

Midi WorkShop

User Manual

Version 2.0

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1 Manual Conventions and Terminology

1.1 Manual Conventions and Terminology

The following chart contains symbols and formatting will be used throughout this manual to indicate special terms, notes, warnings, and actions, as well as both keyboard and mouse methods for performing the same action.

 Many of the basic window operations and setup procedures are similar to those in SAWStudio. If necessary, you may find complete information in the SAWStudio helpfile on how to use dialog boxes, switches, buttons, and setup windows common to both SAWStudio and the ***Midi WorkShop***.



The hand symbol will be used to indicate important notices and warnings.



The pointing finger symbol will be used to indicate a point of mention about a particular feature or concept.



The clock symbol will be used to indicate a time saving suggestion.



The mouse symbol will be used next to instructional text to quickly denote that techniques described involve using the mouse.



The keyboard symbol will be used next to instructional text to quickly denote that techniques described involve using the keyboard.



The keyboard and mouse symbols together will be used next to instructional text to quickly denote that techniques described involve using both the keyboard and the mouse.



The keyboard and mouse symbols separated by a slash will be used next to instructional text to quickly denote that techniques described involve using either the keyboard or the mouse.

M

The M symbol will be used next to instructional text to quickly denote that techniques described involve accessing a menu.



M

The keyboard and M symbols together will be used next to instructional text to quickly denote that techniques described involve holding a key on the keyboard while access a menu.

Italics

Capitalized italics will be used to identify screen objects, menu items, and reference to terms relating to audio will be written in italics. (Examples: Click the *Cancel* button; Create a *Marked Area*; Move to the *MultiTrack*; the current *Hot Track*.)

[Bracketed]

Keyboard commands and mouse moves will be indicated with a bracketed font.

Click or Select

When instructions indicate to 'click' or 'select' an object, press and release the left mouse button.

Left-Click

When instructions indicate to 'Left-Click', press and release the left mouse button.

Right-click

When instructions indicate to 'Right-Click' an object, press and release the right mouse button.

Double-click

When instructions indicate to 'Double-Click' an object, press and release the left mouse button twice quickly.

Left-Holding

When instructions indicate 'Left-Holding' press and hold the left mouse button.

Right-Holding

When instructions indicate 'Right-Holding' press and hold the right mouse button.

Left-Dragging

When instructions indicate 'Left-Dragging' press and hold the left mouse button while dragging the mouse.

Right-Dragging

When instructions indicate 'Right-Dragging' press and hold the right mouse button while

dragging the mouse.

Left-Right Clicking When instructions indicate 'Left-Right-Clicking' press and hold the left mouse button and then tap the right mouse button once.

2 Getting Started

2.1 Getting Started

Version 2.0

Welcome to the exciting new **Midi WorkShop** add-in for SAWStudio! The **Midi WorkShop's** interface is designed to work in a way consistent with the SAWStudio environment, maintaining similar keystrokes wherever applicable, and creating an exciting new way to display and work with MIDI data.

The **Midi WorkShop** has 128 MIDI tracks arranged in its own MultiTrack view, separate from the SAWStudio MultiTrack, but locked to all SAWStudio MultiTrack cursor movements. It has the ability to maintain its own vertical and horizontal zoom levels while still maintaining precise synchronization with SAWStudio MultiTrack audio data.

The **Midi WorkShop** has its own set of workspace views, similar to SAWStudio's F-Key workspace views. These work independently and can be programmed to fit within and link to SAWStudio's workspace views, giving extreme flexibility for viewing and working with MIDI and audio data simultaneously.

A richly designed piano keyboard graphic offers extended flexibility as an effective visual reference to musical data, and as a miniature built-in controller for auditioning MIDI patches.

The *Patch Library* view window offers a unique and powerful approach to organizing and accessing thousands of MIDI patches across all installed MIDI sound modules, along with unlimited grouping capabilities, making auditioning and selecting patches a breeze!

A unique measure mapping feature allows freeform performances to be easily and instantly mapped to a measure grid, which automatically calculates tempo variations, and allows for perfect *Conductor/Click Track* creation. The data may then be set or averaged into a perfectly smooth performance, allowing easy orchestration or quantizing of added data in perfect time.

The ability to combine MIDI performances with audio performances in the same workspace offers incredible creative possibilities to both the audio engineer and musical composer.


The **Midi WorkShop** has a lot of built-in features and functionality that can only be accessed by reading and understanding this manual, then exploring the powerful navigation and editing features in the program. Enjoy the journey!


Getting Started Topics:

[Accessing the Midi WorkShop](#)
[The Midi WorkShop Main Window](#)
[Setting Up the Midi Ports and Patches](#)
[Bringing Data into the Midi WorkShop](#)
[Record Mode](#)

2.2 Accessing the Midi WorkShop

The **Midi WorkShop** is automatically detected by *SAWStudio* and does not require you to patch it in as a processing plug-in.

 You can access its main window by choosing *Midi Workshop* from the *SAWStudio View* menu, or by [Left-Clicking] the *Up/Dn* arrow zone in the top client area of the *SAWStudio MultiTrack* and choosing *Midi Workshop* from the popup *Track List*.

 It is highly recommended that you set the *SAWStudio* timeline to *Tempo* mode while using the **Midi WorkShop** program. (Do this by choosing *Tempo Mode* from the *SAWStudio TimeLine* menu.) The main position readout remains in the *SAWStudio MultiTrack* and should always be left at the top of the screen for reference. Certain operations in the *Midi WorkShop* will automatically force the *SAWStudio* timeline to *Tempo* mode.


Getting Started Topics:

[Accessing the Midi WorkShop](#)
[The Midi WorkShop Main Window](#)
[Setting Up the Midi Ports and Patches](#)
[Bringing Data into the Midi WorkShop](#)
[Record Mode](#)

2.3 The Midi WorkShop Main Window


The main **Midi WorkShop** window houses all other **Midi WorkShop** windows and can be positioned and sized anywhere on the screen. All windows contained within the main window boundaries will position and move with the window. Other **Midi WorkShop** windows can be positioned outside the main window boundaries, but it is recommended that they be kept within those boundaries.

The **Midi WorkShop** contains its own internal set of workspace views, which are accessed using the *Ctrl F-Keys*.

 You may program the *Ctrl F-Keys* by setting all window sizes and positions and pressing [Shift-Ctrl] and the applicable *F-Key* (example *Shift-Ctrl-F1*, *Shift-Ctrl-F2*.) You may recall these views by simply pressing *Ctrl* and the applicable *F-key*.

 There are two link options using the *F-Key File* option under the **Midi WorkShop File** menu:

- **Link to SAW F-Keys**
Activating this option links the **Midi WorkShop Ctrl-F-Key** workspace views to the *SAWStudio* standard *F-Key* views.
- **Link to SAW Alt F-Keys**
Activating this option links the **Midi WorkShop Ctrl-F-Key** workspace views to the *SAWStudio Alt-F-Key* views.

 Using either of these options also links the *Save* functions in *SAWStudio* to the **Midi WorkShop** workspace views, therefore with one of these links active, saving a *SAWStudio* linked *F-Key* also overwrites the associated **Midi WorkShop F-Key**. If a *SAWStudio* linked *F-Key* is saved while the **Midi WorkShop** main window is closed, then recalling that *F-Key* will close the **Midi WorkShop** window regardless of its current state. You may find it easier to create complete independent sets of *F-Keys* in both *SAWStudio* and the **Midi**

WorkShop before the links are activated.

- ☞ If either of these links are active, pressing non-linked *F-Keys* will close the *Midi WorkShop* window.
- ☞ Regardless of the status of these links, whatever combination of windows are on screen whenever you save the main *SAWStudio F-Key* defaults will be the default setup each time the program boots. For example, if the **Midi WorkShop** is open and visible, the program will start this way each time it is run.

It is recommended that you program the *SAWStudio F-Key* workspace views (or *Alt-F-Keys*) to open up space to house the **Midi WorkShop** window without overlapping other *SAWStudio* windows.

🔗 To setup and link default Midi WorkShop and SAWStudio Workspaces:

SS = SAWStudio

MWS = Midi WorkShop

1. With SS running, press the [F1] key to get a default SS starting screen.
2. Press [Ctrl-F1] to display MWS on top. (Note the space and SS windows that MWS is covering.)
3. Close the MWS window by [Left-Clicking] the close button in the upper right corner.
4. Close all the SS windows that the MWS window was overlapping.
5. Display the MWS window again by pressing [Ctrl-F1].
6. Adjust SS remaining windows to fit around the MWS window so that nothing is overlapping. For instance, adjust the MultiTrack track size and number of tracks so that the MultiTrack stays on top and does not overlap the MWS window, etc.
7. Press [Alt-Shift-F1] to save the SS Alt workspace.
8. To set this as a starting template for other SS Alt workspaces, press [Alt-Shift F2] through [Alt-Shift F12].
9. Test each MWS [Ctrl] F-key workspace and make any changes in SS window sizes and positions so that there are no overlapping windows. For any SS workspaces that have been modified, be sure to press the corresponding [Alt-Shift] F-key to save the SS workspace.
10. Press [Ctrl-F1] to display the default starting MWS workspace.
11. From the MWS File menu, select F-Key File | Save Default to save all the newly configured MWS workspaces as defaults.
12. Close the MWS window.
13. Press the F1 key to display the default starting SS workspace.
14. From the SS File menu, select F-Key File | Save Default to save all the newly configured SS workspaces as defaults.
15. Press [Ctrl-F1] to display the MWS window.
16. From the MWS File Menu, select F-Key File | Link to Saw Alt F-Keys.
17. From the MWS File Menu, select Preferences File | Save Default to save the link option as a default.
18. Exit SS, and restart to test your new F-Key and Alt F-Key workspaces. Pressing any F-Key should display only SS workspaces with the MWS window not visible. Pressing any Alt F-Key should display the MWS window in combination with SS windows.

Getting Started Topics:

- [Accessing the Midi WorkShop](#)
- [The Midi WorkShop Main Window](#)
- [Setting Up the Midi Ports and Patches](#)
- [Bringing Data into the Midi WorkShop](#)
- [Record Mode](#)

2.4 Setting Up The Midi Ports And Patches

The primary function of any MIDI sequencer is to access sound patches, stored inside MIDI sound modules (external, or internal SoftSynths.) The modules are accessed through MIDI ports (hardware MIDI device ports, or internal virtual ports.) Before the **Midi WorkShop** can be used, it needs to know which ports to use, which modules are connected to each port, and the list of patch sounds available in each module.

Sub Topics (Setting Up the Midi Ports and Patches):

[Midi Device Setup](#)
[Patch .ini File Setup](#)
[Instrument Patch Setup](#)

Getting Started Topics:

[Accessing the Midi WorkShop](#)
[The Midi WorkShop Main Window](#)
[Setting Up the Midi Ports and Patches](#)
[Bringing Data into the Midi WorkShop](#)
[Record Mode](#)

2.5 Midi Device Setup

The first thing to do once you've installed the **Midi WorkShop**, is to setup the MIDI Ports.

M From the **Midi WorkShop Options** menu, choose *Midi Device Setup*.

The dialog lists 24 choices for MIDI ports and you may dropdown the listbox for each choice and assign an active MIDI device. The **Midi WorkShop** also creates 16 Virtual MIDI ports that link directly to *SAWStudio* thru the *VST SoftSynth* protocol. You may assign some of the ports to these virtual port links instead of actual hardware MIDI ports. You may also click in the Port xx label area and name the port appropriately. For instance, if Port 01 is connected to your Proteus FX sound module, label it *Proteus-FX* or something relevant. There are output and input port assignments.

Sub Topics (Setting Up the Midi Ports and Patches):

[Midi Device Setup](#)
[Patch .ini File Setup](#)
[Instrument Patch Setup](#)

Getting Started Topics:

[Accessing the Midi WorkShop](#)
[The Midi WorkShop Main Window](#)
[Setting Up the Midi Ports and Patches](#)

[Bringing Data into the Midi WorkShop Record Mode](#)

2.6 Patch .ini File Setup

Next you will need to choose from the available patchlist .ini files, or create your own using the **Patch_Template.ini** file found in the *MidiWorkShop_Configuration* folder under the *SAWStudio Native_PlugIns* folder. Format tips are inside the .ini files as comments.

☞ The .ini files are standard ASCII text files and will open automatically in the Notepad text editor by double-clicking them in the Windows Explorer. (They must be saved as standard ASCII text file format, if edited in anything but Notepad, to function properly.)

The master .ini file is called **Studio_Midi_WorkShop_Patches.ini**. The master group list is in this file and should be referenced in all individual patch device .ini files when assigning patches to groups. Each patch can be included in up to eight groups. You may add to the master group list any number of your own groups by appending names at the end of the list. (See the example below.)

☞ You may find it easier to assign patches to groups actively inside the program using the *Group* window, where you can select and audition each patch as you decide which groups you wish to include them in.

If any of the included .ini files match sound modules that you will be using, you may use those files. Otherwise, use the included .ini files as a reference guide to create your own .ini files that match your sound modules. You will be setting up multiple banks of patch names listing each patch for each sound module you will use. Each module requires its own .ini file. The included **Patch_Template.ini** file can be used as a starting template for each of the sound module files that you create.

Next, you must list the names of the individual patch files (including the .ini extension) in the master file. Only the names listed in the master file will be loaded into the system.

Following is an example of setting up the **Studio_Midi_WorkShop_Patches.ini** master file. The default file before editing looks this:

```
; Studio Midi WorkShop Patch/Sound Device Initialization File
;
; List the names of each device.ini file that you wish to make active
; in the [ACTIVE DEVICES] section of this file
;
; You may add to the pre-defined groups list if desired
;
[ACTIVE DEVICES]
"General_Midi.ini"
"General_Midi_Drums.ini"
;
[GROUPS]
;
;GROUP          NAME
;-----
;
0          "Pianos"
1          "Keyboards"
2          "Synth Leads"
3          "Synth Pads"
4          "Synth Sounds"
5          "Organs"
6          "Bass"
```

```
7      "Guitars"
8      "Drums"
9      "Percussion"
10     "Chromatic"
11     "Mallets"
12     "Strings"
13     "Winds"
14     "Reeds"
15     "Brass / Horns"
16     "Ensemble"
17     "Ethnic"
18     "Ethnic Percussion"
19     "Special Fx"
20     "Ethereal"
21     "Drones"
22     "Vocals"
23     "New Age"
24     "Bells"
25     "Misc"
26     "Rhythmic"
27     "Comp"
28     "Pluck"
;
```

At the top of this file, you'll see comment lines indicated with a semi-colon as the starting character. These lines are for reference only and do not affect how the .ini files work. You are free to add your own comments as desired, being sure to use a semi-colon at the start of each line.

The rest of the file is broken into sections denoted by section names in enclosed brackets. First you'll see the [ACTIVE DEVICES] section of the file, then the [GROUPS] section.

The default entries for the [ACTIVE DEVICES] include two General MIDI .ini files. These are commonly supported standard patch lists. You may replace these file names, or add new file names after them. In the following example, a Proteus FX file name has been added. Note that all filenames are enclosed in quotes:

```
[ACTIVE DEVICES]
"General_Midi.ini"
"General_Midi_Drums.ini"
"Proteus_FX.ini"
;
[GROUPS]
```

The order of the device list determines the order the devices will appear in the *Patch Library* window. If we use the Proteus FX module the most, we may wish to move it to the top of the list as in the following example:

```
[ACTIVE DEVICES]
"Proteus_FX.ini"
"General_Midi.ini"
"General_Midi_Drums.ini"
;
[GROUPS]
```

When adding new groups to the master group list, you should add groups to the end of the list to keep the default groups in their current positions so existing .ini files will function properly.

In the following example, we added a group called "Favorites." Again, note that all group names are enclosed in quotes:

```
[GROUPS]
;
```

```

;GROUP          NAME
;-----
;
0      "Pianos"
1      "Keyboards"
2      "Synth Leads"
3      "Synth Pads"
4      "Synth Sounds"
5      "Organs"
6      "Bass"
7      "Guitars"
8      "Drums"
9      "Percussion"
10     "Chromatic"
11     "Mallets"
12     "Strings"
13     "Winds"
14     "Reeds"
15     "Brass / Horns"
16     "Ensemble"
17     "Ethnic"
18     "Ethnic Percussion"
19     "Special Fx"
20     "Ethereal"
21     "Drones"
22     "Vocals"
23     "New Age"
24     "Bells"
25     "Misc"
26     "Rhythmic"
27     "Comp"
28     "Pluck"
29     "Favorites"
;

```

In the individual sound module .ini files, there are a few special sections that contain customizable options which can be modified to accommodate individual manufacturer differences in how these options are handled.

The [BANK FORMAT] section describes which Bank Switching Format the device should use:

- "MSB-LSB" sends the bank value as Most Significant Bit (value / 128) followed by the Least Significant Bit (value & 0x7f.)
- "MSB-ONLY" sends the bank value as Most Significant Bit (value & 0x7f) followed by the Least Significant Bit (0.)
- "ZERO" sends the bank value as Most Significant Bit (0) followed by the Least Significant Bit (0.)


