increased, while note velocities above the threshold will be reduced. The extreme of this is to set the ratio to [Inf] or infinity, where all note velocities will be set to the threshold value.

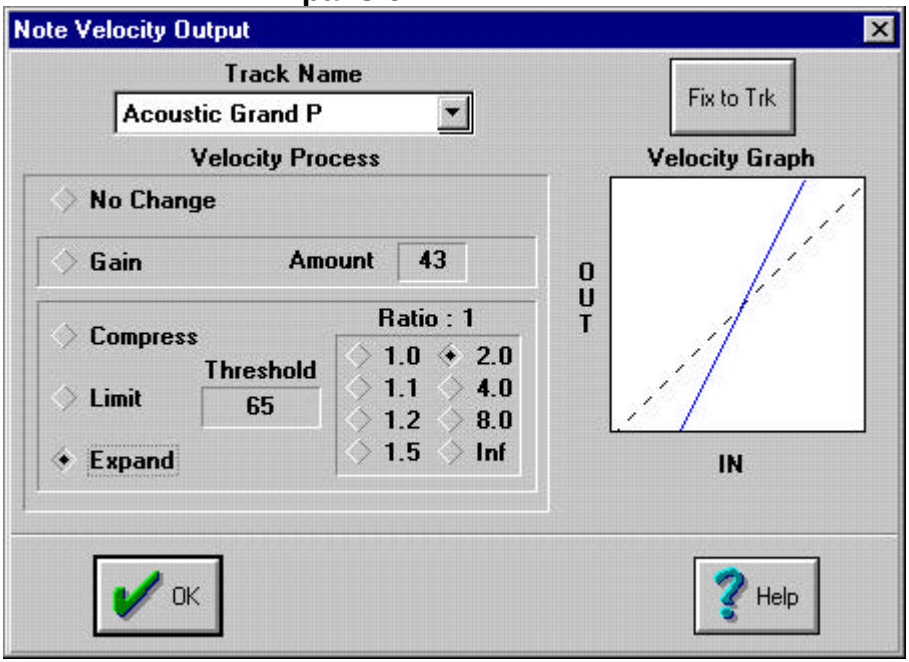
Limiting



Limiting is a bit like compression, except that it only modifies note velocities that are above the threshold. Sections that are played softly will not be affected, while you can set the limiting to control a section that was played a little too enthusiastically.

To enable limiting, click on the [Limit] button. Set a threshold around half way (65) to begin with, then experiment with different ratios to achieve the desired result.

Expansion



Expansion is the opposite of compression. You can use expansion to add more dynamics to a track. Note velocities below the threshold will be decreased, and those above the threshold will be increased.

To enable expansion, click on the [Expand] button, then set a threshold. Try around half way to begin with. Then try a few different ratios and listen to the effect it has on the track.

Fix to Track

As mentioned above, all the functions performed in the Note Velocity Output window are done as the song is being played i.e. it does not affect the MIDI data in your song file. If you are sure you have made the right changes, click on the [Fix to Track] button. This will change the song data to reflect the note velocity changes you want. This is handy if you want to save the song as a MIDI file, because the Note Velocity Output window changes are not saved in MIDI file format unless this option is ticked in the File Preferences dialog.

Editing Basics

When you use a computer to do sequencing, the two main tasks are getting MIDI data into the computer, and editing it into a satisfactory final form. This chapter covers the philosophy of editing within this software and the most basic forms of editing that you can do on groups of data (Copy, Cut and Paste), as well as moving Parts around your song.

Editing Philosophy

Most sequencing and notation software packages have a palette of 'tools' e.g. scissors, rubber, pencil that you select from when you want to do an edit on some data. We find this approach to editing very tedious and time-consuming because you are constantly changing tools to do various operations. To simplify and speed up this process we have designed a methodology which does away with the need to change tools to do your operations. This program uses a consistent philosophy across all its editors: the **left** mouse button is used to **select** objects (double click to open them) for editing, and the **right** mouse button is used to **insert** new events into your data. Using this technique we have found that any operation can be done without needing to change tools to accomplish the required task. **Deleting** an object is achieved by double clicking on the object and then selecting Delete.

Clipboard

As with many Windows applications, this software uses a clipboard when editing. This is simply an area of the computer's memory that is set aside as a temporary place to hold data. (Note - Our own clipboard is used, not the Windows clipboard).

To put MIDI data into the clipboard so that you can subsequently place it elsewhere in the song, you must perform a Copy or a Cut function.

The **Copy** function makes a copy of the selected MIDI data and places it into the clipboard. The data that is copied is not affected in any way.

The **Cut** function also puts the data into the clipboard, however the data you copied is deleted from its position in your song. In this case, the data actually moves from its place in the song to the clipboard.

The **Paste** function puts whatever MIDI data is in the clipboard to the position that you nominate when you select Paste.

Moving Parts

Moving a Part around in an editor uses the clipboard - you simply click and drag the Part to where you want it and the moved part is also placed in the clipboard for future pasting. See further on in this section for how to divide your song into parts.

To Copy a part, hold down the **Ctrl** key whilst dragging.

To move a Part, click on it with the left mouse button (the cursor changes to a hand while the button is held down), then drag the part to where you want it. If there is existing MIDI data at the place to where you dragged the part, it will be replaced if the Transport Bar has replace mode selected, or merged (i.e. added together) with the moved part if the Overdub mode is selected.

Note that in the Global Editor parts are displayed on the tracks, while in other editors they are displayed on the Locators and Parts ribbon (adjacent to the Song Position ribbon). In the Global Editor, you can use the same method to drag Global Parts, just click and drag in the Locators and Parts ribbon.

Editing in Grid Editors

When using the grid editors the methods for basic editing are the same in each case.

In the grid editors, you can click and drag Parts. Click the left mouse button on the Part in the Locators and Parts ribbon, and drag it to wherever you want it.

When using Copy, Cut and Paste functions, you must create a selection box containing the MIDI data you want to work on. Click and drag with the left mouse button to make a box in the data area. The box will hold all data between two song positions. To select certain MIDI data only in the Keyboard or Drum editors, hold down the **Ctrl** key while clicking and dragging - you can then select a specific range of notes.

Once you have created a selection box, Copy or Cut the enclosed MIDI data. Choose the appropriate button on the main toolbar, or use the keyboard shortcuts **Ctrl C** for Copy and **Ctrl X** for Cut. In either case, the selected data will be placed onto the clipboard.

Note that the Tempo Editor uses a different clipboard to the MIDI data, as tempo data cannot be mixed with MIDI data.

To paste the contents of the clipboard, choose the Paste button from the toolbar or use the keyboard shortcut **Ctrl V**. Move the mouse cursor to the desired position and click with the left mouse button; the clipboard contents will then be placed at that point.

To **paste multiple times**, click at the desired position with the **right** mouse button and a window will appear. Click on the number with the left mouse button to decrease or the right button to increase the number of pastes, then press **Enter** on your keyboard. The clipboard contents will be pasted back to back as many times as was selected.

Tthe record mode selection determines what happens to the existing data when pasting. In Replace mode the pasted data will replace the existing data, while in Overdub mode, the existing and pasted data are merged. (This does not apply to tempo data - it is always replaced).

Undo

All of the editing that you do is stored. By clicking on this button, you can undo, step by step, as many edits as you like since you opened the song. This is known as "infinite undo". The keyboard shortcut for undo is **Alt Backspace**. There is also a button for undo on the toolbar at the top of the Music Master window.

Redo

If you performed an undo, then realized you didn't mean to do that, selecting redo will reverse the undo. Just like the undo function, the program has an infinite redo capacity. The keyboard shortcut for redo is **Ctrl Backspace**, and there is a button on the toolbar for redo.

Cut

As with most Windows applications, this program uses the standard functions of Cut, Copy and Paste. These functions are used to move and copy MIDI data, and form the basic editing tools used when putting together a song.

The Cut function is used to remove a section of data. The selection is removed from your MIDI track or tracks, and held in a section of memory called the Clipboard. You can then place the cut data elsewhere in your song, or simply do nothing with it. The data in the Clipboard is replaced when you next do a cut or copy.

To cut a section from your MIDI data, you must first select the portion of the track or tracks you want to cut. Click and drag with the left mouse button over the desired area, then select cut. The keyboard shortcut is **Ctrl X**, and there is a toolbar button as well.

Copy

The copy function is carried out in a similar way to cut. Copy will make a copy of the selected MIDI data and place it in the Clipboard, but the data you copied will not be affected. Click and drag across the area you want to

copy, then select copy. The keyboard shortcut is **Ctrl C**, and there is a copy button on the toolbar.

Use the copy function when you want to duplicate a section of your song. Once the Clipboard has some information in it, you can place that information as many times as you like using the paste function.

Paste

This function is used to place the information in the Clipboard into your song. Click on the Paste button, or use the keyboard shortcut **Ctrl V**, then move the mouse cursor to the desired position and click with the left mouse button to paste the MIDI data once, or the right mouse button to paste several times.

Insert/Remove Space

The Insert / Remove space function allows you to "push along" your song data e.g. to make space for a lead break. You can also "close up" your data to remove a verse or similar. You can do this on a single track or across all tracks at once. The keyboard shortcut is **Alt I**.

To insert some space in a song, firstly create a track or global Part boundary if necessary by right clicking on the appropriate point. (To create a global part boundary, right click in the Locators and Parts ribbon just above the measures ribbon). Then select the Insert / Remove Space button. Click on the Part boundary and drag it to the right, to the place desired. As you drag it, you can see the space to be opened as a bold line in the Locators and Parts ribbon.

Removing space is done in the same manner as inserting space, except that you drag the mouse to the left. Note any MIDI data that you drag over will be deleted.

Delete Track

To delete a track, highlight it by clicking on it, then select Delete Track from the menu, or press **Alt D** on the

keyboard. VS audio tracks for one VS Workstation will all be deleted in one group.

Special Editing Functions

This chapter covers the program's special music editing features - Quantize, Transpose, Merge, New MIDI Track and Explode MIDI Track. Unlike Copy Cut and Paste, which work similarly in most Windows applications, these functions are specifically for music.

Quantizing

The program enables you to quantize the notes in your song. Quantizing is the process of making adjustments to the timing of notes. For example, you could quantize such that a sloppily played piece is quantized to perfect timing. This is not completely desirable though, as music that is perfectly timed may sound too mechanical. The program gives you powerful control over the quantize process.

Quantize Value Box

The Quantize Value box displays the type of quantize selected. Clicking on it will open the Quantize Basis window. The keyboard shortcut for this is **Ctrl Q**. In this window you will see a number of options. Note - this window is for setting the quantize parameters. Once the parameters are set, to perform a quantize, you must select the area to be quantized, then click on the quantize button in the main toolbar.

Condition You can set which notes are quantized

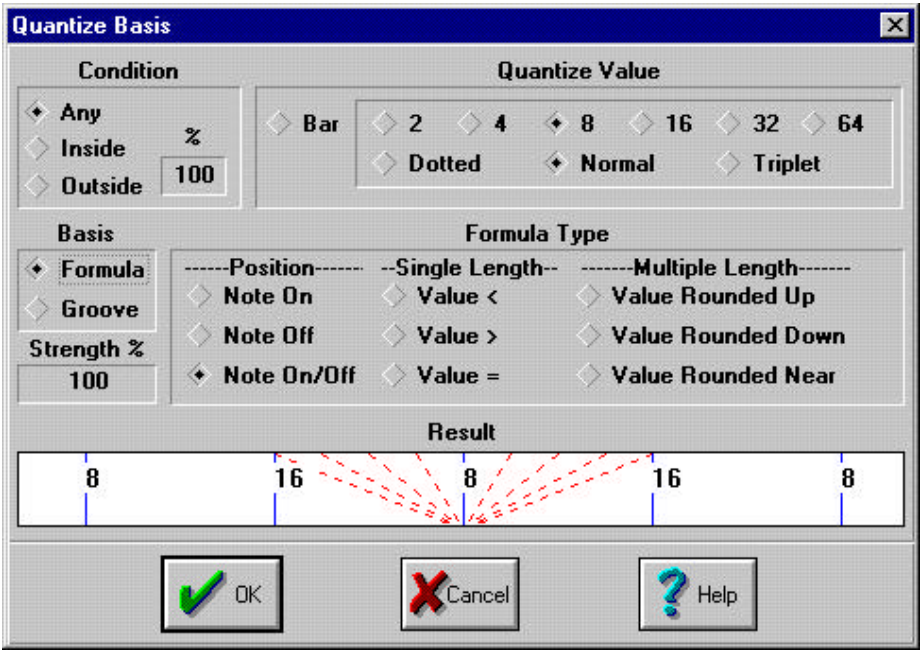
- Any - all notes in the piece are quantized according to rules set in the Quantize Basis dialog
- Inside - only notes that are within a set percentage of their correct position are quantized. Set the percentage with the % box by clicking with the left or right mouse button to change the number. As you change the percentage, you will see the result graph indicating which notes will be moved
- Outside - only notes that are more than a certain Time from their "correct" position will be moved. This is

very useful, as small variations which are the "signature" of the performer are not changed, but any notes that are significantly out will be fixed.

Quantize Value - set this box to the timing of your song so that the program knows what notes are to be moved. For example, setting the Quantize Value to [8] will quantize notes to 8th note (quaver) boundaries.

Basis - You can quantize in two main ways -

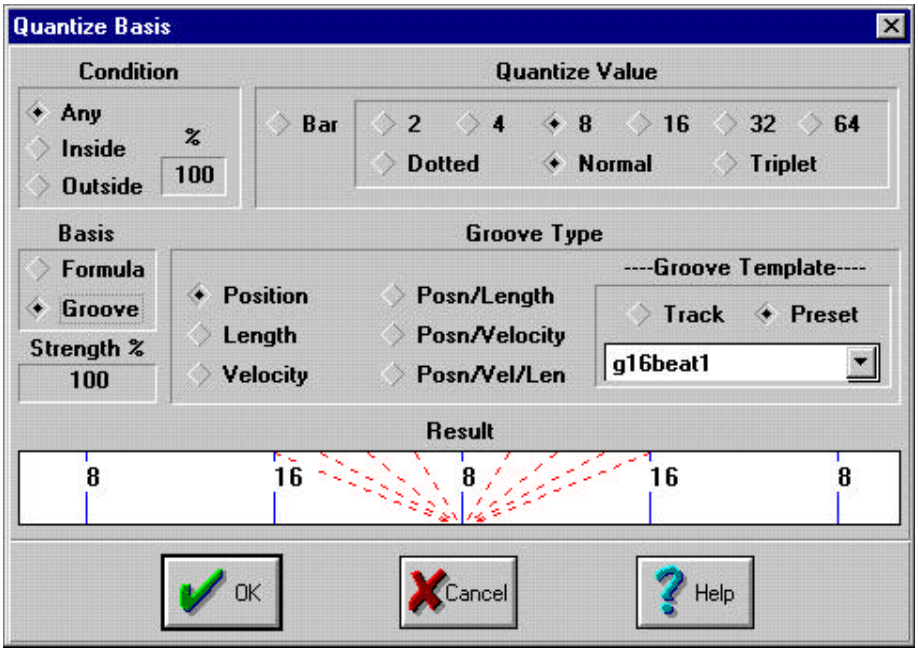
Formula - the notes are moved according to a mathematical formula to the desired location. This method gives precise and predictable quantizing of your song. Set the rules in the Formula Type box.



Formula Type - here you can set the rules, or formula, for quantizing the notes. Firstly you can set whether you want to quantize Note On position, Note Off position or both.

Single length will set each note to the exact note length selected. Multiple length will set each note to the nearest multiple of the selected value either rounded up, rounded down, or rounded near.

Groove - this will quantize your notes to a pre-determined groove template. There are templates for many different styles of music such as ballad, country, rock etc. Alternatively, you could quantize a track to make it the same as another track. Groove quantize will give the piece a certain "feel".



Groove Type - this box allows you to set the type of groove and which of note position, length and velocity are modified.

Strength - this sets how much quantizing is actually done to the notes. Setting the strength to 100% will move the notes to the exact position dictated by the formula or pattern and will remove any of the performer's "signature". If the strength is set to a lesser amount, some of the original feel of the song will be retained. If the strength is 0%, no notes will be moved.

Once you have set the quantize method, click on the [OK] button at the bottom of the window. To actually perform the quantize, select an area by clicking on a part or clicking and dragging across the area to be quantized,

then click on the quantize button on the main toolbar. If you click on the quantize without selecting an area the whole track will be quantized.

Transposing

Transposing is the process of changing the pitch of all the notes on a track up or down by a set number of semitones.

To perform a transposition, select the part or parts to be transposed (hold down the **Shift** key when clicking to select more than one part), then click on the transpose button on the main tool bar (or use the keyboard shortcut **Alt O**). A window will open prompting you for the number of semitones the selection is to be transposed. Click with the left mouse button to decrease or the right mouse button to increase the value, then click on the [OK] button and the transposition will be performed. If you don't like the change you just made, you can undo it using the Undo button on the main tool bar.

Note - don't transpose a drum track as each note represents a particular instrument in the drum kit. Transposing will drastically alter the sound !

Merging Tracks

It is easy to merge tracks or parts of tracks. This can be useful as you may wish to initially work on a polyphonic part on two tracks then merge them after editing, or you may wish to merge drum instruments that have been recorded on separate tracks.

To perform a merge, select tracks or parts to be merged by clicking on them with the left mouse button (hold down the **Shift** key for multiple selections). Then click

on the merge button on the main tool bar (or use the keyboard shortcut **Alt M**). The selections will be merged and placed on the Clipboard. From there you can place the merged data onto a new track or back over an existing one.

Remember that when pasting MIDI data from the clipboard over data on a track that the existing data will be replaced if the program is in **replace** mode. Otherwise the clipboard data will be merged with the data on the track if the application is in Overdub mode. Overdub and Replace mode are selected on the Transport Bar (press **F3** if it is hidden).

New MIDI Track

This menu option allows you to add extra MIDI tracks to the song. Select New MIDI Track from the menu, or type **Alt N** on the keyboard. You can also add a new MIDI track by double clicking in the track details area of the Global Editor. The output driver assigned will be the default output driver in the Driver Preferences window. The voice map assigned will be the default voice map shown in the Voice / Instrument Preferences window. To add VS audio tracks, select New VS Tracks from the Track Menu. They are added in groups based on the VS Workstation(s) attached.

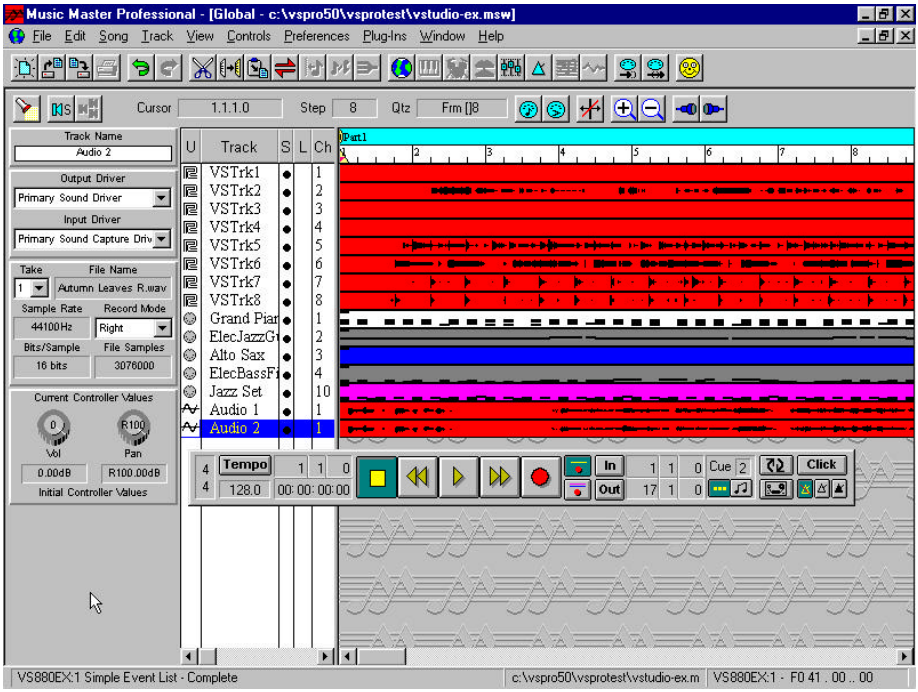
Exploding MIDI Track

This function is dynamite if you need to separate the MIDI in a track or Part to separate tracks, based on channel. The most frequent time you would do this is when you want to create SATB (Soprano, Alto, Tenor Bass) Parts from a single polyphonised track (see Notation - Chords chapter).

The Explode function will copy the MIDI to new tracks, with events assigned by channel. For example if the highlighted track or part contains notes on four channels, then four new tracks will be added and the events copied to these tracks, with only one MIDI channel on each track. The Explode function will not change the highlighted MIDI, so you may wish to Mute or Delete the track once you are happy with the result.

