SAW Studio64

USER MANUAL

Version 1.4

Table of Contents

Part IV Navigation   **50**

Part V Ready To Record   **76**

Part VI Using The MultiTrack   **86**

1   Introduction

1.1   About This Helpfile

1.1.1   About This Helpfile

Version 1.4

This helpfile was designed as a guide for understanding and using the features and functions of *SAWStudio.* This product is continually being updated with new features which will be included in the helpfile with each update. Once you receive an updated version, look for details on any new features and maintenance fixes in the *Latest Release Notes* located in the *Info* dropdown menu within the program. Updated .pdf manuals will be available for download at the RML Labs website at www.RMLLabs.com.

Other Helpfile Related Topics:
Helpfile Conventions and Terminology

1.1.2   Helpfile Conventions and Terminology

The following chart contains symbols and formatting will be used throughout this helpfile to indicate special terms, notes, warnings, and actions. *SAWStudio* is designed to be primarily a mouse-driven interface. Therefore, this chart also contains many mouse conventions which will be used throughout this helpfile.

🖐	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 quickly.
Left-Click	When instructions indicate to 'Left-Click', press and release the left mouse button quickly.
Right-click	When instructions indicate to 'Right-Click' an object, press and release the right mouse button quickly.
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.

Other Helpfile Related Topics:
About This Helpfile

1.2   Product Overview

1.2.1   SAWStudio Overview

SAW is the acronym for *Software Audio Workshop*. This program runs in Microsoft Windows and turns your Windows PC into a powerful digital audio workstation.

SAWStudio combines virtual mixing technology and hard disk editing technology into one power-packed application. The look and feel of a fully controllable console, coupled with an all new high powered 24-bit hard disk engine make this product one of the most intelligent digital editors on the market today.

The *SAWStudio* interface is a tightly woven mesh of a fully developed mixing console interface and a newly designed *MultiTrack* recording/editing interface. This design is truly aimed at emulating the look and feel of working in a typical hardware based studio environment, replacing the physical mixing console, *MultiTrack* recorder and outboard rack-effects gear all at the same time.

The Console

The virtual console is designed as a 120 stereo input (240 channel), 24 stereo output (48 i/o) mixer, with Input Source, Attenuator, Phase Reverse, Swap L/R, and Mono buttons, 5 Band Stereo EQ, Keying Gate and Compressor, Pre and Post FX patch points, 6 Stereo Aux Sends with Pan, 24 Stereo Output Assigns, 8 point XY Surround Pan with separate Sub and Center Chan, Solo, Mute, Stereo Pan, long throw Fader with a Stereo Hi Resolution (-60 dB) Meter on each channel.
Any input channel may be assigned to any or all output channels at the same time. Output channels may be routed back to any other output channel allowing any combination of Output faders to be used as subgroup, VCA type masters. The Aux Sends may be internally routed as virtual or patched out to any device output, and returned from any device input, in sync, direct into the *MultiTrack* mix, through 6 independent Return channels, each with complete FX patching capabilities and their own Hi Resolution Meters.

XY Surround panning is built in and can be assigned in any manner to up to 10 discreet outputs. The surround setup can be saved in templates making 5.1, 7.1, quad surround or any configuration available at the touch of the mouse.

The console can be displayed in different views, independently or simultaneously, allowing quick access to multiple perspectives of the current information.
The console has extensive navigation capabilities and is intimately linked to the *MultiTrack*. There are popup navigation menus that display labeled channels and track references, allowing instant one-click access to anywhere you need to go.

The MultiTrack

The *MultiTrack* takes on expanded dimensions with its distinctive new look and capabilities. Each of the stereo tracks are eight layers deep. The selected top layer becomes the active track in the mix. A wonderful compliment of editing tools allows copying, pasting, and blending of the individual layer data. Layers can be switched LIVE during playback for a seamless comparison of multiple takes on different layers. This should prove invaluable in assembling complex blends of multiple recording takes.
Each labeled track also allows its entries to be displayed in a variety of different textures and colors, making visual grouping of related information possible.
Complete interlinking to the console means that as you focus and change tracks in the *MultiTrack*, the displayed console channels follow along, giving you instant access at all times to the track's related console controls.

Distinctive large LED readout displays give accurate position related information in Time, Smpte, Sample or Tempo formats.

An enhanced editing *Selection Mode* allows for easy slipping, copying, pasting and inserting of data across multiple tracks, and gives access to 30 labeled groups for instant recall of selection combinations.

Included on the *MultiTrack* is a video track designed to allow video clips to be marked and laid out as entries along the *TimeLine*. These clips can then be viewed in perfect sync (sub-frame accuracy) with the entire *MultiTrack* audio playback mix. This allows complete film sound design projects to be done entirely within the **SAWStudio** environment.

Also included is a *Control Track*, which allows special MIDI controller information to be placed as entries which can be aligned and used for live theatre and show control.
SAWStudio offers an innovative new technology called *SoftEdge*, which enhances and simplifies the ability to perform crossfades of multiple audio segments on the same track. Any audio segment (*Region*), may be given a *SoftEdge* value in milliseconds which automatically and non-destructively extends it's splice point boundaries in both directions, creating a perfect -6dB ramp live in real-time, with no background or pre-processing stem files written. This creates perfect crossfades across two butt-spliced Regions without the need for overlapping, which can compromise and complicate the ability to maintain sync at the splice-point. A special *SoftEdge* display overlay allows you to see the invisible overlap with down-to-the-sample accuracy.

Automation

SAWStudio offers some of the most comprehensive automation capabilities ever designed for the audio professional. The automation engine is based on a live streaming design, rather than a snapshot design, creating an incredibly smooth and fluid motion during automation changes - with down-to-the-sample timing accuracy. When automation mode is engaged, any number of the 10,000+ controls can be adjusted, and changes will be stored. You are free to write automation live during playback, or offline with playback stopped. The automation may also be written with external fader packs and/or mixer controllers supported by the Studio environment, enhancing the mixing experience for those wishing to have true hands on physical control.

The entire console chases stored automation as you move through the time line in the *MultiTrack*, giving you a visual indication as you observe the various console views of every mixing change within the session.

During playback, any console control may be overridden manually, and the change will remain in effect until another automation change for that control takes over when it's time. Manual changes written in this matter are not stored, thereby maintaining the original automation programming. Adjusting controls that have no programmed automation actually adjust the default starting positions for those controls. Both the default starting values and the programmed automation are saved with your session files. This versatility allows certain tracks to be automated while others are completely controlled manually

by the engineer if so desired.

A special offset mode allows any *Marked Area* or an entire track's automation to be offset up or down without destroying the individual programmed changes. This mode may be auditioned live during playback, committing changes only at the operator's discretion.