If the default "MSB-LSB" does not correctly switch banks, then try using one of the other formats and see if that corrects the problem.

Many devices handle bank switching differently, and some not at all. Many will store their patches starting at Bank 0 with patches 0-127; and Bank 1 with patches 0-127, and so forth. Other devices will use high bank numbers for certain patch groups such as Bank 512 with patches 0-127; and Bank 513 with patches 0-127.

The [OFFSET FORMAT] section describes which Offset Format the device should use for displayed Prg numbers:

- "ZERO" displays Prg numbers exactly as entered (Prg# 0 displays as 0).
- "PLUS-1" displays Prg numbers with an offset of +1 added to them (Prg# 0 displays as 1).

After completing all .ini file changes, you must use the *Update Instrument Patch Database From .ini Files* option under the *Options* menu to apply the changes into the actual Patch database. Every time you add instrument bank, prg and name information into an instrument .ini file and want to bring that data into the **Midi WorkShop** program, select this option.

 Be aware, that all instrument definition .ini files listed in the master .ini file (*Studio_Midi_WorkShop_Patches.ini*) will be re-scanned and a new patch database will be constructed. If group additions are made from inside the program, be sure to use the *Export Instrument Patch Database To .ini Files* option under the *Options* menu, to export the current patch database to the individual instrument definition .ini files. All new group assignments and other changes will be neatly formatted and exported to each of the individual .ini files involved in building the database. If you update any group assignments, be sure to use this option to re-build the .ini files with the new assignments included, or the next time you use the *Update Instrument Patch Database From .ini Files* option, all group assignments will be lost because the original .ini files will be used to re-build the database.

Sub Topics (Setting Up the Midi Ports and Patches):

[Midi Device Setup](#)
[Patch .ini File Setup](#)
[Instrument Patch Setup](#)

Getting Started Topics:


[Accessing the Midi WorkShop](#)
[The Midi WorkShop Main Window](#)
[Setting Up the Midi Ports and Patches](#)
[Bringing Data into the Midi WorkShop](#)
[Record Mode](#)

2.7 Instrument Patch Setup

Once the patch database has been constructed, you will need to assign these patch devices to MIDI ports and channels to take advantage of the **Midi WorkShop's** ability to automatically link individual patches from the *Patch Library* to the correct port and channel.

M From the **Midi WorkShop Options** menu, choose *Instrument Patch Setup*.

The dialog displays a current active port choice and 16 MIDI chan choices. You can click in the port area to select a different port, and you can click each MIDI chan area to select and assign that chan to a specific patch device.

 When selecting a patch device you may hold down the [Ctrl] key to assign that device to all MIDI channels of that port at one time. Otherwise, you can assign each chan to any combination of patch devices.

The **Midi WorkShop** will use these links as a reference to facilitate quick patch selection and track port, chan, bank and prg assignments.

- 🕒 Taking the time initially to set up your patch device .ini files and assignments is an important step to gain the benefits of the patch database handling that is so uniquely designed in the **Midi WorkShop**, which can save you hours during the creating and editing phases of your MIDI sessions.

Sub Topics (Setting Up the Midi Ports and Patches):

[Midi Device Setup](#)
[Patch .ini File Setup](#)
[Instrument Patch Setup](#)

Getting Started Topics:

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2.8 Bringing Data into the Midi WorkShop

To get started with exploring the interface and editing functions in the **Midi WorkShop**, you should bring some data into the *MultiTrack* in one of two ways.

- 1) Import a standard MIDI file from another sequencer program or downloaded Internet source. The *Import Midi File* function is available under the **Midi WorkShop File** menu.
- 2) Record data directly into the **Midi WorkShop MultiTrack**. (See *Record Mode* below.)

With data on one or more tracks, you can begin exploring the interface and navigation commands. To save complete **Midi WorkShop** sessions save the session from *SAWStudio* itself. The current .edl will link to a new companion file with a .edl_mws extension. To re-open the session, open the session from *SAWStudio* and it will automatically open the linked **Midi WorkShop** file.


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[Record Mode](#)






2.9 Record Mode

Engaging *Record* mode is a simple procedure.

To record MIDI into the *Midi WorkShop MultiTrack*:

1. Turn on the *Midi Thru* by clicking the *Midi Thru* light.
2. [Double-Click] a patch to Track 1 from the *Patch Library* window.
3. Arm the track for record by [Left-Clicking] the *Rec Light* on Track 1.
 -  When engaging record on a track, the status of the *Midi Thru* button is latched into that track's record setup. If the *Midi Thru* is off when you engage the record button, no midi data will be passed thru on the record port.
4. Begin recording by [Left-Clicking] the *Record Transport* button or pressing the [Enter] key.

Punching In

-  You may begin playback by [Left-Clicking] the *Transport Play* button or pressing the [Spacebar], and then punch-in on the fly by [Left-Clicking] the *Transport Rec* button or pressing the [Enter] key.
-  You may also set a *Marked Range* and begin playback by [Left-Clicking] the *Transport Rec* button or pressing the [Enter] key to arm the record mechanism. Recording will automatically punch-in and out at the *Marked Range* boundaries. Initiating playback by [Left-Clicking] the *Transport Play* button or pressing the [Spacebar] will initiate playback only, and temporarily override the auto-record punch.
-  If *SAWStudio* is set to record, the *Record Transport* buttons in *SAWStudio* may be used to begin recording simultaneously in the ***Midi WorkShop*** also.
-  Any existing data on the track will be muted during recording and overwritten with new data when the *Stop* button is clicked, unless the *Midi Merge* feature is activated for that track, in which case the existing data will not be muted, and the new data will be merged with the existing data. The auto-scaling routines will be used to focus and center newly recorded data on the track.
-  When recording is engaged, the virtual piano keyboard display is active and can be used to record MIDI notes. The keyboard records the current *Hot Track* if that track's Record button is engaged.

If a track is armed for record and recording is initiated but no MIDI data is input from the controller device, the track is left intact.

Punch-ins and outs in the middle of sustained note data will be corrected automatically by creating the proper note-on and off information at the punch points.

Getting Started Topics:

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[The Midi WorkShop Main Window](#)
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[Record Mode](#)

3 The Midi WorkShop MultiTrack Window

3.1 The Midi WorkShop MultiTrack Window





The *MultiTrack* is the heart of the **Midi WorkShop**. The *Top Client Area* displays a full 10-octave richly designed piano keyboard graphic, giving access to the complete MIDI keyboard range. Many active zones and buttons provide quick access to many of the program features.

The Midi WorkShop MultiTrack Window Topics:















[Navigation](#)
[Track Number Zone](#)
[Track Label Readout Display](#)
[Rec Light](#)
[Mute Light](#)
[Solo Light](#)
[Meter Readout Display](#)
[Zm In/Out Zones](#)
[Zm Up/Dn Zones](#)
[MT Top Client Area](#)
[Creating and Working with Marked Ranges](#)
[Select Mode Navigation](#)

3.2 Navigation (MultiTrack Window)

Learning this list of navigation keyboard and mouse moves is vital to the efficient operation and ease of use of the **Midi WorkShop**. Take the time to go through this short list and practice each one so that you are comfortable with moving around the *MultiTrack* window.

-  The *MultiTrack* view contains 128 tracks and may be scrolled in any direction by [Left-Dragging] the mouse and pushing toward any border. [Left-clicking] near any of the four borders will increment or decrement the display in the applicable direction.
-  [Left-Clicking] in a new track, selects that as the current *HotTrack*. The current *HotTrack* is displayed with white borders and becomes the focus of many editing and selection functions. The cursor position will not change when changing *HotTracks*. The cursor can only be dragged on the *HotTrack* after it has been selected.
-  Pressing the [Up-Arrow] or [Dn-Arrow] keys will decrement or increment the current *HotTrack*.
-  A *Wheel* mouse can be used to zoom the display in and out. Pressing the [Alt] key while using

the *Wheel* will decrement or increment the current *HotTrack*.

-  Pressing the Numpad [Plus] or [Minus] keys will zoom the *MultiTrack* in or out.
-  Pressing the [Left-Arrow] or [Right-Arrow] keys in *Normal Mode* will move the cursor one pixel to the left or right on the timeline. The number of samples moved depends on the current zoom level.
-  Pressing the [Left-Arrow] or [Right-Arrow] keys in *Measure Map Mode* will move the cursor to the previous or next measure grid line.
-  Pressing [Shift-Left-Arrow] or [Shift-Right-Arrow] will jump the cursor to the previous or next tempo map entry.
-  Pressing [Ctrl-Left-Arrow] will jump the cursor to the *Mark Begin* position.
-  Pressing the [Ctrl-Right-Arrow] will jump the cursor to the *Mark End* position.
-  Pressing the [Home-Key] or [Left-Clicking] in the zone to the right of any track's *Solo Light* will snap the cursor to the beginning of the session.
-  Pressing the [End] key will snap the cursor to the end of the session.
-  Pressing the [Tab] key will snap the cursor to the next note start position. Pressing [Shift-Tab] will snap the cursor to the previous note start position.
-  Pressing the [G] key will toggle the *Grid Mode* on and off.
-  Pressing the [L] key will activate SAWStudio's Live Input Mode. The cursor will change shape giving visual feedback when Live Input Mode is active. VST Synths may now be scrubbed while Live Input Mode is active. [Right-Clicking] or pressing the [L] key again, or [SpaceBar], or Stop button will exit Live Input Mode. Editing features and certain positioning features will be disabled in Live Input Mode.
-  Pressing the [S] key will toggle *Select Mode* on and off.
-  [Right-Clicking] in the track display area will toggle playback on and off. Pressing the [Spacebar] will also toggle playback.
-  [Left-Dragging] across MIDI note data on a track displays the data on the MIDI Keyboard display in the *Top Client Area*. This display chases the current *HotTrack*.


The Midi WorkShop MultiTrack Window Topics:


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[Track Number Zone](#)
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[Mute Light](#)
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3.3 MT Scrub Mode


Scrub Mode allows you to drag over and hear individual notes, chords, or multiple tracks of MIDI data, while viewing the notes on the MIDI keyboard display.

 When VST SoftSynths are used, SAWStudio's *Live Input Mode* must be activated to hear the SoftSynth audio output. Pressing the [L] key will toggle *Live Input Mode*, or [Right-Clicking] the MWS Transport Play button will also toggle *Live Input Mode*.


 [Right-Dragging] across MIDI note data on a track activates *MIDI Scrub Mode*, and you will see and hear the data as you drag. You may begin this mode in the middle of a note sustain or approach from the front or back of a note, and the engine will chase and start the note automatically. You may slide to a different track without releasing the mouse and the audio chase will switch with you.

 Pressing the [Shift] key while dragging will leave the current track's sound active as you change tracks, mixing in the new track sound with the former. You may use this mode to audition multiple track horn parts for example.

Releasing the [Shift] key and continuing to move the mouse will cancel the multiple mode and scrub the current *HotTrack* only.

 Pressing the [Ctrl] key while dragging will scrub all tracks allowing you to audition the entire MIDI mix.

Releasing the [Ctrl] key and continuing to move the mouse will cancel the multiple mode and scrub the current *HotTrack* only.

 Pressing the [Alt] key while dragging will cancel all active notes in a chord and scrub only individual notes as you slide across them in a vertical direction.

Releasing the [Alt] key and continuing to move the mouse will cancel the single note mode and return to normal scrub mode.

If you are on a current selected track of a group of selected tracks, you will scrub the selected tracks as a group. Sliding onto a non-selected track will cancel the multiple mode and scrub the current *HotTrack* only.

Midi WorkShop Basics Topics:

[MT Scrub Mode](#)

3.4 Track Number Zone

- ☞ [Left-Clicking] or [Left-Dragging] in the track number zone selects that track and highlights the number.
 - ☞ [Alt-Left-Clicking] in another track number zone selects all tracks from the last selected track to the current.
 - ☞ [Ctrl-Alt-Left-Clicking] in any track number zone selects all tracks.
 - ☞ [Right-Clicking] in any track number zone clears all selections.
- ☞ Selected tracks are used to perform certain functions across multiple tracks at the same time. When any tracks are selected, initiating playback causes only those tracks to initialize and play.

The Midi WorkShop MultiTrack Window Topics:

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3.5 Track Label Readout Display

- ☞ [Left-Clicking] a track label allows you to name the track.
- ☞ Pressing the [Ctrl] key while clicking the track label allows you to enter a loop label mode which will continue automatically down to successive tracks until the [Esc] key is pressed, or the [Close Zone] is clicked to cancel.
- ☞ [Right-Clicking] a track label displays the popup Track Properties menu which contains options that apply globally to the current track, or selected tracks if the current track is part of the selected group.

The Track Properties Menu


→ Select Port


This option allows you to select a MIDI port for this track from a popup menu of assigned MIDI ports. These can be hardware MIDI devices or MWS virtual ports for use with VST plug-in synths.

 Pressing the [Ctrl] key while selecting options from this menu will affect all tracks. If this track is one of a current group of selected tracks, all selected tracks will be included in the operation.

→Select Chan


This option allows you to select a MIDI channel for this track from a popup menu of MIDI channels. Any MIDI channel for this port that is already assigned to another track will display a <> symbol next to the channel number.

 Pressing the [Ctrl] key while selecting options from this menu will affect all tracks. If this track is one of a current group of selected tracks, all selected tracks will be included in the operation.

 To effectively clear a track assignment, set the Chan to *None*. It will clear the Bank and Prg fields automatically.


→Select Bank

This option allows you to enter a MIDI bank number for the patch assignment for this track, although patch programs are more easily selected from the *Patch Library* window.

 Pressing the [Ctrl] key while selecting options from this menu will affect all tracks. If this track is one of a current group of selected tracks, all selected tracks will be included in the operation.

→Select Prg

This option allows you to enter a MIDI program number for the patch assignment for this track, although patch programs are more easily selected from the *Patch Library* window.


 Pressing the [Ctrl] key while selecting options from this menu will affect all tracks. If this track is one of a current group of selected tracks, all selected tracks will be included in the operation.


→Disable Track

This option disables the current track and removes all MIDI data from the output stream during playback. When this option is active, the track displays as crossed out, and MIDI notes are dimmed. This option differs from a muted track, which still outputs controller and MIDI note off data in case the track is unmuted during play. The *Disable Track* option can not be toggled while playback is active, so it does not have to chase controller data.

→Copy Settings to Selected Tracks

This option allows you to first select destination tracks and then copy the patch settings from the current track to all selected destination tracks.

 Only one track is allowed to be the master track which contains and sends Bank and Prg data. All tracks on the same Port and Chan must share the same sound patch. If you select a track which has other tracks on the same Port and Chan, and change the patch, that track will become the new master for the group.

 Assigning multiple tracks to the same Port and Chan is useful for splitting drum and percussion information onto separate tracks, each instrument sound being played by a different MIDI note or range of notes.

→Copy Settings to Selected Tracks [No Label]

This option works the same as the above option, but does not transfer the label to the destination tracks.

→Create Click / Conductor Track to Cursor Position

This option can be used to automatically create a click track that chases all tempo and time signature changes along the timeline. Place your *MT Cursor* at the end of the session and select this option. Newly created click/conductor tracks will automatically use the auto scaling routines to focus and center click data on the track. Separate measure and beat notes will be placed on the track. These can be easily manipulated to different note positions to create any desired measure and beat sound.

You may freely select a Port and Patch for the *Conductor Track* to access any sounds you desire. All of these adjustments can be saved as a default by using the *Save Click/Conductor Track Settings* option.

→Extend / Shrink Click / Conductor Track to Cursor Position

This option allows you to place the cursor to a new position and extend or shrink the existing click track.

→Clear Click / Conductor Track

This option clears the track and resets all track parameters.

→Save Click / Conductor Track Settings

This option saves all port, channel, program, and note information as the default for creating subsequent conductor tracks.

→Open Connected VST Synth Module

This option will be active when a VST Synth is connected on this track to a MWS Virtual Port. By selecting this option, the program opens the correct VST Synth module window directly, without having to go to SAWStudio's patch windows.

→Pre-Allocate Record Buffer

This option can be used to pre-allocate a large record buffer on a midi track to help overall system performance and stability for live linked recordings with SAC. This eliminates the constant need to increase record buffer sizes live during the record process as more space is needed. The constant re-sizing can put a strain on the system as memory is constantly being allocated and re-allocated. The number of max entries for the play buffer and record buffer are now displayed in the lower right corner of the track label. The play buffer size is normally displayed and the record buffer size displays when the track is armed for record.

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3.6 Rec Light

-  Left-Clicking] the *Rec Light* engages a track for recording. The status of the *Midi Thru* button is latched into that track's record setup. If the *Midi Thru* is off when you engage the record button, no midi data will be passed thru on the record port. The current *Midi Thru* port is assigned by default to the track and will record data coming from that controller.
-  When engaging a second record track, a popup menu offers a choice of MIDI input ports. Each track must get its data from separate MIDI ports.
-  [Right-Clicking] the *Rec Light* displays a popup menu of options:

MIDI Input Port List

You may select any different MIDI input port to feed the recording signal for this track. This facilitates recording from multiple MIDI controllers on different tracks at the same time.