Note: if you explode a track that has notational elements (ie non MIDI), such as lyrics or chord symbols, an extra track will be created when you perform the Explode function. This track will contain a copy of the notation elements only. You can use this feature to easily paste chord symbols etc to another track. (Don't forget to change the Record Mode to Overdub on the Transport Bar before pasting over a MIDI track).

Global Editor



The Global Editor is the main editor used when sequencing. It is the first thing you see when you enter the program. In this editor you can quickly re-arrange a song, or set the details for the tracks such as MIDI channel and voice map etc.

The Global Editor is divided into a number of sections (note that the menu bar and main toolbar appear in all editors and are described in their own chapters) -

- the Global Editor Toolbar
- the Active Track area
- the Track Details area
- the Parts and Ruler area
- the Edit Grid area

The Global Editor Toolbar

The toolbar for the Global Editor has a number of items on it -

MIDI Consistency Check Button

The program can perform a consistency check on the song - this checks each track for conflict of the bank, voice and volume, pan, reverb and chorus controllers on output driver / channel combinations.

If a duplication is found it presents you with a dialog showing you the first conflict. You should then perform the consistency check again and continue doing so until all consistency errors are eliminated.

It is a good idea to do a MIDI consistency check when you first load a MIDI file or a song not recorded on your computer. Any errors will be reported and you may be able to fix them in the Event Editor or in the Active Track Details.

Solo Button

Clicking on Solo will mute all tracks but the active one (it is highlighted in the Track Details area). When you are playing a song, select solo will allow you to listen to just the one track with the others turned off. The Solo button is latching i.e. select it once to enable Solo mode and again to disable the Solo. The keyboard shortcut for the Solo button is **S**.

If you want to Solo more than one track at once, make one of the tracks the active track (by clicking on its details area) and solo it, then make another track active by clicking on its track information area and click on its solo button.

Play All Tracks Button

You may wish to solo more than one track, then switch between that and the whole performance. When you turn off the solo button, your soloed tracks will be

"reset". The way to switch between several soloed tracks and the whole song is to use the Play All Tracks button. Once you have finished the comparison, click on the solo button and it will return to normal.

Mouse Cursor Position Box

This will show you the position of the mouse cursor whenever it is over your song data. It is displayed in measures (bars) beats, steps and clocks. Clocks are the smallest unit of Time in a MIDI system. This is set to 192 clocks or Pulses Per Quarter Note (PPQ). As you move the mouse cursor over the MIDI data in your song, you will see the value in the Mouse Cursor Position Box constantly indicating the position of the mouse.

The resolution (i.e. how precisely the position is displayed) is determined by the Step Value, described below.

Step Value Box

As mentioned above, the mouse cursor position has its resolution determined by the Step Value box. You can select from a range of step values or turn off the step. Setting a step is very useful, as you can enter or move notes and they will "snap" to the step you have set. Also, in the Global Editor, setting the Step Value to, say, bars, will allow you to define and move Parts easily and accurately.

Note that you may wish to turn off the Step momentarily, as you do an edit. Rather than change the Step Value to "Off" in the Step Value box, hold down the shift key and the step will be temporarily disabled.

Quantize Value Box

With this program you can quantize the notes in your song. Quantizing is the process of making adjustments to the timing of notes. For example, you could quantize such that a sloppily played piece is quantized to perfect timing. This is not completely desirable though, as music that is perfectly timed may sound too mechanical.

You are provided with powerful control over the quantize process.

The Quantize Value box displays the type of quantize selected. Clicking on it will open the Quantize Basis dialog. The keyboard shortcut for this is **Ctrl Q**. In this window you will see a number of options. Note - this window is for setting the quantize parameters. Once the parameters are set, to perform a quantize, you must select the area to be quantized, then click on the quantize button in the main toolbar.

The Quantize function is fully described in the chapter Special Editing Functions.

Step Time Note Key Button

Instead of recording in real Time, you can record your notes in “step Time”. Each note or chord you press on your keyboard, no matter how long it is played, will be recorded (as a note or chord), with a length equal to the step value in the Step box. There will be no gap between the notes. If you enable the Step Time Note Key button, but not the Step Time Note Velocity button, each note will be registered with a velocity equal to the highest allowable no accent velocity as set in the Song Notation Interpretations dialog.

Step Time Note Velocity Button

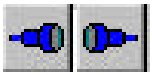
This button is used in combination with the Step Time Note Key button. If the Step Time Note Velocity button is pressed simultaneously, the velocity of each note will be recorded along with its pitch. If you record Step TIME with the Velocity button off, each note will be assigned a velocity of 95.

Join Parts

ALT J The Join Parts button allows you to join two or more adjoining parts, and it will assume the name of the first part. Firstly, highlight the parts you want to become one (hold down the shift key to select more than one). Then click on the button and the parts will become one.

Note that the parts must be adjoining. Also you can double click on the Track name at the left of a track to highlight the whole track in one step.

Vertical Zoom



The vertical zoom buttons allow you to expand and compress the vertical depth of all the tracks to see more detail or more tracks in the display grid.

Active Track Details Area - MIDI Tracks

This section of the editor shows you the details of the active track (the one that is highlighted in the Track Details Area). You can turn the Active Track Details Area on and off in the Track pull down menu, or by the keyboard shortcut **Shift A**.

Track Name

The first box down from the top is the Track Name. Double click here to enter or change the name, then press **Enter** to close. You can have up to 16 characters for the track name.

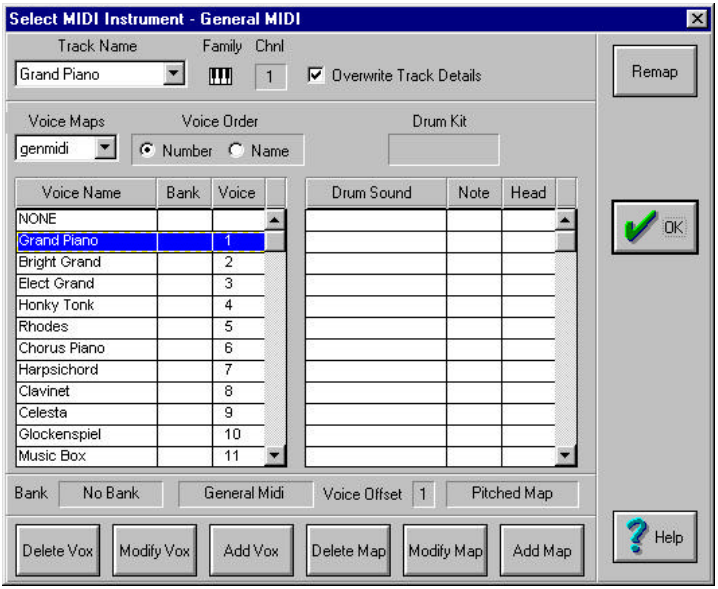
Output

Here you can select the MIDI output device that the track is to be sent to. Click on the arrow and a menu will appear that shows all of the MIDI devices currently available to Windows. Then click on the desired MIDI device, and it will be selected.

Channel

This is the MIDI channel that the track's data will be sent on. Click inside the box with the left mouse button to decrease the channel number or the right button to increase it. You can also double click on it and type in the channel number with the keyboard (press **Enter** when done). If the channel is set to "blank", the MIDI data will be sent out on the same MIDI channel it was originally recorded on.

Voice Map



Select here the type of sound module the track is connected to. Click on the arrow and a menu will appear. Then click on the appropriate sound

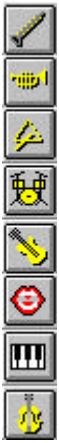
module. Note if you hold down the **Ctrl** key when doing this, the same voice map will be applied to all tracks simultaneously.

Setting the voice map, bank and voice number (below) is important as the program sends voice bank and number information each Time the play button is pressed. This programs your sound module to play the correct sounds when it receives note information.

Bank and Voice

Once you have selected the correct voice map, you must also select the bank and voice numbers to get the right sound from the sound module. Click with the left and right mouse buttons to decrease and increase the values. As you change the numbers, you will see the voice name box just below showing the voice name. If you are playing the track as you scroll through the voices, you can hear the sounds changing.

Family



Underneath the word Family will appear a symbol, being one of -

- Woodwind
- Brass
- Percussion
- Drums
- Guitar
- Vocals
- Keyboard
- Strings

The Family is of importance in the Notation Editor. Each family is grouped for printing a conductor score, and accent interpretation rules can be different for each family.

When you select an instrument for the track, the family will be automatically set, however if you wish to change it, you can do so by clicking on it with the right mouse

button and selecting a new family from the drop-down list.

Voice Name

This box displays the name of the voice in the bank and voice number selected for the track (as appropriate to the sound module selected for the track). You can click with the mouse on this box and the Voice Map dialog will appear which allows you to select the voice from a list. If the song is being played, you can listen to the different sounds directly as you select them.

Controllers

Volume Pan Reverb Chorus

This section allows you to set four common MIDI controllers for the track. The **boxes** show the initial value for the track. To change the initial value, left or right click to decrease or increase respectively. If the boxes are blank, there are no controllers in the track - left click to decrease to the desired value and a controller event will be added to the start of the track. This is very handy for getting MIDI files to play correctly.

The **knobs** vary to indicate values as the song plays. You can right click on the knobs and record changes in real Time.

Transpose

This window allows you to transpose notes as they are sent out to the sound module. The value shown here indicates how many notes up or down the track will be transposed.

To set or change a value, click on the box with the left or right mouse button to decrease and increase the value respectively. If you hold down the button the numbers will scroll automatically, or you can double click and type in directly the desired number (press **Enter** to register it).

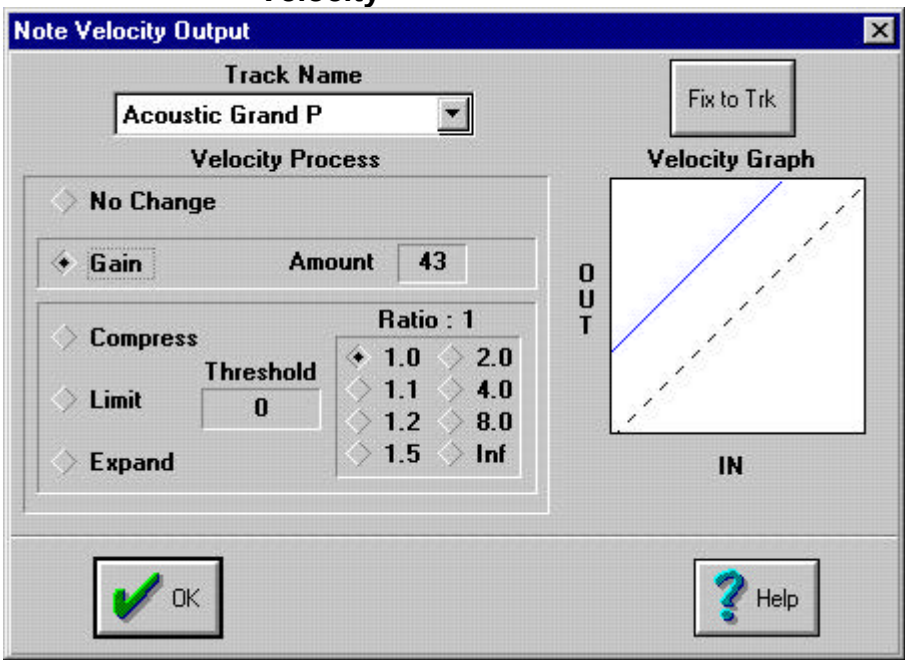
Note - this transposition will not be reflected in the display of the notes in each of the MIDI editors - it is playback only.

Delay

This allows you to advance or retard the track relative to other tracks. The value is in clocks. A negative value means that the track will be ahead of other tracks.

Setting the delay value is done in the same way as with the controller and transposition boxes above.

Velocity



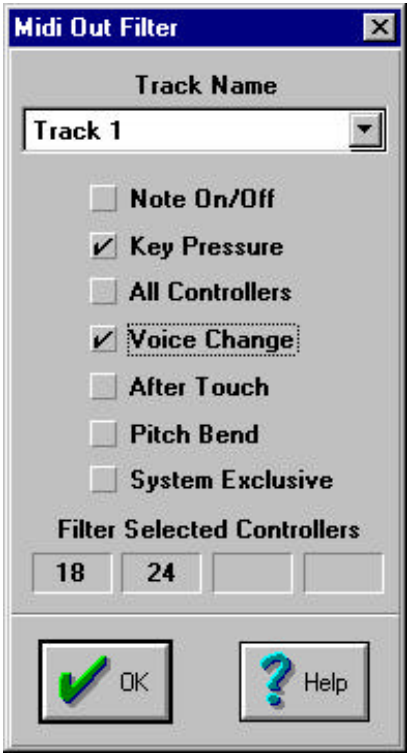
Clicking on this box will bring up a window that allows you to modify the note velocities as the song is played. You can choose from -

- changing gain - boost or attenuate all notes on the track
- compression - reduce the dynamic range
- limiting - reduce the loudness of the loudest notes
- expansion - increase the dynamic range

There is a button marked [Fix To Track]. If you like the effect you have created on the track, selecting Fix to Track will modify all the note velocities in the track permanently.

Note the Active Track Details area will show a small graph of the function being performed. See the chapter Filtering for more information on Note Velocity Output.

MIDI Out Filters

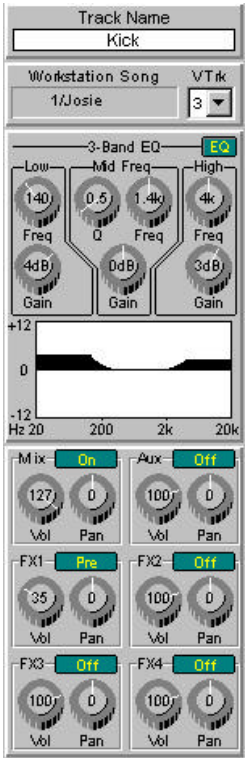


Here you can filter any unwanted information from the MIDI output stream. There are direct options for the most common events and you can numerically select any other -

- Note On / Off
- Key Pressure
- Controllers - you can filter all controllers or up to four can be selected numerically at the bottom of the window
- Voice change
- After Touch
- Pitch Bend
- System Exclusive

Click on the box and a window will appear. In this window you can select the desired controllers to be filtered. Click the check boxes next to the desired controllers or use the left and right mouse buttons to scroll through controller numbers in the boxes at the bottom of the window. Note to enable filtering of these controllers, you must **not** have a tick in the box marked [Controllers], as this will filter out all controllers.

The Active Track Details Area - VS Tracks



This section of the screen gives you information about the selected track. You can select a track by clicking on it just to the right of the Active Track Details area - the current track will be highlighted in Blue. You will see it change completely as you move from VS to MIDI tracks, as it presents the appropriate information for each type of track.

Starting at the top, the various items are described below -

Track name

This is the name you give to the current track. To change the name, double click on it and type in a new name, then press Enter. The track name is saved with the song.

Workstation / Song

This tells you which VS Workstation the track is on (if you have more than one VS Workstation connected). The song is the name of the song in the VS Workstation, which doesn't have to be the same name as the song name.

Virtual Track

This shows you which virtual track is selected for playing on this track. To change virtual tracks, click on the item, and select from the drop down list. The selected virtual track will be displayed in the Edit Grid area. Note you can't change the Virtual Track while playing.

EQ

This area allows you to control the 3 Band Parametric EQ for that track. You can turn the EQ on and of using the button at the top right of the EQ section.

There is a full parametric Mid Band and the Low and High Bands have variable Frequency with selectable Peaking or Shelving response. As you change the

settings, you will hear the result if the VS is playing, and you can see the EQ curve in the graph below.

You can automate all the knobs - just right click on them and it will turn red. Any moves you make will be recorded against the song position. See the Mixdown Editor section later for more details of automation.

Sends

Here you can control the level and pan of the various sends from this channel. There are Level and Pan controls for each of Mix, Aux, and FX. All these controls can be automated by right clicking - see the Mixdown Editor section for details.

FX sends can be selected for Pre Fade or Post Fade. Note if you use the effects in Insert mode, this section will change so you can select whether the insert goes to the Left, Mono, Right or Both (loop from left to right).

The Active Track Details Area - Audio Tracks

This section of the screen gives you information about the selected track. You can select a track by clicking on it just to the right of the Active Track Details area - the current track will be highlighted in Blue. You will see it change completely as you move from Audio to MIDI tracks, as it presents the appropriate information for each type of track. To add an Audio track, select "New Audio Track" from the Track menu.

Starting at the top, the various items are described below -

Track name

This is the name you give to the current track. To change the name, double click on it and type in a new name, then press Enter. The track name is saved with the song.

Drivers

This next section contains the output and input audio driver that will be used to playback and record to this track. Click on the drop down list to change it.

File Details

This next section contains information about the current take, and the file details of the first audio file contained on this track.To switch between takes, select it from the dropdown list. To add an extra take, select “New V Track” from the Track menu. The additonal information contains the filename, sample rate, bits per sample and the size of the audio file. The record mode is used when recording new audio to this track.

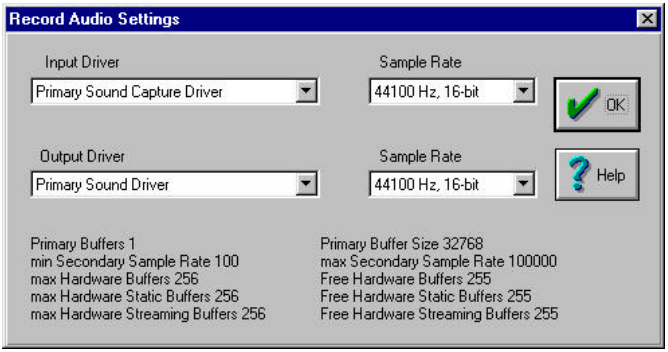
Controller Values

This section contains the initial and current volume and pan values for the track. The initial values are set in the recessed boxes by double clicking and typing in a valueor by scrolling the values up and down using the right and left mouse buttons. The current values can be altered by turning the pot. If you want to automate these changes, right click to turn the pot red. This arms the pot, and while playing turn the pot as required. When you press stop it will remember the changes and replace any movements that were previously at this location. This can be undone by selecting the undo button on the main toolbar.

Recording Audio Track(s)

To create an audio track, select “New Audio Track” from the Track menu. This will create an extra track in the Global Editor with Mono record mode. If you wish to record a stereo recording, create a second track in the same manner, and set the record modesto Left and Right respectively. Use the standard Windows volume controls to select the input and to set the record levels for the microphone and / or line inputs.

To set the audio record and play settings to the correct values, open the Audio Preferences window from the Preferences | Audio menu. Set the sample rates for the input and output drivers to the desired values for recording and playback.



Then place the track(s) into record mode by right clicking in the status column and selecting “Record”.

Then set the cue on the transport bar to 0 and press the record button so that it turns yellow. Press play on the transport bar and start recording. When you press stop it will take a short while to draw the wave forms.

To record additional “takes” on an audio track, select “New Audio Vtrack” from the Track menu. This will create a second virtual track on the same audio track. Obviously once this has been selected the first virtual track will not play until reselected from the active track panel. Record this virtual track in the same manner as described above. You can flip between virtual tracks to decide which take you prefer. You can even “cut and paste” between takes to select different sections of each.

Import and Export Audio Files

You can import an audio file into the song by selecting this option from the File menu. This will open a window from which you can select an audio file to import. If the file is a mono file, a single audio track will be created, while if the audio file is a stereo file, two audio tracks will be created and the two new mono audio files will be created from the single stereo file. This allows you to edit the left and right channels independently as well as together as you desire.

To export an audio file you must have one or two audio tracks highlighted in the track details area. If one track is

highlighted only, a mono .wav file is created, while if two are highlighted a stereo .wav file is created. This new file reflects the editing that has been performed on it within this editor.

Track Details Area

Track	S	L	Ch	Output Driver	Voice Map	Bnk	Vce	Ctrl 1	Ctrl 2	Ctrl 3	Ctrl 4	Tpos	Dly	Vel	Filters
Track 1	●		1	Sound Blaster MID	genmidi		68	Vol/121	Pan/48	Rvb/80	Chr/0	0	0		
Track 2	●		2	Sound Blaster MID	genmidi		67	Vol/108	Pan/64	Rvb/80	Chr/0	0	0		
Track 3	●		3	Sound Blaster MID	genmidi		40	Vol/100	Pan/64	Rvb/0	Chr/0	0	0		
Track 4	●		4	Sound Blaster MID	genmidi		26	Vol/122	Pan/64	Rvb/59	Chr/29	0	0		

To the right of the Active Track Details Area, is the Track Details Area. This section displays information for each track in the song. You can click and drag the border between this area and the edit grid area to see more information, and scroll the area horizontally using the arrow boxes at the bottom left and right of the area. You can also click and drag the track names vertically to change the track order in this editor.