Any group of automation changes may be stretched, shrunk, moved, copied, deleted, offset, etc. instantly with easy built-in editing commands.
The automation changes can be displayed in a special visual overlay mode to the waveforms in the *MultiTrack* with each individual automation change referenced as color-coded lines. The lines vary in height and angle displaying value and slope information. A special *View Filter* allows you to see one automation group at a time. When this filter is active, all automation editing changes apply only to the visible group.

Special slope values may be applied to faders, pans and mutes which control how fast the change occurs. This adds enhanced power to these controls by allowing them to ramp up or down at a specified rate, eliminating the possibility for pops and clicks with sensitive audio material.

The Engine

The underlying architecture is an entirely new - from the ground up - *MultiTrack* recording and mixing engine, based on many years of experience with the development and maturity of the SAW product line.

The focus of this new engine design is centered around the live, low latency feel of a real playback and mixing environment. This engine assembles the *MultiTrack* data, LIVE, on the fly, directly in front of the actual data being played out by the sound devices. Pre-cueing of the data is kept to a minimum based on a dynamically adjusting engine that determines when Windows will steal major blocks of CPU time (requiring data to be pre-cued ahead) and when the operator is interacting with the interface, expecting low latency instant reaction time when adjusting controls. And this engine delivers just that - instant reaction time and the feel of a real console, without glitching the audio playback.

There is no re-cueing of the audio data at any time, meaning that any control adjustment may be made at any time without glitching reverb trails or aux send information.
The engine has a built-in slip ability that can delay or send ahead groups of audio data to allow for internal re-syncing of data that would otherwise be delayed. This gives the ability to create physical insert points, that allow the return and live in-sync mixing of aux send data before the track data is actually played out.
The engine makes extensive use of priority multi-threaded code design, and with its hand coded assembly language techniques, is capable of reaching performance levels not thought possible within the standard Windows environments.

The design uses advanced assembly language techniques to emulate all functions of the console portion of the program. Faders, eq, dynamics, aux sends and returns, meters, echo/delay, reverb, etc. are all emulated DSP routines, that already rival the performance of hardware based units when used on high-end computers. This design also eliminates the need for special DSP based hardware sound devices, allowing standard audio sound cards access to all of the design features.

Because of the low latency capabilities, this engine is a perfect match for external fader packs and mixer controllers. **SAWStudio** uses a complete virtual lookup table design to link incoming controller signals to virtual console and transport controls, and other internal functions of the engine. Different hardware controller information can be stored in templates (without the need to update or rewrite the program code) that can be instantly loaded into the program to change from one controller type to another, without the need to restart the program! Templates are available for a wide variety of the most popular controllers, and future templates will be made available for download, as new hardware is released.

FX Processing

A brand new powerful **SAWStudio** API (Application Programming Interface) has been developed for handling FX Plug-Ins. This interface offers one of the most direct and streamlined protocols for passing information between the application and processing plug-ins. This design also offers enhanced power and control, including automation capability, while actually increasing overall efficiency. Backed by the **SAWStudio** engine and powerful API, plug-in development can truly be taken to new extremes!

The DirectX and VST protocols are seamlessly woven into the engine design, with all plug-ins of all types showing in one common effects choice window. With the current availability of numerous DirectX and VST plug-ins to choose from, you can begin FX processing immediately without waiting for future development.

Effects are hot-patchable, meaning they can be plugged in and out in real-time during playback! The engine will automatically initialize and insert the plug-in directly into the playback loop in perfect sync, without the need to stop playback.

It's time to let **SAWStudio** change the way you work with audio forever!

1.3   Product Training

1.3.1   SAWStudio Training Tutorial Library

The RML Labs website offers various videos and other online training information containing lessons from the very basic to the very complex issues involved in using **SAWStudio.** You may visit the SAWStudio Training information at any time on the RML Labs website.

2   SAWStudio Fundamentals

2.1   Terminology

2.1.1   SAWStudio Terminology

This section is a brief glossary of terms which are used throughout this helpfile. Many terms are similar in description and in some cases interchangeable. Use this guide as a reference if you need further clarification on a specific term.

Buffer	An area used to store data temporarily.
Butt-splice	Two entries joined together end to end.
Channel	Refers to a channel in any one of the mixer views. This term correlates with the term *Track* when referring to the MultiTrack View window. For example, *Track 3* in the MultiTrack links to *Channel 3* in the Full View Mixer.
Console	Refers to the virtual mixing console. Used interchangeably with the term *Mixer.*
Default	The values or configuration settings automatically loaded when SAWStudio is started.
Dither	The process of adding a low level noise pattern to attempt to minimize quantization error distortion when changing from higher to lower bit resolutions.
EDL	Edit Decision List. An EDL stores all session related information including automation, mixer configuration, region data and soundfile link information. An EDL does not store the actual soundfile data.
Hot Channel	The currently selected channel in any mixer view.

Hot Track	The currently selected track in the MultiTrack.
Marked Area	An area selected in the MultiTrack or SoundFile View, used for exclusive editing and auditioning purposes.
MT	Acronym for MultiTrack.
MT Entry	A virtual link to soundfile data created for use in the MultiTrack. Used interchangeably with the terms *Region* and *Entry*.
MT Entry Boundary	The beginning or ending border of an MT Entry.
Region	A virtual link to soundfile data created for use in the MultiTrack. Used interchangeably with the term *MT Entry* and *Entry*.
Resolution	The amount of detail in a digital audio image.
Sample	A snapshot of the original acoustic audio signal, which when assembled sequentially with other samples, creates a facsimile of the original signal.
Samplerate	The interval between Samples. The higher the samplerate, the closer the facsimile is to the original.
SF	Acronym for SoundFile.
Soundfile	A file that stores actual source audio sample data, commonly used to create Region links for use in the MultiTrack.
Splice point	The point where two entries are joined together on the MultiTrack.
Template	A saved pre-set configuration file, which can be used as a starting point to save time and maintain consistency.
Track	Refers to a track in the MultiTrack View window. This term correlates with the term *Channel* when referring to mixer view windows. For example, *Track 3* in the MultiTrack links to *Channel 3* in the Full View Mixer.
Zone	An active area in the SAWStudio workspace, (not considered a button) used for navigation purposes and accessing menu options.

2.2   The Fundamentals Of Digital Audio

2.2.1   What is Digital Audio?

Prior to the computer age and the introduction of digital audio concepts, analog technology ruled the audio recording industry. Analog audio can be considered a continuous stream of fluctuating electronic pulses, a perfectly smooth facsimile of the original acoustic audio signal.

Digital audio, however, is actually a series of individual snapshots of the original acoustic audio signal, taken at defined time intervals, which when sequentially reassembled, creates a facsimile of the original signal.

Because the components of a digital audio signal are discreet in nature, they can easily be stored and manipulated as files in a standard PC computer environment. We will refer to these files as *soundfiles*.