Midi Thru







This option may be toggled to pass Midi Thru data for this record port. This option will not be active until a port is selected. The menu stays active after toggling this option, displaying the current status change. Click anywhere outside the menu to close it when finished.

Midi Merge

This option may be toggled to merge the new recording with already existing track data. This option will not be active until a port is selected. The Merge option remains active for this port and follows it to whatever track is set to record from this same port. The menu stays active after toggling this option, displaying the current status change. Click anywhere outside the menu to close it when finished.

Midi Multi

This option will assign the current track and the next 15 tracks in Record Mode and accept a multi-channel MIDI signal from one device port, and split the 16 MIDI channels to the 16 separate record tracks. This can be useful when dumping from hardware MIDI sequencers in one pass, splitting the separate MIDI channel information into up to 16 separate tracks for further editing in the MWS.

-  [Left-Clicking] the *Transport Rec* button or pressing the [Enter] key will begin recording.
-   You may begin playback by [Left-Clicking] the *Transport Play* button or pressing the [Spacebar], and then punch-in on the fly by [Left-Clicking] the *Transport Rec* button or pressing the [Enter] key.
-  You may also set a *Marked Range* and begin playback by [Left-Clicking] the *Transport Rec* button or pressing the [Enter] key to arm the record mechanism. Recording will automatically punch-in and out at the *Marked Range* boundaries. Initiating playback by [Left-Clicking] the *Transport Play* button or pressing the [Spacebar] will initiate playback only, and temporarily override the auto-record punch.
-  If *SAWStudio* is set to record, the *Record Transport* buttons in *SAWStudio* may be used to begin recording simultaneously in the **Midi WorkShop** also.
-  Any existing data on the track will be muted during recording and overwritten with new data when the *Stop* button is clicked, unless the *Midi Merge* feature is activated for that track, in which case the existing data will not be muted, and the new data will be merged with the

existing data. The auto-scaling routines will be used to focus and center newly recorded data on the track.

If a track is armed for record and recording is initiated but no MIDI data is input from the controller device, the track is left intact.

Punch-ins and outs in the middle of sustained note data will be corrected automatically by creating the proper note-on and off information at the punch points.

- ☞ When recording is engaged, the virtual piano keyboard display is active and can be used to record MIDI notes. The keyboard records the current *Hot Track* if that track's *Record* button is engaged.

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3.7 Mute Light

- ☞ [Left-Clicking] any track *Mute Light* mutes MIDI data on that track.
- ☞ Muted tracks still chase and send MIDI controller data so that the track can be unmuted at any time and still maintain proper data sync.

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3.8 Solo Light

- ☞ Left-Clicking] any track *Solo Light* solos MIDI data on that track along with data on any other soloed track.
- ☞ The *Master Solo Btn/Light* in the *Top Client Area* flashes in normal solo mode and all solos may be canceled at once by [Left-Clicking] on the *Master Solo Light*.

The Midi WorkShop MultiTrack Window Topics:

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3.9 Meter Readout Display


The *Meter Readout* display shows active *Note-On* velocity references during playback. The value can not represent the actual volume of the data, since that depends on the actual patch as well as many other factors, but does give an accurate reference of the velocity data stored in the database itself. You can use it to see active data as well as to determine whether the data velocity levels are too low or exceedingly high. These can then be adjusted in many ways with the various editing functions. The meters have a built-in decay response that simulates, to some degree, an actual audio response curve for short duration notes.

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3.10 Zm In/Out Zones



 [Left-Clicking] the *Plus* or *Minus* Zm zones zooms the display accordingly.

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3.11 Zm Up/Dn Zones

 [Left-Clicking] the *Up/Dn* zones shifts the MIDI note display bottom reference grid up or down, effectively shifting MIDI notes of different octaves into the center of the display.

  [Shift-Left-Clicking] the *Up/Dn* zones expands or compresses the octave display range from the full 10 octaves to 1 octave, effectively showing more or less data.

Placing the mouse pointer within these zones and using the *Wheel* in a continuous motion can also adjust the offset or range in either direction.

  [Ctrl-Left-Clicking] the *Up/Dn* zones auto ranges and centers the display data to fit the track display area. This can be useful to find MIDI data that starts out of the track display area because it might be in a different octave range than is currently visible.

 Pressing the [PgUp/PgDn] keys will adjust the track height, effectively scaling the display data accordingly.

Take a moment to create different number key workspace views with larger track sizes and less tracks for zoomed-in close editing work. Then with the touch of key your screen display can shift from a fully zoomed out view of multiple tracks, to a magnified zoomed in view of one or two tracks.

- ☞ The **Midi WorkShop** comes with a default set of workspace views. Take a moment to press [Ctrl-F1] through [Ctrl-F12] on the keyboard to familiarize yourself with these workspaces. See the section called "*The Midi WorkShop Main Window*" for information on creating your own workspace views.

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3.12 MT Top Client Area

- ☞ The *Top Client Area* displays the MIDI Keyboard which can be actively used to test sound patches by [Left-Clicking] on the display keys.
- ☞ You may [Left-Drag] to slide quickly up and down the octaves.

The MIDI Keyboard also chases playback data on the current *HotTrack*.

Many of the zones in this area have small triangular markings in different corners. These markings denote that a [Left-Click] near that corner will initiate some action, like displaying a menu of options, or opening a dialog for keyboard data entry.

Up/Dn Zone

- ☞ [Left-Clicking] the *Up/Dn Zone* displays a *Track Selection* menu allowing you to jump instantly to any track.

Transport Buttons

- ☞ [Left-Clicking] the *Transport* buttons will control playback and record functions. ☞ See *Record Mode* for information on using the *Record* transport button.
- ☞ [Right-Clicking] the *Transport* play button will toggle *Live Input Mode* on and off. *Live Input Mode* is useful for auditioning and setting up VST Synth plug-ins.

Select Light

- ☞ [Left-Clicking] the *Select Light* toggles *Select Mode* on and off. *Select Mode* is used to select

multiple notes for editing operations.

*See *Select Mode Navigation* for more information on using *Select Mode*.

Grid/Quantize Note Zone

☞ [Left-Clicking] the *Grid/Quantize Note* zone displays a menu of note durations that are used for the snap-to-grid option and for all quantize operations.

Grid Light

☞ [Left-Clicking] the *Grid Light* toggles *Snap-To-Grid Mode* on and off. When *Grid Mode* is active, all cursor movements will be restricted to the note duration selected in the *Grid/Quantize Note* zone.

Step Record Light

☞ [Left-Clicking] the *Step Record Light* toggles *Step Record Mode* on and off for the current *HotTrack*. The track must have a port and midi channel assignment or this mode will not enter data. The cursor shape changes to denote that the mode is active. If using VST synth modules, make sure to activate *Live Mode* so you can hear the audio output as you move down the timeline. ([Right-Clicking] on the *Play* button is one of several ways to activate *Live Mode*.)

When *Step Record Mode* is active, you can move the cursor freely with the mouse along the timeline, or use the [Left/Right Arrow] keys. Turning *Grid Mode* on is a nice way to step precisely down the timeline according to the *Grid Note* duration using the arrow keys.

You may now use the virtual Midi Keyboard display to enter notes with the mouse, while you use the arrow keys to step forward or backward. If you hold the note on and move the cursor, the note duration will be determined by where the cursor is when you release the note. If you press and release a note without stepping the cursor, the note duration will default to the *Grid Note* length, regardless of whether the *Grid Mode* is active or not. You can enter chords, one note at a time without moving the cursor, then step forward. You may also play notes or chords on your midi keyboard controller and they will record.


By [Right-Clicking] on the *Step Record* button once *Step Record Mode* is active, the light turns yellow indicating an auto step feature is started which will slowly advance down the timeline smoothly if the *Grid Mode* is off, or snapping to the grid setting if the *Grid Mode* is on. [Left-Clicking] in the *Minus* or *Plus* zones on either side of the *Step Record* light will decrease or increase the auto step speed, allowing you to playback the sequence at a crawling pace or at a speed near realtime. The existing track data will be played across all tracks, except the current *HotTrack* that is recording new data. If you click the minus zone to slow the auto advance down to a stop or [Ctrl-Click] the minus zone, you enter single note advance mode and the cursor now advances automatically to the next grid position after every note is stepped in, as long as the grid mode is active. If you play a chord, the advance will occur when the last note of the chord group is released.

You can use the *Select Track* options to play only selected tracks, or select only the *HotTrack* to mute the sound completely. The auto step allows you to step in complex music passages at a very slow speed. If the *Grid Mode* is on, the notes will auto-quantize as they are stepped in. [Right-Click] the light again, to toggle off the auto step mode, or [Left-Click] the light to exit *Step Record Mode* while leaving the auto settings active for next time.

While *Step Record Mode* is active, you can still mark and delete entire sections, or select single notes and delete them with the delete key. You can jump the cursor forward and backward by [Left-Clicking] in the *HotTrack*.

You must exit *Step Record Mode* to regain control of the rest of the Midi Workshop features and normal playback operation.


Step Draw Light

 [Left-Clicking] the *Step Draw Light* or pressing the [D] key (when the MT window is active) toggles *Step Draw Mode* on and off for the current *HotTrack*. The cursor shape changes to denote that the mode is active. If using VST synth modules, make sure to activate *Live Mode* so you can hear the audio output as you move down the timeline. ([Right-Clicking] on the *Play* button is one of several ways to activate *Live Mode*.)

When *Step Draw Mode* is active, you can move the cursor freely with the mouse along the timeline and up and down within the *HotTrack*. Turning *Grid Mode* on is a nice way to step precisely down the timeline according to the *Grid Note* duration. The up and down movement of the mouse will select the note, and display the note value in the *Note Zone Readout* display and on the virtual Midi Keyboard display. The sideways movement of the mouse will set the note start position and display its value in the *Note Start Position Zone Readout* display.

[Left-Clicking] will create a new note at the current position with a duration of the current *Grid Note* length. If you hold the left mouse button down when you create the note, the cursor automatically changes to the *Extend Cursor* shape and jumps to the end of the note, allowing you to drag the end position longer or shorter, thereby changing the duration. The duration value will be displayed in the *Note Duration Zone Readout* as you drag. Releasing the mouse button will redraw the note at the new duration.


An undo file is created for each new note, so you can undo your way backwards a step at a time.

 [Right-Clicking] on any note while *Step Draw* is active will delete the note without forcing you to exit *Step Draw Mode*.

You must exit *Step Draw Mode* to regain control of the rest of the Midi Workshop features and normal playback operation.


Tempo Readout Display

The *Tempo Readout* display chases the current tempo as the cursor is moved through the timeline.

 [Left-Clicking] in the top left-half of the display will decrement the current tempo by 1.

[Left-Clicking] in the top right-half of the display will increment the current tempo by 1. (Notice the triangular markings in the top corners)

Metronome Zone

 [Left-Clicking] in the *Metronome* graphic zone will display a menu of options for adjusting tempo. This graphic also animates the *Click/Conductor* track data to display a visual reference of tempo.

*See *Tempo Manipulation* for more information on metronome options.

Time Signature Readout Display

The *Time Signature Readout* display chases the current time signature as the cursor is moved through the timeline.

- ☞ [Left-Clicking] the *Time Signature* zone will display a menu of options for adjusting time signatures.
*See *Time Signature Manipulation* for more information on time signature options.

Midi Thru Light

- ☞ [Left-Clicking] the *Midi Thru Light* toggles *Midi Thru Mode* on and off.

When this mode is active, incoming MIDI data from an external keyboard controller is passed through the system and re-routed to the proper Port and Chan of the current *HotTrack*. Therefore, one MIDI keyboard is able to play each instrument patch on each track as you change the *HotTrack*. During playback, the MIDI Thru will remain locked on the *HotTrack* that was active when playback was started. Changing *HotTracks* will no longer affect the MIDI Thru routing until playback is stopped, at which time the MIDI Thru will chase to the Port and Chan of the current *HotTrack*.

- ☞ [Right-Clicking] the *Midi Thru Light* displays a menu of active input devices. You may select a different MIDI controller if more than one is connected to the system.

Mute Audio Light

- ☞ [Left-Clicking] the *Mute Audio Light* mutes all audio playback from *SAWStudio* allowing you to instantly reference just the MIDI portion of a session.

Mute Midi Light

- ☞ [Left-Clicking] the *Mute Midi Light* mutes all MIDI playback from the *Midi WorkShop* allowing you to instantly reference just the audio portion of a session.

Master Solo Light

- ☞ [Left-Clicking] the *Master Solo Light* activates *HotTrack Solo Mode* which solos the current *HotTrack* and chases the *HotTrack* as you change it.

The light remains on solid in this mode and the mode may be canceled by [Left-Clicking] the *Solo Light* again.

Note Readout Display

The *Note Readout* display zone shows the currently selected note. As you click or slide the mouse over a note on the current *HotTrack*, this readout display shows the note number. The currently selected note itself is drawn in white. As you move to another note, the display and note highlight switches. In normal mode, only one note at a time will be highlighted. In *Select Mode*, all selected notes will be highlighted in white and this readout zone will display the current key entry.

- ☞ Occasionally, you may see a stuck note which has lost its NOTE-OFF data entry for some reason. If you see a note stretching across a track with no off position, you can click on it, as if to select it as the active note and it will sense and correct the missing Note-Off data by cutting the note duration to the current Grid Note value. You can then adjust its length freely.
- ☞ [Right-Clicking] in this zone will clear the currently active note (or *Key Entry*) and also clear the note highlight.
- ☞ [Left-Clicking] in this zone (when there is a currently active note displayed), changes the mouse cursor to a hand shape and snaps the mouse to the virtual keyboard on the active note. While keeping the mouse button pressed, you are free to slide up and down the

keyboard to select a transposed note value. The notes will sound on the track's corresponding MIDI device. When the mouse is released, the currently selected note, (or all selected notes if in *Select Mode*) will be transposed to the new relative values, and the mouse will return to the *Note* zone.

☞ [Left-Clicking] in the *Plus and Minus (+ / -)* zones under the *Note Readout Display* increments and decrements the currently selected note (or all selected notes if in *Select Mode*) pitch value. The new note will sound on the track's corresponding MIDI device until you release the mouse button.

On and Off Vel Zones

The *On Vel* and *Off Vel* zones show the on and off velocity values of the currently selected note. Both of these zones can also be used to change the respective values of the currently selected note.

- ☞ [Left-Clicking] in the *On Vel* zone displays a menu of options. Keyboard equivalent shortcut keys (if any) are displayed next to each option.
- M** The *Note-On Velocity [Menu] - Set* option displays a menu of direct value choices. Clicking on any value will set the note-on velocity.
 - M** The *Note-On Velocity [Menu] - Offset* option displays a menu of plus/minus offset value choices. Clicking on any value will offset the current note-on velocity by that amount.
 - M** The *Note-On Velocity [Menu] - Scale %* option displays a menu of plus/minus percentage value choices. Clicking on any value will scale the current note-on velocity by that percentage.
 - M** The *Note-On Velocity [Keyboard] - Set* option displays a keyboard entry dialog box. Enter a direct value between 0 and 127 to set the note-on velocity.
 - M** The *Note-On Velocity [Keyboard] - Offset* option displays a keyboard entry dialog box. Enter an offset value between -127 and +127 to offset the current note-on velocity by that amount.
 - M** The *Note-On Velocity [Keyboard] - Scale %* option displays a keyboard entry dialog box. Enter a percentage offset value between -100 and +100 to scale the current note-on velocity by that percentage.
- ☞ [Left-Clicking] in the *Off Vel* zone displays a menu of options. Keyboard equivalent shortcut keys (if any) are displayed next to each option.
- M** The *Note-Off Velocity [Menu] - Set* option displays a menu of direct value choices. Clicking on any value will set the note-off velocity.
 - M** The *Note-Off Velocity [Menu] - Offset* option displays a menu of plus/minus offset value choices. Clicking on any value will offset the current note-off velocity by that amount.
 - M** The *Note-Off Velocity [Menu] - Scale %* option displays a menu of plus/minus percentage value choices. Clicking on any value will scale the current note-off velocity by that percentage.
 - M** The *Note-Off Velocity [Keyboard] - Set* option displays a keyboard entry dialog box. Enter a direct value between 0 and 127 to set the note-off velocity.
 - M** The *Note-Off Velocity [Keyboard] - Offset* option displays a keyboard entry dialog box. Enter an offset value between -127 and +127 to offset the current note-off velocity by that amount.

- M** The *Note-Off Velocity [Keyboard] – Scale %* option displays a keyboard entry dialog box. Enter a percentage offset value between -100 and +100 to scale the current note-off velocity by that percentage.
- ☞ [Left-Clicking] in the *Plus and Minus (+ / -)* zones under the *On / Off Vel* zones increments and decrements the currently selected note (or all selected notes if in *Select Mode*) *Note On* or *Off* velocity value.

Start Time Zone

The *Start Time* zone shows the start time of the currently selected note.