The Track Details Area displays all of the information available in the Active Track details area except that you can see all tracks at once. (Note if there are more tracks in the song than can fit in the editor window, a vertical scroll bar will appear at the right of the window.) Additionally, there is a level meter for each channel that responds to velocity information in the MIDI being played. The various sections from left to right are detailed below. Note that these are basically the same as in the Active Track Details Area.

Note - the Track details area is mainly there to provide information about MIDI tracks. Therefore this section will be mostly empty for audio tracks.

Track Name

Shows the name of each track. You can change a track name in the Active Track Details Area.

Solo

Shows the solo status of the tracks. There are three modes -

- on - a solid dot
- mute - a hollow circle
- solo - the letter “S”

To mute or unmute a track, make it the active track (use Up **Arrow** or **Down Arrow** or click on the track anywhere in the Track Details Area). Then click on the track in the solo column and it will change from muted to unmuted or visa versa.

Level

This column contains a level meter for each track. Level is displayed in green during playback. The level meters respond to velocity information in the track’s MIDI data.

Output

Shows the Windows driver that MIDI data on each track will be sent to. If you want to change the driver, do so in the Active Track Details Area.

Channel

This shows the MIDI channel that data for each track will be sent out on. Click with the left mouse button to decrease the channel number or the right button to increase it. If the channel is set to “blank”, the MIDI data will be sent out on the same MIDI channel it was originally recorded on.

Voice Map

Shows the type of sound module the track is connected to. Use the Active Track Details Area to change this entry.

Bank and Voice

Once you have selected the correct voice map, you must also select the bank and voice numbers to get the right sound from the sound module. Click with the left and right mouse buttons to decrease and increase the values. If you are playing the track as you scroll through the voices, you can hear the sounds changing.

Note - it is preferable to select the voice and bank from the Voice Name dialog (click on the Voice Name box in the Active Track Details Area) as you can then see the name of each voice.

Controllers

Volume - Pan - Reverb - Chorus

These boxes allow you to set four common MIDI controllers for the track. Each Time you start playing the song these controller commands will be sent to the sound module, if chase events is ticked in the Sequencer Preferences dialog.

To set or change a value, click with the left or right mouse button to decrease and increase the value respectively. If you hold down the button the numbers will scroll automatically.

Transpose

This allows you to transpose notes as they are sent out to the sound module. The value shown here indicates how many notes up or down the track will be transposed. Click with the left mouse button to decrease or the right mouse button to increase the value.

Delay

This allows you to advance or retard the track relative to other tracks. The value is in clocks. A negative value means that the track will be ahead of other tracks.

Setting the delay value is done in the same way as with the controller and transposition boxes above.

Velocity

If you wish to change the velocity output, do so in the Active Track Details area. This allows you to modify the note velocities as the song is played. You can choose from -

- change gain - boost or attenuate all notes on the track
- compression - reduce the dynamic range
- limiting - reduce the loudness of the loudest notes
- expansion - increase the dynamic range

There is a button marked [Fix To Track]. If you like the effect you have created on the track, selecting Fix to Track will modify all the note velocities in the track permanently.

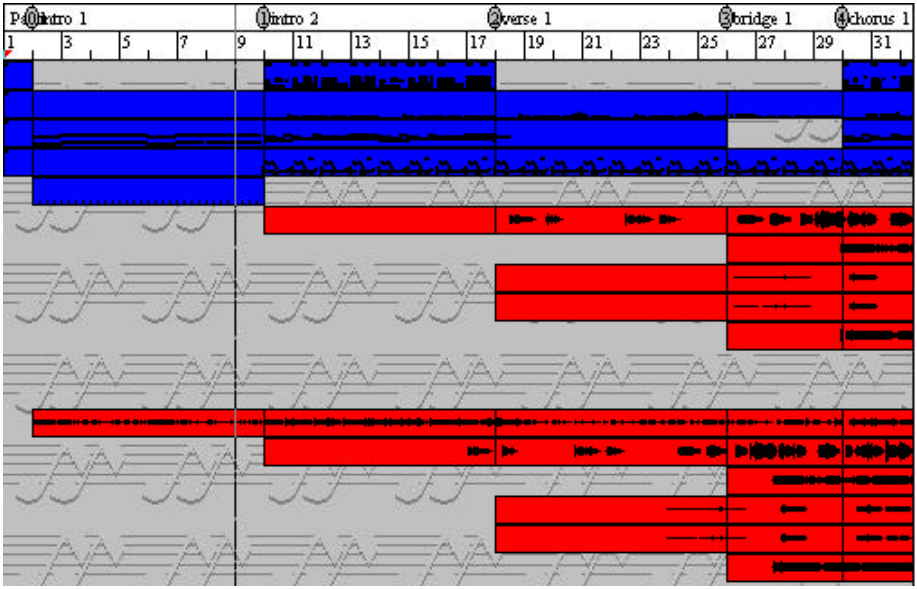
MIDI Out Filters

Shows which MIDI controllers have been filtered from the MIDI output for each track (selection is done in the Active Track Details Area).

- **N** Note On / Off
- **K** Key Pressure
- **C** Controllers - up to four can be selected numerically at the bottom of the window
- **V** Voice change
- **A** After Touch
- **P** Pitch Bend
- **X** System Exclusive

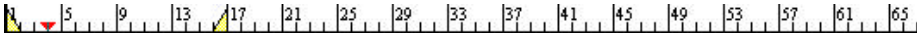
Click on the box and a window will appear. In this window you can select the desired controllers to be filtered. Click the check boxes next to the desired controllers or use the left and right mouse buttons to scroll through controller numbers in the boxes at the bottom of the window. Note to enable filtering of these controllers, you must **not** have a tick in the box marked [Controllers], or all controllers will be filtered out.

Edit Grid Area



At the right of the Global Editor is the Edit Grid. Here you can see the MIDI data on the tracks, as well as the Song Position Ruler and the Locators and Parts areas at the top.

Song Position Ruler



The song position ruler is divided into measures (i.e. bars). You can zoom in (magnify the data) by clicking on the zoom buttons or pressing **Shift Z** or **Alt Z**. On the song position ruler is a red triangle. This is the current song position. When you play the song, the triangle will move, and the edit grid will be updated each time the pointer reaches the edge of the window. You can locate and play directly by double clciking at the desired point.

Locators and Parts

Just above the Song Position Ruler is the Locators and Parts ribbon. It is shaded in blue. Locators are a quick

way to move through your song, while parts are used for editing in the Global Editor.

Locators

In the locators and parts ribbon, the locators are shown as yellow ovals with a number inside them. The locators are numbered from 1 to 9 and 0. When you load the default song, they will be spaced evenly over the first 72 measures (unless you have changed them in the default song).

You can move the locators by clicking on them with the left mouse button and dragging them to the desired position. (Note that the step value will cause the locator to "snap" to the chosen steps). Each locator can also be set by pressing Ctrl 0 - 9 and that locator will be set to the current song position.

When playing the song you can press a number on the keyboard and the song will jump to that location and continue playing. It will do this immediately unless you have enabled Delay Locator in the Sequencer Preferences dialog. When this is the case, the sequencer will jump to that location only when the currently playing section is complete. Additionally the start and end of the song can be located with the **Home** and **End** keys.

Parts

Global Parts are defined on the locators and parts ribbon. By clicking with the right mouse button in this area, you will insert a part boundary. These appear as vertical black lines. You can drag these lines with the left mouse button to adjust the position.

Parts are used for editing. You can define Global Parts as shown above, which apply to all tracks, and you can define track parts in the same manner by clicking at the desired position on a track. See the section below on editing for more information.

If you drag a part over another part boundary, the one "underneath" will be erased if the Preferences are set

to Replace Mode. In Overdub Mode, the two sets of data would be combined. To delete a part boundary, move the cursor over it until the cursor changes to a special part boundary shape. Now drag the part boundary onto an adjacent boundary or to the edge of the song and release.

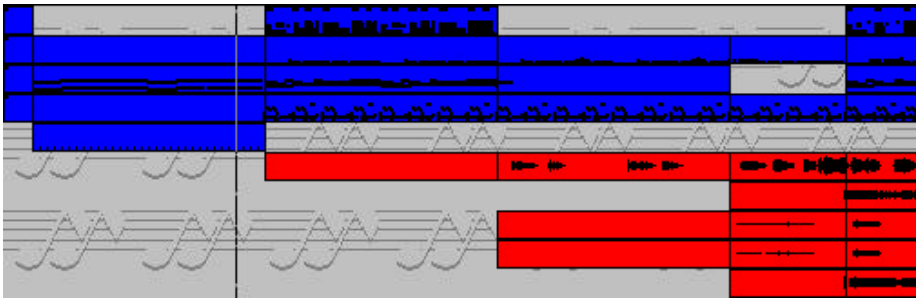
You can name Global Parts. Simply double click on the part in the locators and parts ribbon, and a window will appear into which you can type the part names.

Track Parts work similarly, but you click on the track data area to set them, drag them and delete them. They apply to that track only. You can also name track parts by double clicking with the left mouse button. These names will only appear if Hide Track Part Names is deticked in Editor Preferences.

All editing in the Global Editor is done either on whole tracks, or on parts. Before you can edit the section you are interested in, you must first define it as a part. You may do this at the global level if you have only one track (or if the section and editing apply to all tracks). Otherwise, do this on the track itself.

Clicking with the left mouse button inside a part will highlight it ready for editing. On the Global Part bar, the same section in all tracks will be highlighted. Clicking on a track will highlight the track part only. Hold down the Shift key and click on other parts to include them in the edit. Hold down the Shift key and click on highlighted parts to remove them from the list to be edited. The parts do not have to be in the same bars as each other.

Edit Grid



The main part of the Global Editor is the edit grid, located at the right of the window. Here is displayed the MIDI and audio data for the tracks in the song. There is a horizontal row for each track, starting near the top of the window. If there are too many tracks to fit in the window, a vertical scroll bar will appear at the right of the window.

Each track shows the presence of data by dark boxes. The vertical position of the shaded boxes indicates the pitch, while the width is directly proportional to the length of the event. Note On / Note Off pairs are shown as a single event for clarity.

Editing

Editing in the Global Editor is different from all other editors. In other editors you can freely select a note or group of notes. In the Global Editor, selection is done using Parts. As mentioned above, there are Global Parts covering all tracks, and Track Parts specific to one track. The Global Editor is structured in this way to allow you to quickly build up a song using Parts.

For example, you may record a few bars and define them as a part named “verse”, then record a section and name it “chorus”. Then by copying the parts you can build up a song with three verses and three choruses in just a few seconds. Once this is done, you can add musical embellishments to individual parts.

Note - if you are proficient with musical notation, you can achieve a similar result with song structure elements in the Notation Editor. The program allows you to work in the way most convenient to you.

Selecting and Editing Parts

To select a Global Part, click with the left mouse button in the locators and parts ribbon at the top of the global editor. The part will be highlighted on all the tracks. You can then move, delete or copy the part (see below).

To select a Track Part, click on it with the left mouse button. If you want to select more than one part, hold down the shift key while clicking on the parts. Clicking on a selected part while holding down the shift key will de-select it.

Naming Parts

Once you have defined a Part (by right clicking at the desired start and end positions), you can name it by double clicking in it and typing a name into the window that appears. Press Enter to store the name.

Standard Editing - Copy, Cut, Paste and Move

Once you have selected a part or parts, you can use the software's Clipboard to copy, cut or paste the MIDI data. Note that the parts do not have to be at the same position in the song. The program will retain the relative positions of the parts when you move, copy or paste them. Also if you make a big mistake, you can use the Undo feature to reverse your mistake.

Copying Parts

(keyboard shortcut **Ctrl C**) will place a copy of the selected part or parts into the clipboard. At this stage the song is unaffected.

Cutting Parts

(keyboard shortcut **Ctrl X**) This will delete them from the song and place them into the clipboard. You will see blank spaces replace the MIDI data.

Pasting Parts

This will place the contents of the clipboard onto the song. When you select the paste button (or use the keyboard shortcut **Ctrl V**) the cursor will show where the start of the clipboard contents will be placed. Setting the step value to a value of BAR will usually be of assistance in getting the data placed where you want it.

What happens to your MIDI data when you paste depends on whether the program is in overdub or replace mode. In replace mode, the MIDI data "underneath" what you pasted will be lost i.e. the pasted notes are all that you will hear at that point. In overdub mode, the pasted data will be combined with the data already on the track or tracks you pasted to.

Moving parts is as simple as clicking and dragging them to a new position. You could move a part to a different point on the same track or to a different track. Again, setting the Step value to, say, BAR will help you to accurately position the part. Also, when moving parts, the same rules described above regarding overdub and replace modes apply.

Holding down the **Ctrl** key during this operation will copy rather than moving a part.

Quantizing (MIDI tracks only)

Quantizing is the process of adjusting the timing of notes - to "tidy up" less than perfect playing, or to give the composition a certain "feel".

The procedures for quantizing are described in the chapter Special Editing Functions.

Transposing (MIDI tracks only)

Transposing is the process of changing the pitch of all the notes on a track up or down by a set number of semitones.

To perform a transposition, select the part or parts to be transposed (hold down the **Shift** key when clicking to select more than one part), then click on the transpose button on the main tool bar (or use the keyboard shortcut **Alt O**). A window will open prompting you for the number of semitones the selection is to be transposed. Click with the left mouse button to decrease or the right mouse button to increase the value, then click on the [OK] button and the transposition will be performed. If you don't like the change you just made, you can undo it using the Undo button on the main toolbar.

Note - don't transpose a drum track as each note represents a particular instrument in the drum kit. Transposing will drastically alter the sound !

Merging Tracks (MIDI tracks only)

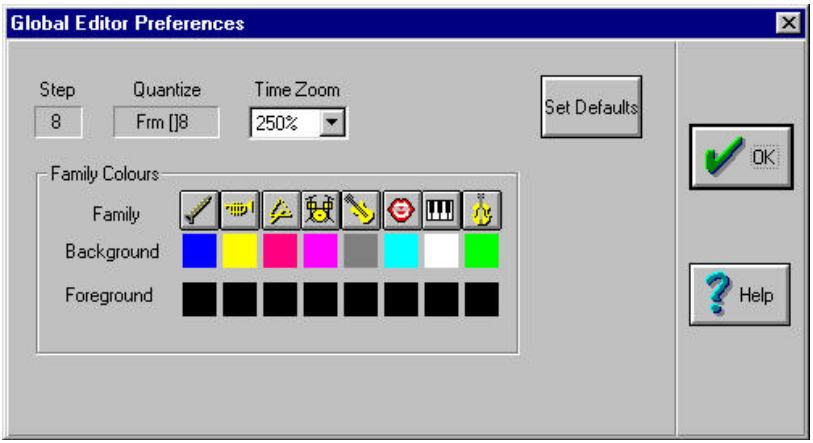
You can also merge tracks or parts of tracks. This can be useful as you may wish to initially work on a polyphonic part on two tracks then merge them after editing, or you may wish to merge drum instruments that have been recorded on separate tracks.

To perform a merge, select tracks or parts to be merged by clicking on them with the left mouse button (hold down the **Shift** key for multiple selections). Then click on the merge button on the main tool bar (or use the keyboard shortcut **Alt M**). The selections will be merged

and placed on the Clipboard. From there you can place the merged data onto a new track or back over an existing one.

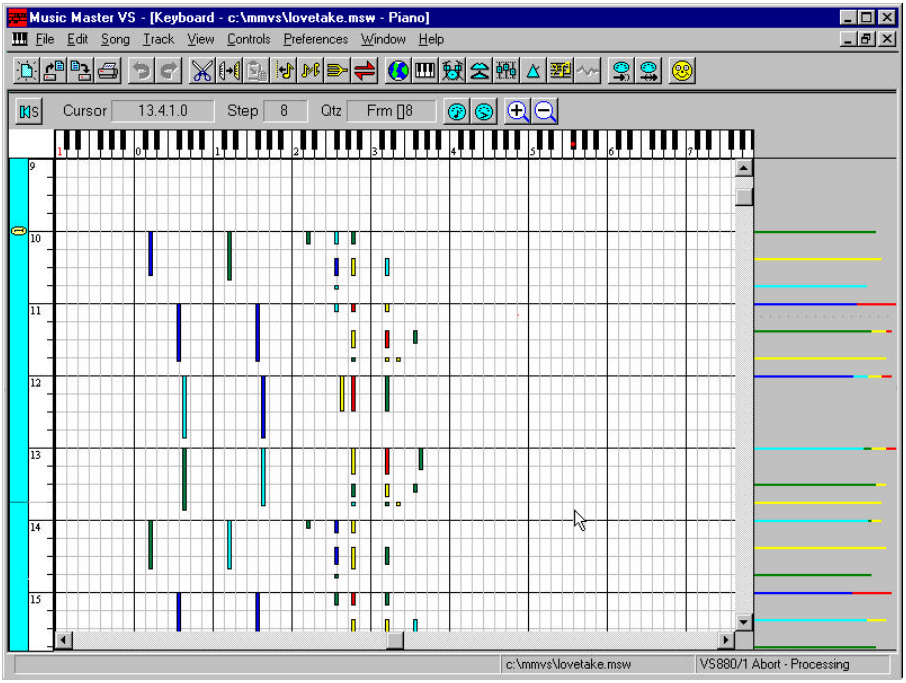
Remember that when pasting MIDI data from the clipboard over data on a track that the existing data will be replaced if the program is in replace mode. Otherwise the clipboard data will be merged with the data on the track if the program is in Overdub mode. Overdub and Replace mode are selected on the Transport Bar (press **F3** if it is hidden).

Global Editor Preferences



You can set a number of preferences, or defaults for the Global Editor. This is available in the menu Preferences | Editors | Global.

Keyboard Editor



The Keyboard Editor presents your MIDI data in a piano roll fashion. Notes are represented as rectangles down the screen. To the right of the editor is displayed the note velocities of all the notes, lined up with the edit grid.

Entering the Keyboard Editor

To enter the keyboard editor, first select the track or tracks you wish to edit. Do this by clicking on the track name in the global editor with the left mouse button. To select more than one track, hold down the **Shift** key while clicking on the tracks. Then click on the keyboard editor button on the main toolbar, or use the keyboard shortcut **Ctrl K**.

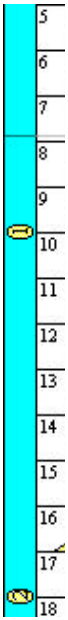
The Keyboard editor allocates one editor window per track. If you have selected several tracks, they will be cascaded one above the other.

As with most editors, this application allows you to zoom in and out i.e.. to expand and contract the display of the MIDI data. Zoom in by using the keyboard shortcut **Shift Z**, and zoom out by using the command **Alt Z**. This will affect only the editor window which is currently active.

In the data area, the notes are displayed in different colors. This is determined by each note's velocity. The color ranges can be set for each family in the Song Notation Interpretations dialog.

To the right of the edit grid, you can see the Note Velocity display. Here the velocity of each note is shown and you can edit the values individually or over a group of notes.

Moving Around the Editor



Song Position Ruler

The song position ruler is divided into measures (i.e.. bars). Zoom in (magnify the data) by pressing **Shift Z**, or zoom out by pressing **Alt Z**. On the song position ruler is a red triangle, which indicates the current song position. When you play the song, the triangle will move, and the edit grid will be updated each Time the pointer reaches the edge of the window.

Note you can directly locate and play from any position by double clicking at the desired position on the Song Position Ruler.

Locators and Parts

To the left of the Song Position Ruler is the Locators and Parts ribbon. Locators are a quick way to move through your song, while parts are helpful for editing.

Locators

In the locators ribbon (shaded in blue), the locators are shown as yellow ovals with a number inside them. The locators are numbered from 1 to 9 and 0. When you load the default song, they will be spaced evenly over the

first 72 measures (unless you have changed them in the default song).

You can move them by clicking on them with the left mouse button and dragging them to the desired position. (Note that the step value will cause the locator to "snap" to the chosen steps). Each locator can also be set by pressing Ctrl 0 - 9 and that locator will be set to the current song position.

When playing the song you can press a number on the keyboard and the program will jump to that location and continue playing. It will do this immediately unless you have enabled Delay Locator in the Sequencer Preferences dialog. When this is the case, the sequencer will jump to that location only when the currently playing section is complete. Additionally the start and end of the song can be located with the **Home** and **End** keys.

Parts

Parts are a convenient way to divide your song into sections which you can easily move or copy. To move a part in the Keyboard Editor, simply click and drag with the mouse cursor in the Locators and Parts ribbon.

Selecting and Editing Notes

As already mentioned, the keyboard editor represents notes as rectangles, with their size showing the note length and their color representing the note velocity.

To **select** a note for editing, simply click on it with the left mouse button. You will hear the note play as you select it if your sound module is turned on.