The time intervals between snapshots we refer to as the *SampleRate*. The smaller these intervals are, the more snapshots there are within a specified time. For example, if the time interval is a tenth of a second, then ten snapshots will be taken per second, making the *SampleRate* ten. If the time interval is a hundredth of a second, then 100 snapshots will be taken per second, making the *SampleRate* 100. The higher the *SampleRate*, the more snapshots per second there are, making the facsimile closer to the original. We will refer to each snapshot as a *sample*.

Each *sample* in a digital audio signal represents the instantaneous volume level of the original audio at the moment the *sample* was taken. PC computers represent number values as binary data. The basic building block of binary data is called a *bit*. The higher the number of bits, the higher the value they can represent. For instance, one bit can represent two values, 0 and 1. Two bits combined can represent four values, 0, 1, 2, and 3. Eight bits can represent 256 values, 0 through 255. Sixteen bits can represent 65,536 values.

When representing an audio signal with eight bits, the facsimile of the original is very limited in detail (only 256 values available). When representing the same signal with 16 bits (65,536 values available), the amount of detail captured more closely duplicates the original signal. The amount of detail is referred to as *resolution*. The higher the *resolution* and the *SampleRate*, the higher the quality of the digital audio captured.

The tradeoff to using the higher *resolution* and *SampleRate* values is the need for more computer memory and speed to store and manipulate the data. For example, an 8 bit *resolution*, 44100 Hz *SampleRate* stereo soundfile requires approximately 5.25 megabytes of hard disk storage per minute, whereas a 16 bit *resolution*, 44100 Hz *SampleRate* stereo soundfile requires approximately 10.5 megabytes of hard disk storage per minute.

Other Fundamentals Of Digital Audio:
What is Non-Linear Editing?
Understanding Bit Resolution and Dither

2.2.2   What is Non-Linear Editing?

There are two general methods commonly used to manipulate digital audio once it has been brought into the computer environment - *Linear* and *Non-Linear*.

The *Linear* method is generally a simpler concept to implement when designing a digital audio environment. Original soundfile data is typically marked, cut, copied, pasted, processed, and otherwise assembled from beginning to end, in a sequential fashion, most likely into a new soundfile representing the finished production. The process of linear editing is much like stacking bricks one on top of the other, one at a time. As the bricks are stacked, removing one brick near the bottom topples the entire structure. Each editing operation is usually performed on the actual soundfile data, requiring mass amounts of data manipulation, slowing processing time drastically. Also, many of the editing operations can actually be considered *destructive* as they permanently alter the original audio data. In order to provide *Undo* capabilities, copies of large amount of original data are required to be stored prior to each destructive operation. For instance, to cut six seconds from the front of a one minute soundfile might require saving one megabyte worth of data to an Undo file, and then copying the remaining nine megabytes forward. Undoing the cut would then require recopying the first megabyte from the Undo file and appending the remaining nine megabytes to the end. Expand this concept to editing a 20 minute soundfile and realize you might move and copy up to 200 megabytes of data each time you remove a few seconds from the file. This translates into large amounts of extra storage space and lots of precious time needed to perform simple editing operations in a typical production.

The *Non-Linear* method is a more complex concept to implement, but offers phenomenal benefits, incredible power, and time-saving capabilities that a linear system can't begin to compare to. In this environment, small objects, typically called *clips* or *Regions*, that represent and link to the original soundfile data are manipulated instead of the original data. Two immediate advantages of this concept are 1) there is no longer a need to move and copy large amounts of original soundfile data to perform simple editing operations, and 2) most editing operations can be considered *non-destructive* as they do NOT alter original soundfile data. Most non-linear environments are built around the concept of a virtual multitrack workspace. *Regions* can be randomly placed on any combination of tracks and assembled to create a finished production. A powerful non-linear editing environment like **SAWStudio** allows the *Regions* to be copied, moved, overlaid, processed and otherwise manipulated non-destructively in real-time, allowing instant auditioning of the production as it's being built, and eliminating the need for the Undo function for most operations. For example, the procedure of cutting a small amount of materiel from the front of a large soundfile requires <u>absolutely no</u> copying or moving of the data, and can be undone or altered at any time without the need for an Undo file. A small *Region* is created to represent the part of the soundfile in front of the desired cut point. Another *Region* is created to represent the part of the soundfile after cut. The two *Regions* are simply placed side by side on a track, and the cut is complete. Playback can occur instantly and original soundfile remains intact! To

alter the cut, one or both of the *Region* boundaries can be simply redefined and once again, the original soundfile remains intact!

The advantages of non-linear editing are numerous, and will continue to astound you the more you work with this concept. So hold on to your hat and fasten your seatbelt as we begin our journey into the powerful world of the **SAWStudio** non-linear multitrack editing environment.

Other Fundamentals Of Digital Audio:
What is Digital Audio?
Understanding Bit Resolution and Dither

2.2.3   Understanding Bit Resolution and Dither

Bit Resolution discussions have generated much controversy in recent years. Along with the controversy has come a shroud of confusion and in many cases, misinformation. This section attempts to cut through the confusion and at least shed some light on how **SAWStudio** handles the audio data stream resolution.

What Is Bit Resolution?

As mentioned earlier, each *sample* in a digital audio signal represents the instantaneous volume level of the original audio at the moment the *sample* was taken. The computer represents the sample values as binary data based on the building block called a *bit*. More bits can represent larger values. For instance, one bit can represent two values, 0 and 1. Two bits combined can represent four values, 0, 1, 2 and 3. The formula for figuring the number of values is 2 to the *n*th power (2^n) where *n* represents the number of bits.

Representing an audio signal with more bits of resolution can create a much finer and more detailed rendering of the original signal. The theoretical dynamic range of a 16-bit digital audio signal is 96 db from maximum to minimum signal, whereas for a 20-bit signal, it's 120 db, and higher for a 24-bit signal.

Realize that as you approach these resolutions, many other factors come into play, such as amplifier, thermal, and cable noise that pull the realizable dynamic signal range below these values, but nevertheless, you can see that the higher the bit resolution, the better the digital audio image.

What Is Dither?

Dithering is an attempt to minimize the loss of detail that can occur when digital audio sampled at a higher resolution is translated down to a lower resolution, such as when a recording session captured at 20 or 24 bits is processed and mixed down to 16 bits for the purpose of mastering to CD.

The problem of changing from a higher to a lower bit resolution is that the bottom bits need to be thrown away in some fashion or another. This process is called *Truncating* and can result in low level quantization errors, and hence distortion, because during low level passages, only a few bits are used to represent the signal and as the lower bits get thrown away, the signal can become distorted. Many will describe the resulting sound as "grainy" or "harsh".

Dithering is the process of adding a special kind of noise pattern at an extremely low level in an attempt to minimize the quantization error distortion. The added noise randomizes the low level audio bits in such a fashion as to retain a semblance of the audio patterns that would otherwise be lost as the bits get thrown away. It has a way of psycho-acoustically retaining the audio signal that normally requires more bits to accurately represent it.