- ☞ [Left-Clicking] in this zone displays a menu of options. Keyboard equivalent shortcut keys (if any) are displayed next to each option.
- M** The *Quantize To Grid [Entire Note] {Q}* option snaps the selected note to the nearest grid point determined by the note duration selected in the *Grid/Quantize Note* zone. The front to back percentage used is 50%. If the note is closer than 50% to the earlier grid point, it snaps earlier, otherwise it snaps later. The entire note is moved keeping the note duration intact.
- M** The *Quantize To Grid-Lean Earlier [Entire Note] {Shift-Q}* option snaps the selected note to the nearest grid point determined by the note duration selected in the *Grid/Quantize Note* zone. The front to back percentage used is 70%. If the note is closer than 70% to the earlier grid point, it snaps earlier, otherwise it snaps later. The entire note is moved keeping the note duration intact.
- M** The *Quantize To Grid-Lean Later [Entire Note] {Ctrl-Q}* option snaps the selected note to the nearest grid point determined by the note duration selected in the *Grid/Quantize Note* zone. The front to back percentage used is 30%. If the note is closer than 30% to the earlier grid point, it snaps earlier, otherwise it snaps later. The entire note is moved keeping the note duration intact.
- M** The *Quantize To Grid [Start Time Only]* option snaps the selected note-start-time only, to the nearest grid point determined by the note duration selected in the *Grid/Quantize Note* zone. The front to back percentage used is 50%. If the note is closer than 50% to the earlier grid point, it snaps earlier, otherwise it snaps later. The note duration is altered accordingly.
- M** The *Quantize To Grid-Lean Earlier [Start Time Only]* option snaps the selected note-start-time only, to the nearest grid point determined by the note duration selected in the *Grid/Quantize Note* zone. The front to back percentage used is 70%. If the note is closer than 70% to the earlier grid point, it snaps earlier, otherwise it snaps later. The note duration is altered accordingly.
- M** The *Quantize To Grid-Lean Later [Start Time Only]* option snaps the selected note-start-time only, to the nearest grid point determined by the note duration selected in the *Grid/Quantize Note* zone. The front to back percentage used is 30%. If the note is closer than 30% to the earlier grid point, it snaps earlier, otherwise it snaps later. The note duration is altered accordingly.
- ☞ [Left-Clicking] in the *Plus and Minus (+ / -)* zones under the *Start Time* zone increments and decrements the currently selected note (or all selected notes if in *Select Mode*) *Note Start Time* position.

Duration Zone

The *Duration* zone shows the duration of the currently selected note.

- ☞ [Left-Clicking] in this zone displays a menu of options. Keyboard equivalent shortcut keys (if any) are displayed next to each option.
- M** The *Set Duration To Grid* option sets the duration of the selected note to the note duration selected in the *Grid/Quantize Note* zone.
- M** The *Scale Duration By Percentage [Menu]* option displays a menu of percentage choices. Click on any percentage to scale the duration up or down based on the selected value.
- M** The *Scale Duration By Percentage [Keyboard]* option displays a keyboard entry dialog box. Enter a percentage value between -100 and +100 to scale the duration up or down based on the selected value.
- ☞ [Left-Clicking] in the *Plus and Minus (+ / -)* zones under the *Duration* zone increments and decrements the currently selected note (or all selected notes if in *Select Mode*) *Note Duration* value.

Controller Display Light

- ☞ [Left-Clicking] the *Controller Display Light* toggles the *Controller Display Mode* on and off.

When this mode is active, the notes dim to a grey color and all MIDI controller (and other non-note) data is displayed as different colored lines. The height of the lines gives a visual reference of their data value. Editing functions will now manipulate controller data instead of note data. This mode should be turned off when controller manipulation is finished.

- ☞ Pressing [Ctrl-Tab] jumps you forward to the next controller entry.
- ☞ Pressing [Ctrl-Shift-Tab] jumps you backward to the previous controller entry.
- ☞ [Right-Clicking] the *Controller Display Light* displays a menu of options for drawing controller data directly into the *MultiTrack*. These options will only be enabled when *Control Display Mode* is on.

☞ See *Controller Data Editing* for more information on working with MIDI controller data.

Controller Filter Light

- ☞ [Left-Clicking] the *Controller Filter Light* toggles the *Controller Display Filter* on and off.

When the filter is active, only data that matches the filter criteria will display. The default filter is set to display the last active controller data type. To use this effectively, slide the mouse thru the data with the filter off to a position just past a specific controller data type. Turn the filter on and all other controller data will disappear, leaving only the specific data type displayed.

- ☞ [Right-Clicking] on the *Controller Filter Light* displays a menu of all filter data types. The first 128 values are the defined MIDI Controller types and the last column adds other specific non-note data types of interest. Selecting an item from the menu will set the filter to that data type and activate the filter if it was off. The filter will automatically turn off when the *Controller Display Mode* is turned off.

Controller Value Zone

The *Controller Value* zone shows the value of the last controller entry at or to the left of the *MultiTrack* cursor when the *Controller Display Mode* is active. This zone can also be used to change the value of

the corresponding controller entry. If a *Marked Range* is active on the timeline, all controller values of the active data type will be altered. If the *HotTrack* is one of a selected group of tracks, all matching data types on all selected tracks will be altered.

- ☞ [Left-Clicking] in the *Controller Value* zone displays a menu of options. Keyboard equivalent shortcut keys (if any) are displayed next to each option.
- M** The *Controller Value [Menu] - Set* option displays a menu of direct value choices. Clicking on any value will set the controller value.
- M** The *Controller Value [Menu] - Offset* option displays a menu of plus/minus offset value choices. Clicking on any value will offset the current controller value by that amount.
- M** The *Controller Value [Menu] – Scale %* option displays a menu of plus/minus percentage value choices. Clicking on any value will scale the current controller value by that percentage.
- M** The *Controller Value [Keyboard] - Set* option displays a keyboard entry dialog box. Enter a direct value between 0 and 127 to set the controller value.
- M** The *Controller Value [Keyboard] - Offset* option displays a keyboard entry dialog box. Enter an offset value between -127 and +127 (or -8192 and +8192 for 14-bit controllers) to offset the current controller value by that amount.
- M** The *Controller Value [Keyboard] – Scale %* option displays a keyboard entry dialog box. Enter a percentage offset value between -100 and +100 to scale the current controller value by that percentage.
- ☞ [Left-Clicking] in the *Plus and Minus (+ / -)* zones under the *Controller Value* zone increments and decrements the currently selected controller value, or all values within the *Marked Range* if one is active.

Controller Readout Display

The *Controller Readout* display shows the controller data type of the last active entry.

Faders

The three fader controls at the right of the *Midi WorkShop Top Client Area* are used for specialized data entry.

- ☞ Grabbing (or [Left-Dragging]) any of these faders, displays the current value in the *Controller Value* zone in the associated color of the fader. This display remains as a link to the fader until overridden by another operation requiring the use of the *Controller Value* zone.
- ☞ [Left-Dragging] any fader and tapping the [Right-Mouse-Button] at the same time, sets the fader back to its default position.
- ☞ [Left-Clicking] in the *Up / Down* arrow zones to the left of each fader increments and decrements the fader value.

Volume Fader

The *Volume Fader* displays the current default volume for the *HotTrack*. This fader chases the current *HotTrack*. The volume setting is sent at the beginning of playback as a starting default for the entire track.

- ☞ [Right-Clicking] this fader will send the current volume setting to the connected Port and Chan immediately, thereby forcing the current MIDI device to adjust its volume to the current value.

Velocity Percentage Offset Fader

The *Velocity Percentage Offset Fader* displays the current default velocity percentage offset for the *HotTrack*. This fader chases the current *HotTrack*. The velocity percentage offset is applied to all MIDI Note-On data being sent during live playback for the entire track. This overrides the actual internal velocity On value and offsets the value by the plus or minus percentage value of the fader.

[Right-Clicking] this fader when the *Controller Display Filter* is active and set to *Note-On Velocity* will actually write the percentage offset value into the database for the entire track and reset the fader to its default center position.

Data Fader

The *Data Fader* displays the current last active controller value for the *HotTrack* when *Controller Display Mode* is active. This fader chases the controller data as you move the *MultiTrack* cursor through the timeline. This fader can also be latched to the tempo setting to facilitate its use for tempo offset adjustment during playback if desired.

- ☞ Adjusting this fader will actually change the last active controller value accordingly.

If a *Marked Range* is active on the timeline, all controller values of the active data type will be altered. If the *HotTrack* is one of a selected group of tracks, all matching data types on all selected tracks will be altered.

The *Data Fader* has special options for data representation.

- ☞ [Left-Dragging] the *Data Fader* normally represents the data as direct values.
- ☞ Pressing [Shift] while [Left-Dragging] the *Data Fader* represents the data as plus or minus offset values.
- ☞ Pressing [Ctrl] while [Left-Dragging] the *Data Fader* represents the data as plus or minus percentage offset values.

The Midi WorkShop MultiTrack Window Topics:

[Navigation](#)
[Track Number Zone](#)
[Track Label Readout Display](#)
[Rec Light](#)
[Mute Light](#)
[Solo Light](#)
[Meter Readout Display](#)
[Zm In/Out Zones](#)
[Zm Up/Dn Zones](#)
[MT Top Client Area](#)

[Creating and Working with Marked Ranges](#)
[Select Mode Navigation](#)

3.13 Creating And Working With Marked Ranges

Many editing functions respond to *Marked Ranges*. *Marked Ranges* are displayed as an inverse block area on the *MultiTrack* track display. You may set and alter a *Marked Range* in many ways. The *Marked Range* inverse block will only display on one track, even though many functions will operate on multiple selected tracks within the *Marked Range*.

☞ *Marked Ranges* will override certain editing functions, so it is highly recommended that you keep *Marked Ranges* cleared until a *Marked Range* editing function is desired.

☞ Pressing the [B] key will set a *Mark Begin* point at the current *MultiTrack* cursor position.

Pressing the [E] key will set a *Mark End* point at the current *MultiTrack* cursor position.

Pressing the [C] key will clear the *Marked Range*.

Pressing [Shift-End] will set the *Mark Range* from the current *MultiTrack* cursor position to the end of the track.

Pressing [Alt-End] will set the *Mark Range* to the entire track no matter where the current cursor position is.

☞ [Left-Dragging] the mouse to the right in the timeline area (at the bottom of the *MultiTrack*) will create a *Marked Range* as you drag. If you begin the drag operation near an already existing *Marked Range* boundary, the boundary can be extended in either direction as you drag.


☞ [Right-Clicking] in the timeline area will clear the *Marked Range*.


The Midi WorkShop MultiTrack Window Topics:


[Navigation](#)
[Track Number Zone](#)
[Track Label Readout Display](#)
[Rec Light](#)
[Mute Light](#)
[Solo Light](#)
[Meter Readout Display](#)
[Zm In/Out Zones](#)
[Zm Up/Dn Zones](#)
[MT Top Client Area](#)
[Creating and Working with Marked Ranges](#)
[Select Mode Navigation](#)


3.14 Select Mode Navigation

When *Select Mode* is active, multiple groups of notes can be selected and modified simultaneously. All selected notes will display in white. There are many methods for selecting groups of notes. One suggestion would be to use a workspace *F-key* that magnifies the *MultiTrack* to one large track so note data is enlarged and easily manipulated. The mouse cursor will change shape to a pointer with a square.


 *Marked Ranges* are no longer possible and playback toggle takes place by [Right-Clicking] in the timeline area.


 [Right-Clicking] in the *MultiTrack* track area will now clear all selected notes. [Shift-Right-Clicking] on a note will deselect that note.

 The [C] key can also be used to clear all selected notes.

 It is highly recommended that you get in the habit of clearing all selected notes before starting a new operation using selected notes. This will help eliminate the mistake of having leftover selected notes that are not visible in the current zoom of the screen that might inadvertently get altered in the current editing operation.

It is also recommended that you learn and practice these selection methods to become comfortable with creating the selection groups desired without having trouble while actually involved in the creative editing process.

 [Left-Clicking] a note will select it, add it to the group of other selected notes, and make it the current *Key Entry*, displaying its data in the *Top Client Note Display* zones.

 Pressing the [End] key will select all notes of the same value as the *Key Entry* from the *Key Entry* position to the end of the track.

➤ For example, to select all C5 notes to the end of the track, [Left-Click] the first C5 on the track and then press the [End] key.

Pressing [Shift-End] will select all notes of the same value as the *Key Entry* and above from the *Key Entry* position to the end of the track.


➤ For example, to select all C5 notes and above to the end of the track, [Left-Click] the first C5 on the track and then press [Shift-End].

Pressing [Ctrl-End] will select all notes of the same value as the *Key Entry* and below from the *Key Entry* position to the end of the track.

➤ For example, to select all C5 notes and below to the end of the track, [Left-Click] the first C5 on the track and then press [Ctrl-End].

Pressing [Shift-Ctrl-End] will select all notes from the *Key Entry* position to the end of the track.

Pressing the [Alt] key in combination with any of these commands will extend the selection in both directions across the entire track.

 Pressing the [Home] key will select all notes of the same value as the *Key Entry* from the *Key Entry* position to the beginning of the track.

Pressing [Shift-Home] will select all notes of the same value as the *Key Entry* and above from the *Key Entry* position to the beginning of the track.

Pressing [Ctrl-Home] will select all notes of the same value as the *Key Entry* and below from the *Key Entry* position to the beginning of the track.

Pressing [Shift-Ctrl-Home] will select all notes from the *Key Entry* position to the beginning of the track.

Pressing the [Alt] key in combination with any of these commands will extend the selection in both directions across the entire track.



Pressing [Ctrl-A] will select all notes on the entire track.



[Left-Dragging] the mouse through or around notes in a small rectangular or circular motion, in any direction, down and to the right, up and to the left, etc. will select all notes surrounded by the motion. This method allows very detailed group selection, specifically leaving certain notes out of the selected group.

[Shift-Alt-Left-Clicking] will select all notes from the *Key Entry* to the current note position. If the current note is the same value as the *Key Entry*, then a straight line of notes will be selected. If the note value is above or below, all notes between the *Key Entry* note value and the current will be selected.



Many editing functions use the *Key Entry* as a reference point, so make sure the *Key Entry* is the entry you desire when using these functions. The dragging selection modes do not alter the original *Key Entry*, but to be sure, it is suggested that you always [Left-Click] the desired *Key Entry* again after all selections have been completed.



[Shift-Right-Dragging] the mouse through or around notes in a small rectangular or circular motion, in any direction, down and to the right, up and to the left, etc. will deselect all notes surrounded by the motion.

The Midi WorkShop MultiTrack Window Topics:

[Navigation](#)

[Track Number Zone](#)

[Track Label Readout Display](#)

[Rec Light](#)

[Mute Light](#)

[Solo Light](#)

[Meter Readout Display](#)

[Zm In/Out Zones](#)

[Zm Up/Dn Zones](#)

[MT Top Client Area](#)

[Creating and Working with Marked Ranges](#)

[Select Mode Navigation](#)

4 The Patch Library Window

4.1 The Patch Library Window

The *Patch Library* window is your control center for picking and assigning MIDI patch sounds to tracks.

- ☞ To take full advantage of the *Patch Library* capabilities, be sure to take the time to properly setup your patch .ini files and instrument patch database.

Patch Library Window Topics:

[Navigation](#)
[Devices Zone](#)
[Group Zone](#)
[Bin Zone](#)

4.2 Navigation (Patch Library Window)

The *Top Client Area* displays the current *Patch Device* and *Group* selection. All patches fitting into those categories will be displayed in the main listbox. The title bar displays the current number of patches in the listbox matching the categories.

Immediately below the *Top Client Area*, a single line listbox displays the currently assigned patch for the current *HotTrack*. This will chase the *HotTrack* as you jump around to different tracks in the *MultiTrack* window.

- ☞ [Double-Clicking] this current patch will link to the main *Patch Library* listbox and jump you to the patch in the full list.


Below the single line listbox is the main *Patch Library* listbox displaying all assigned patches from all assigned patch devices listed in the patch .ini files.

- ☞ [Double-Clicking] a patch will assign it to the current *HotTrack*. The Port, and Chan will be selected automatically based on the instrument patch assignments you have setup.

If you have previously assigned a Port and Chan and the newly selected patch is compatible with those assignments, they will be left alone. If the new patch is on a different Port, it will check that Port to see if there is a Chan conflict and if so, select the next available Chan it can use. The old Port and Chan will be properly cleared and the new Port and Chan will be assigned. This is a very efficient way to audition live sound playback across multiple devices and patches.

- ☞ You may also change patches in the listbox by pressing the [Up/Dn-Arrow] keys on the keyboard.
- ☞ You may select and assign the patch by pressing the [Return] key.
- ☞ You will notice that playing the displayed MIDI Keyboard does not change the active window focus and therefore you can audition patches very quickly by using the [Up/Dn-Arrow] keys and [Return] key while keeping the mouse on the MIDI Keyboard display.
- ☞☞ When assigning a patch with either the mouse or keyboard, pressing the [Shift] key will


automatically copy the patch name into the track label.

-  Pressing the [Spacebar] or [Right-Clicking] the mouse anywhere in the *Patch Library* window will toggle playback on and off.

Patch Library Window Topics:

[Navigation](#)
[Devices Zone](#)
[Group Zone](#)
[Bin Zone](#)



4.3 Devices Zone

-  Left-Clicking] the *Devices* zone allows you to select a specific device or all devices. Only patches for the selected device(s) will be displayed.