As you hold down the mouse button, the note's pitch, Note On velocity, Note Off velocity and length are displayed at the bottom right of the window.

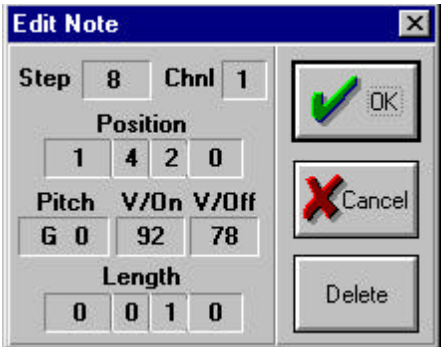
If you want to **move** the note, simply drag it around the screen.

To graphically change a note's **length**, click and drag the end of the note. You may find it easier to zoom in first (Shift Z).

If you want to **modify** a note's length or velocity, double click on it and the Edit Note dialog will open, displaying all the available information for the note selected. You can change any parameter by clicking with the left mouse button to decrease the value or the right mouse button to increase it.

To **delete** a note, double click on it and the Edit Note dialog will open. Then click on the [Delete] button. The Edit Note dialog will automatically close and the note will be deleted.

Edit Note Window



The Edit Note dialog gives you information about the note you have selected. This includes the step value currently selected, the MIDI channel for the note, its start position (in measures, beats, steps and clocks), pitch, initial and final velocities (in values from 0 to 127), and note length (in measures, beats, steps and clocks).

You can numerically edit the various parameters. When you move the mouse cursor over an editable area, the cursor changes to a double-headed arrow. Click with the left mouse button to decrease the value or the right mouse button to increase it. If you hold down the button, the numbers will scroll automatically. Alternatively, you can double click on the number, then type in the new value, followed by **Enter**.

Selecting Groups of Notes

To select a group of notes, click and drag in the grid area to create a box enclosing the notes you wish to select using the left mouse button. Simply click on the point where the notes begin that you want to edit, then drag the mouse down the screen to create a box enclosing the desired notes. When you release the mouse button, the program will invert the rectangle selected based on the current step to show you the area selected.

You can also click with the left mouse button in the parts ribbon to select a part and the program will invert that part across the whole pitch range.

If you want to select only notes of a certain pitch range, hold down the **Ctrl** key while clicking and dragging. You will then be able to open a box of any desired size and proportion.

Once you have selected notes in this way, use the standard editing functions of copy, cut and paste to move your data around. You can also perform the quantize and transpose functions on the events selected.

Inserting Notes

Using the philosophy as set out in Editing Basics, to insert a note use the right mouse button. Click at the desired pitch and position and drag for the length of the desired note. Remember that the step set in the editor toolbar will affect your starting position and the length of the note.

Note Velocities: As you insert notes with the mouse, you can set their velocities with the Ctrl and Shift keys. Ctrl will set the velocity to Sostenuto. Shift will set it to Emphasize and Ctrl + Shift will set it to "Hat". Each velocity value is determined in the Song Notation Interpretations window.

Copying, Cutting and Pasting Notes

Copying, cutting and pasting in the Keyboard Editor is done in a similar way to these functions in most Windows applications. Firstly, select the range of notes

to be edited by clicking and dragging as described above. Then select Copy or Cut as appropriate.

You can select these functions from the main toolbar, from the Edit pull down menu, or by their keyboard shortcuts -

- **Ctrl C** for Copy
- **Ctrl X** for Cut.

In each case, a copy of the selected notes will be placed in the Clipboard. To paste MIDI data from the Clipboard, select the Paste function from the main Toolbar, the Edit pull down menu or by its keyboard shortcut **Ctrl V**. Then move the cursor to the area into which you want to paste.

Note that the cursor represents the top left corner of the rectangle of notes held in the Clipboard. At the correct place, click the left mouse button and the MIDI data will be pasted. Note that when pasting, the Step value can either be a help or a hindrance depending on its settings, so remember it will affect the way you can place the data.

Quantizing

To quantize a range of notes in the keyboard editor, first select the type of quantize to be performed. Open the Quantize window by clicking in the box marked Qtz. Select the type of quantize you want to do - for a full explanation of the various quantizing options, see the chapter Special Editing Functions.

Once you have selected the quantize type, select the range of notes to be quantized by clicking and dragging as mentioned above. Then select Quantize from the Edit pull down menu or from the main toolbar (or use the keyboard shortcut **Alt Q**), and the notes inside the edit box will be quantized.

Transposing

Select the range of notes to be transposed by clicking and dragging as described above, then select Transpose from the Edit pull down menu, the main toolbar or the keyboard shortcut **Alt O**. The Transpose window will open and here you must select the number of semitones up or down for the transposition. Click on [OK] and the transposition will be performed. If you make a mistake, click on the Undo button on the main Toolbar.

Editing Note Velocities

To the right of the Keyboard Editor is displayed the note velocities of all the notes in the track. You can change the velocity of an individual note or the velocity of a group of notes. This is a convenient alternative to double clicking on the note in the edit grid and changing the velocity numerically.

Changing the velocity of one note

To change the velocity of a single note, simply right click and drag across the desired note at the desired velocity.

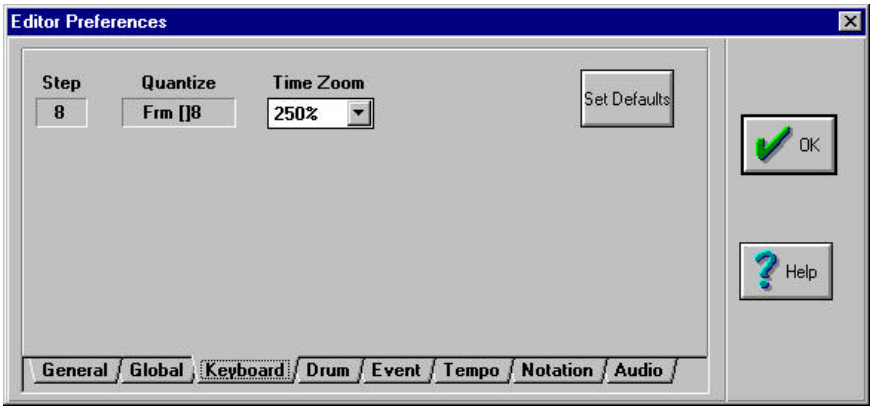
Changing the velocity of several notes

You can click and drag with the RIGHT mouse button over a range of notes in the velocity area, and the notes will change to the new values.

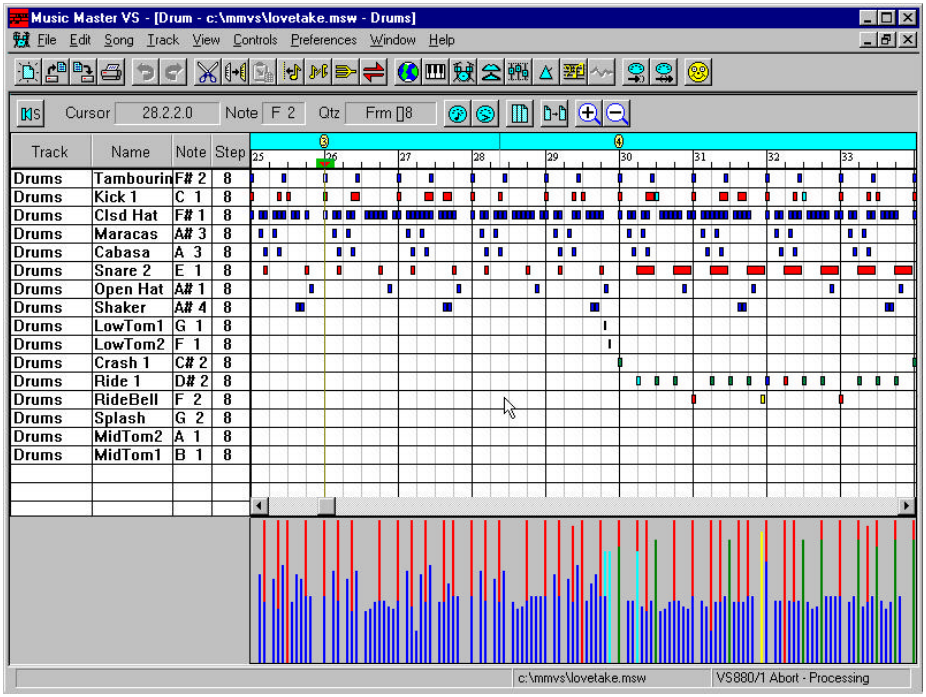
If you hold down the **Shift** key while doing this, you will get a straight line. Note also that you can drag beyond the currently displayed bars - the screen will “move” in the appropriate direction.

Keyboard Editor Preferences

You can set a number of preferences, or defaults for the keyboard editor. This is available in the menu Preferences | Editors | Keyboard.



Drum Editor



The Drum Editor is a special grid editor with features to make editing drum tracks easy. The program lists the sounds used down the screen and uses the Drum Kit you have loaded to determine the name of the sound. Your drums can be on one or several tracks, and the drum editor will handle it just the same.

Note: Don't take tracks other than a drum track into the Drum Editor as the program will apply the drum map to the notes in the track. The result will be that the Drum Editor will show lots of strange drum sounds that you aren't using!

Using the Drum Editor

To enter the Drum Editor, select the track or tracks that contain the song's drum sounds. To select more than one track, hold down the Shift key while clicking on the

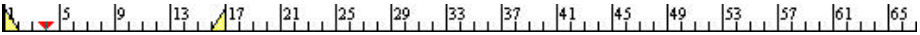
track names in the Global Editor; then click on the Drum Editor button on the main toolbar or use the keyboard shortcut **Ctrl D**, and the Drum Editor will open.

At the left of the Drum Editor is a list of all the different drum sounds. Each note number found will be placed on the track(s) selected, and the program looks up their name in the Drum Kit you have selected. (See the following section on using and selecting Drum Kits.) If there are more sounds than can fit in the window, a vertical scroll bar will be placed at the right of the editor window.

Edit Grid Area

At the right of the Drum Editor is the Edit Grid. Here you can see the MIDI data on the track(s), as well as the Song Position Ruler and the Locators and Parts areas at the top.

Song Position Ruler



The song position ruler is divided into measures (i.e. bars). You can zoom in (magnify the data) by pressing **Shift Z** or zoom out by pressing **Alt Z**. On the song position ruler is a red triangle. This is the current song position. When you play the song, the triangle will move, and the edit grid will be updated each Time the pointer reaches the edge of the window.

You can directly locate and play from a position by double clicking at that point.

Locators and Parts

Just above the Song Position Ruler is the Locators and Parts ribbon, shaded in blue. Locators are a quick way to move through your song, while parts are used for editing in the Drum Editor.

Locators

In the locators and parts ribbon, the locators are shown as yellow ovals with a number inside them. The locators are numbered from 1 to 9 and 0. When you load the default song, they will be spaced evenly over the first 72 measures (unless you have changed them in the default song). You can move them by clicking on them with the left mouse button and dragging them to the desired position. (Note that the step value will cause the locator to "snap" to the chosen steps). Each locator can also be set by pressing Ctrl 0 - 9 and that locator will be set to the current song position.

When playing the song you can press a number on the keyboard and the program will jump to that location and continue playing. It will do this immediately unless you have enabled Delay Locator in the Sequencer Preferences dialog. When this is the case, the sequencer will jump to that location only when the currently playing section is complete. Additionally the start and end of the song can be located with the **Home** and **End** keys.

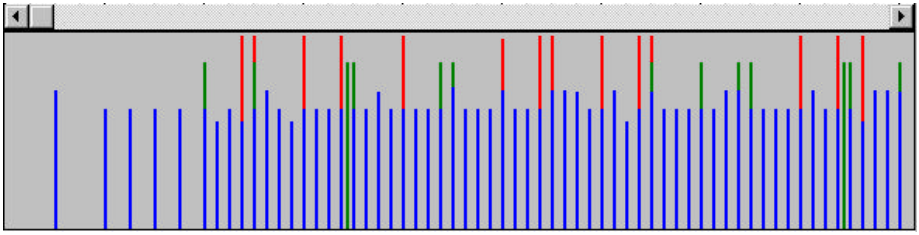
Parts

Track Parts are defined on the locators and parts ribbon. By clicking with the right mouse button in this area, you will insert a part boundary. These appear as vertical black lines. You can drag these lines with the left mouse button to adjust the position.

Parts are used for editing. You can define Track Parts as shown above.

If you drag a part over another part boundary, the one "underneath" will be erased if the Preferences are set to Replace Mode. In Overdub Mode, the two sets of data would be combined. To delete a part boundary, move the cursor over it until the cursor changes to a special part boundary shape. Now drag the part boundary onto an adjacent boundary or to the edge of the song and release.

Note Velocity Area



At the bottom of the Drum Editor is the Note Velocity display. Each drum note has its velocity shown here by a vertical line. You can see the colors vary for different velocities.

When you open the Drum Editor, the Velocity area shows all notes on the track(s). You can click on a single sound (or more than one by holding down Ctrl or Shift while clicking) and get the velocities of just the sound(s) you selected.

Changing the velocity of one note

To change the velocity of a single note, simply RIGHT click and drag across the note at the desired velocity. You will see the color change to reflect the new velocity. Alternatively, double click on the note and change values in the Edit Note window.

Changing the velocity of several notes

You can click and drag with the RIGHT mouse button over a range of notes in the velocity area, and the notes will change to the new values.

If you hold down the **Shift** key while doing this, you will get a straight line. Note also that you can drag beyond the currently displayed bars - the screen will scroll in the appropriate direction.

Selecting and Editing Notes

As already mentioned, the drum editor represents notes as rectangles, with their size showing the note length and their color representing the note velocity.

To select a note for editing, simply click on it with the left mouse button. You will hear the note play as you select it if your sound module is turned on.

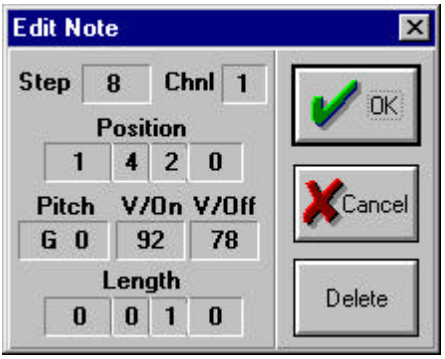
As you hold down the mouse button, the note's pitch, Note On velocity, Note Off velocity and length are displayed at the bottom left of the window.

If you want to move the note, simply drag it around the screen. As you change rows you will hear it sound the drum sound for that row.

If you want to change a note's length or velocity, double click on it and the Edit Note dialog will open, displaying all the available information for the note selected. You can change any parameter by clicking with the left mouse button to decrease the value or the right mouse button to increase it.

To delete a note, double click on it and the Edit Note dialog will open. Then click on the [Delete] button. The Edit Note dialog will automatically close and the note will be deleted.

Edit Note Window



The Edit Note dialog gives you information about the note you have selected. This includes the step value currently selected, the MIDI channel for the note, its start position (in measures, beats, steps and clocks),

pitch, initial and final velocities (in values from 0 to 127), and note length (in measures, beats, steps and clocks). You can numerically edit the various parameters. When you move the mouse cursor over an editable area, the cursor changes to a double-headed arrow. Click with the left mouse button to decrease the value or the right mouse button to increase it. If you hold down the button, the numbers will scroll automatically. Alternatively, you can double click on the number, then type in the new value, followed by **Enter**.

You can also change the Velocity On and Velocity Off for the note. The MIDI channel is alterable, but usually best not adjusted here. Likewise the pitch shown is the MIDI note number for the note's drum sound. If you change this, the note will have a different sound.

Selecting Groups of Notes

To select a group of notes, click and drag in the grid area to create a box enclosing the notes you wish to select using the left mouse button. Simply click on the point where the notes begin that you want to edit, then drag the mouse across the screen to create a box enclosing the desired notes. When you release the mouse button, the program will invert the rectangle selected based on the current step to show you the area selected.

You can also click with the left mouse button in the Parts ribbon to select a part, and that part will be highlighted across the whole editor.

If you want to select only notes of a certain pitch range, hold down the **Ctrl** key while clicking and dragging. You will then be able to open a box of any desired size and proportion. Yet another way is to double-click on the sounds in the Name column at left (hold down Ctrl or Shift to select more than one). This is particularly useful when you want to change one drum sound to another. Select just that row and then use the transpose function to make it the new drum sound, or cut and paste the notes to a different row.

Once you have selected notes in this way, use the standard editing functions of copy, cut and paste to move your data around. You can also perform the quantize and transpose functions on the events selected.

Inserting Notes

Using the philosophy as set out in Editing Basics, to insert a note use the right mouse button. Click on the desired drum sound (row) and position and drag for the length of the desired note. Remember that the step set in the desired drum sound toolbar will affect your starting position and the length of the note.

Note Velocities: As you insert notes with the mouse, you can set their velocities with the Ctrl and Shift keys. Ctrl will set the velocity to Sostenuto. Shift will set it to Emphasize and Ctrl + Shift will set it to "Hat". Each velocity value is determined in the Song Notation Interpretations window.

Copying, Cutting and Pasting Notes

Copying, cutting and pasting in the Drum Editor is done in a similar way to these functions in most Windows applications. Firstly, select the range of notes to be edited by clicking and dragging as described above. Then select Copy or Cut as appropriate. You can select these functions from the main toolbar, from the Edit pull down menu, or by their keyboard shortcuts

- **Ctrl C** for Copy
- **Ctrl X** for Cut.

In each case, a copy of the selected notes will be placed in the Clipboard.

To paste MIDI data from the Clipboard, select the Paste function from the main Toolbar, the Edit pull down menu or by its keyboard shortcut **Ctrl V**. Then move the cursor to the area into which you want to paste. Note that the cursor represents the top left corner of the rectangle of notes held in the Clipboard. At the correct place, click the left mouse button and the MIDI data will be pasted. Note that when pasting, the Step value can

either be a help or a hindrance depending on its settings, so remember it will affect the way you can place the data.

Quantizing

To quantize a range of notes in the drum editor, first select the type of quantize to be performed. Open the Quantize dialog by clicking in the box marked Qtz. The keyboard shortcut is **Ctrl Q**. Select the type of quantize you want to do - for a full explanation of the various quantizing options, see the chapter Special Editing Functions. Once you have selected the quantize type, select the range of notes to be quantized by clicking and dragging as mentioned above. Then select Quantize from the Edit pull down menu or from the main toolbar (or use the keyboard shortcut **Alt Q**), and the notes inside the edit box will be quantized.

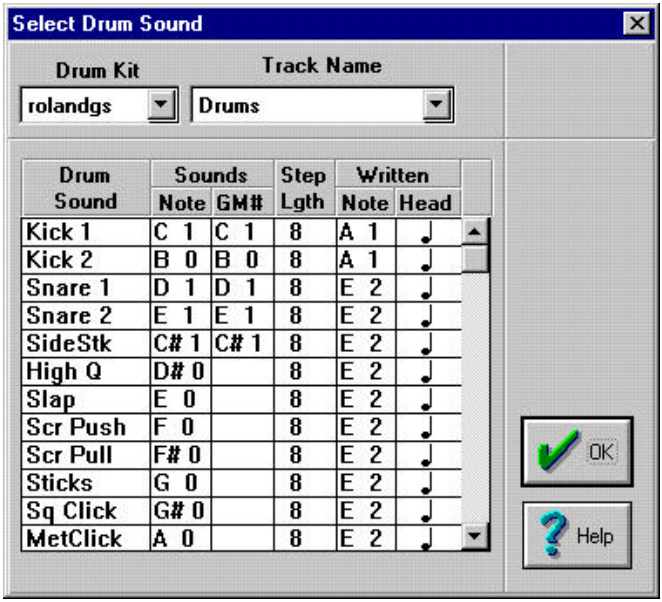
Transposing

Select the range of notes to be transposed by clicking and dragging as described above, then select Transpose from the Edit pull down menu, the main toolbar or the keyboard shortcut **Alt O**. The Transpose window will open and here you must select the number of semitones up or down for the transposition. Click on [OK] and the transposition will be performed. If you make a mistake, click on the Undo button on the main Toolbar.

Special Functions

The Drum Editor has two special buttons on its toolbar - Select New Drum Sound and Remap Drum Kit.

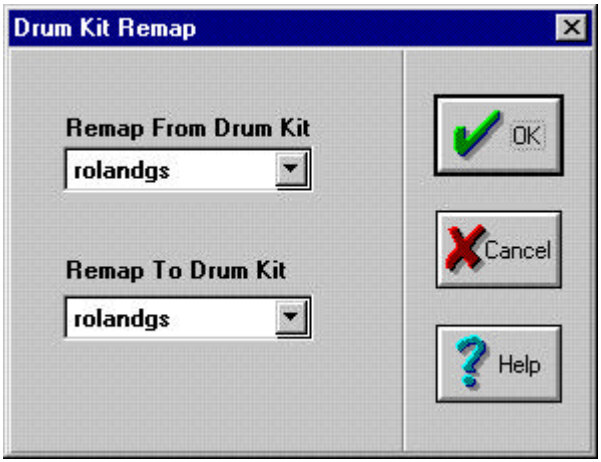
Select New Drum Sound



The Drum Editor displays all of the different sounds found on the track in a vertical column at the left of the window. If you want to insert a different sound in the Drum Editor, this button allows you to select it from the choices available in the drum kit you are using.