This technique has always been surrounded by much controversy. Many swear by it. Others dislike it. Many can't seem to tell the difference. When dropping from 16 bits to 8 bits, many feel that dithering

can definitely benefit the process. At the 16-bit level, the benefits will most likely be debated for some time to come.

Many feel that the added noise can be perceived as a very low level hiss and feel that the benefits are outweighed by the additional noise floor that has now become part of their pristine audio project.

In any case, you must use your ears and be the judge. Audio editing and mixing is a creative process and in many cases ends up being all about preference, and not necessarily about right and wrong. *SAWStudio* allows you the freedom to choose what is correct for each project you do. Use a higher bit resolution with *dither* on one project and a lower resolution without *dither* on another. You call the shots!

How Does SAWStudio Handle Bit Resolution?

The internal audio data path in *SAWStudio* is maintained at a full 24-bit resolution. All audio input or file data is shifted up to 24-bit resolution as it comes in. This does not add fidelity to 16-bit audio signals, but does place them in position to be processed and mixed with other data that is at a higher resolution.

Another advantage to working at the 24-bit internal resolution, even on 16-bit source data, is that all signal processing, such as equalization, dynamics, reverberation, etc., will retain the extra low level bits that result from the processing algorithms, and pass them through the chain to the final mix stage.

In *SAWStudio* all yellow *FX* icons on the mixer views represent effects processing at the 24-bit resolution. These are all selectable as pre or post fader. The *Output Channels* on the mixer views, also include red *FX* icons. These represent effects processing at the final destination resolution, always post fader and including *dither*, if selected.

The final destination resolution and *dither* options decide what happens to the data at the output stage. If *dither* is off, then the data is simply shifted down to the final resolution setting and the low level bits are truncated. If *dither* is on, the *dither* algorithm is applied and then the data is shifted down to the final resolution.

This design gives you complete control of your data. For instance, you can work on 16-bit data, edit and output with no *dither*, and the resulting data will be an exact replica of the original data, in its new edited form. Or, if you decide to process effects and mix changes, you can decide whether to add *dither* or not on the final output.

Playback from the *SoundFile View* is handled slightly different than the *MultiTrack View*. The *SoundFile View* normally allows you to monitor the original source data untouched. This is useful for comparisons to the processed data in the *MultiTrack*. *SoundFile View* playback in *SAWStudio*, however, is handled differently, depending on the following conditions:

- If the destination resolution is set to 24 bits and your sound card driver can handle this resolution directly, all files will playback at their original *SampleRate* and resolution parameters.
- If the destination resolution is set to 20 bits and your sound card driver can handle this resolution directly, 20 and 16-bit files will play back at their original *SampleRate* and resolution parameters. However, 24-bit files will play back at their original *SampleRate*, but will be temporarily truncated down to 20 bits for monitoring purposes.
- If the destination resolution is set to 16 bits, 16-bit files will play back at their original *SampleRate* and resolution parameters. However, 20 and 24-bit files will play back at their original *SampleRate*, but will be temporarily truncated down to 16 bits for monitoring purposes.

Tips And Suggestions For Optimizing The Use Of Resolution

The choice of *resolution* and *dither* options can play an important role in the outcome of your production projects. There are no hard-set rules of right and wrong here, but a few tips to get you started can make a difference.

- It is generally recommended that you select the highest *MultiTrack* destination resolution that your sound card hardware and driver can support. For example, if your sound card has 20-bit converters and the driver is **SAWStudio** compatible, set the *MultiTrack* resolution to 20 bits. Normally, you will gain no additional benefit from selecting a higher resolution during playback output. But in many cases, the sound card driver or hardware will automatically dither down to the actual supported resolution and you might find that you like the particular way things sound in one mode over another. Use your ears and test different combinations of your hardware and software settings.

  Remember, even if you select 16-bit resolution, you will still gain the internal benefit of the full 24-bit data path. The internal data is not affected at all by the final destination resolution, because **SAWStudio** is a true *non-destructive*, *non-linear* editing environment. Only the final processing step translates the data according to your choices.

- You should critically experiment with the different *dither* types and compare the results to those with the *dither* off. Note that many drivers and sound cards might add their own *dither* algorithms and you could be applying double dithering. Find the combination you like the best.

- Many do not like *dithering* at all, but still worry about the loss of bits when translating from a higher to a lower resolution. Consider the option of using 20 or 24-bit hardware and outputting the final mix at the highest resolution through the D/A converters back into the analog domain, and then capturing the output through the analog inputs of your favorite DAT recorder. Let the DAT do the actual translation for you, without the need for *dither* algorithms. Many feel this offers the most pristine solution to the resolution translation problem.

SAWStudio offers many options and places much power at your fingertips to give you the creative edge for serious high quality solutions to all your digital audio needs. Have fun with it!

Other Fundamentals Of Digital Audio:
What is Digital Audio?
What is Non-Linear Editing?

2.3   Essential Basic Concepts

2.3.1   Active Windows

The **SAWStudio** interface displays many windows at the same time. The window title bars can be used to determine which window is the active window with the keyboard focus. The active window will display its title bar text in yellow, while in-active windows will display their title bar text in dark gray. Clicking inside of any window typically makes that the active window.

Many common keystrokes will cause different actions depending upon which window is the active window. For example, pressing the *Home* key while the *Full View Mixer* is the active window will jump to the first channel in the mixer, also making Track 1 in the *MultiTrack* the current *Hot Track*. Pressing the *Home* key while the *MultiTrack View* is the active window will take you to the zero locate position on the *TimeLine* without changing *Hot Tracks.*

Other Essential Basic Concepts:
Sizing and Moving Windows
Using a List Box
Using the File Dialog Boxes (Open/Save)

2.3.2   Sizing and Moving Windows

If a window can be sized, you may do so by pointing the mouse arrow to the edge of the window until a double-headed arrow is displayed. When you see the double-headed arrow, click and hold the left mouse button and drag the window to the desired size.

Move any window by clicking and dragging its title bar and moving the window to a desired location. (Title bars are labeled in each diagram where applicable.)

Other Essential Basic Concepts:

2.3.3   Using a List Box

To navigate inside of a list box in *SAWStudio* (such as the *Regions View* window)*,* use one of the following methods:

- Use the *Up* and *Down* arrow keys to move up and down the list one item at a time.
- Use *Page Up/Page Down* keys to page up or down through the list, one screen at a time.
- Click the scroll bar arrows to move up or down one item at a time.
- Drag the scroll box inside of the scroll bar to move to a relative position.
- Click inside of the scroll bar on either side of the scroll box to move up or down a page at a time.
- Use the *Home/End* keys to go instantly to the top or bottom of the list.