Patch Library Window Topics:

[Navigation](#)
[Devices Zone](#)
[Group Zone](#)
[Bin Zone](#)

4.4 Group Zone


-  Left-Clicking] the *Group* zone allows you to assign groups, or select a specific group or all groups. Only patches from the selected device(s) and group will be displayed.
- M** The *Assign Groups* option displays the *Patch Library Group* window. This window displays all available group options and highlights the current group(s) that the current patch is assigned to. These highlights chase the *Patch Library* window as you select different patches. It is a multi-select listbox and you may toggle group selections on and off with the mouse or spacebar. You may assign up to 8 simultaneous groups to each patch.
-  If you change the group assignments, [Left-Clicking] the *Update* zone will update the *Patch Database* and *.pch* file.
- M** Be sure to export these changes back to your *.ini* files by selecting *Export Instrument Patch Database To .ini Files* from the **Midi WorkShop Options** menu in case you ever wish to update the database and add new patches or devices.

Patch Library Window Topics:

[Navigation](#)


[Devices Zone](#)
[Group Zone](#)
[Bin Zone](#)

4.5 Bin Zone

 Left-Clicking] the *Bin* zone displays a menu of options.

The bin can be used for temporary storage of patches, which can be very useful when deciding between patches for a specific track's sound. While auditioning multiple patches for a track, you can easily add favorites that you feel might become the final choice to the bin. After auditioning is finished, display the bin and make the final decision from your favorites collected along the way.

The bin entries are saved with the session EDL and will be normally restored when the EDL is opened.

 The data stored is index information relative to the current patch library database. If the patch library is modified, some or all of this stored data may no longer be valid.

- M The *Lock Bin* option locks the current bin entries and prevents them from being overwritten when opening another EDL.
- M The *Add Current Patch To Bin* option adds the currently selected patch in the main listbox to the temporary bin.
- M The *Remove Current Patch From Bin* option is only active when the bin list is displayed and removes the currently selected patch from the bin.
- M The *Clear All Patches From Bin* option clears the bin of all patches.
- M The *Display Bin* option toggles the list display between the bin and the *All Patches* display.


Patch Library Window Topics:

[Navigation](#)
[Devices Zone](#)
[Group Zone](#)
[Bin Zone](#)

5 Note Data Editing

5.1 Note Data Editing

Editing and manipulating note data can be done in three distinct operation types; Single note manipulation; *Select Mode* multiple note manipulation; and *Marked Range* multiple note manipulation. When *Controller Display Mode* is not active, notes are displayed in full color and are available for note editing and manipulation.

 If any note editing operation causes a specific note value to overlap another existing same note value, the leading note will be cutoff at the start of the trailing note.

- ☞ If the Grid is active when adjusting a note or boundary position, the new position will be forced to a grid boundary.

Note Data Editing Topics:

[Single Note Manipulation](#)




[Select Mode Multiple Note Manipulation](#)

[Marked Range Multiple Note Manipulation](#)


5.2 Single Note Manipulation

In this mode, rolling the mouse over individual notes will select them one at a time and display the currently selected note information in the *Note Readout Display* zones of the *MT Top Client* area. Only note data is affected in these operations.




Moving and Copying Along the Timeline Using the Mouse

-   The currently selected note may be grabbed and moved along the timeline by [Shift-Left-Clicking] it and dragging the mouse along the timeline. When released, the note will move to the new position. When initially grabbed, the note will sound the currently assigned patch so you can hear it.
-  While sliding the note to its new position, if you also [Right-Click] before you release the mouse, the note will be copied to the new position, leaving the original note intact.
- ☞ Once you begin a drag operation, you may release the [Shift] key and the note will be free to slide left or right and up and down in any direction.


Snapping to a New Position Along the Timeline Using the Keyboard


-  The currently selected note may be snapped to a new position by placing the cursor at the destination position and pressing the [Backspace] key.
- The currently selected note may be copied and snapped to a new position by placing the cursor at the destination position and pressing [Ctrl-Backspace].

Moving and Copying To a New Note Pitch


-   The currently selected note may be grabbed and moved vertically to a new note pitch by [Ctrl-Left-Clicking] it and dragging the mouse vertically up or down. When released, the note will move to the new position. When initially grabbed, the note will sound the currently assigned patch so you can hear it. As you slide the note up and down, the note will sound its new pitch every time you cross the pitch threshold.
-  While sliding the note to its new position, if you also [Right-Click] before you release the mouse, the note will be copied to the new position, leaving the original note intact.
- ☞ Once you begin a drag operation, you may release the [Ctrl] key and the note will be free to slide left or right and up and down in any direction.

Adjusting Note Boundaries

 The currently selected note start position or end position may be adjusted by [Alt-Left-Dragging] the boundary to a new position.

 The currently selected note start position or end position may be updated by pressing the [U] key. The note boundary closest to the cursor position will update to the cursor position.

Dragging a Note to a Different Track

 If you [Left-Drag] or snap a note across a track boundary and release the mouse, the note will snap to its original pitch position on the new track. You may then [Ctrl-Left-Drag] it to a new pitch if desired.

Deleting Notes

The currently selected note may be deleted by pressing the [Delete] key.

Single Note Quantization

M The currently selected note may be quantized to the grid note setting by [Left-Clicking] the *Start Time* zone and selecting one of the menu options or using one of the keyboard shortcuts.

*See *Start Time Zone* for more information on using quantization.

Adjusting Velocity

The currently selected note on and off Velocity may be altered by using the *On Vel* or *Off Vel* zones.

*See *On and Off Vel Zones* under the *MT Top Client Area* for more information.

Note Data Editing Topics:

[Single Note Manipulation](#)

[Select Mode Multiple Note Manipulation](#)


[Marked Range Multiple Note Manipulation](#)

5.3 Select Mode Multiple Note Manipulation

In this mode, multiple notes may be selected simultaneously and the currently selected *Key Entry* information will display in the *Note Readout Display* zones of the *MT Top Client* area. Only note data is affected in these operations.

*See *Select Mode Navigation* for more information on selecting notes.

Moving and Copying Along the Timeline Using the Mouse

 All selected notes may be grabbed and moved along the timeline by [Shift-Left-Clicking] any one of them and dragging the mouse along the timeline. When released, the notes will move to the new position.

- ☞ If you directly grab one of the highlighted notes, that note becomes the new *Key Entry* as you start the move operation. If you grab outside of the highlighted notes, the mouse will snap to the current *Key Entry*.

When initially grabbed, the *Key Entry* note will sound the currently assigned patch so you can hear it.

- ☞ While sliding the notes to their new position, if you also [Right-Click] before you release the mouse, the notes will be copied to the new position, leaving the original notes intact.
- ☞ All data moved and copied will merge with any existing data within the overlapped area. Clear the new area first if old data is to be overwritten.
- ☞ Once you begin a drag operation, you may release the [Shift] key and the notes will be free to slide left or right and up and down in any direction.

Snapping to a New Position Along the Timeline Using the Keyboard

- ☞ All selected notes may be snapped to a new position by placing the cursor at the destination position and pressing the [Backspace] key. The *Key Entry* will be used as the reference entry and its start time will be placed at the new position.
- ☞ All data moved will merge with any existing data within the overlapped area. Clear the new area first if old data is to be overwritten.
- ☞ All selected notes may be copied and snapped to a new position by placing the cursor at the destination position and pressing [Ctrl-Backspace]. The *Key Entry* will be used as the reference entry and its start time will be placed at the new position.
- ☞ All data moved will merge with any existing data within the overlapped area. Clear the new area first if old data is to be overwritten.


Moving and Copying To a New Note Pitch

- ☞ All selected notes may be grabbed and moved vertically to a new note pitch by [Ctrl-Left-Clicking] any one of them and dragging the mouse vertically up or down. When released, the notes will move to the new position.
- ☞ If you directly grab one of the highlighted notes, that note becomes the new *Key Entry* as you start the move operation. If you grab outside of the highlighted notes, the mouse will snap to the current *Key Entry*.

When initially grabbed, the *Key Entry* note will sound the currently assigned patch so you can hear it. As you slide the notes up and down, the *Key Entry* note will sound its new pitch every time you cross the pitch threshold.

- ☞ While sliding the notes to their new position, if you also [Right-Click] before you release the mouse, the notes will be copied to the new position, leaving the original notes intact.
- ☞ All data moved and copied will merge with any existing data within the overlapped area. Clear the new area first if old data is to be overwritten.
- ☞ Once you begin a drag operation, you may release the [Ctrl] key and the notes will be free to slide left or right and up and down in any direction.

Dragging Notes to a Different Track

 If you [Left-Drag] or snap notes across a track boundary and release the mouse, the notes will snap to their original pitch position on the new track. You may then [Ctrl-Left-Drag] them to a new pitch if desired.

Deleting Notes

All selected notes may be deleted by pressing the [Delete] key.

Multiple Note Quantization

M All selected notes may be quantized to the grid note setting by [Left-Clicking] the *Start Time* zone and selecting one of the menu options or using one of the keyboard shortcuts.


*See *Start Time Zone* for more information on using quantization.

Adjusting Velocity

All selected notes on and off Velocities may be altered by using the *On Vel* or *Off Vel* zones.

*See *On and Off Vel Zones* under the *MT Top Client Area* for more information.

Adjusting Note Boundaries

 All selected note start positions or end positions may be adjusted by [Alt-Left-Dragging] the boundary of the *Key Entry* to a new position. Any note that is adjusted to a duration less than one tick will be set to a one-tick duration.

Note Data Editing Topics:

[Single Note Manipulation](#)


[Select Mode Multiple Note Manipulation](#)


[Marked Range Multiple Note Manipulation](#)


5.4 Marked Range Multiple Note Manipulation

In this mode, a *Marked Range* is created and all note data and controller data within that range are altered by the operation. All data within the *Marked Range* may be modified by any of the *Modify* menu options or shortcut keys.

Copying and Moving Notes within a Marked Range


 All data within the *Marked Range* may be copied to an internal temporary buffer storage by pressing [Ctrl-C].


 Copied data may then be inserted at a new position by placing the cursor at the destination position and pressing [Ctrl-V] or [Shift-Insert].

 All data moved and copied will merge by default with any existing data within the overlapped area. Pressing the [Alt] key at the time of the paste operation will overwrite


existing data.


Dragging Notes within a Marked Range

 [Shift-Left-Dragging] inside the *Marked Range* moves all data within the area to a new position on the same track. [Ctrl-Left-Dragging] inside the *Marked Range* moves all data within the area to a new track without altering the position. [Right-Clicking] before finishing the move will create a copy of all data within the area, leaving the originals intact.


 All data moved and copied will merge by default with any existing data within the overlapped area. To overwrite existing data when using a mouse drag move or copy command, start the drag operation first with the [Shift] or [Ctrl] keys and then press the [Alt] key as you drop the data in it's new location.


Snapping Marked Range Data to a New Position


 All data within the *Marked Range* may be snapped to a new position by placing the cursor at the destination position and pressing the [Backspace] key. The *Mark Begin* boundary will be used as the reference point and it will be placed at the new position. The cursor position will be placed at this same begin position.

 All data moved and copied will merge by default with any existing data within the overlapped area. Pressing the [Alt] key at the time of the operation will overwrite existing data.


Copying and Snapping Marked Range Data to a New Position


 All data within the *Marked Range* may be copied and snapped to a new position by placing the cursor at the destination position and pressing [Ctrl-Backspace]. The *Mark Begin* boundary will be used as the reference point and it will be placed at the new position. The cursor position will be placed at the new end position ready for another copy to be made.

 This facilitates multiple repeats of sections by simply repeatedly pressing [Ctrl-Backspace].

 All data moved and copied will merge by default with any existing data within the overlapped area. Pressing the [Alt] key at the time of the operation will overwrite existing data.

Deleting Marked Range Data

 All data within the *Marked Range* may be cleared by pressing the [Delete] key. All following data will be left intact.

 All data within the *Marked Range* may be deleted by pressing [Shift-Delete]. All following data will be pulled forward on the timeline filling the gap just emptied.

Snapping Marked range Data to a Different Track

If you snap data across a track boundary, the notes will snap to their original pitch position on the new track. You may then modify the pitch if desired using the pitch modify menu.

Note Data Editing Topics:[Single Note Manipulation](#)[Select Mode Multiple Note Manipulation](#)[Marked Range Multiple Note Manipulation](#)

6 Controller Data Editing

6.1 Controller Data Editing

Editing and manipulating controller data can be done in two distinct operation types; Single entry manipulation; and Marked Range multiple entry manipulation. When *Controller Display Mode* is active, notes are displayed in grey and controller data is displayed as colored lines and is available for manipulation. Only controller data is altered in these operations. If the filter is active, only displayed filtered data is affected.

☞ If the current track is part of a group of selected tracks, all selected tracks will be affected by these operations.

Controller Data Editing Topics:[Single Entry Manipulation](#)[Marked Range Multiple Entry Manipulation](#)[Entering New Controller Entries](#)

6.2 Single Entry Manipulation

In this mode, sliding the mouse along the timeline will chase controllers and display the currently active controller information in the *Controller Readout Display* zones of the **Midi WorkShop Top Client** area. The currently active controller is the last controller entry at or to the left of the *MultiTrack* cursor.

The active controller value may be altered by using the *Controller Value* zone or the *Data Fader* (if *Tempo Offset Fader Latch Mode* is not active.)

*See *MT Top Client Area* for more information on using the *Controller Value* zone and the *Data Fader*.


Controller Data Editing Topics:[Single Entry Manipulation](#)[Marked Range Multiple Entry Manipulation](#)[Entering New Controller Entries](#)


6.3 Marked Range Multiple Entry Manipulation

In this mode, a *Marked Range* is created and all controller data within that range is altered by the operation.


Copying and Moving Controller Data


All data within the *Marked Range* may be copied to an internal temporary buffer storage by pressing [Ctrl-C].

 Copied data may then be inserted at a new position by placing the cursor at the destination position and pressing [Ctrl-V] or [Shift-Insert].


 All data moved and copied will merge by default with any existing data within the overlapped area. Pressing the [Alt] key at the time of the paste operation will overwrite existing data.


Dragging Controller Data to a New Position


 [Shift-Left-Dragging] inside the *Marked Range* moves all data within the area to a new position on the same track. [Ctrl-Left-Dragging] inside the *Marked Range* moves all data within the area to a new track without altering the position. [Right-Clicking] before finishing the move will create a copy of all data within the area, leaving the originals intact.


 All data moved and copied will merge by default with any existing data within the overlapped area. To overwrite existing data when using a mouse drag move or copy command, start the drag operation first with the [Shift] or [Ctrl] keys and then press the [Alt] key as you drop the data in its new location.

Snapping Controller Data to a New Position


 All data within the *Marked Range* may be snapped to a new position by placing the cursor at the destination position and pressing the [Backspace] key. The *Mark Begin* boundary will be used as the reference point and it will be placed at the new position. The cursor position will be placed at this same begin position.

 All data moved and copied will merge by default with any existing data within the overlapped area. Pressing the [Alt] key at the time of the operation will overwrite existing data.

 All data within the *Marked Range* may be copied and snapped to a new position by placing the cursor at the destination position and pressing [Ctrl-Backspace]. The *Mark Begin* boundary will be used as the reference point and it will be placed at the new position. The cursor position will be placed at the new end position ready for another copy to be made.

 This facilitates multiple repeats of sections by simply repeatedly pressing [Ctrl-Backspace]. All data copied will merge with any existing data within the overlapped area. Clear the new area first if old data is to be overwritten.

Deleting Controller Data

 All data within the *Marked Range* may be cleared by pressing the [Delete] key. All following data will be left intact.

Altering Controller Values

All controller values within the *Marked Range* that match the active controller type may be altered by using the *Controller Value* zone or the *Data Fader* (if *Tempo Offset Fader Latch Mode* is not active.)

*See *MT Top Client Area* for more information on using the *Controller Value* zone and the *Data Fader*.

Controller Data Editing Topics:


[Single Entry Manipulation](#)

[Marked Range Multiple Entry Manipulation](#)


[Entering New Controller Entries](#)


6.4 Entering New Controller Entries


New controller entries may be created directly in the MultiTrack using Pencil Drawing Mode.

 [Right-Clicking] the Controller Display Light displays a menu of options for activating Pencil Drawing Mode. These options will only be enabled when Control Display Mode is on.

When using one of these options to activate Pencil Drawing Mode, the cursor will change shape, displaying a crosshair and pencil icon.

 [Left-Dragging] the mouse to the right will begin adding controller entries. The data value of the entries depends on the relative vertical mouse position within the track height. Holding the [Shift] key will force the value to a center default position, useful for centering pans or defaulting pitch bends to the Off condition. The data value is constantly displayed in the Controller Value readout zone. You may drag back to the left over newly created entries without releasing the mouse button and they will be erased, allowing you to then redo your drawing curve. When the left mouse button is released, the newly drawn entries will be added to the database, clearing and overwriting similar controller entries within the drag range.