Clicking on the button opens the Select Drum Sound window. To add a sound to the list, just click on the ones you want and they will be immediately added to the list in the Drum Editor. When you have finished, click on [OK]. You can then insert sounds of the new type in the editor.

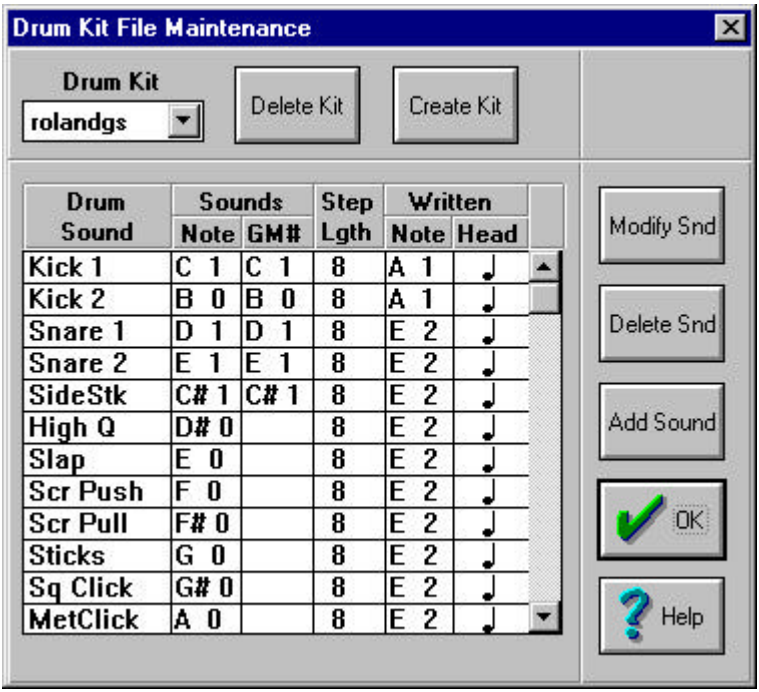
Remap Drum Kit



This button remaps the sounds in the kit selected to a new kit that you nominate. As different drum kits use different note numbers for the same sound, the program will change the note numbers to match the drum sounds as closely as possible. This function is used if you change your sound module, or if you are given a song that is set up to use a different type of drum module.

To remap, click on the button and the Drum Kit Remap window will open. At the top is a pull down list, which normally shows the drum kit currently being used. Underneath is a pull down list of the available drum kits. Click on the arrow button, scroll through the list, and click on the kit to which you want to remap. Finally, click on the [OK] button and the remap will be done.

Drum Kits



Most drum modules contain a number of sounds. This program gives you an easy way to select the appropriate drum sounds for your song. Most drum machines currently on the market are directly supported by this program in the form of drum kits, and you can create your own kit as well. As new models come onto the market, Datasonics makes drum kits for them available on its Internet site.

How Drum Kits Work

All drum modules contain a number of sounds e.g. kick, snare, crash cymbal etc. Each sound in the kit is activated by a particular MIDI note value. For example, a Roland GS drum kit will play a kick drum sound when sent a C1 note and a snare drum sound when sent a D1 note. This "mapping" of note values to sounds is what is used to make the drum kit.

Each type of drum module on the market has a different drum kit to others i.e. there is no universal standard. (Note that General MIDI, or GM, is becoming popular, but it is not supported by all manufacturers at this time). You are provided with a drum kit library which contains drum kits for most drum modules currently available.

A Drum Kit contains the following information for each sound available:

- Name of the sound e.g. Snare Drum.
- MIDI note number: This is the MIDI note that is sent to the drum module to trigger the sound.
- Step length This sets the length of the rectangle that represents the note in the various grid editors. Note this only affects the display of the note and not how it will sound. It also affects the length of the note in the Notation Editor.
- Written note value. This represents the pitch the note will appear as, in a drum score.
- Scored note head type. The note head type that will be displayed on a manuscript.

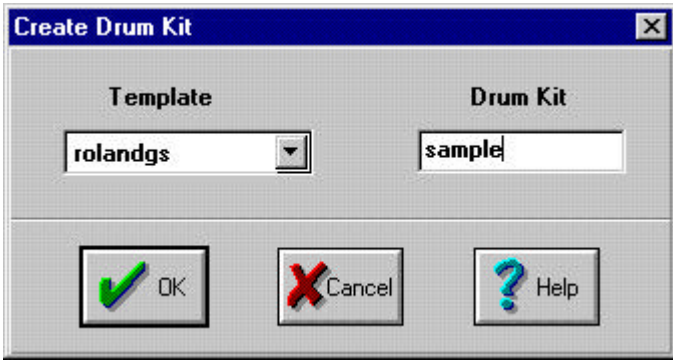
Selecting the Drum Kit

The program contains a Drum Kit Library. You can choose a drum kit for the song by opening the Drum Kit File Maintainance window from thePreferences menu or by its keyboard shortcut **Ctrl Y**. At the top left of the Drum Kit File Maintainance window is a pull down list of all the available Drum Kits. Click on the Up or Down scroll buttons to scan through the list, then click on the Drum Kit you want. The program then loads the Drum Kit. In the middle of the window you will see a scrollable list of all the sounds, or instruments, in the Drum Kit.

Deleting a Drum Kit

If you are certain you will never use a particular Drum Kit, you can delete it from the library. Simply select it from the list by highlighting it, then click on the [Delete Kit] button. When a window appears to confirm the deletion, click on the [OK] button. However, in most cases there is little point in deleting a Drum Kit. Each kit only take 2 or 3 kBytes of disk space, so you will save very little by deleting kits.

Creating a Drum Kit



You can create a new drum kit with the “Create Kit” option. Before doing so, first check on Datasonics’ Internet site whether the Drum Kit you want is available. As new drum modules become available, Datasonics creates drum kits and makes them available to you free, via the Internet. This can save you Time and effort because you don’t have to do it yourself.

To create a drum kit for a particular drum module, you will need to have available the information on the module that maps the MIDI note numbers to the sounds in the module. To create a drum kit, click on the [Create Kit] button in the Drum Kit window. A window will open, in which you can select a template on which to base the new kit.

Select a template kit of the same brand and a similar age if possible, as this will minimize editing of the individual instruments, or sounds, in the kit. Once you have selected the template, type in a name for the new kit in the space under "Drum Kit", then click on the [OK] button.

The new kit will then be created, and at this stage it is an identical copy of the template kit. Next you have to correct the sounds in the kit by adding, deleting and modifying the sounds.

Modifying a Drum Sound

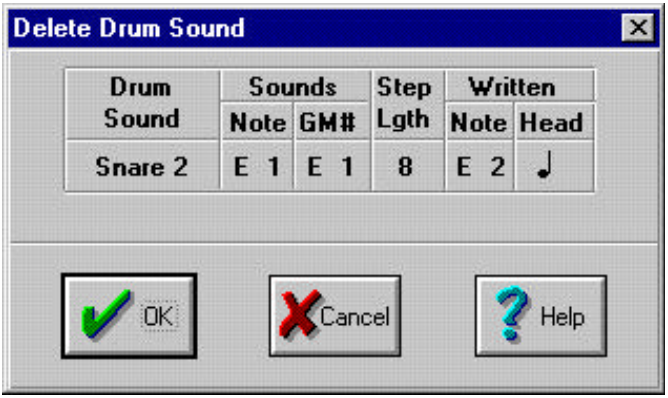
To modify a sound in the drum kit, click on the sound in the list (use the up and down scroll buttons to move through the list), and the sound will be highlighted. Then click on the [Modify Sound] button and a window

will open in which you can edit information regarding that sound.

To change the name of the sound, click the mouse in the box displaying the name, then edit by typing the new name. To change the MIDI note value for the sound, the General MIDI note value or the Written note value, move the cursor over the value, thus changing the cursor to a double arrow. Then click with the left mouse button to decrease the value or with the right button to increase it.

The manuscript note head and Step value (which determines the size of the note's rectangle in the grid editors) are selected by clicking on the appropriate diamond. Once you have finished editing the sound, click on the [OK] button to save the changes.

Deleting a Drum Sound



To delete a sound from the drum kit, highlight the sound in the list, then click on the [Delete Sound] button. A window will open confirming the deletion. Click on the [OK] button and the sound will be deleted from the drum kit.

Adding a Drum Sound

To add an extra sound to the drum kit, click on the [Add Sound] button, and a window will open allowing you to enter the details of the new sound. Type in a name for the new sound in the box under "Drum Sound Name", then select the MIDI note value, General MIDI note value and the Written note value by moving the cursor over the data boxes and clicking with the left or right mouse buttons to change the values. Finally select the manuscript note head type and step length (for display of the note in the grid editors) by clicking with the mouse on the appropriate diamonds.

Using more than one Drum Module simultaneously

For most MIDI setups, one Drum Kit is all that is required: however some users may have more than one drum module attached to the computer. The program can handle an unlimited number of drum modules. The only limit is the number of MIDI ports available, with a maximum of sixteen drum modules per MIDI port.

Each drum module on a MIDI port is assigned its own MIDI channel. You must program the drum module to receive on the same MIDI channel on which the program is sending. If the drum module has a fixed MIDI channel, adjust the program to send on that MIDI channel.

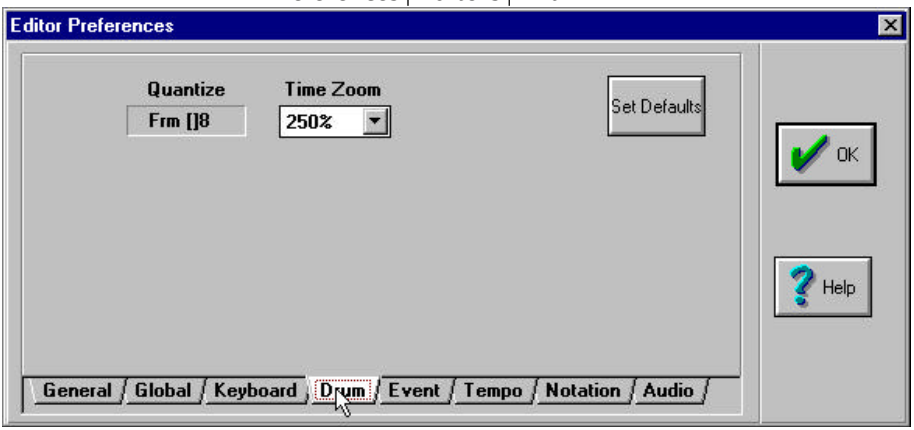
To set up multiple drum modules, open the Drum Kit Device Routing window. The default drum kit will be used when no specific drum kit has been specified for a MIDI port/channel combination. Click on the arrow

under “Default Drum Kit” and a list will appear. Scroll through this list and click on the drum module that you want to be the default.

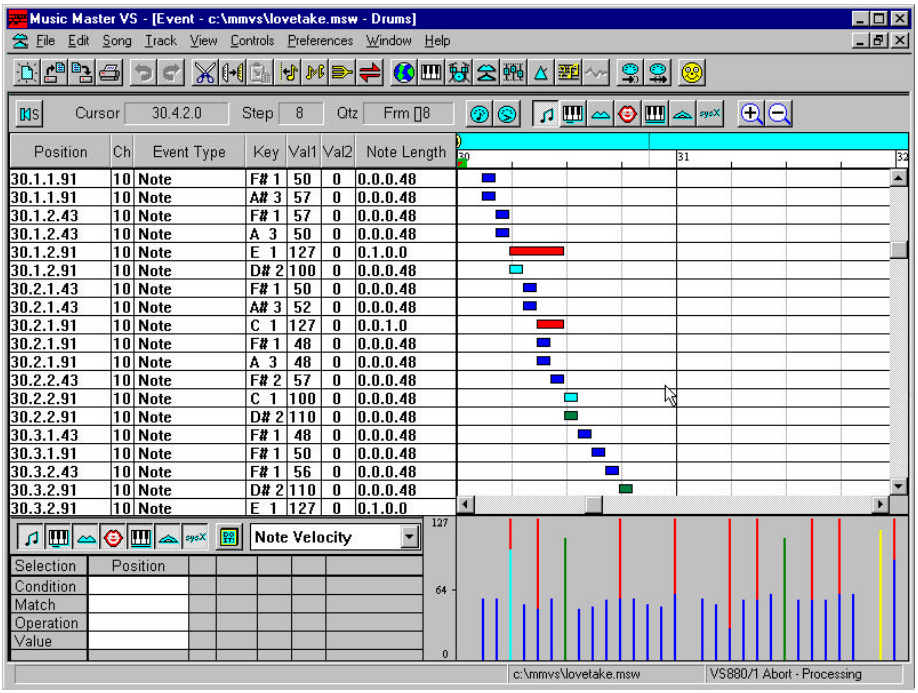
This window also allows you to assign a different drum module to each MIDI channel on a MIDI port. First select the MIDI port that your drum modules are connected to, by choosing it from the “Output Driver” list. Then select your drum module from the menu for each MIDI channel that there is a drum module connected to. Once you have finished, click on the [OK] button to save the settings. Note that these settings become part of the setup, so you don’t have to do them for each song.

Drum Editor Preferences

You can set a number of preferences, or defaults for the keyboard editor. This is available in the menu Preferences | Editors | Drum



Event Editor



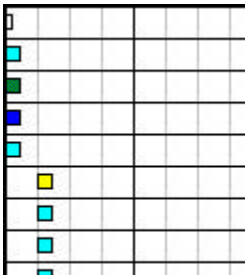
The Event Editor is similar to the other grid editors, with two exceptions. It can display and edit all types of MIDI events, not just notes; and the edit grid effectively displays Time (i.e. song position) on both axes.

Opening the Event Editor

To open the Event Editor, select the track you want to edit by clicking on it in the Global Editor. Then click on the Event Editor button on the main toolbar, or use the keyboard shortcut **Ctrl E.** As the Event Editor can only display one track, if you select more than one track, the program will open multiple instances of the Event Editor.

You can see that the Event Editor is divided into a number of sections, each of which is described below.

Edit Grid



In the Event Editor, the edit grid is laid out differently to the other grid editors. The Locators and Parts ribbon as well as the Song Position ribbon are at the top of the grid. The events in the track progress from left to right across the grid. Each event is separated vertically down the grid in such a way that they line up with the rows of event information at the left of the editor. This means that Time, or song position, is displayed both across and down the grid. Also it means that sometimes as you scroll through the track, it may appear that there is no information displayed on the grid.

Event Information Area

Position	Ch	Event Type	Key	Val1	Val2	Note Length
1.1.1.0	2	Voice Change		0		
1.1.1.0	1	Note	C 2	100	41	0.0.1.0
1.1.1.0	1	Note	E 3	106	65	0.0.1.0
1.1.1.0	1	Note	G 3	94	63	0.0.1.0
1.1.1.0	1	Note	B 2	99	43	0.0.1.0
1.2.1.0	1	Note	E 3	114	80	0.0.1.0
1.2.1.0	1	Note	G 3	100	62	0.0.1.0
1.2.1.0	1	Note	B 2	103	57	0.0.1.0
1.2.1.0	1	Note	C 2	103	52	0.0.1.0
1.3.2.0	1	Note	G 3	102	62	0.0.1.0

The event information area is at the left of the Event Editor. It displays from left to right the position (for notes, this is the start of the note), MIDI channel, event type, key (pitch), two event values (for notes, this is the Note On Velocity and Note Off Velocity) and note length. Note that what types of MIDI events are displayed here depends on what is selected for display in the Alter Area below. When you open the editor, it defaults to all event types displayed - from there you can turn off and on Notes, Key Pressure, Controller, Voice Change, After Touch, Pitch Bend and System Exclusive events.

Alter Area

In the Alter Area, you can mathematically alter your MIDI data. More detail is provided below.

Note: The buttons at the top of the Alter Area allow you to turn on and off display of the various types of events.

Controller Value Area

At the bottom right of the Event Editor is the Controller Value Area. Here you can view and modify controller values (as well as After Touch and Pitch Bend).

To the left of the Controller Value Area is a pull down list where you can select a controller to be displayed.

Changing the value of one event

To change the controller value of a single event, simply right click and drag across the event at desired controller value. You will see the color change to reflect the new value.

Changing the value of several events

You can click and drag with the RIGHT mouse button over a range of events in the value area, and they will change to the new values.

If you hold down the **Shift** key while doing this, you will get a straight line. Note also that you can drag beyond the currently displayed bars - the screen will “move” in the appropriate direction.

Editing Events

There are three ways to edit events in the Event Editor

- groups of event
- individual events
- alter function

Editing Groups of Events

To select a group of events, click and drag across the Edit Grid. When you release the mouse button, the selected area will darken. You can then use the standard editing functions of Copy (Ctrl C) and Cut (Ctrl X), then Paste (Ctrl V) to position the data elsewhere. If you only wanted to operate on a certain type of event e.g. Voice Change, you can hide the other types of event using the 6 buttons in the Alter Area below. Only the events you can see will be cut or copied.

Editing Individual Events

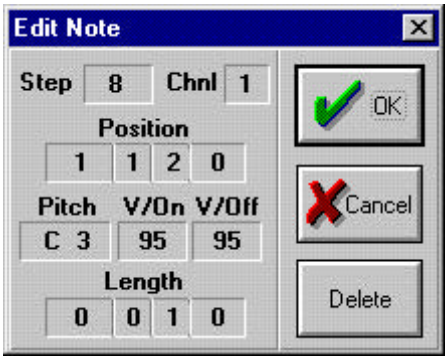
As in all of the editors, you can move an event by clicking and dragging it to the desired position. Note the placement will depend on the Step Value chosen. To modify an event, simply double click on it and an Edit Event window will open. In the window you can modify all the parameters appropriate to that type of event.

There are seven types of MIDI events you can edit -

- note
- key pressure
- controller
- voice change
- after touch
- pitch bend.
- system exclusive

To select an event for editing, double click on it with the left mouse button.

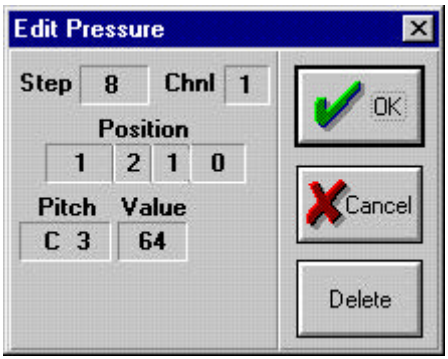
Note



Double click on a note event, and the Edit Note dialog will open. Here you can set the position, velocity and length of the note. These are affected by the step value, which defaults to the Step value for the editor that you are in.

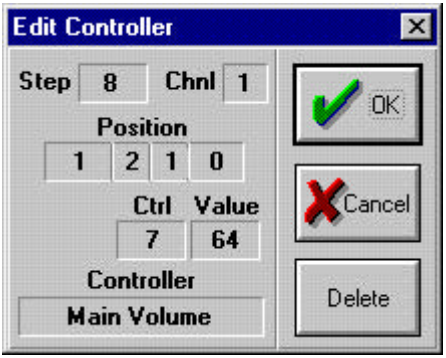
You can also set the note's pitch, velocity on and velocity off.

Key Pressure



To change the key pressure, double click on the event to open the Edit Pressure window. Here you can set the Step, MIDI Channel, Position, Pitch and Value of the event.

Controller

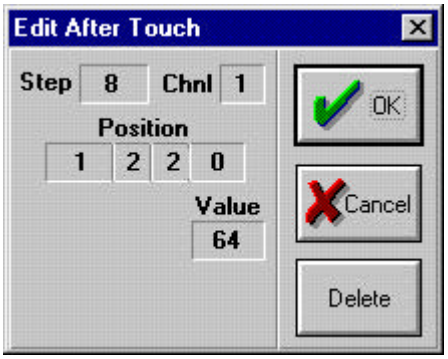


To edit a controller event, double click on it and the Edit Controller dialog will open. Here you can set the Step, MIDI Channel, Position, Controller Number and its value. At the bottom of the window is a box that tells you the function if the controller number has a standard use.