Other Essential Basic Concepts:

2.3.4   Using the File Dialog Boxes (Open/Save)

✋ **Regarding File Management:** It is recommended that you learn the basics of file management in the Windows platform (Windows Explorer or My Computer) from one of the many books available on the subject, or by studying the online help files built into the Windows operating system.

Basic concepts:

- The *Drive/Folder Drop Down List* indicates the folder you are currently accessing. Click the arrow to the right of the list box to display the hierarchy and drive information or select a new drive/folder location.
- To navigate to a folder residing within the current folder, double-click the desired folder name displayed within the *Contents List*. The newly selected folder name will be displayed in the *Drive/Folder Drop Down List*, and its contents will be displayed in the *Contents List*.
- Use the *Up One Level* button to go backwards in the file structure.
- Use the *Create New Folder* button to create a new folder inside of the currently displayed folder.

- Use the *Contents View* button to display just the names of the files and folders in the C*ontents List*.
- Use the *Detail View* button to display the names of the files and folders along with the size, type, and last modified date of each file.
- To open a file, navigate to the desired folder location, click the desired file name and click *Open*.
- To save a file, navigate to the desired folder location, type the name of the new file in the *File Name* text box and click *Save*. Filename extensions will be appended automatically.
- Use the *File Type* drop-down listbox to choose a different file type extension.
- To use context sensitive help inside of a Windows dialog box, click the 'What's This' button then click on the dialog box item you want more information on. An applicable help screen will be displayed.
- Click the *Close* button to close the *Save As* dialog box.

Other Essential Basic Concepts:
Active Windows
Sizing and Moving Windows
Using a List Box
Using Online Help

2.3.5   Using Online Help

The **SAWStudio** helpfile is carefully written and very useful once you spend some time with it. In fact, it is strongly recommended that you take a couple hours to read (or at least browse) the entire file using the Next and Previous options at the top of the helpfile pages. The time you'll spend reading the helpfile will easily be made up for when you find your sessions are requiring less and less time because you've expanded your knowledge base of the program and can move much quicker.

If you need to look something up quick in the helpfile, use the SEARCH tab on the Help Contents navigation window. This is a great way to search for help on something like "dither" or "resolution". Once you've typed in a word to look up, you'll quickly be given a list of each helpfile topic that contains that word. You can then pick the topic(s) that are most applicable and read just those. The word you searched for will be highlighted on each page it is found.

A great example of why the FIND tab can be more helpful than the INDEX tab is the word "dither". The INDEX tab searches for topic headings in the help file and doesn't find "dither" because there isn't a topic heading called Dither. But in the FIND tab, if you type in "dither", it finds the topic "Understanding Bit Resolution and Dither".

There are times when the INDEX tab may be more efficient. For example, if you want to find out what the UP button is used for in *SoundFile View*. Typing the word "up" in the INDEX tab will take you right to that button's helpfile. Typing the word "up" in the SEARCH tab will give you a complete list of every help topic containing the word "up" no matter what the context, which might not be desirable in this case.

The **SAWStudio** helpfile is a gold mine of information - not just in understanding SAW, but in understanding digital audio as well. Take advantage of the simple helpfile interface to maximize your knowledge of the program and truly become a **SAWStudio** pro.

Other Essential Basic Concepts:
Active Windows
Sizing and Moving Windows
Using a List Box
Using the File Dialog Boxes (Open/Save)

2.3.6   Using Context Help

SAWStudio offers a rollover context help feature available from the Info menu. You may activate this feature from the Info menu or by pressing [Alt-H] in any window. When this feature is selected, each active zone, switch and control is outlined in red as you roll the mouse over the screen, while a text display window chases the mouse position. By [Left-Clicking] in one of the active areas, information about how to use that feature is displayed in the text window which freezes in position. You can scroll the text in the display window by using the MouseWheel or [Up] and [Dn] arrow keys or the [PgUp] and [PgDn] keys. Pressing the [H] key while the text is displayed will jump you directly to the related section of the Help File. Pressing the [Esc] key or [Right-Clicking] the mouse will unlock the freeze and allow you to scan for more screen zones. Pressing the [Esc] key or [Right-Clicking] again deactivates the Context Help Feature.

2.4   Program Notes

2.4.1   Use Of The Alt key

The *Alt* key is used for many editing operations and as a modifier key to force popup properties menus in certain areas of the interface. As a result, its default behavior for accessing the main menu bar has been altered from standard Windows behavior. You must *press* and *release* the *Alt* key to access the main program menu bar via the keyboard, then press the associated keys to access the individual menu options. While the *Alt* key is held down, **SAWStudio** will be waiting and considering its use as a special modifier key for varied editing operations and interface control.

Other Program Notes:
Interactive Links
MouseWheel Support
Multi-Language HotKey Compatibility
Forced Engine Shutdown

2.4.2   Interactive Links

There are optional interactive links designed into the **SAWStudio** interface between the *MultiTrack View* and the multiple console views that facilitate control of the environment. If active, these links can assist tremendously in the complex control of the mixing and editing environment. These links make it possible to display just one zoomed mixer channel which will always follow the *MultiTrack* or Full Mixer positioning, thereby placing all controls for the track or channel of focus directly at your fingertips. This can save valuable screen real estate for other views and windows.

The individual links can be broken, making it possible to lock a particular mixer view onto certain channels making them always visible. This mixer view won't be affected unless you manually adjust it.

Read the Menu Reference Guide and experiment with the *Navigation Links* option found under the *Mixer* menu.

☞   The **SAWStudio** installation defaults to having all links active. References to this feature throughout the helpfile will assume that links are active.

Other Program Notes:
Use Of The Alt key
MouseWheel Support
Multi-Language HotKey Compatibility
Forced Engine Shutdown

2.4.3   MouseWheel Support

MouseWheel support is included in **SAWStudio**. In the *MultiTrack*, by default the wheel will scroll the view up and down changing *Hot Tracks* by one increment per wheel click. Pressing the [Shift] key at the same time will change the view one page at a time.

M   The *MouseWheel* option under the *MultiTrack* menu offers two choices that control the behavior of the MouseWheel in the *MultiTrack* view:
  ➢ **HotTrack Inc/Dec -** The MouseWheel will scroll the view up and down.
  ➢ **Zoom In/Out -** The MouseWheel will zoom the waveform display in and out.

⌨**M**   [Shift-MouseWheel] will always control the *Hot Track* in a page increment/decrement mode.

🖰   Whichever mode you set as the default in the MultiTrack MouseWheel menu option, pressing the [Alt] key while engaging the MouseWheel temporarily toggles to the opposite mode. Releasing the [Alt] key toggles it back to the default.

⌨🖰   In the *Mixer Views*, the wheel will scroll the view left and right changing *Hot Channels* by one increment per wheel click. Pressing the [Shift] key at the same time will change the view one page at a time.