 You may exit Pencil Drawing Mode by pressing the [Escape] key or by toggling Controller Display Mode off, or by [Right-Clicking] the Controller Display Light and clicking the currently active Pencil Drawing Mode again.

 When Pencil Drawing Mode is active, cursor positioning will freeze. You may adjust the MultiTrack cursor position by dragging in the timeline area. MultiTrack playback may be engaged to audition your new entries without needing to exit Pencil Drawing Mode.

Pencil Drawing Mode Options

M The *Pencil Drawing Density* option displays the current drawing density value and allows you to change it. The drawing density is a tick value that becomes the minimum separation between new controller entries as you slide the mouse in Pencil Drawing Mode.

M The *Pencil Drawing Mode - Current Controller Type* option activates *Pencil Drawing Mode* using the currently displayed controller type. Certain types are not available for pencil drawing

and this option will be grayed and disabled for those types.

- M The *Pencil Drawing Mode – Volume* option activates *Pencil Drawing Mode* and automatically forces the *Controller Filter* to *Volume* if needed.
- M The *Pencil Drawing Mode – Pan* option activates *Pencil Drawing Mode* and automatically forces the *Controller Filter* to *Pan* if needed.
- M The *Pencil Drawing Mode - Pitch Bend* option activates *Pencil Drawing Mode* and automatically forces the *Controller Filter* to *Pitch Bend* if needed.
- M The *Pencil Drawing Mode - Prg Change* option activates *Pencil Drawing Mode* and automatically forces the *Controller Filter* to *Prg Change* if needed.
- M The *Pencil Drawing Mode - Note-On Velocity* option activates *Pencil Drawing Mode* and automatically forces the *Controller Filter* to *Note-On* if needed. This mode alters the existing Note-On values as you cross each note's start position. It does not actually add new entries.
- M The *Pencil Drawing Mode - Note-Off Velocity* option activates *Pencil Drawing Mode* and automatically forces the *Controller Filter* to *Note-Off* if needed. This mode alters the existing Note-Off values as you cross each note's end position. It does not actually add new entries.

Controller Data Editing Topics:

[Single Entry Manipulation](#)
[Marked Range Multiple Entry Manipulation](#)
[Entering New Controller Entries](#)

7 Tempo Manipulation

7.1 Tempo Manipulation

- ☞ Left-Clicking] in the *Metronome* graphic zone in the *MT Top Client Area* displays a menu of tempo options. These options are used to set and manipulate tempo maps along the timeline of the session. The session may contain only one default entry or up to 500 mapped entries along the length of the session. Each option manipulates the tempo map in different ways and you should try each one out to learn how it works.

When the *Controller Display Mode* is active, tempo entries display as blue lines on all tracks. You may work on any track when altering tempo entries.

These options do not attempt to alter audio data in *SAWStudio* itself and therefore if used after audio data is in place, will most likely force the two timelines out of sync.

Latching the Data Fader as an Offset Control

- M The *Latch Data Fader As Tempo Offset* option allows the *Data Fader* to be latched to tempo

as an offset control. When this mode is active, all other use of the *Data Fader* is overridden and the *Controller Value* readout display shows a purple value represented as a plus or minus tempo offset. The *Controller Readout* display shows *Tempo Offset* in purple also. Grabbing the data fader and adjusting it up or down displays a tempo offset in beats per minute and when the fader is released, the offset is applied as a default adjustment across the entire existing tempo map. All entries are relatively altered. This may be done during playback for a seamless live adjustment of tempo. All data timing is adjusted accordingly.

This mode may be cancelled by selecting the option again from the menu or [Right-Clicking] in the *Controller Value* zone.

Setting a Default Starting Tempo

- M** The *Set Default Tempo* option allows a default starting tempo for the session to be set. If other tempo mapped entries exist, they will be altered accordingly to maintain the same relative proportion of change to the new default tempo. All data timing is adjusted accordingly.

Changing the Tempo at a Specific Beat

- M** The *Set New Tempo Entry At Nearest Beat* option allows you to add a mapped entry to change the tempo at a specific beat within the session. The entry is placed at the nearest beat boundary, even if you are not in grid mode. The new tempo remains in affect until another entry changes the tempo further down the timeline. All data timing is adjusted accordingly.

Setting a New Tempo Within a Marked Range

- M** The *Set New Tempo Within Range* option relies on a *Marked Range* and will add an entry at the nearest beat boundary to the *Mark Begin* position and another entry at the nearest beat boundary to the *Mark End* position. The first entry will set the new tempo, and the second entry will set the tempo back to the original before the change, thereby altering only the *Marked Range* itself. All data timing is adjusted accordingly.

Sweeping to a New Tempo Within a Marked Range

- M** The *Sweep To New Tempo Within Range* option relies on a *Marked Range* and allows you to enter a new destination tempo. The tempo will be smoothly swept from the current tempo to the new destination tempo across the marked range, changing at every beat boundary. Use this option to add retards, and other smooth tempo variations.

Adjusting an Existing Tempo Within a Section

- M** The *Adjust Existing Tempo Within Section* option alters an already existing entry at the beginning of the current section (between two tempo entries) where the cursor currently is placed. It changes the value of the entry to the left of the cursor and modifies the section within. All data timing is adjusted accordingly.

Adjusting an Existing Tempo Within a Marked Range

- M** The *Adjust Existing Tempo Entries Within Range* option alters multiple entries within a *Marked Range* to the new tempo setting, thereby effectively smoothing out a live performance that was possibly mapped using the *Measure Map* option. The result of this operation is not quantizing but a unique application of scaling math to each measure section one at a time, effectively speeding up or slowing down the relative performance of each tempo varied section. All data timing is adjusted accordingly.

Scaling a Marked Range to the Calculated Average Tempo

- M** The *Average Existing Tempo Entries Within Range* option alters multiple entries within a *Marked Range* to a calculated average new tempo setting, thereby effectively smoothing out a live performance that was possibly mapped using the *Measure Map* option. The result of this operation is not quantizing but a unique application of scaling math to each measure section one at a time, effectively speeding up or slowing down the relative performance of each tempo varied section. All data timing is adjusted accordingly.

Clearing Tempo Entries

- M** The *Clear Tempo Entries Within Range* option clears all tempo entries within the *Marked Range*. All data timing is adjusted accordingly.

Removing Tempo And Time Signature Entries Within a Marked Range

- M** The *Remove Tempo / Time Signature Entries Within Range* option clears all tempo and time signature entries within the *Marked Range*. All data timing is adjusted accordingly.

Measure Map Mode

- M** The *Adjust Measure Map* option is a unique feature that allows easy mapping of measures to a live performance that has no relation to a click track. When finished, the varied tempo performance can be set or averaged into a perfectly smooth performance, allowing easy orchestration or quantizing of added performance data in perfect time.

Activating *Measure Map Mode* turns all measure and beat grid lines red and places a *Measure Map* dialog on the screen with reminders of the command options. You are free to playback, scrub and otherwise zoom and adjust the screen in this mode. The concept is to adjust each measure and/or beat grid line to fall at the correct place within the live performance. Here is an example of how it would work when creating a map to a live performance piano track:

🔄 To Apply a Measure Map to a Live Performance:

1. Zoom in to a magnified view of the piano data.
2. Grab the closest measure grid line (solid red) by [Alt-Left-Clicking] on the line, and slide it to coincide with the downbeat of the piano track first measure. When you release the line, a tempo entry with the correct tempo for the first section will be placed at the last anchor point (position zero). The current measure position will turn yellow and become the current anchor point.
3. You can now press the [Right-Arrow] key or [Left-Click] in the timeline to the right of the center to advance to the next measure grid line. Do the same with the next measure grid line, adjusting it to overlay the correct downbeat position of the piano performance second measure. You can do each measure in this manner or skip multiple measures if the tempo of those measures seems fairly consistent.

You can also press the [Left-Arrow] key or [Left-Click] in the timeline to the left of the center to return to the previous measure grid line.

4. If you do skip measures as you advance through the performance, then you should set a new anchor point when you arrive at a measure that has begun to drift from the current tempo setting. [Double-Click] the measure grid line to the left of the new measure line that you are about to adjust. This sets the previous grid line as an anchor (turns it yellow) and will force all new tempo entries from this position, without affecting the previous group of measures.

You may also enter *Time Signature* changes along the way by [Left-Clicking] in the *Time Signature Readout* display zone and selecting the *Set New Time Signature Entry At Nearest Beat* option.

5. Continue to the end of the performance and then exit *Measure Map Mode* by pressing the [Esc] key.

Understand that no note data has been modified as a result of the mapping operation. The performance is exactly intact. The only difference is that now when played back, you will notice that the measures and beats will count along in perfect sync with the performance. You could leave things alone at this point and still now quantize and add other instruments in perfect sync with this live performance, or you could decide to average the varied tempos from measure to measure and obtain an absolutely perfect performance, without quantizing, by using one of the tempo range options.

8 Time Signature Manipulation

8.1 Time Signature Manipulation

- ☞ Left-Clicking] in the *Time Signature* graphic zone in the *MT Top Client Area* displays a menu of time signature options. These options are used to set and manipulate tempo maps (with embedded time signature data) along the timeline of the session. The session may contain only one default entry or up to 500 mapped entries along the length of the session.

When the *Controller Display Mode* is active, tempo/time signature entries display as blue lines on all tracks. You may work on any track when altering these entries.

- ☞ These options do not attempt to alter audio data in *SAWStudio* itself and therefore if used after audio data is in place, will most likely force the two timelines out of sync.

Setting a Starting Time Signature

- M** The *Set Default Time Signature* option sets the starting *Time Signature* for the session. The new time signature remains in affect until another entry changes the time signature further down the timeline. All data timing is adjusted accordingly.

Changing the Time Signature at the Nearest Beat Boundary

- M** The *Set New Time Signature Entry At Nearest Beat* option allows you to add a mapped entry to change the time signature at a specific beat within the session. The entry is placed at the nearest beat boundary, even if you are not in grid mode. The new time signature remains in affect until another entry changes the time signature further down the timeline. All data timing is adjusted accordingly.

Changing the Time Signature Within A Range

- M** The *Set New Time Signature Entry Within Range* option allows you to mark a range of measures (do so with the grid ON) and change the time signature for that range without disturbing the rest of the composition outside the range. All measure numbers and tempo and time signature changes will remain the same for following existing data. Midi data will be pushed or pulled into proper alignment. If the change adds beats to the existing range area, the beats will be added at the end of the range leaving original data intact. If the change deletes beats from the existing range area, the data will be deleted from the end of the range. Most likely data transitions at the end of the range will have to be re-composed, but all existing

data outside the range will remain intact. All data timing is adjusted accordingly.

Clearing Time Signature Entries Within a Marked Range

M The *Clear Time Signature Entries Within Range* option clears all time signature entries within the *Marked Range*. Shared Tempo entries will be left intact. All data timing is adjusted accordingly.

Removing Tempo And Time Signature Entries Within a Marked Range

M The *Remove Tempo / Time Signature Entries Within Range* option clears all tempo and time signature entries within the *Marked Range*. All data timing is adjusted accordingly.

9 Main Menu Reference Guide

9.1 Main Menu Reference Guide

The Main Menu options are grouped as follows:

[File Menu](#)

[Modify Menu](#)

[View Menu](#)

[Display Menu](#)

[Options Menu](#)

[Info Menu](#)

9.2 File Menu

→Open Midi WorkShop Session File

This option allows you to access an *.edl_mws* file directly and open it into the current *SAWStudio* session, thereby swapping existing MIDI data information from another session.

→Close Midi WorkShop Session

This option closes the current *Midi WorkShop* session without affecting the *SAWStudio* session. When there is no MIDI data and the *Midi WorkShop* window is closed, the *SAWStudio* session *edls* carry no links to the *Midi WorkShop*.

→Import Midi File

This option imports standard Type 0 or Type 1 MIDI files from other sequencer programs. The standard MIDI File extension is *.mid*. Type 0 files will spread different MIDI channel data across the first 16 tracks in the *MulitTrack*, effectively separating out the MIDI channel data into individual tracks. The tracks will be named with General MIDI Program names if program data is found for that particular MIDI channel and no name data was found. Type 1 files will layout the midi tracks as defined in the file, each with its own port and midi chan assignment. Notes on each track will be auto-scaled and centered so all notes will be visible.

→Blend Midi File

This option allows you to blend another MIDI file into the current session at the current cursor position. The current *Hot Track* acts as the starting track for the new file. The tracks then increment down the *MulitTrack*. The tracks will follow in the virtual *MulitTrack* track order as they are currently laid out. If any track has existing MIDI data, the next empty track will be used. If the starting cursor position is beyond the end of the current midi data, then any new tempo data is included in the blend, otherwise the tempo and time signature data will be ignored for the blended files and they will be conformed to the current session tempo map.

→Export Midi File

This option exports **Midi WorkShop** files to standard Type 1 MIDI files so other sequencer programs can read them. The standard MIDI File extension is .mid.

→F-Key File Open

This option opens a pre-saved *F-Key*file containing the data for the *Ctrl F-Key* workspaces.

→F-Key File Save

This option saves an *F-Key* file containing the data for the *Ctrl F-Key* workspaces.

→F-Key File Save Default

This option saves the default *F-Key* file containing the data for the *Ctrl F-Key* workspaces. This file automatically loads each time the program is started.

→F-Key File Clear Default

This option clears the default *F-Key* file.

→F-Key File Link to SAW F-Keys

This option links the Midi WorkShop workspaces to the SAWStudio *F-Key* workspaces.

→F-Key File Link to SAW Alt-F-Keys

This option links the Midi WorkShop workspaces to the SAWStudio *Alt-F-Key* workspaces.

☞ Using either of these options also links the *Save* functions in *SAWStudio* to the **Midi WorkShop** workspace views, therefore with one of these links active, saving a *SAWStudio* linked *F-Key* also overwrites the associated **Midi WorkShop** *F-Key*. If a *SAWStudio* linked *F-Key* is saved while the **Midi WorkShop** main window is closed, then recalling that *F-Key* will close the **Midi WorkShop** window regardless of its current state. You may find it easier to create complete independent sets of *F-Keys* in both *SAWStudio* and the **Midi WorkShop** before the links are activated.

☞ If either of these links are active, pressing non-linked *F-Keys* will close the *Midi WorkShop* window.

☞ Regardless of the status of these links, whatever combination of windows are on screen whenever you save the main *SAWStudio* *F-Key* defaults will be the default setup each time the program boots. For example, if the **Midi WorkShop** is open and visible, the program will start this way each time it is run.

It is recommended that you program the *SAWStudio* *F-Key* workspace views (or *Alt-F-Keys*) to open up space to house the **Midi WorkShop** window without overlapping other *SAWStudio* windows.

☞To setup and link default Midi WorkShop and SAWStudio Workspaces:

SS = *SAWStudio*

MWS = *Midi WorkShop*

1. With SS running, press the [F1] key to get a default SS starting screen.
2. Press [Ctrl-F1] to display MWS on top. (Note the space and SS windows that MWS is covering.)
3. Close the MWS window by [Left-Clicking] the close button in the upper right corner.
4. Close all the SS windows that the MWS window was overlapping.
5. Display the MWS window again by pressing [Ctrl-F1].
6. Adjust SS remaining windows to fit around the MWS window so that nothing is overlapping. For

- instance, adjust the MultiTrack track size and number of tracks so that the MultiTrack stays on top and does not overlap the MWS window, etc.
7. Press [Alt-Shift-F1] to save the SS Alt workspace.
 8. To set this as a starting template for other SS Alt workspaces, press [Alt-Shift F2] through [Alt-Shift F12].
 9. Test each MWS [Ctrl] F-key workspace and make any changes in SS window sizes and positions so that there are no overlapping windows. For any SS workspaces that have been modified, be sure to press the corresponding [Alt-Shift] F-key to save the SS workspace.
 10. Press [Ctrl-F1] to display the default starting MWS workspace.
 11. From the MWS File menu, select F-Key File | Save Default to save all the newly configured MWS workspaces as defaults.
 12. Close the MWS window.
 13. Press the F1 key to display the default starting SS workspace.
 14. From the SS File menu, select F-Key File | Save Default to save all the newly configured SS workspaces as defaults.
 15. Press [Ctrl-F1] to display the MWS window.
 16. From the MWS File Menu, select F-Key File | Link to Saw Alt F-Keys.
 17. From the MWS File Menu, select Preferences File | Save Default to save the link option as a default.
 18. Exit SS, and restart to test your new F-Key and Alt F-Key workspaces. Pressing any F-Key should display only SS workspaces with the MWS window not visible. Pressing any Alt F-Key should display the MWS window in combination with SS windows.

→ Preferences File Save Default

This option saves the default preferences which automatically load each time the program is started. This file contains the data for the MIDI port setup and patch device assignments, as well as other default options settings.

→ Preferences File Clear Default

This option clears the default preferences file.

→ Close

This option closes the *Midi WorkShop* window. If the window is left open when the *SAWStudio* session edl is saved, then the *Midi WorkShop* window will automatically open when the *SAWStudio* session edl is re-opened.