Voice Change

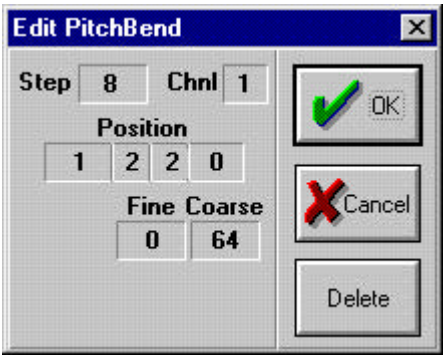
The Edit Voice Change dialog allows you to modify the Step, MIDI Channel, Position and Voice Number of the event. Remember that the voice change will be related to the sound module selected for the track you are editing.

After Touch



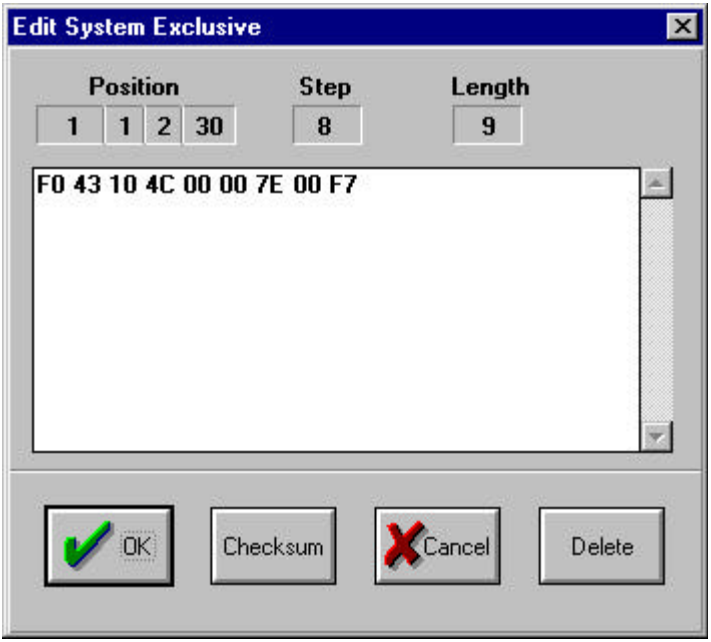
Double clicking on the event will open the Edit After Touch dialog. Here you can set the Step, MIDI Channel, Position and Value.

Pitch Bend



To edit a pitch bend event, double click on it and the Edit Pitch Bend dialog will appear. Here you can set the Step, MIDI Channel, Position and Fine and Coarse values. A good example of what can be done with Pitch Bend is the Lead Guitar track on the song Inflate.Mid.

System Exclusive



You can double click on a Sysex message and this will open a Sysex Edit dialog where you can edit the actual message. You should exercise extreme caution when editing this data. Each byte of information is shown as two hexadecimal characters and apart from the start and end characters can only be in the range 00 - 7F. The first character must be an F0 and the last character must be an F7.

You can record system exclusive messages from your MIDI devices in real Time. It is recommended that you should not be doing other real Time recording simultaneously as you may overload your MIDI input driver. These Sysex messages appear in the Event Editor as small transparent rectangles. You can click on these with the left mouse button and drag them to a new location in the same manner as all other events in the Event Editor.

Note the Ckecksum button - this will calculate the checksum of the Sysex message and overwrite the 2nd last pair of characters in the message with the calculated value.

If you are unsure of the editing procedure and protocol for Sysex messages you should not be editing this data as you may corrupt information in your MIDI device when you play the edited data back to it.

Alter Function

The Alter function is a powerful way of mathematically manipulating your MIDI data. For example you could add 10 to the note velocity and halve the note length of all notes on MIDI channel 6 between measure 3 and 22 in a single step (phew!)

To use the Alter function, firstly select the event type(s) you want to operate on by clicking on the Event Type buttons above. As you do so you will see the Edit Grid and Information areas above update. Then select the functions you want. As you move the mouse over the boxes in the Alter area, the cursor will change. Here you can click and select the function from a list or click with the left mouse button to decrease or the right mouse button to increase as appropriate.

Once you have set your formula (which can be quite complex), click on the [Do It!] button to make it happen. If you got it wrong, you can click on the Undo button (Alt Backspace).

Inserting Events

The Event Editor allows you to enter seven different types of MIDI events into the track. Click on one of the buttons on the Event Editor Toolbar-

- note
- key pressure
- controller
- voice change
- after touch
- pitch bend
- System Exclusive

Note

To insert a note, click on the Insert Note button on the Event Editor toolbar, then move the mouse cursor to the desired song position. The vertical position of the cursor is not important. The note may not appear directly under the cursor, but will be placed "in order" depending on the song position of nearby events. When you place a note, the default pitch is C3 and the default velocity on and off are determined by the non accented value for the current track's family as defined in the Song Notation Interpretations dialog. The length defaults to the step value. You can click and drag a note to multiples of the step value.

Note Velocities: As you insert notes with the mouse, you can set their velocities with the Ctrl and Shift keys. Ctrl will set the velocity to Sostenuto. Shift will set it to Emphasize and Ctrl + Shift will set it to "Hat". Each velocity value is determined in the Song Notation Interpretations window.

Key Pressure

As with inserting notes, click on the Key Pressure button on the toolbar, then move the mouse cursor to the desired position and click with the right mouse button at the desired song position. You will see a small rectangle appear. When you insert a key pressure event, it defaults to C3 for pitch and 64 for its pressure value.

Controller

With this function you can insert a controller of any type. Click on the Controllers button on the toolbar, then click with the right mouse button to place the controller at the desired place. When you insert a controller event, it defaults to Controller 7 (Main Volume) and a value of 64.

Voice Change

These can be inserted and edited in the same manner as described above. When you insert a voice change, it defaults to a value of 64.

After Touch

This event can be inserted in the same manner as other types. Click on the Aftertouch button, then click with the right mouse button at the desired position to insert it. When you insert an after touch event, it defaults to a value of 64.

Pitch Bend

To insert a Pitch Bend event, click on the button on the toolbar. Move the mouse cursor to the desired song position, click with the right mouse button, and the event will be inserted. When you insert a pitch bend event, it defaults to 64, 0, which are the coarse and fine values respectively. This is the centre position and equates to no pitch bend.

System Exclusive

You can create and insert System Exclusive events. When you insert the event, an “empty” Sysex will be placed at the chosen location. Double click on it to open the edit window. You can then enter the desired message. There is even a button to calculate and insert the checksum.

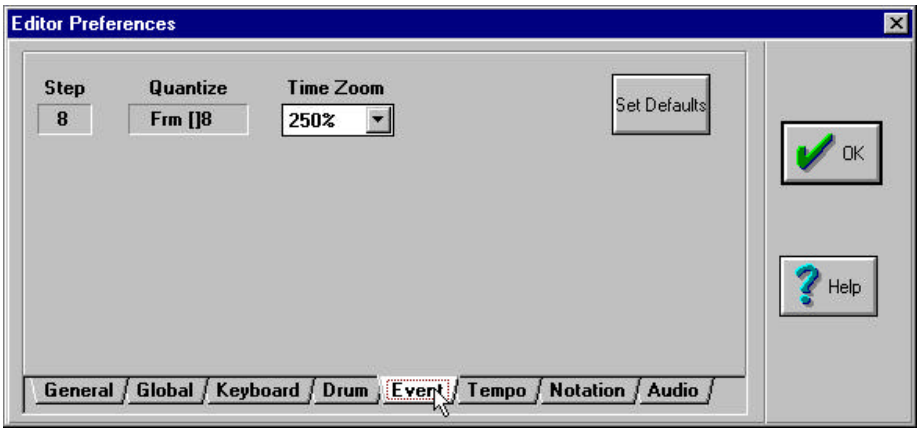
Filtering System Exclusive

You can filter System Exclusive information from the MIDI data stream at three locations — MIDI In, MIDI Thru and MIDI Out.

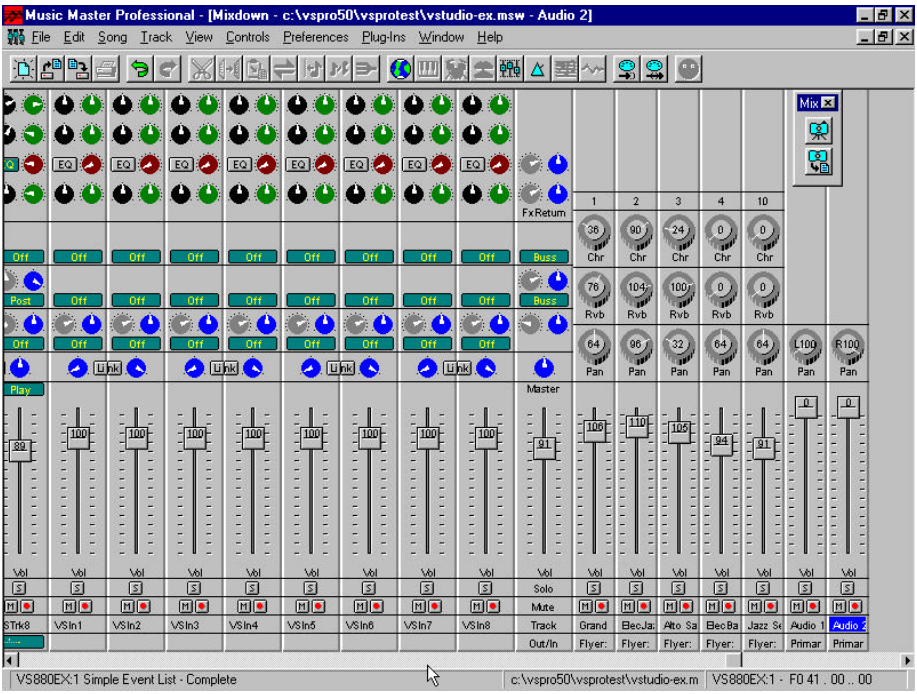
You can individually filter Sysex data at these points by clicking on the check box in the appropriate dialogs. The MIDI In Filter dialog is accessible from the Song menu, or by its keyboard shortcut **Ctrl F**, and the MIDI Thru Filter dialog is also accessible from the Song menu or its keyboard shortcut **Ctrl H**. The MIDI Out Filter dialog is accessible in the Track menu or by its keyboard shortcut **Shift F**. (Note there is a separate MIDI Out Filter dialog for each track in the song).

Event Editor Preferences

You can set a number of preferences, or defaults for the Event editor. This is available in the menu Preferences | Editors | Event.



Mixdown Editor



The Mixdown Editor gives you an easy means of controlling, in real time, the main parameters that determine the sound when combining or mixing song tracks. The Mixdown Editor is laid out like a standard analogue mixing console with one “channel strip” per MIDI track and VS track. Each MIDI track allows you to control Volume, Pan (left to right balance), Reverb and Chorus, plus a Master that controls all MIDI tracks together. One major advantage that it has over an analogue mixer is that every function is automated, so you can record movements of faders and knobs as a part of your song.

Features

- integration of VS tracks, audio tracks and MIDI tracks
- solo function seamless across all tracks
- full automation of every knob
- control over Effects insertion
- selection of buss assignment and EQ positioning

To enter the Mixdown Editor, click on its button on the main toolbar, or use the keyboard shortcut **Ctrl M**. It displays all of the tracks in the song.

Solo and Mute

You can use the Mixdown Editor to Solo and Mute channels. Both editors work the same way. To solo a track, click on the Solo button for the appropriate track. The Solo button will change color, and at the same time all the other tracks will mute. To turn off the solo, click on the solo button again. If a track is soloed, you can unmute other tracks by clicking on their solo buttons. To mute a track when playing, simply click on its mute button (with the M in it !) . You can mute as many tracks as desired. To unmute them, click on their mute buttons again.

MIDI Tracks

For each MIDI track, the Mixdown Editor provides controls for Volume, Pan, Reverb and Chorus. There are also Solo and Mute buttons. You can automate all functions (except Solo of course !)

Volume

To move the volume fader, click and drag the “knob” to the desired position. The middle of the fader knob displays the MIDI value for the volume, with values ranging from 0 to 127.

Pan

The pan control adjusts the “balance” from left to right. To adjust it, click inside the square around the knob, and

drag the cursor around the knob. You can move it just like a real knob - watch the pointer move - it always points towards the mouse. As you move the knob, the value in the middle changes within the range from 0 to 127.

Reverb

Above the pan knob is the reverb knob, which adjusts the reverb controller of the sound module. As with the pan knob, adjust by clicking inside the square and drag the mouse around. The pointer and numerical indicator tell you the value.

Chorus

At the top of the Mixdown Editor window is the Chorus knob. This adjusts the value of the chorus controller value sent to the sound module. Just like the other knobs, click the mouse inside the square and drag it around the knob - the pointer will always point towards the knob.

VS Tracks

For each VS Workstation used in the song, there will be one channel strip for each track and input plus a Master channel strip.

The front panel of each VS Workstation has channel faders (plus a master fader), so to access the tracks plus the inputs requires a “paging” system. Of course all the faders are on screen, so there is no difference between modes when editing.

EQ section

For each channel there is a 3 band EQ. There is high and low bands with variable level and frequency, plus a mid band parametric section. Note you can have 2 band EQ on all channels or a 3 band EQ on selected channels. You can change between 2 band and 3 band modes in the VS Workstation Controls window (View | VS Workstation menu) In the 3 band mode, only the selected EQs turned on will work. To turn on a different EQ, first turn off one EQ.

The EQ can be positioned before or after the recorder section of the VS-880. Place the EQ Pre Record if you want to store the sound on the hard disk with the equalization. Unless you are sure, it is best not to perform too much EQ when recording to disk as it can be difficult to reverse.

Effects

VS Workstations with the V-Xpanded effects board provide you with two effects busses and two stereo effects each of which can choose from 30 different processes. If you don't have the V-Xpanded option, rush out and get it straight away !

Effects can be bussed across all channels, or inserted in line with individual channels.

Inserting Effects

Each of the two V-Xpanded effects processors are stereo. You can insert an effect in one of four modes -

- Insert Mono - the channel signal is fed equally to the left and right inputs of the effect and the two outputs of the effect are summed and returned to the channel
- Insert Left - the left side of the effect is inserted in the channel
- Insert Right - the right side of the effect is inserted in the channel
- Insert Stereo - the channel signal is fed to the left effect input and the left effect output is fed round to the right effect input. The right effect output is returned to the channel. This allows you to perform a "double" processing of the audio e.g. the 4 band parametric EQ becomes an 8 band.

When you insert an effect, you can insert before or after the recorder. Insert before the recorder only if you are certain that you won't want to change the sound of the effect. The effect insert point moves with the EQ section, so selecting EQ Pre Recorder or Post Recorder will simultaneously move the effect.

Bussing Effects

If you want to apply a bussed effect e.g. reverb to a number of channels, select the type of effect (in the VS Workstation Controls window). You must then select the send level to be Pre Fade or Post Fade - Post Fade is more common for reverb. As the effects are all stereo, you can set the send level and pan from each channel.

The effect return has a level and pan control on the Master section (at the right of the editor). The two returns are normally assigned to the stereo mix buss, but you can alternatively route the effects returns to a pair of record busses. You would route to a record buss if you want to record the original sound plus the effect onto a track (remember you can't remove an effect from a recorded sound, so be sure you really want the sound the way it is before committing).

Auxiliary Send

The Aux Send can be used to buss a mix to a rear panel connector on the VS Workstation. This is handy if you want to make a Cue mix that is different to the Stereo mix, or if you want to send to an external effect device. The return from an external effect could come back to one of the inputs at the rear of the VS Workstation and available at the Input Mix faders. Don't turn up the aux send on the returning channel or you will get feedback.

Mix Level and Pan

Each channel has a fader and pan control for sending signal to the Mix buss. You can set the signal to be Off, Normal or Direct. Direct means the signal is always at full level - the fader is not in circuit.

Solo and Mute

Towards the bottom of each channel is a Solo button and two Mute buttons - one to perform mutes and the other to automate mutes. When you click on Solo, all other channels (VS, audio and MIDI) will mute. You can Solo a number of channels at once.

The Mute button will mute the channel. Automating mutes is described below.

Routing selection

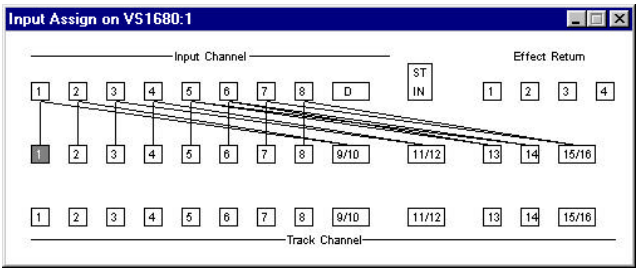
VS880 Only

At the bottom of each channel strip is the Out/In indicator. When the VS-880 is in Input - Track mode, this is used to select which input will be fed to the corresponding recorder track. Click on the indicator and scroll to the desired choice.

When in Input Mix and Track Mix modes, this indicator shows where the channel signal is to be sent. The most common is to send to the Mix Buss, but if you are bouncing tracks, this is where you select the buss to assign to.

VS880EX and VS1680

At the bottom of each VS track channel strip is the routing information. Clicking on this will bring up a routing window similar to that in the VS1680.



The currently selected track will be highlighted. Each input and track can be routed to this output buss by clicking on the square. You can select another output buss and repeat this procedure. You do not need to close this window and then click on another track to alter its routing.

Audio Tracks

Mix Level and Pan

Each channel has a fader and pan control for sending signal to the output audio driver for that track.

Solo and Mute

Towards the bottom of each channel is a Solo button and two Mute buttons - one to perform mutes and the other to automate mutes. When you click on Solo, all other channels (VS, audio and MIDI) will mute. You can Solo a number of channels at once.

The Mute button will mute the channel. Automating mutes is described below.

Automating your mix

Rather than using the Mixdown Editor as a “static” setting tool, you can record the movements of faders, mutes and knobs in real Time and store them as part of the song. Further, the Mixdown Editor is fully interactive with other parts of your song. Any fades will be registered on the manuscript as dynamic markings (as set in the Song Notation Interpretations dialog) and visa versa.

There are a few ways to automate a mix -

- VS Workstation’s internal mixing functions
- Program scene (snapshot) automation
- Dynamic automation

Scene Automation

On the Mixdown Editor Toolbar, you will see two buttons with a camera in each. Click on the first one (Get Mix Snapshot) to capture a mixer snapshot - i.e. all the knobs and button settings are copied to a special clipboard. Then move the song position (if necessary) to the desired place and click on the other button (Paste Mix Snapshot). Each Time the song is played, all mix

parameters will be set to these values at that song position.

You can paste the mixer snapshot as many times as you want. For example you have one setting for the choruses and another for each verse. By using the Capture and Paste buttons, you can set your mix settings in a few seconds for the whole song.

When using scene automation, it is a good idea to place a snapshot right at the start of the song. This will ensure that it starts playing correctly, regardless of any previous settings of the mixer.

Dynamic Automation

This program provides real time automated mixing of audio and MIDI tracks in the Mixdown Editor. All faders and knobs can be automated, along with mutes. You cannot automate other switches such as Off / Pre / Post or EQ On / Off in the current version.

To automate a knob or fader, right click on it and it will turn red - the control will now record your movements when the song is playing. You can simultaneously record as many controls as you want. Note the VS Workstation's faders are connected to the Mixdown Editor, so you can record level changes with a mouse or by moving the faders on the VS Workstation.

To automate Mutes, click on the Mute Record button next to the Mute button. Mute on / off commands will be recorded as you play.

Before automating your mix, it is best to save the song, then save again with a new name. Then if you find you are not happy with your mix, you can quickly start again.

As the Automation described is all done in the program, you can Undo or Redo one step at a Time if necessary.

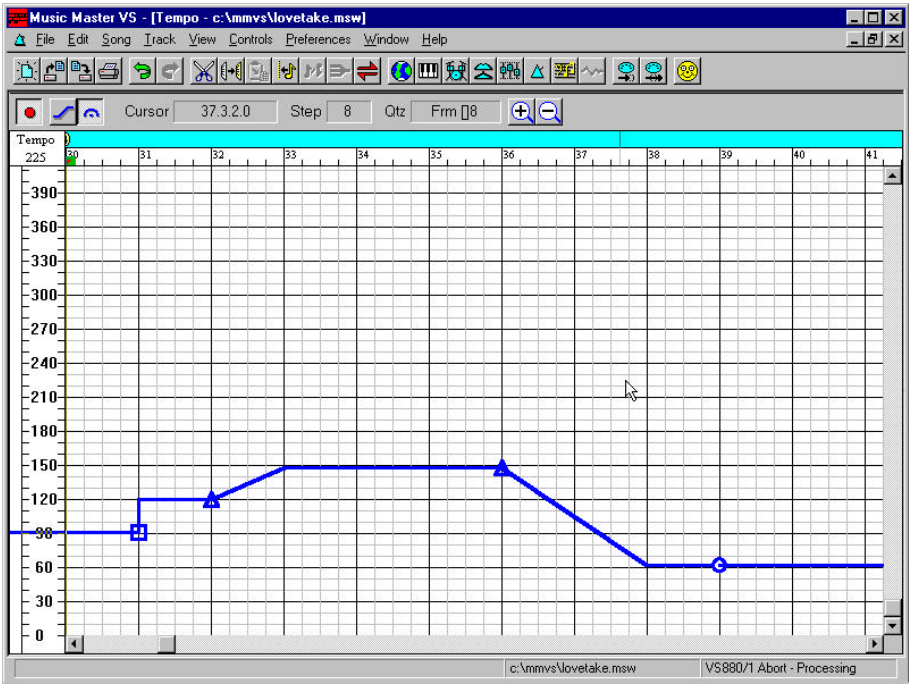
Note for MIDI tracks - You cannot record movements on the master channel at the left of the window. However you can arm several tracks and use the Master to change

all of them simultaneously. The program will move the knobs proportionately so that they all reach 0 or 127 at the same Time. To make them move linearly, hold down the **Ctrl** button as you move the mouse. You can also hold down the **Shift** key to move the master knobs without affecting any tracks. This enables you to get a wider effect on the controller being recorded.