⌨🖰   In the *MultiTrack* and *Soundfile Views*, [Ctrl-MouseWheel] will operate the waveform vertical scaling function.

Other Program Notes:
Use Of The Alt key
Interactive Links
Multi-Language HotKey Compatibility
Forced Engine Shutdown

2.4.4   Multi-Language HotKey Compatibility

If you have multiple language options installed in your Windows configuration, language switching hotkeys must be disabled to prevent interference with SAWStudio's use of the Control, Shift and Alt modifier keys.

To disable hotkeys language switching in Windows XP:
1.   Open the Control Panel and select "Regional and Language Options".
2.   Click on the "Languages" tab.
3.   Under Text Services and Input Languages, click "Details" button.
4.   Under Preferences, click the "Key Settings" button.
5.   Go Advanced Key Settings, and under "Hot Keys for Input Languages" disable all language switching radio buttons.

To disable hotkeys language switching in Windows 2000:
1.   Open the Control Panel and select "Keyboard".
2.   Click on the "Input Locales" tab.
3.   Under the Hot Keys for Input Locales section, click the "Change Key Sequence" button.
4.   Be sure the "Enable Key Sequence" checkbox is not checked.

To disable hotkeys language switching in Windows NT:
1.   Open the Control Panel and select "Keyboard".

2. Click on the "Input Locales" tab.
3. Under the Switch Locales section, be sure the radio button that says "None" is selected for each language installed.

Other Program Notes:
Use Of The Alt key
MouseWheel Support
Interactive Links
Forced Engine Shutdown

2.4.5 Forced Engine Shutdown

Special code has been added to activate a complete forced Engine Shutdown in the event of a driver or audio engine lockup condition during playback or record. Pressing the [Break] key (labeled "Pause" on many keyboards) will force all engine threads to shutdown in sequence to break the engine out of a locked play loop. A Forced Engine Shutdown message will display on the screen while the program attempts to reset the threads to a stable condition. If the engine is in a locked play condition and you attempt to stop multiple times back to back by normal stop methods, it will force this shutdown routine into action also.

☞ Some keyboards have separate 'Break' and 'Pause' keys, and many laptops may require the use a special function key denotes by color coding on the keyboard. It is recommended that you test this feature on your system during ordinary playback to determine which key or key combination activates this break function, so in the event of a real lockup, you will have a chance for a simple recovery.

Other Program Notes:
Use Of The Alt key
Interactive Links
MouseWheel Support
Multi-Language HotKey Compatibility

3 Getting Started

3.1 Installation

3.1.1 System Requirements

SAWStudio is designed to run under Microsoft Windows 7 or higher - 64 bit OS, on a high-end PC-compatible system.

SAWStudio requires a Pentium II-450 or higher with as much RAM as possible. The current min requirement is 1024 Mb. The video card must handle 1024 x 768 or higher at 65,000 colors.
SAWStudio requires at least one Windows-compatible, 16-bit or higher audio device and supports up to 24 stereo devices (48 simultaneous inputs/outputs).

Other Installation Topics:
System Requirements
Setting Your Windows Display
Installing Your Audio Device (Sound Card)
Installing Your MIDI Device
Installing SAWStudio On Your Computer

3.1.2   Setting Your Windows Display

SAWStudio is able to display a substantial amount of information on the screen at any given time and requires a video resolution of 1024x768 or higher with at least 65,000 colors. Video resolutions of 1280x1024 or higher are recommended for the most efficient of the interface.

Even though your video card and monitor might be capable of these higher resolutions, the Windows operating system installs at a default resolution of 640x480. You must specifically select one of the higher resolutions. Refer to your video card documentation, the manufacturer, or your computer supplier for information on adjusting your video resolution.

The Use Of Dual Monitors

All window views in the interface are popup windows with no boundary restrictions that may be positioned anywhere you desire on your desktop display area. This facilitates the use of dual monitor displays to maximize screen real estate. In all cases, we recommend setting your screen resolution to the highest settings possible with your equipment to maximize the ease of navigating through so much visual display information.

Other Installation Topics:
System Requirements
Installing Your Audio Device (Sound Card)
Installing Your MIDI Device
Installing SAWStudio On Your Computer

3.1.3   Installing Your Audio Device (Sound Card)

Complete the installation of your audio device(s) according to the instructions that accompany the device(s). Follow the manufacturer's recommendations and complete any necessary testing to insure that the device is functioning prior to running *SAWStudio.*

SAWStudio is fully compatible with the Windows MultiMedia specification. This allows it to work with virtually any audio device that is supplied with a well written Windows driver. You must install the audio device driver in order to work with *SAWStudio.*

✋ **Regarding High Resolution Compatibility:** Since the original Windows MultiMedia standard is at best, loosely defined concerning resolution definitions beyond 16-bit, there may be compatibility issues at the 20 and 24-bit resolution settings with certain audio device drivers.

Other Installation Topics:
System Requirements
Setting Your Windows Display
Installing Your MIDI Device
Installing SAWStudio On Your Computer

3.1.4   Installing Your MIDI Device

SAWStudio has the ability to generate and read MTC time code, and also send and receive MIDI mixer control information with any MIDI device. Complete the hardware installation of your MIDI device according to the manufacturers instructions that accompany the device. Refer to the *Midi Device Setup*

and *Sync Device Setup* options under the *Options* menu in the <u>Menu Reference Guide</u> for further information on setting up **SAWStudio** to use the installed MIDI device.

Other Installation Topics:
<u>System Requirements</u>
<u>Setting Your Windows Display</u>
<u>Installing Your Audio Device (Sound Card)</u>
<u>Installing SAWStudio On Your Computer</u>

3.1.5   Installing SAWStudio On Your Computer

To install the **SAWStudio** program onto your computer, you may either run the SETUP.EXE program off of the program CD or, if you downloaded the software, the self-extracting program .exe file.

Installing SAWStudio From A CD

✏️   Insert the CD-ROM into the CD-ROM drive. From the *Explorer* window, navigate to the CD-ROM drive. [Double-Click] on **Setup.exe**. Follow the prompts to complete installation.

Installing SAWStudio From A Downloaded Program File

✏️   From the *Explorer* window, navigate to the location where you saved the downloaded self-extracting program file called **SAWStudio_xx.exe**. [Double-Click] the file. Follow the prompts to complete installation.

SAWStudio will install into its own folder (you can specify a different one if you like). The installation of **SAWStudio** will in no way affect any of your system files. All files are installed to one location, without adding files to system folders or changing existing configuration files.

The program will also create subfolders under the application folder for storage of various files required for operation.

☞   Although the program defaults certain operations to these subfolders, it is recommended that you use the *File Path Setup* option under the *Options* menu to setup alternate paths for the session and audio file and undo storage at a separate location outside of the program folder, preferably on a large designated audio storage drive.