Midi WorkShop Menus:

[File Menu](#)

[Modify Menu](#)

[View Menu](#)

[Display Menu](#)

[Options Menu](#)

[Info Menu](#)

9.3 Modify Menu

The *Modify Menu* options all modify data within a *Marked Range*. If the marked track is one of a selected group of tracks, the operation is performed on all selected tracks.

Note Quantize Options

→ Note Quantize => Quantize To Grid [Entire Note] {Q}

This option snaps the notes within a *Marked Range* to the nearest grid point determined by the note duration selected in the *Grid/Quantize Note* zone. The front to back percentage used is 50%. If the note is closer than 50% to the earlier grid point, it snaps earlier, otherwise it snaps later. The entire note is moved keeping the note duration intact. If the current *HotTrack* is one of a selected group of tracks, all selected tracks are affected.

→Note Quantize => Quantize To Grid-Lean Earlier [Entire Note] {Shift-Q}

This option snaps the notes within a *Marked Range* to the nearest grid point determined by the note duration selected in the *Grid/Quantize Note* zone. The front to back percentage used is 70%. If the note is closer than 70% to the earlier grid point, it snaps earlier, otherwise it snaps later. The entire note is moved keeping the note duration intact. If the current *HotTrack* is one of a selected group of tracks, all selected tracks are affected.

→Note Quantize => Quantize To Grid-Lean Later [Entire Note] {Ctrl-Q}

This option snaps the notes within a *Marked Range* to the nearest grid point determined by the note duration selected in the *Grid/Quantize Note* zone. The front to back percentage used is 30%. If the note is closer than 30% to the earlier grid point, it snaps earlier, otherwise it snaps later. The entire note is moved keeping the note duration intact. If the current *HotTrack* is one of a selected group of tracks, all selected tracks are affected.

→Note Quantize => Quantize To Grid [Start Time Only]

This option snaps the notes within a *Marked Range* to the nearest grid point determined by the note duration selected in the *Grid/Quantize Note* zone. The front to back percentage used is 50%. If the note is closer than 50% to the earlier grid point, it snaps earlier, otherwise it snaps later. Only the start time is moved, changing the note duration. If the current *HotTrack* is one of a selected group of tracks, all selected tracks are affected.

→Note Quantize => Quantize To Grid-Lean Earlier [Start Time Only]

This option snaps the notes within a *Marked Range* to the nearest grid point determined by the note duration selected in the *Grid/Quantize Note* zone. The front to back percentage used is 70%. If the note is closer than 70% to the earlier grid point, it snaps earlier, otherwise it snaps later. Only the start time is moved, changing the note duration. If the current *HotTrack* is one of a selected group of tracks, all selected tracks are affected.

→Note Quantize => Quantize To Grid-Lean Later [Start Time Only]

This option snaps the notes within a *Marked Range* to the nearest grid point determined by the note duration selected in the *Grid/Quantize Note* zone. The front to back percentage used is 30%. If the note is closer than 30% to the earlier grid point, it snaps earlier, otherwise it snaps later. Only the start time is moved, changing the note duration. If the current *HotTrack* is one of a selected group of tracks, all selected tracks are affected.

→Note Quantize => Quantize To Grid - Advanced

Currently not available.

→Note Quantize => Humanize [Entire Note]

This option allows you to randomize note start tick positions for all notes within a *Marked Range*. The entire note is moved keeping the note duration intact. If the current *HotTrack* is one of a selected group of tracks, all selected tracks are affected.

→Note Quantize => Humanize [Start Time Only]

This option allows you to randomize note start tick positions for all notes within a *Marked Range*. Only the start time is moved, changing the note duration. If the current *HotTrack* is one of a selected group of tracks, all selected tracks are affected.

→Note Quantize => Humanize Min Deviation

This option sets the minimum adjustment value that can be applied to randomize the start tick

position values.

→Note Quantize => Humanize Max Deviation

This option sets the maximum adjustment value that can be applied to randomize the start tick position values.

→Humanize Advanced

Currently not available.

Note Velocity Options

→Note Velocity => Note-On Velocity [Menu] - Set

This option displays a menu of direct value choices. Clicking on any value will set the note-on velocities for all notes within a *Marked Range*. If the current *HotTrack* is one of a selected group of tracks, all selected tracks are affected.

→Note Velocity => Note-On Velocity [Menu] - Offset

This option displays a menu of plus/minus offset value choices. Clicking on any value will offset the current note-on velocities for all notes within a *Marked Range*. If the current *HotTrack* is one of a selected group of tracks, all selected tracks are affected.

→Note Velocity => Note-On Velocity [Menu] – Scale %

This option displays a menu of plus/minus percentage value choices. Clicking on any value will scale the current note-on velocities for all notes within a *Marked Range*. If the current *HotTrack* is one of a selected group of tracks, all selected tracks are affected.

→Note Velocity => Note-On Velocity [Keyboard] - Set

This option displays a keyboard entry dialog box. Enter a direct value between 0 and 127 to set the note-on velocities for all notes within a *Marked Range*. If the current *HotTrack* is one of a selected group of tracks, all selected tracks are affected.

→Note Velocity => Note-On Velocity [Keyboard] - Offset

This option displays a keyboard entry dialog box. Enter an offset value between -127 and +127 to offset the current note-on velocities for all notes within a *Marked Range*. If the current *HotTrack* is one of a selected group of tracks, all selected tracks are affected.

→Note Velocity => Note-On Velocity [Keyboard] – Scale %

This option displays a keyboard entry dialog box. Enter a percentage offset value between -100 and +100 to scale the current note-on velocities for all notes within a *Marked Range*. If the current *HotTrack* is one of a selected group of tracks, all selected tracks are affected.

→Note Velocity => Note-Off Velocity [Menu] - Set

This option displays a menu of direct value choices. Clicking on any value will set the note-off velocities for all notes within a *Marked Range*. If the current *HotTrack* is one of a selected group of tracks, all selected tracks are affected.

→Note Velocity => Note-Off Velocity [Menu] - Offset

This option displays a menu of plus/minus offset value choices. Clicking on any value will offset the current note-off velocities for all notes within a *Marked Range*. If the current *HotTrack* is one of a selected group of tracks, all selected tracks are affected.

→Note Velocity => Note-Off Velocity [Menu] – Scale %

This option displays a menu of plus/minus percentage value choices. Clicking on any value will scale the current note-off velocities for all notes within a *Marked Range*. If the current *HotTrack* is one of a

selected group of tracks, all selected tracks are affected.

→Note Velocity => Note-Off Velocity [Keyboard] - Set

This option displays a keyboard entry dialog box. Enter a direct value between 0 and 127 to set the note-off velocities for all notes within a *Marked Range*. If the current *HotTrack* is one of a selected group of tracks, all selected tracks are affected.

→Note Velocity => Note-Off Velocity [Keyboard] - Offset

This option displays a keyboard entry dialog box. Enter an offset value between -127 and +127 to offset the current note-off velocities for all notes within a *Marked Range*. If the current *HotTrack* is one of a selected group of tracks, all selected tracks are affected.

→Note Velocity => Note-Off Velocity [Keyboard] - Scale %

This option displays a keyboard entry dialog box. Enter a percentage offset value between -100 and +100 to scale the current note-off velocities for all notes within a *Marked Range*. If the current *HotTrack* is one of a selected group of tracks, all selected tracks are affected.

→Note Velocity => Note-On Velocity - Randomize

This option allows you to randomize note-on velocities for all notes within a *Marked Range*. If the current *HotTrack* is one of a selected group of tracks, all selected tracks are affected.

→Note Velocity => Note-Off Velocity - Randomize

This option allows you to randomize note-off velocities for all notes within a *Marked Range*. If the current *HotTrack* is one of a selected group of tracks, all selected tracks are affected.

→Note Velocity => Note Velocity - Randomize Min Deviation

This option sets the minimum adjustment value that can be applied to randomize the note velocity values.

→Note Velocity => Note Velocity - Randomize Max Deviation

This option sets the maximum adjustment value that can be applied to randomize the note velocity values.

→Note Velocity => Set Note Velocity - Advanced

Currently not available.

Note Duration Options

→Note Duration => Set Duration To Grid

This option sets the duration of all notes within a *Marked Range* to the note duration selected in the *Grid/Quantize Note* zone.

→Note Duration => Scale Duration By Percentage [Menu]

This option displays a menu of percentage choices. Click on any percentage to scale the duration of all notes within a *Marked Range* up or down based on the selected value.

→Note Duration => Scale Duration By Percentage [Keyboard]

This option displays a keyboard entry dialog box. Enter a percentage value between -100 and +100 to scale the duration of all notes within a *Marked Range* up or down based on the selected value.

→Note Duration => Set Note Duration - Advanced

Currently not available.

Pitch Options

→Pitch => Transpose Up 1 Octave

This option transposes the pitch of all notes within a *Marked Range* up one octave.

→Pitch => Transpose Dn 1 Octave

This option transposes the pitch of all notes within a *Marked Range* down one octave.

→Pitch => Transpose [Menu]

This option displays a menu of semi-tone choices, ranging from + / - four octaves. Click on any selection to transpose all notes within a *Marked Range* up or down based on the selected value.

→Pitch => Transpose Pitch - Advance

Currently not available.

→Insert Measures

This option prompts for a measure count value and then inserts the specified number of measures at the current cursor position. This option works as a global operation across all tracks if no tracks are selected. In this case, tempo and time signature entries are adjusted accordingly. If there are selected tracks, only those tracks will be affected, and tempo and time signatures will not be altered.

→Delete Measures

This option prompts for a measure count value and then deletes the specified number of measures at the current cursor position. This option works as a global operation across all tracks if no tracks are selected. In this case, tempo and time signature entries are adjusted accordingly. If there are selected tracks, only those tracks will be affected, and tempo and time signatures will not be altered.

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9.4 View Menu

→MultiTrack

The *MultiTrack* option displays the *MultiTrack* window and brings it to the foreground.

→Patch Library

The *Patch Library* option displays the *Patch Library* window and brings it to the foreground.

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9.5 Display Menu

→Note Color Mode => Single Color Default

The *Note Color Mode => Single Color Default* option displays all notes in a single yellow color.

→Note Color Mode => Full Spectrum

The *Note Color Mode => Full Spectrum* option displays each note as a different color.

→Note Color Mode => C Scale

The *Note Color Mode => C Scale* option displays all notes that are part of the C scale of the selected *Note Scale Type* in the C note full spectrum color, and all other notes in the default yellow color.

→Note Color Mode => C#/Db Scale

The *Note Color Mode => C#/Db Scale* option displays all notes that are part of the C#/Db scale of the selected *Note Scale Type* in the C#/Db note full spectrum color, and all other notes in the default yellow color.

→Note Color Mode => D Scale

The *Note Color Mode => D Scale* option displays all notes that are part of the D scale of the selected *Note Scale Type* in the D note full spectrum color, and all other notes in the default yellow color.

→Note Color Mode => D#/Eb Scale

The *Note Color Mode => D#/Eb Scale* option displays all notes that are part of the D#/Eb scale of the selected *Note Scale Type* in the D#/Eb note full spectrum color, and all other notes in the default yellow color.

→Note Color Mode => E Scale

The *Note Color Mode => E Scale* option displays all notes that are part of the E scale of the selected *Note Scale Type* in the E note full spectrum color, and all other notes in the default yellow color.

→Note Color Mode => F Scale

The *Note Color Mode => F Scale* option displays all notes that are part of the F scale of the selected *Note Scale Type* in the F note full spectrum color, and all other notes in the default yellow color.

→Note Color Mode => F#/Gb Scale

The *Note Color Mode => F#/Gb Scale* option displays all notes that are part of the F#/Gb scale of the selected *Note Scale Type* in the F#/Gb note full spectrum color, and all other notes in the default yellow color.

→Note Color Mode => G Scale

The *Note Color Mode => G Scale* option displays all notes that are part of the G scale of the selected *Note Scale Type* in the G note full spectrum color, and all other notes in the default yellow color.

→Note Color Mode => G#/Ab Scale

The *Note Color Mode => G#/Ab Scale* option displays all notes that are part of the G#/Ab scale of the selected *Note Scale Type* in the G#/Ab note full spectrum color, and all other notes in the default yellow color.

→Note Color Mode => A Scale

The *Note Color Mode => A Scale* option displays all notes that are part of the A scale of the selected *Note Scale Type* in the A note full spectrum color, and all other notes in the default yellow color.

→Note Color Mode => A#/Bb Scale

The *Note Color Mode => A#/Bb Scale* option displays all notes that are part of the A#/Bb scale of the selected *Note Scale Type* in the A#/Bb note full spectrum color, and all other notes in the default yellow color.

→Note Color Mode => B Scale

The *Note Color Mode => B Scale* option displays all notes that are part of the B scale of the selected *Note Scale Type* in the B note full spectrum color, and all other notes in the default yellow color.

→Note Scale Type => Major

The *Note Scale Type => Major* option sets the scale type to a major scale for color scale displays.

→Note Scale Type => Minor

The *Note Scale Type => Minor* option sets the scale type to a minor scale for color scale displays.

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9.6 Options Menu

→Midi Device Setup

The *Midi Device Setup* option displays a dialog for assigning MIDI devices to **Midi WorkShop** ports. The **Midi WorkShop** can handle 24 input and output ports assigned to a single MIDI device per port.

- ☞ [Left-Clicking] the *Up/Dn* arrow zone shifts between ports 1-12 and ports 12-24.
- ☞ [Left-Clicking] the *Out/In* zone switches between output ports and input ports.
- ☞ [Left-Clicking] the *Reset* zone resets all ports of the current type to *Not Assigned*.
- ☞ Expand each port's listbox by [Left-Clicking] on the small arrow and select a MIDI device for each port you wish to assign.
- ☞ [Left-Click] in the *Port Label* area and type a name for the port.
- ☞ [Left-Click] the *Ok* zone to exit and apply the selections or the *Cancel* zone to exit and cancel all changes.

 Save the default preferences to keep the settings as permanent.

→Midi Short Msg Compatibility Mode


The *Midi Short Msg Compatibility Mode* option displays a popup menu of all active midi ports. Selecting a port toggles the *Short Msg Compatibility Mode* on and off for that port. When the mode is active, the port will display a checkmark. The menu stays active so you can continue activating or deactivating ports. Click off the menu when you are done to close it. These settings save with the preferences. This mode is needed for certain midi drivers that will not accept Midi Long messages for basic midi commands. The **Midi Workshop** uses Midi Long messages for all of its midi communications by default for improved performance and timing accuracy. Using the *Midi Short Msg Compatibility Mode* increases the CPU load, as each midi command must be processed separately through the Windows mechanism. Certain virtual port drivers like Giga Studio may require this mode to be active in order to respond at all to the **Midi Workshop**. The internal MS Wave Synthesizer may also require this mode for program changes and other control information to be processed correctly. Use this mode on a port ONLY if the port is not responding correctly with this mode OFF.


→Midi Record Latency Adjust



The *Midi Record Latency Adjust* option can be used to adjust plus or minus samples for midi keyboard latency. In some cases, USB keyboards may actually cause recording positions to be early or late by x number of samples. Run some tests by recording against a click track and then noting if the recording is averaging early or late (obviously your timing ability comes into play here also). Use this option to force the recorded data to be adjusted forward or backward when it is dropped to the *MultiTrack*.

→Instrument Patch Setup


The *Instrument Patch Setup* option pops up a dialog for assigning patch devices (MIDI sound modules) to MIDI ports and channels. The dialog displays a current active port choice and 16 MIDI chan choices.


 [Left-Click] in the Port area to select a different port.

 [Left-Click] each MIDI chan area to select and assign that chan to a specific patch device.

  When selecting a patch device, hold down the [Ctrl] key to assign that device to all MIDI channels of that port at one time. Otherwise, you can assign each chan to any combination of patch devices.

 [Left-Click] the *Reset* zone to reset all channels to *None*.

 [Left-Click] the *Ok* zone to exit and apply the selections or the *Cancel* zone to exit and cancel all changes.

 Save the default preferences to keep the settings as permanent.

→Update Instrument Patch Database From .ini Files

The *Update Instrument Patch Database From .ini Files* option is used to apply any changes you make in the instrument definition .ini files into the actual Patch database. Every time you add instrument bank, prg and name information into an instrument .ini file and want to bring that data into the **Midi Workshop** program, select this option. Be aware, that all instrument definition .ini files listed in the master .ini file (**Studio_Midi_WorkShop_Patches.ini**) will be re-scanned and a new patch database will be constructed.

→Export Instrument Patch Database To .ini Files

The *Export Instrument Patch Database To .ini Files* option exports the current patch database to the individual instrument definition .ini files. All new group assignments and other changes will be neatly

formatted and exported to each of the individual .ini files involved in building the database. If you update any group assignments, be sure to use this option to re-build the .ini files with the new assignments included, or the next time you use the *Update Instrument Patch Database From .ini Files* option, all group assignments will be lost because the original .ini files will be used to re-build the database.

→Global Midi-In Chan Filter

This option allows you to filter all incoming midi data down to a specific midi chan if desired. If set to a single chan, all incoming data not on that chan will be discarded. This can be helpful with certain midi keyboard controllers that send multi-chan midi data at the same time causing possible stuck notes and missing Note-Off data. This setting can be saved in the preferences.