Track Arming

Each VS track contains a field that displays the current status of each track. You can remotely arm a track ready for recording from your vocal booth. When recordings done while this software is connected these can be undone in the normal manner by pressing the undo button on the main toolbar.

Tempo Editor



The Tempo Editor is different to all other editors in that you are not working on a track. Think of tempo as a "hidden" track that affects the way your song is played. You can use the tempo editor to insert or modify tempo changes, accelerando and rallentando and tempo pauses.

To open the Tempo Editor, click on its button on the main tool bar or use the keyboard shortcut **Ctrl T**. The program will only allow you to open one instance of the Tempo Editor at a Time. The main part of the window is a grid area. Tempo is the vertical axis, and you can use the scroll bars to move over a range from 1 Beat Per Minute (BPM) to 960 BPM. The designers of the program felt that this range of tempi would not cause too severe a restriction on composer's creativity. The horizontal axis represents Time, or song position. As

you move the mouse cursor over the grid area, the tempo is indicated at the top left of the grid, while the song position is indicated in the box near the top left of the window named “Cursor”.

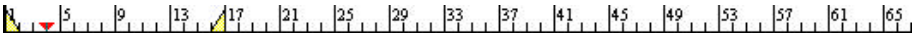
Setting the Step Value

As with other editors in the appilcation, the Step value displayed will determine the resolution of song position for edits (i.e. the smallest variation in song position as you move the cursor). To change the Step value, move the mouse cursor over the Step box and click with the left mouse button. A window will open that allows you to select the step value you want, or turn it off. For most music, it is likely that you would only want tempo changes on bar boundaries, so click on the button marked “Bar”. Otherwise click on the desired Step then click on the [OK] button. As you move the mouse around the grid area, you will see the Cursor box changing in the steps that you selected.

Edit Grid Area

At the right of the Tempo Editor is the Edit Grid. Here you can see the tempo data, as well as the Song Position Ruler and the Locators and Parts areas at the top. To move up and down over the available range of tempi, use the vertical scroll bar at the right of the Tempo Editor window.

Song Position Ruler



The song position ruler is divided into measures (i.e. bars). You can zoom in (magnify the data) by pressing **Shift Z** or zoom out by pressing **Alt Z**. On the song position ruler is a red triangle. This is the current song position. When you play the song, the triangle will move, and the edit grid will be updated each Time the pointer reaches the edge of the window.

Note you can directly locate and play from any position by double clicking at the desired point.

Locators and Parts

Just above the Song Position Ruler is the Locators and Parts ribbon, shaded in blue. Locators are a quick way to move through your song, while parts are used for editing in the Tempo Editor.

Locators

In the locators and parts ribbon, the locators are shown as yellow ovals with a number inside them. The locators are numbered from 1 to 9 and 0. When you load the default song, they will be spaced evenly over the first 72 measures (unless you have changed them in the default song). You can move them by clicking on them with the left mouse button and dragging them to the desired position. (Note that the step value will cause the locator to "snap" to the chosen steps). Each locator can also be set by pressing Ctrl 0 - 9 and that locator will be set to the current song position.

When playing the song you can press a number on the keyboard and the song will jump to that location and continue playing. It will do this immediately unless you have enabled Delay Locator in the Sequencer Preferences dialog. When this is the case, the sequencer will jump to that location only when the currently playing section is complete. Additionally the start and end of the song can be located with the **Home** and **End** keys.

Parts

Global Parts are defined on the locators and parts ribbon. By clicking with the right mouse button in this area, you will insert a part boundary. These appear as vertical black lines. You can drag these lines with the left mouse button to adjust the position.

Parts are used for editing. You can define Global Parts as shown above, which apply to all tracks

If you drag a part over another part boundary, the one "underneath" will be erased. To delete a part boundary, move the cursor over it until the cursor changes to a special part boundary shape. Now drag the part boundary onto an adjacent boundary or to the edge of the song and release.

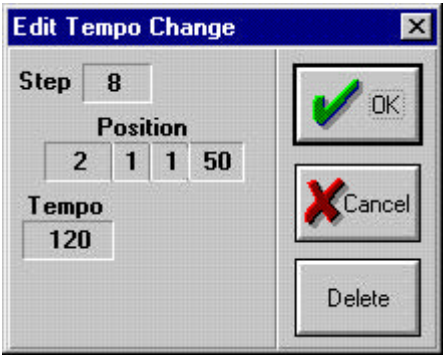
You can name Global Parts. Simply double click on the part in the locators and parts ribbon, and a window will appear into which you can type the part names.

All editing in the Tempo Editor is done only on the tempo data. Clicking with the left mouse button inside a part will highlight it ready for editing. This will highlight that vertical section of the Tempo Edit Grid.

Entering and Editing Tempo Changes

There are three types of tempo changes allowable - a straight tempo change, a tempo grade (accelerando and a rallentando) and a pause.

Tempo Change



To enter a tempo change, select the tempo change/ grade button on the editor toolbar move the mouse cursor to the Time and tempo position desired, then click with the right mouse button.

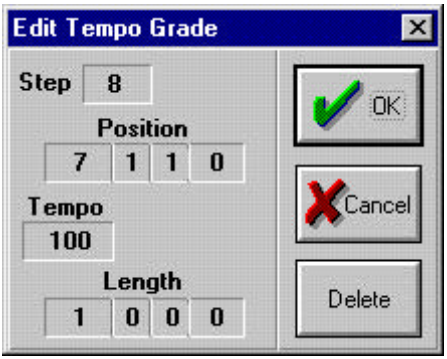
The change you have entered will affect the song until the next tempo change is encountered. As mentioned above, don't forget that the Step setting will affect how you are able to position the mouse cursor.

A vertical line will be drawn to indicate the movement from the old to the new tempo. There will also be a square placed on the line to indicate that this is a tempo change.

Editing Tempo Changes

To edit a tempo change, double click on it and the Edit Tempo Change dialog will open. Here you can change the position and value of the tempo change. The Step value determines the "resolution" when positioning the change, and is initially the same value as the Step value for the Tempo Editor.

Tempo Grade



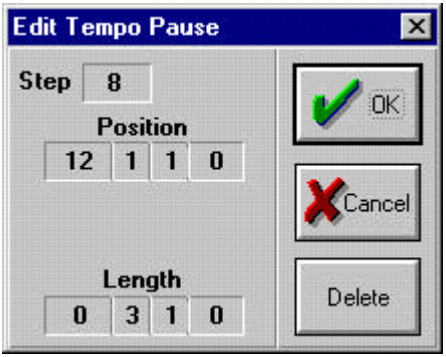
To enter an accelerando or rallentando, select the tempo change/ grade button on the editor toolbar and click and drag with the right mouse button for the desired length of the tempo grade to the chosen tempo then release the mouse button.

The starting tempo will be calculated at the button down and draw a sloping line to the end tempo. Any tempo changes, grades or pauses which occur between the start and end of the grade will be deleted. Any overlapping tempo grade will be modified accordingly. The tempo grade will now be inserted into your tempo data starting from the prevailing tempo and ending at the chosen tempo. A triangle will be placed on the line at the point where the grade starts to indicate a tempo grade.

Editing Tempo Grades

To edit a tempo grade, double click on the triangle and the Edit Tempo Grade dialog will open. Here you can edit the length and final tempo for the grade as well as the position. The Step value determines the resolution of position and length of the grade. Step is initially the Step value for the Tempo Editor.

Tempo Pause



To enter a pause select the pause button from the editor toolbar. Click and drag with the right mouse button over the desired area for the length of the pause. A circle will be placed on the line at the point where the pause exists to indicate a tempo pause.

This will cause the sequencer to pause at that position for the length of the pause provided that the tempo button on the transport bar is highlighted to activate the tempo map.

Editing Tempo Pauses

To edit a tempo pause, double click on the circle and the Edit Tempo Pause dialog will open. Here you can edit the length and the start position. The Step value determines the resolution of position and length of the pause. Step is initially the Step value for the Tempo Editor.

Tempo Record

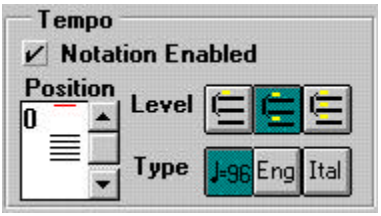
You can also record tempo changes in real Time by clicking on the tempo record button on the editor toolbar and while the sequencer is playing click and/or drag with the left mouse button in the tempo ruler area on the left of the window to record the tempo changes. When you have recorded the desired section then press stop and the recorded tempo changes will appear in the tempo editor. You may desire to "smooth" these out manually using the right mouse button in the edit grid.

Using the Tempo Map

Once you have entered your tempo map in the Tempo Editor, you must tell the program that you want to use it. On the Transport Bar (press **F3** to display it) is the Tempo button at the left end. If you enable tempo here, the tempo map will be applied to your song i.e. it will play with all the tempo changes added. If the Tempo button on the Transport Panel is not down, the song will simply play at the tempo set in the box under the Tempo button.

You can, of course, set the tempo to a fixed amount by clicking with the left or right mouse button to decrease or increase the tempo respectively, on the tempo value in the Transport panel. The choice is to use the Tempo Editor, or the fixed tempo displayed.

Tempo and Manuscripts

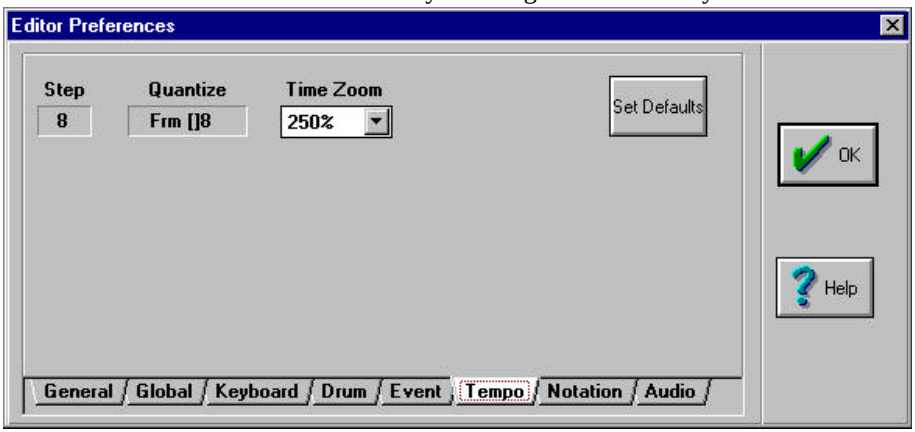


The notation editor and its printed pages will display any tempo changes entered in the Tempo Editor if the Notation Enabled box is ticked in the Song Notation Interpretations dialog and the tempo button is enabled on the transport bar.

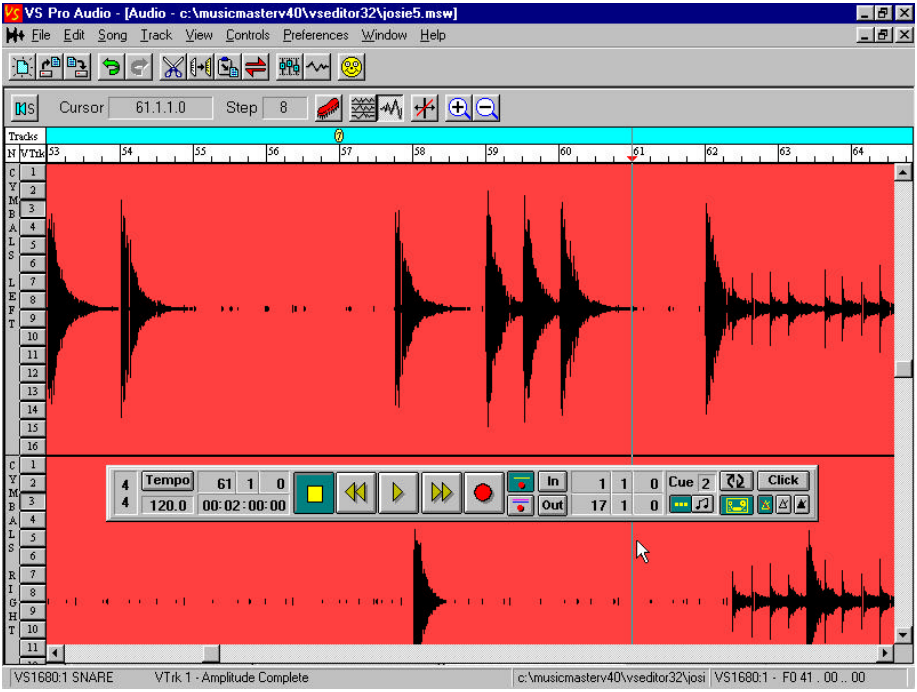
Whenever a tempo grade occurs the symbol “Accel” or “Rall” will be displayed on the manuscript. A pause will cause a fermata to be displayed.

Editor Preferences

There are some defaults for the Tempo Editor - Step, Quantize and Display Zoom. You can access these from the Preferences|Editors menu and select Tempo. Alternatively, you can go direct to the Tempo Preferences by clicking on the “smiley” button.



Audio Editor



The Audio Editor is the place where you will spend most Time arranging the audio tracks.

Controls Area

At the left of the editor is the Control Area. Here you can name each track by right clicking on the name. This will give you an edit box for you to type the new name. Press Enter to apply the new track name. This does not affect the track name in the VS Workstation. You can also select the virtual track that will be played on each channel.

Toolbar

The Audio Editor Toolbar contains the special functions for editing your audio -

Solo - when you press the solo button (keyboard shortcut **s**), all tracks in the Audio Editor will solo.

Cursor position - this shows the current position of the mouse cursor whenever it is over the edit grid. Note that the resolution of the cursor is determined by the step.

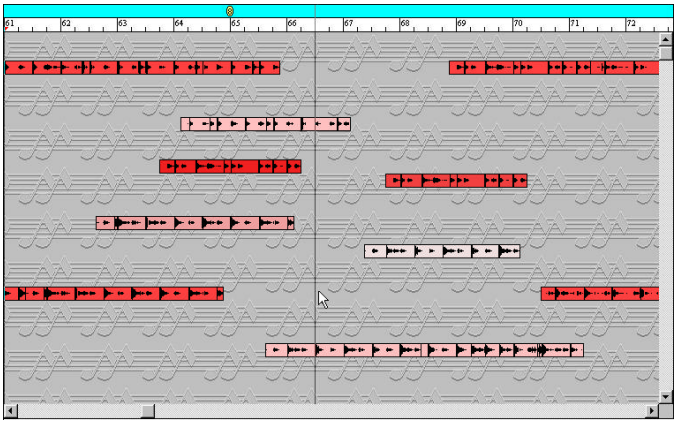
Step - this sets the resolution of the cursor. You can set it in logical musical steps from off to quite coarse. The Preferences window allows you to set the initial step value individually for each editor (Preferences | Editors menu).

Scrub - this activates the VS Workstation's scrub function - described fully below.

Display Mode - you can select a large view of the active virtual track selected on each of the tracks, or a small display of all virtual tracks.

Join Parts - if you want to remove the Part boundary of two or more adjoining Parts, select them and click on this button. (**Alt J**)

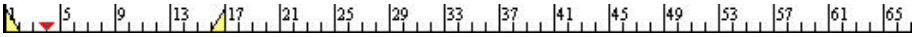
Edit Grid Area



At the right of the Audio Editor is the Edit Grid. Here you can see the VS audio data, as well as the Song Position Ruler and the Locators and Parts areas at the top. To move

up and down over the available range of tracks, use the vertical scroll bar at the right of the Audio Editor window.

Song Position Ruler



The song position ruler is divided into measures (i.e. bars). You can zoom in (magnify the data) by pressing **Shift Z** or zoom out by pressing **Alt Z**. On the song position ruler is a red triangle. This is the current song position. When you play the song, the triangle will move, and the edit grid will be updated each time the pointer reaches the edge of the window.

Note you can directly locate and play from any position by double clicking at the desired point.

Locators and Parts

Just above the Song Position Ruler is the Locators and Parts ribbon, shaded in blue. Locators are a quick way to move through your song, while parts are used for editing in the Tempo Editor.

Locators

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When playing the song you can press a number on the keyboard and the song will jump to that location and continue playing. It will do this immediately unless you have enabled Delay Locator in the Sequencer

Preferences dialog. When this is the case, the sequencer will jump to that location only when the currently playing section is complete. Additionally the start and end of the song can be located with the **Home** and **End** keys.

Editing your audio

Most of your audio editing can be done with a few basic functions such as creating Parts, moving, copying and deleting.

Creating Parts and Part Boundaries

A Part is a "piece" of audio that you can grab and work on. To create a part, you must set a start and end Time. Go to the virtual track you want to work on and right click at the start and end points. Each Time you click you will see a part boundary appear - a vertical line through the track. Remember that the position of the Part boundaries you create will snap to the nearest Step as set in the Step value shown on the Toolbar.

You can also move a Part boundary. Place the mouse cursor over the Part boundary and it will change shape. Now you can drag it left or right.

Once you have created a Part, you might like to give it a name. Double click on the part and a window will appear into which you can type a name. The name appears in the Part.

A further refinement in this program is the ability to create a Global Part. This is a Part that is across all tracks displayed in the editor. To create Global Part, right click in the Locators ribbon (above the Song Position Ruler) where you want the Global Part. You will see that all tracks with audio at that point will now have a Part boundary.

Joining Parts

Often you will end up with several Parts butted one against another. You can remove the boundaries and make them into one part.

To make several adjoining Parts into one, select them (hold down the Shift key while clicking on them, or double click on the Track name in the Track Details area to select the whole track). Then click on the Join Parts button. The Parts will be combined.

Moving Parts

To move a Part, simply click on it and drag it to the desired position. You can move the Part to any of the Virtual Tracks on the same VS Workstation. Note if you have tracks from more than one VS Workstation in the Audio Editor, you can't move them from one VS to the other.

If you want to move a whole track, double click on the track name and the whole track will be selected. You can then move it as one Part.

If you want to move a Part to song position past the end of the screen, just drag it to the edge and the display will scroll to where you want to go. Note the resolution with which you can place the Part is set by the Step Value on the Toolbar.

If you want to move more than one Part simultaneously, hold down the Shift key as you click on the Parts you are selecting. When you move one Part, they will all move with their relative positions. Note if you select more than one Part, you can't move across tracks, only along the same tracks.

Copying Parts

Often you will want to copy a section of audio to several places in a song. For example, you could record one chorus and repeat it two or three times rather than record it over and over.

To copy a Part, highlight it by clicking on it, then click on the Copy button on the Toolbar (keyboard shortcut **Ctrl C**). You can now paste the Part once or a number of times. To paste once, simply click on the paste button on the toolbar (keyboard shortcut **Ctrl V**) then click where you want the start of the pasted Part to appear.

Another way to copy a Part is to hold down the Shift key while clicking and dragging a Part. This method will give a slightly different appearance on the screen because the Part Boundaries are copied with the audio.

If you want to paste the Part more than once with one placed immediately after another, right click where you want the Part to be placed. A window will appear into which you select the number of pastes (right click here to increase or left click to decrease the number). The Part will be pasted "back to back" the number of times you set. This is handy to place a repeating drum pattern.

If you want to copy more than one Part simultaneously e.g. a Stereo pair of tracks, hold down the Shift key and click on the Parts to highlight more than one at a time. The Parts will retain their relative positions when pasted.

Deleting Parts

To delete a Part, highlight it by clicking on it, then press the delete key or **Ctrl X**. The audio will be removed from the song, but is still available on the VS Workstation's hard disk, so you can Undo if needed.

Scrub Editing

To assist you in placing Part boundaries, the VS Workstation has a Scrub function. Audio Scrub is a very short loop of audio that repeats about the current song position.