✋   **Important Information Regarding Product Updates:** Please read the Latest Release Notes file (in the program's Info dropdown menu) for recent information about your current program version. This file will always contain information and operation guidelines for new features added.

Other Installation Topics:
<u>System Requirements</u>
<u>Setting Your Windows Display</u>
<u>Installing Your Audio Device (Sound Card)</u>
<u>Installing Your MIDI Device</u>

3.1.6   Tweaking Windows For Better Performance

Windows is not designed as a RealTime Operating System and therefore can introduce some clogs to smooth and high performance when asked to perform realtime tasks such as live streaming audio. SAWStudio places very high demands on your Windows computer in order to perform the tasks it is designed to do, replacing thousands of hardware mixing circuitry components while mixing and processing multiple channels of MultiTrack playback in the virtual environment.

There are certain adjustments that should be made to your Windows environment to obtain the best performance and maximum stability required for a high performance SAWStudio system. Remember, you are asking your computer to do a specific job processing audio. Trim it down. Do not load it with all kinds of games and other office type applications... do not use it to surf the web and process emails and other home computer type tasks.

Here are some guides for tweaking your system using the most popular Windows versions. Windows 7, 8 and 10 are the current common versions and are readily available. SAWStudio64 requires the use of a 64 Bit version of one of these Operating Systems.

Windows 7 (64 Bit)
Follow any or all of these at your own discretion.

1)   ***Program Compatibility and Turning OFF Border Padding and Display Composition***

When using Win 7, you should set the program desktop icon or the actual program .exe file compatibility mode to help with certain internal OS changes that may cause performance and stability concerns.

Right-Click the SAWStudio64 desktop icon or the actual .exe file
Select Properties
Select the Compatibility Tab
Set the compatibility to Win XP SP 2 or 3
Check the "Run As Administrator" checkbox

A new windows option has been added starting with Vista called Border Padding which adds an extra border inside the window client area of x pixels. This must be turned OFF or the pixel mapping of the mixer views will be corrupted.

Desktop Composition is the option that allows Win 7 to display the fancy Aero theme and the various transparency options of windows and gadgets. This can slow screen redraws drastically and affect your ability to hold low latency performance without slipped buffers during F-key and Mixer changing screen redraws.

Right-Click the desktop
Select Personalize
Scroll through the themes and select the Windows Classic Theme

Select the Control Panel Home option in the top left corner of the screen
Change the View By Category option (on the right side of the screen) to Large Icons

Scroll Down and Select System
Select Advanced System Settings on the left side of the screen
Push the Settings button
Select Adjust For Best Performance

All checkboxes should now be deselected
Check Show shadows under mouse pointer

Check Show shadows under windows
Check Smooth edges of screen fonts
Check Use drop shadows for icon labels on the desktop

Or, you may decide to keep the more fancy look of one of the Win 7 themes, but then make sure to manually disable border padding and Desktop Composition.

Right-Click the desktop
Select Personalize
Select Window Color at the bottom of the screen
Select Advanced Appearance Settings at the bottom of the screen
Click the drop listbox labeled Item and select Border Padding
Set to 0

Click the Back button to get back to the theme screen
Select the Control Panel Home option in the top left corner of the screen
Change the View By Category option (on the right side of the screen) to Large Icons

Scroll Down and Select System
Select Advanced System Settings on the left side of the screen
Push the Settings button
Uncheck Enable Desktop Composition

2)   *This is one recommended way of setting the TaskBar to keep it out of the way of the main application window and yet still easily accessible. I also recommend this method of displaying the Start Menu.*

Right-Click the Taskbar
Select Properties
Check Lock Taskbar
Check AutoHide Taskbar
Check Use Small Icons

Start Menu tab
Push the Customize button
Select Computer Display as a menu
Select Control Panel Display as a menu
Check Default Programs
Check Devices and Printers
Select Documents Display as a menu
Select Downloads Don't display this item
Select Games Display as a menu
Check Help
Select Music Display as a link
Check Network
Check Open submenus when I pause on them
Select Personal Folder Don't display this item
Select Pictures Display as a link
Select Recorded TV Don't display this item
Check Run command
Select Search other Files and Libraries Search with public folders
Select Videos Don't display this item

Uncheck all other options

3)   ***This is highly recommended for better and more stable performance as well as being visually uncluttered***.

Click the Windows Start button on the taskbar
Select Control Panel
Select Power Options
Select High Performance
Select Change Plan Settings on the right side of the page
Set every option to NEVER

4)   ***This is highly recommended for better Performance***.

Left-Click the Start Button and select Run
Type regedit

Go to
HKEY_LOCAL_MACHINE \ SYSTEM \ CurrentControlSet \ Services \ Cdrom

Change the Autorun value to 0

5)   ***This is highly recommended to tame the Windows Explorer and make it more useful***.

Select the Windows Explorer from the taskbar on the left

Click the small arrow next to Computer to open the Computer icon
Do the same to open the C Drive icon

From the Tools menu, select Folder Options

General tab
Select Windows Classic Folders
Set Browse Folders to open in the same window
Set Click Items to double-click to open

View Tab
Uncheck all options
Then check Display File Size Info in folder tips
Check Display Contents of System Folders
Check Show Hidden Files
Check Restore Previous Folders at logon
Check Show Drive letters
Check Show encrypted NTFS in color
Check Use Checkboxes to select item
Check Use Sharing wizard
Select When typing into list view Select the typed item in the view

Click Apply
Click the Apply To All Folders button

Close Windows Explorer. Open again. Resize if needed and close again. Repeat multiple times until it retains size and column widths

6)   ***This can help stabilize your Soundcard interface interactions.***

Left-Click the Start Button and select Control Panel

Select Sound
Sounds tab
Select No Sounds option from the Sound Scheme dropdown listbox

Select the Playback tab
If you have another multimedia soundcard as well as a high quality audio card, set the default playback device to the multimedia card for standard Windows audio playback

Select the Recording tab
If you have another multimedia soundcard as well as a high quality audio card, set the default recording device to the multimedia card for standard Windows audio playback

Otherwise, it is optional to leave the default set to none or set it to the first out device pair of your high quality audio card. I usually have no problems setting this to my high quality audio card as long as there is not another multimedia card in the system, and it is nice to be able to use the generic Windows playback of audio and video files.

7)   ***This is highly recommended for better and more stable performance as well as all around Windows interface usability***.