→Auto Solo / Audio Mute

When the *Auto Solo / Audio Mute* option is active, engaging any solo mode in the **Midi WorkShop** will automatically activate the *Mute Audio* mode to force all SAWStudio audio tracks mute, so only the midi data is heard. The *Mute Audio* button may be disengaged to hear the audio tracks along with the soloed midi tracks at any time.

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9.7 Info Menu

→Help Contents

The *Help Contents* option will display the Help File Contents.

→Latest Release Notes

The *Latest Release Notes* option displays the history of changes and fixes for this product in chronological order. Each time you download an update, be sure to check these notes for the latest additions and fixes.

→About

The *About* option displays the about box information window with the program version and information.

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10 Using VST SoftSynth Plug-Ins

10.1 Using VST SoftSynth Plug-ins

SAWStudio and the **Midi WorkShop** support the VST SoftSynth technology protocol. You may patch in a VST Synth plug-in on a *SAWStudio* track and link it to the **Midi WorkShop** as its source for MIDI data.

☞ Open the *VST Synth* plug-in window and [Left-Click] on the *Blue Pyramid* logo at the top of the VST plug-in client area. Select the *Set SoftSynth Midi In Port* option from the popup menu. Choose one of the **Midi WorkShop** *Virtual Port* links. Now in the **Midi WorkShop**, assign a track to a port that has been set to the same *Virtual Port* setting. The sound will only be generated while the engine is running. Therefore, you must engage *Live Mode*, *MultiTrack* playback, *Record Ready*, *Record*, or *SRP Record* to get the engine in a running state. When the playback engine is in motion, the *VST SoftSynth* plug-in will act as any other hardware MIDI box and generate sounds when triggered from the MIDI track data or from a controller keyboard passing data with the MIDI Thru active.

Playback of pre-recorded data will have no latency issues to consider as the buffers are prepared in advance and remain in perfect sync with the rest of the data. When attempting to play live thru the plug-in during recording or playback operation, the amount of latency is adjusted by the *SAWStudio* Audio Buffer settings in the *Audio Device Setup* options. Adjusting the buffers to 4 at 256 or less should bring the latency close enough to real-time to allow a good musical performance. If your machine can handle 2 at 128 or less you will be in great shape.

You can lighten the cpu load during live VST Synth recording to allow the buffer settings to be reduced by selecting and playing only a few audio tracks with guide tracks on the **Midi WorkShop**. You can also consider building a rough mix of a complex session down to one stereo track to use while you overdub, as this can open up many creative opportunities for you.

VST Synth Scrubbing

☞ Pressing the [L] key or [Right-Clicking] the Transport Play button will activate *SAWStudio's Live Input Mode*. The cursor will change shape giving visual feedback when *Live Input Mode* is active. VST Synths may now be scrubbed while *Live Input Mode* is active. [Right-Clicking] or pressing the [L] key again, or [SpaceBar], or *Stop* button will exit *Live Input Mode*. Editing features and certain positioning features will be disabled in *Live Input Mode*.

11 Getting Your Feet Wet! (Tutorials)

11.1 Getting Your Feet Wet!

This section contains a set of tutorials designed to get you up and running quickly with the **Midi WorkShop**! These tutorials assume that you have a MIDI port setup, and access to a patch template .ini file. If you are not sure if these two things have been done, see *Setting Up the MIDI Ports and Patches*.

- ☞ The sample MIDI files that you will be using in these tutorials are piano tracks. Use a general MIDI or generic piano patch for proper playback.

Tutorials:

[Tutorial 1: Opening, Playing Back, and Closing a MIDI File](#)

[Tutorial 2: Navigating a MIDI File](#)

[Tutorial 3: Setting up a Click/Conductor Track](#)

[Tutorial 4: Measure Mapping a MIDI Performance](#)

[Tutorial 5: Averaging the Tempo within a Marked Range](#)

[Tutorial 6: Quantizing MIDI Data](#)

11.2 Tutorial 1: Opening, Playing Back, and Closing a MIDI File

1. From the *SAWStudio File* menu, choose *Open Session*.
2. Navigate to C:\SAWSTUDIO\AUDIO\SAMPLE_MIDI_01.EDL and click *Open*.
3. Click on Track 1 to make this the *HotTrack*.
4. If your *Patch Library* has been properly setup, [Double-Click] a piano patch from the *Patch Library* list to assign the port channel and piano sound to track 1.
5. From within the *Midi WorkShop MultiTrack* or the *SAWStudio MultiTrack*, right-click to begin playback.
6. Right-click in the *MultiTrack* to stop playback.
7. Now start and stop playback using the spacebar.
8. Start and stop playback using the *Play* and *Stop* transport buttons.
9. From the *SAWStudio File* menu, choose *Close Session*.

Tutorials:

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[Tutorial 6: Quantizing MIDI Data](#)

11.3 Tutorial 2: Navigating in a MIDI File

1. From the *SAWStudio File* menu, choose *Open Session*.
2. Navigate to C:\SAWSTUDIO\AUDIO\SAMPLE_MIDI_01.EDL and click *Open*. This is a simple one-track MIDI file.

3. Play the MIDI file. Note that this song is done in 3/4 time, and that it is played very inconsistently and has some mistakes.
4. With the Midi WorkShop as the active window, press Ctrl-F4 to change the view to a single track.
5. Press the *Home* key to go to the beginning of the track.
6. Click the *Up/Dn* zones in the lower left corner of the Midi WorkShop to position the notes comfortably in the middle of the track.
7. Hold the *Shift* key and click on the *Up* zone twice to increase the height of the notes.
8. Click the *Plus Zm* zone to zoom in a little more. (If you use a MouseWheel, try rolling the wheel both ways to zoom in and out.) Click on different notes to see how active notes change to white.
9. Notice the measure and beat references in the time line. Zoom in and out again and notice the grid adjusting to the zoom level. Zoomed out you begin to see only measure counts. Zooming in you start to see beat counts, then tick counts. Zoom in to a comfortable level, then go to measure 3.
10. The highest note at the end of measure 3 is wrong. [Right-Click] and drag the cursor over the notes in measure 3 until you hear the one that is wrong. Notice when you select the note, that the *Note Display* readout says this is a C-6 note. You can also hear it, and see it in the MIDI keyboard as you [Right-Drag] over the note.
11. Move the note from an C down to a B by holding the [Ctrl] key while [Left-Dragging] the note down to a B. (Hint: Use the keyboard to see the note move to the correct position, or use the *Note Readout* display to see the text display change to B-5.)
12. From the *SAWStudio File* menu, choose *Save Session As* and save the session as *Sample_Midi_01_Edit.edl*. Notice that the title bars in both *SAWStudio* and the *Midi WorkShop* both reflect the new file name.
13. Leave this session open and proceed to the next tutorial to learn how to set up a Conductor/Click track!

Tutorials:

[Tutorial 1: Opening, Playing Back, and Closing a MIDI File](#)

[Tutorial 2: Navigating a MIDI File](#)

[Tutorial 3: Setting up a Click/Conductor Track](#)

[Tutorial 4: Measure Mapping a MIDI Performance](#)

[Tutorial 5: Averaging the Tempo within a Marked Range](#)

[Tutorial 6: Quantizing MIDI Data](#)

11.4 Tutorial 3: Setting up a Click/Conductor Track

(Continuation from previous tutorial.)

1. Click inside the *Midi WorkShop MultiTrack* to make this the active window.

2. Press Ctrl-F3 to change the view to two tracks.
3. On Track 1, press the *End* key to go to the end of the MIDI data.
4. [Right-Click] the label display area on Track 2 and from the popup menu, select *Create Click/Conductor Track to Cursor Position*. Notice the notes displayed on Track 2 on each beat boundary.
 - ☞ The default patch for the *Click/Conductor* track is set to *General Midi Drums*, which it expects to find on Chan 10 of your first MIDI Port. The notes used will play a high and low conga or bongo sound. If your instrument patch database is set up differently, and you are not hearing these sounds, you may easily make adjustments and save new defaults for the *Click/Conductor* track that suit your setup.
5. To move the downbeat of the *Click/Conductor* track notes to a different pitch, activate *Select Mode* by clicking the *Select Light*.
6. Press the [Home] key to go to the beginning of the track.
7. Click the first note on the track, (which is a lower note and denotes a downbeat.) This highlights the note and makes it the *Key Entry* for the *Select Mode* operation.
8. Press the [End] key to select all the of the downbeat notes to the end of the track.
9. While holding the [Ctrl] key, [Left-Drag] the first downbeat note up or down until you find a note that you like for the downbeat sound.
10. When you release the mouse, note that all selected notes were moved to this new position.
11. [Right-Click] to clear all selected entries.
12. If you wish to adjust the other beat notes, follow this same procedure.
13. [Left-Click] the *Select Light* to turn *Select Mode* off.
14. To save your new settings, [Right-Click] the *Click/Conductor Track* label, and choose *Save Click/Conductor Track Settings* from the popup menu.
 - ☞ You are free to change the Port, Chan, or Patch settings at any time, and all settings will save with this command!
15. Press the [Home] key again and start playback to hear piano track against the conductor track. Notice we've got some work to do! ☹
16. Leave this session open and proceed to the next tutorial to learn how to measure map this piece!

Tutorials:

[Tutorial 1: Opening, Playing Back, and Closing a MIDI File](#)

[Tutorial 2: Navigating a MIDI File](#)

[Tutorial 3: Setting up a Click/Conductor Track](#)

[Tutorial 4: Measure Mapping a MIDI Performance](#)

[Tutorial 5: Averaging the Tempo within a Marked Range](#)

[Tutorial 6: Quantizing MIDI Data](#)

11.5 Tutorial 4: Measure Mapping a MIDI Performance

(Continuation from previous tutorial.)

1. Click inside of Track 1, then press Ctrl-F4 to change the view to one track.
2. Press the *Home* key to go to the beginning of the track.
3. Zoom in to a comfortable level using either the Zm zones, or your wheel mouse. For measure mapping purposes, you may wish to zoom in very close for more precision.
4. [Left-Click] the *Metronome* zone and choose *Adjust Measure Map*. You will see red lines on the measure grid. The solid lines represent the actual measure boundaries and the dashed lines represent the beat boundaries inside of each measure.
5. Using the timeline as a measure reference, hold the [Alt] key, and [Left-Drag] the solid red line at the beginning of measure 2 slightly so that it lines up to the left edge of the second set of notes on the track. This is actually the first beat of the measure since the first note on the track is a pickup note. This will automatically anchor measure 2 to this position.
6. Click one time in the timeline to the right of the timeline center position, or press the [Right-Arrow] key. This will automatically take you to measure 3 and align this measure boundary in the center of your display. The current measure boundary is displayed in white.
7. Again, while holding the [Alt] key, [Left-Drag] the measure boundary line at the beginning of measure 3 to line it up with the left edge of the notes which are the first beat of that measure. You may need to initiate playback (or simply scrub the audio by right-dragging) from time to time to be sure you are lining your measure map up with the appropriate notes.
8. Click again to the right of the timeline center position to go to measure 4. Measure 4 is pretty good. Make just a slight adjustment to the measure boundary on measure 4.
9. Go to measure 5. Measure 5 needs a slight adjustment. Move the measure boundary slightly, and then go to measure 6.
10. Measure 6 looks good. Leave it as is, and click in the timeline to go to measure 7.
11. Measure 7 needs some adjusting. Adjust your measure map for measure 7. Now look at measure 6. We lost our measure sync on measure 6! Here's why, and this is important to understand when using measure mapping: If we move a measure boundary, we will be affecting all previous consecutive *unanchored* measure boundaries. So before we adjust measure 7, we need to go back and anchor measure 6. Here are two important notes regarding measure mapping:
 - a. Any time you adjust a measure boundary, that measure is automatically anchored.
 - b. If you have a series of unanchored measures and need to adjust a measure boundary further down the timeline, you don't need to go back and anchor all previous measures, only the one directly before the measure whose boundary you

are about to adjust. So if you are mapping your song, and measures 5-20 do not need adjusting, but 21 does, simply go back and anchor measure 20 by double-clicking close to measure 20's measure boundary. Then adjust measure 21 accordingly.

12. Press [Ctrl <] to undo the measure map for measure 7.
13. Go back to measure 6 and [Double-Click] close to the measure boundary for measure 6 to anchor it.
14. Now go back to measure 7.
15. Holding the [Alt] key, [Left-Drag] the measure boundary for measure 7 to the left edge of the first note of the measure. Notice that measure 6 was not adjusted this time.
16. Proceed down the timeline adjusting all measure boundaries where needed.
17. Press the [Esc] key to exit *Measure Map* mode.
18. Press the [Home] key to go to the beginning of the file.
19. Right-click to hear playback now against your click track. Although our tempo is inconsistent, notice that the downbeat of each measure on the click track is now in time with the piano track. Also notice that the *Time Display* readout in the *SAWStudio MultiTrack* is in sync with playback. At this point we haven't modified the original MIDI data.
20. From the *SAWStudio File* menu, choose *Save and Update Session*.
21. Leave this session open and continue to the next tutorial to learn how to smooth out the tempo for this song!

Tutorials:

[Tutorial 1: Opening, Playing Back, and Closing a MIDI File](#)

[Tutorial 2: Navigating a MIDI File](#)

[Tutorial 3: Setting up a Click/Conductor Track](#)

[Tutorial 4: Measure Mapping a MIDI Performance](#)

[Tutorial 5: Averaging the Tempo within a Marked Range](#)

[Tutorial 6: Quantizing MIDI Data](#)

11.6 Tutorial 5: Averaging the Tempo within a Marked Range

(Continuation from previous tutorial.)

1. Click the controller *Display Light* in the *Top Client Area* to turn on *Controller Display* mode. You will now see your tempo entries (displayed as blue lines.) These lines represent the different tempo changes throughout the song and are different heights based on the speed of the tempo for each tempo change. You may need to zoom out to see multiple measures.
2. As you [Left-Drag] over the piano track, watch the *Tempo Readout* display to observe the changing tempos throughout the song.
3. Press the [Home] key, then press the [Shift-End] to mark the entire track.

4. Click on the *Metronome* zone and select *Average Existing Tempo Entries Within Range*. Notice that the blue tempo change lines are now all the same height.
 5. Clear the *Marked Range* by either [Right-Clicking] in the timeline, or pressing the [C] key.
 6. [Left-Drag] over the piano track, and watch the *Tempo Readout* display to see that the tempo is perfectly even throughout the song.
 7. Press the [Home] key and [Right-Click] to hear your song.
- ☞ Note: This example applies tempo averaging to an entire piece. You may also select specific *Marked Ranges* to apply averaging to. For example if you have a piece where the tempo slows down at the end, you would not want the *Marked Range* to include those measures, or they will be calculated into the average and made the same tempo as the preceding measures.
- ☞ Note: Now that you have made the tempo exactly even throughout the song, you could remove all tempo change entries between the first and last tempo change as they are no longer needed. Read the *Tempo Manipulation* section to understand tempos and tempo changes for more information.
8. From the *SAWStudio File* menu, choose *Save and Update Session*.
 9. Leave this session open and proceed to the next tutorial to learn how to quantize your file.

Tutorials:

[Tutorial 1: Opening, Playing Back, and Closing a MIDI File](#)

[Tutorial 2: Navigating a MIDI File](#)

[Tutorial 3: Setting up a Click/Conductor Track](#)

[Tutorial 4: Measure Mapping a MIDI Performance](#)

[Tutorial 5: Averaging the Tempo within a Marked Range](#)

[Tutorial 6: Quantizing MIDI Data](#)

11.7 Tutorial 6: Quantizing MIDI Data

(Continuation from previous tutorial.)

1. Click on the *Display Light* to turn off *Controller Display Mode*.
2. Click on the *Grid/Quantize Note* zone (to the left of the *Grid Light*) and click on the quarter note (3rd note from the left on the top row.) This tells the *Midi WorkShop* to slide notes to the nearest quarter note beat during quantize operations.
3. Zoom in and click the first note in the file to select it.
4. Press the [Q] key on the keyboard and notice that the note was quantized to the nearest quarter note beat, which in this case is beat 3 of measure 1.
5. Click in the timeline, or scroll with the mouse, to go down to measure 6 and create a *Marked Range* including all notes in measure 6 by [Left-Dragging] in the timeline along the measure

- 6 boundaries. Be sure the Marked Range includes the start positions of all the notes in the measure. Note how far off the grid each note is.
6. Press the [Q] key again and notice that all the notes in the *Marked Range* were quantized to the nearest quarter note beat.
 7. Zoom out, press the [Home] key and then press [Shift-End] to select the entire track, and once again press the [Q] key. Now the entire track has been quantized!
 8. [Right-Click] in the timeline to clear the *Marked Range*.
 9. Playback your session and listen to your changes! Note how all notes are perfectly smooth and evenly timed.
 10. From the *SAWStudio File* menu, choose *Save and Update Session*.

Tutorials:

[Tutorial 1: Opening, Playing Back, and Closing a MIDI File](#)

[Tutorial 2: Navigating a MIDI File](#)

[Tutorial 3: Setting up a Click/Conductor Track](#)

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