When you enable Audio Scrub, the active track (the one with its track name in blue at the left of the window) will go into scrub mode. Note the VS Workstation only allows one track to Scrub at a Time. You will hear the track scrubbing in your speaker. Move the song position

by dragging the red triangle on the song position ruler, or move it slowly with the left or right arrow keys on your keyboard. As you hold down the arrow keys, you will hear the audio changing.

Once you have found your edit point, you will want to create a Part boundary at that place. To place a Part boundary at the current song position, press **B** on the keyboard while scrubbing - a Part boundary will appear on the Virtual Track that is scrubbing.

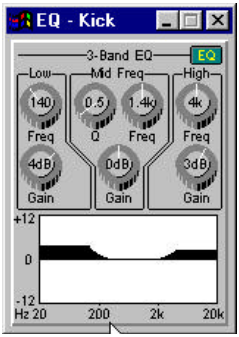
The Scrub length defaults to 45msec. You can change it between 25 and 100msec on the VS Workstation itself if needed. Note also that when you activate scrub mode, the Step value defaults to Off, but you can click on the Step Value box and change the default.

Oops I made a mistake.....

Both the program and the VS Workstation have the ability to Undo and Redo your edits. They do, however work a little differently. The application can Undo or Redo one step at a time, while the VS Workstation can Undo one step at a time but can only Redo all Undo's in one operation. The program keeps track of where your edits are performed and will update the display to show the correct status in all cases.

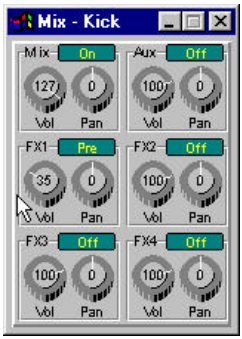
Therefore, if you are editing audio, or globally editing audio and MIDI simultaneously, you can undo your edits one at a time. If you click on the Redo button, all the Undos that you just performed will be reversed in one step. If you are editing MIDI alone, you can redo one step at a time, which is handy if you undid one too many steps.

EQ Window



Whilst the Audio Editor is open you can open the EQ window for the active track (the one in blue). To do this, select the VS Eq item from the Track menu. To open an EQ window on a different track, select the desired track on the left hand side of the audio editor and open the EQ window in the same manner. These EQ windows can be minimized to the task bar for easy retrieval later.

Sends Window

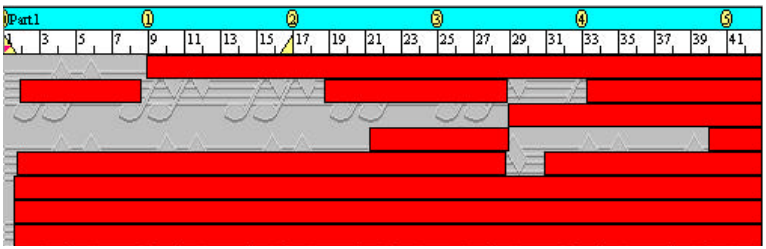


Whilst the Audio Editor is open you can open the Sends window for the active track (the one in blue). To do this, select the VS Mix item from the Track menu. To open a Sends window on a different track, select the desired track on the left hand side of the audio editor and open the Sends window in the same manner. These Sends windows can be minimized to the task bar for easy retrieval later.

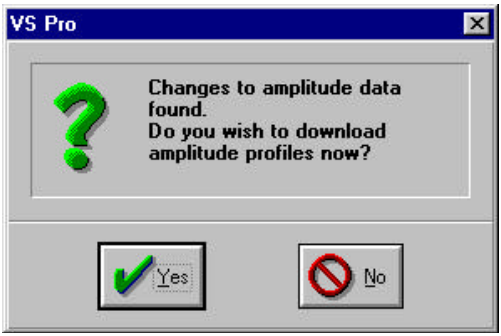
Download of Amplitudes

Download Amplitudes

To be able to effectively edit your VS audio, you must first download the amplitude profiles from the VS Workstation into VS Pro. These amplitude profiles are in the form of wave forms on your screen showing "peeks and troughs". Make sure that you have first set up the required VS tracks. If you have not already done so, this can be done from the "**New VS Tracks"** item in the Track Menu. This will also show phrase blocks as coloured rectangles to indicate activity on the tracks and their location.



Once the VS tracks are in place, select Check Amplitudes from the Track menu if you want to download the amplitudes for all of the tracks and vtracks or highlight one or more phrase blocks and choose Download Amplitudes from the Edit menu if you want only one or two amplitude profiles.



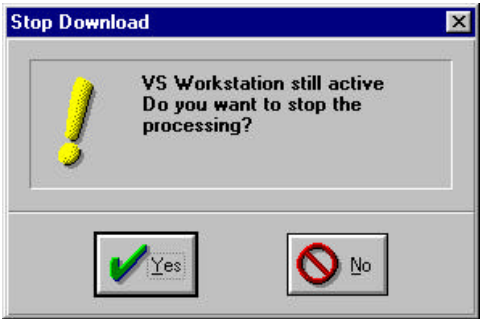
For the Check Amplitudes option, this will start comparing what is in VS Pro against what is on the VS Workstation(s). After a few seconds the system will either inform you that everything is up-to-date or it will bring up a message box telling you that is has detected differences and asking you to choose whether you want to download amplitudes or not.

The download of amplitudes is a real-time task and may take up to 30 minutes or more depending on the size of your song. It takes one minute for each track minute on your song eg if you have a song with 5 tracks and the song runs for 4 minutes, it will take 20 minutes (5 x 4) to download the amplitudes. Even though this is happening in background which lets you play the song, you MUST NOT do any edits while this is happening as it may corrupt your song, both in VS Pro and on your VS Workstation. We recommend that you set the download going and go and have dinner.

This process is the same one that you will use when you have made some additional takes on your VS Workstation. However, this download will only take a few minutes as the comparison only downloads the changes made.

Stop Download

Because this can be a lengthy process, there is a menu item in the Track menu which allows you to stop the download if this becomes necessary. It is next to the **Download Amplitudes** item and it is called **Stop Download**. When you select this item, you will get a message box that asks you if you want to stop the download of amplitudes.



Answer Yes to this question, and the download will stop. You can then save your song and everything done to that point will be saved. Then come back later and choose Download Amplitudes again and the task will be completed.

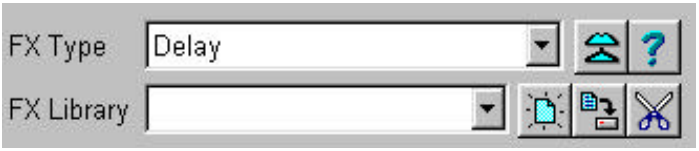
V-Xpanded Effects

The Effect Windows

The Roland effect processors in VS workstations have 36 different algorithms (30 in VS-880). FX Tools has a custom window for each algorithm.To access these fx windows, select the desired VS Workstation from the View menu and the appropriate effect processor within that.

You will see an effect window for each available effect processor eg if you have a VS-880, you will get 2 windows on-screen, but if you have a VS-1680 and a VS-880EX you will get eight windows.

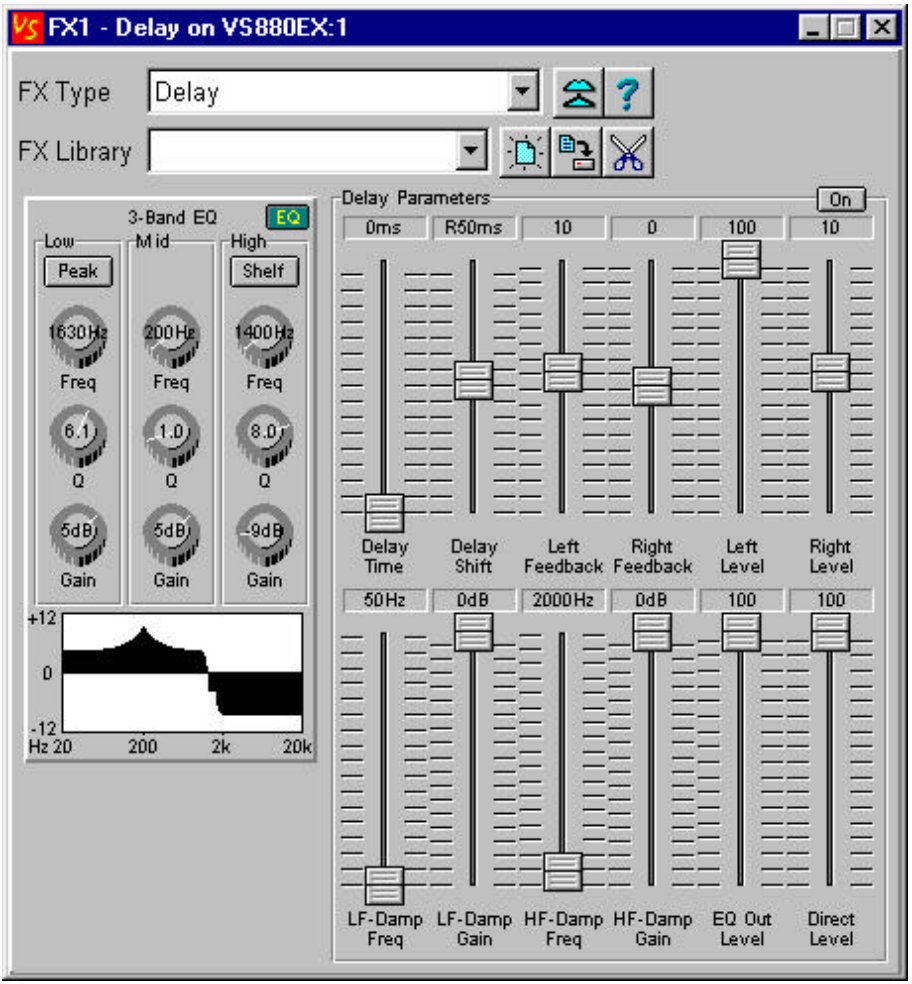
At the top of each effect window, in the blue title bar is displayed the workstation and its effect number. Use this to note which effect processor you are working on !



Selecting the Effect Algorithm

To select from the available effect algorithms, there is a drop down list at the top of each effect window. VS-880s have 30 effects available on FX1 processor and 26 available on FX2, while the VS-1680 and VS-880EX have 36 algorithms available on FX1 and FX3, with 30 available on FX2 and FX4. Suffice to say that FX Tools knows all about this, and the drop down list will only show the available algorithms for the selected FX processor.

When you select the algorithm from the list, you will see the window redraw with the new effect. The size will usually change as different effects have different controls.



Modifying the Effect Settings

When you select an effect, all the available controls will be shown on-screen. The controls will appear as buttons (ie switches), sliders and rotary pots. All controls that have a “real world” equivalent, such as db or kHz, will display the actual value in the appropriate units. Sliders display the value in a rectangle at the top, while rotary pots show the value in their centre.

Many of the controls in the VS effect processors simply have a range of 0 to 100 or similar. These controls will show the corresponding numerical range.

When you move a control the effect is changed in real time in the workstation, so you will hear it as you move the control. To automate these changes right click on the object to turn it red. While the song is playing, turn the knoband the changes will be remembered. These can be viewed for fine tuning in the Event Editor that can be accessed by clicking on that button at the top of the effect window. For details on how to edit individual events please see the Event Editor chapter.

If you are unsure about what some of the controls actually do, click on the help button. The on-line help has a picture of the effect and you can click on the controls for a description of what each control does.

Note for rotary controls: - these controls can appear quite small on-screen, but FX Tools is designed to still allow easy and accurate adjustment. Click on the control, and without releasing the mouse button, drag the cursor away from the control. You can then move the cursor around the control in a large arc. This effectively can give you a rotary control as big as your screen!

Routing your effects

The effect processors in VS workstations can be **bussed** or **inserted**.

Inserting

If you want to use an effect on just one channel, or if you want to modify rather than “add to” a signal, then you will usually need to **insert** the effect on a channel. Typically, compressors and multi effects (eg Guitar Multi) are inserted.

You can insert an effect on an Input Channel, a Track Channel or in the Master Channel. Additionally, each effect processor is Stereo In and Out. You can control what happens with each half. For example, you could

insert the left half of the Dual Compressor limiter on channel 1 and the right half on channel 2. There are some limitations on what you can do - consult your Roland manual for more details.

Bussing

Alternatively, if you want the effect to be on several channels, the correct choice is to use the **effect busses**.

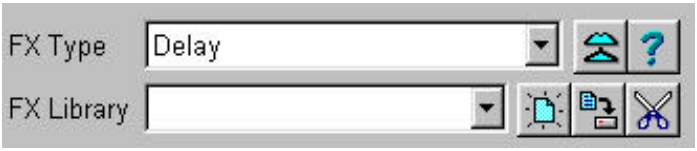
You can send a portion of the signal from each channel to te effect bus, which in turn feeds the corresponding effect input. The outputs of the effect processor are normally fed to the master channel when mixing, or to 1 or 2 mix busses if you wish to record with the effect applied

Selecting the routing

Now that you have easy control over the effects, you will want to use them more frequently. FX Tools can control selection of effects, as well as control over all the parameters on each effect. But FX Tools does not route or "place" the effect where it needs to go. You have two choices for routing -

- On the VS workstation, you can select the desired routing using the front panel buttons
- If you have VS Pro Mix Tools, all routing is on your computer screen This is a faster and more convenient method. You can see all the routing on a single screen.

The Effect Librarian



At the top of each effect window is the librarian. You can use this to save and recall your favourite settings. Additionally, the librarian is pre-loaded with the 200 preset patches matching those in the VS workstation.

The **Library file** is called **effect.eff** and is located in the folder that you installed FX tools to on your hard disk (by default c:\Program Files\Datasonics\VS Tools). You can copy this to a floppy disk to share it with a friend or back it up for safety.

Saving an effect setting

To add a new setup to the library, click on the NEW button, then type a name in the rectangle where the cursor is now winking. Then click on the SAVE button Note the librarian is designed so that the names you add are linked with the effect ie you can have “Great Vocal Effect” on a number of different algorithms and they won’t get confused. If you save with a name you have already used, the new setup with replace the old one.

Recalling an effect setting

To recall a setup from the library, simply click on the FX Library drop-down button and click on the desired setup. The VS workstation will be immediately set to the new values for the effect.

Deleting unwanted settings from the library

To delete an unwanted setup from the library, select it from the drop down list, and then click on the Delete button. The setup is immediately deleted from the library. If you didn’t mean to, you can restore it by saving the current setup with the same name you just deleted - provided you don’t modify any of the controls first.

Section Three

Appendices

General MIDI

General MIDI Sound Set

1. Acoustic Grand Piano
2. Bright Acoustic Piano
3. Electric Grand Piano
4. Honky-tonk Piano
5. Electric Piano 1
6. Electric Piano 2
7. Harpsichord
8. Clavi
9. Celesta
10. Glockenspiel
11. Music Box
12. Vibraphone
13. Marimba
14. Xylophone
15. Tubular Bells
16. Dulcimer
17. Drawbar Organ
18. Percussive Organ
19. Rock Organ
20. Church Organ
21. Reed Organ
22. Accordion
23. Harmonica
24. Tango Accordion
25. Acoustic Guitar (nylon)
26. Acoustic Guitar (steel)
27. Electric Guitar (jazz)
28. Electric Guitar (clean)
29. Electric Guitar (muted)
30. Overdriven Guitar
31. Distorted Guitar
32. Guitar Harmonics
33. Acoustic Bass
34. Electric Bass (finger)
35. Electric Bass (pick)
36. Fretless Bass
37. Slap Bass 1
38. Slap Bass 2
39. Synth Bass 1
40. Synth Bass 2
41. Violin
42. Viola
43. Cello
44. Contrabass
45. Tremolo Strings
46. Pizzicato Strings
47. Orchestral Harp
48. Timpani
49. String Ensemble 1
50. String Ensemble 2
51. Synth Strings 1
52. Synth Strings 2
53. Choir Aahs
54. Voice Oohs
55. Synth Voice
56. Orchestra Hit
57. Trumpet
58. Trombone
59. Tuba
60. Muted Trumpet
61. French Horn
62. Brass Section
63. Synth Brass 1
64. Synth Brass 2
65. Soprano Sax
66. Alto Sax
67. Tenor Sax
68. Baritone Sax
69. Oboe
70. English Horn
71. Bassoon
72. Clarinet
73. Piccolo
74. Flute
75. Recorder
76. Pan Flute
77. Blown Bottle

78. Shakuhachi
79. Whistle
80. Ocarina
81. Lead 1 (square)
82. Lead 2 (sawtooth)
83. Lead 3 (calliope)
84. Lead 4 (chiff)
85. Lead 5 (charang)
86. Lead 6 (voice)
87. Lead 7 (fifths)
88. Lead 8 (bass+lead)
89. Pad 1 (new age)
90. Pad 2 (warm)
91. Pad 3 (polysynth)
92. Pad 4 (choir)
93. Pad 5 (bowed)
94. Pad 6 (metallic)
95. Pad 7 (halo)
96. Pad 8 (sweep)
97. FX1 (rain)
98. FX2 (soundtrack)
99. FX3 (crystal)
100. FX4 (atmosphere)
101. FX5 (brightness)
102. FX6 (goblins)
103. FX7 (echoes)
104. FX8 (sci-fi)
105. Sitar
106. Banjo
107. Shamisen
108. Koto
109. Kalimba
110. Bag Pipe
111. Fiddle
112. Shanai
113. Tinkle Bell
114. Agogo
115. Steel Drums
116. Woodblock
117. Taiko drum
118. Melodic Tom
119. Synth Drum
120. Reverse Cymbal
121. Guitar Fret Noise
122. Breath Noise
123. Seashore
124. Bird Tweet
125. Telephone Ring
126. Helicopter
127. Applause
128. Gunshot

General MIDI Percussion Map (channel 10)

Acoustic Bass Drum	B0	Ride Cymbal 2	B2
Bass Drum 1	C1	Hi Bongo	C3
Side Stick	C#1	Low Bongo	C#3
Acoustic Snare	D1	Mute Hi Conga	D3
Hand Clap	D#1	Open Hi Conga	D#3
Electric Snare	E1	Low Conga	E3
Low Floor Tom	F1	High Timbale	F3
Closed Hi Hat	F#1	Low Timbale	F#3
High Floor Tom	G1	High Agogo	G3
Pedal Hi Hat	G#1	Low Agogo	G#3
Low Tom	A1	Cabasa	A3
Open Hi Hat	A#1	Maracas	A#3
Low Mid Tom	B1	Short Whistle	B3
Hi Mid Tom	C2	Long Whistle	C4
Crash Cymbal 1	C#2	Short Guiro	C#4
High Tom	D2	Long Guiro	D4
Ride Cymbal 1	D#2	Claves	D#4
Chinese Cymbal	E2	Hi Wood Block	E4
Ride Bell	F2	Low Wood Block	F4
Tambourine	F#2	Mute Cuica	F#4
Splash Cymbal	G2	Open Cuica	G4
Cowbell	G#2	Mute Triangle	G#4
Crash Cymbal 2	A2	Open Triangle	A4
Vibraslap	A#2		

MIDI Controllers

CONTROL NUMBER DECIMAL	CONTROL NUMBER HEX	CONTROL FUNCTION
0	00	Bank Select MSB
1	01	Modulation wheel
2	02	Breath controller
3	03	Undefined
4	04	Foot controller
5	05	Portamento time
6	06	Data entry MSB
7	07	Main volume
8	08	Balance
9	09	Undefined
10	0A	Pan
11	0B	Expression controller
12-15	0C-0F	Undefined
16-19	10-13	General Purpose controllers (#s 1-4)
20-31	14-1F	Undefined
32-63	20-3F	LSB for values 0-31
64	40	Damper pedal (sustain)
65	41	Portamento
66	42	Sostenuto
67	43	Soft pedal

68	44	Undefined
69	45	Hold 2
70-79	46-4F	Undefined
80-83	50-53	General purpose controllers (#s 5-8)
84-90	54-5A	Undefined
91	5B	Reverb Depth
92	5C	Tremelo depth
93	5D	Chorus depth
94	5E	Celeste (detune) depth
95	5F	Phaser depth
96	60	Data increment
97	61	Data decrement
98	62	Non-Registered parameter number LSB
99	63	Non-Registered parameter number MSB
100	64	Registered parameter number LSB
101	65	Registered parameter number MSB
102-121	66-79	Undefined
122-127	7A-7F	Channel mode messages

Clock Resolution

This software uses a clock resolution of 192 clocks per quarter note (crotchet). This normally means that for each of the note lengths used in the application, the following table applies -

	Clocks		
Note Length	**Dotted**	**Normal**	**Triplet**
Whole Note (semi-breve)	1152	768	512
Half Note (minim)	576	384	256
Quarter Note (crotchet)	288	192	128
Eighth Note (quaver)	144	96	64
Sixteenth Note (semi-quaver)	72	48	32
Thirty Second Note (demi-semi-quaver)	36	24	16
Sixty Fourth Note (hemi-demi-semi-quaver)	18	12	8

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