From the Control Panel
Select System

Select Advanced System Settings
Select the Advanced tab
Push the Performance Settings button

Select the Advanced tab from this page
Set the Best Performance of Programs. (*This will deliver much higher overall performance especially for disk access, Sample Rate Conversion and Build Mixes)*

Select the Virtual Memory Change button
Set the min and max to the same value

If you have 2gb or more of ram, you may turn this OFF completely, NO Paging File (*Much smoother overall Windows performance in my experience*)

8)   ***This is highly recommended for better and more stable performance.***

From the Control Panel
Select System
Select Advanced System Settings

Select the Remote tab
Uncheck Allow Remote Assistance
Select Don't Allow connections under the Remote Desktop option

Select the System Protection tab. Leave monitoring only on the C drive, or turn it off completely

9)   ***These tips can improve the overall Windows experience.***

Turning off some not needed Services.

Right-Click the taskbar
Select Task Manager
Select the Services tab
Push the Service button in the bottom right corner of the screen

Adjust the screen and column sizes to be able to see the service names clearly

Select the Windows Update Service, if running. *(This will keep Windows from being automatically updated in the background)*
Then right-click and select properties
Then stop the service
Then set the startup type to disabled

Select the Shell Hardware Detection Service, if running. *(This will stop the media scanning that occurs everytime you plug a usb stick into the computer)*
Then right-click and select properties
Then Stop the service
Then set the startup type to disabled

Windows 8 (64 Bit)
Follow any or all of these at your own discretion.

1)   *Program Compatibility and Border Padding*

When using Win 8, you should set the program desktop icon or the actual program .exe file compatibility mode to help with certain internal OS changes that may cause performance and stability concerns.

Switch to the desktop view from the Start Screen Cell-Phone view by clicking the Desktop tile, or by using the Windows Key on the keyboard

Right-Click the SAWStudio64 desktop icon or the actual .exe file
Select Properties
Select the Compatibility Tab
Set the compatibility to Win XP SP 2 or 3
Check the "Run As Administrator" checkbox

This process correctly turns OFF Border Padding, which adds an extra border inside the window client area of x pixels. This must be turned OFF or the pixel mapping of the mixer views will be corrupted. Win 8 handles this properly when you set the compatibility to Win XP which never had the border padding option in the first place.

2)   *This is highly recommended for better Performance.*

Switch to Desktop View
Right-Click the desktop
Select Personalize

Select the Control Panel Home option in the top left corner of the screen
Change the View By Category option (on the right side of the screen) to Large Icons
Right-Click the Control Panel button on the taskbar and Pin this program to the taskbar

Scroll Down and Select System

Select Advanced System Settings on the left side of the screen
Push the Settings button under Performance
Select Adjust For Best Performance

All checkboxes should now be deselected
Check Show shadows under mouse pointer
Check Show shadows under windows
Check Smooth edges of screen fonts
Check Use drop shadows for icon labels on the desktop
Click OK to save the changes

It helps to have access to the RUN command

Press the Windows key on the keyboard to get to the Start screen of cell-phone looking icons
Swipe in from the right edge on a touch screen or move the mouse into the top right corner of the screen to display the Windows option panel
Select the Magnifying Glass Search option
Click the screen and scroll to the Windows System icons and select the RUN app
While this app is open, you may want to click on its button on the taskbar and choose to pin the app to the taskbar so it is always available

Type regedit in the dialog and click OK

Go to
HKEY_LOCAL_MACHINE \ SYSTEM \ CurrentControlSet \ Services \ Cdrom

Change the Autorun value to 0

3)   *This is one recommended way of setting the TaskBar to keep it out of the way of the main application window and yet still easily accessible.*

Switch to the Desktop view
Right-Click the Taskbar
Select Properties
Check Lock Taskbar
Check AutoHide Taskbar
Check Use Small Taskbar Buttons

4)   *This is highly recommended for better and more stable performance as well as being visually uncluttered.*

Switch to Desktop view and run the Control Panel Program from the taskbar
Select Power Options
Select High Performance
Select Change Plan Settings on the right side of the page
Set every option to NEVERor adjust accordingly

5)   *This is highly recommended to tame the Windows File Explorer and make it more useful.*

If the File Explorer is on the taskbar, run it
If not, switch to Desktop View and run the apps option from the taskbar
Select the File Explorer app
Pin this app to the taskbar for easy access later

Click the View menu
Click Options and then select the Change Folder and Search options

General tab
Set Browse Folders to open in the same window
Set Click Items to double-click to open

View Tab
Uncheck all options
Then check:
Always Show Icons
Display File Size Info in folder tips
Display the Full Path in TitleBar
Check Show Hidden Files
Check Restore Previous Folders at logon
Check Show Drive letters
Check Show encrypted NTFS in color
Check Show Status Bar
Check Use Checkboxes to select item
Check Use Sharing wizard
Select When typing into list view Select the typed item in the view

Click Apply
Click the Apply To Folders button

Close Windows Explorer

6)   ***This is highly recommended for better and more stable performance as well as all around Windows interface usability***.

From the Control Panel
Select System

Select Advanced System Settings
Select the Advanced tab
Push the Performance Settings button

Select the Advanced tab from this page
Set the Best Performance of Programs. (*This will deliver much higher overall performance especially for disk access, Sample Rate Conversion and Build Mixes)*

Select the Virtual Memory Change button
Set the min and max to the same value using the Custom Size option

If you have 2gb or more of ram, you may turn this OFF completely, NO Paging File (*Much smoother overall Windows performance in my experience*)

7)   ***This is highly recommended for better and more stable performance.***

From the Control Panel
Select System
Select Remote Settings from the left side of screen

Uncheck Allow Remote Assistance
Click OK to accept changes

8)   *These tips can improve the overall Windows experience.*

Turning off some not needed Services.

From the Control Panel
Select Administrative Tools
Double-Click the Services option

Select the Windows Update Service, if running. *(This will keep Windows from being automatically updated in the background)*
Then right-click and select properties
Then stop the service
Then set the startup type to manual

Select the Shell Hardware Detection Service, if running. *(This will stop the media scanning that occurs everytime you plug a usb stick into the computer)*
Then right-click and select properties
Then Stop the service
Then set the startup type to disabled

Windows 10 (64 Bit)
Follow any or all of these at your own discretion.

Windows 10 settings and adjustments can vary greatly depending on the version and level of updates that have been applied. Follow along as best you can and skip items that may not be part of your particular installation or find other ways of reaching the desired adjustment by searching the web.

1)   *Program Compatibility*

When using Win 10, you should set the program desktop icon or the actual program .exe file compatibility mode to help with certain internal OS changes that may cause performance and stability concerns.

Switch to the desktop view from the Start Screen Cell-Phone view (if present) by clicking the Desktop tile, or by using the Windows Key on the keyboard

[Right-Click] the SAWStudio64 desktop icon or the actual .exe file in its install folder.
Select Properties
Select the *Compatibility Tab*
Check the "Run As Administrator" checkbox

This helps to elevate the program priority to the administrator level which allows it to reach the highest priority levels when using the RealTime and High Priority options within the program.

2)   *This is highly recommended for better Performance.*

Switch to Desktop View
[Right-Click] the Windows Button on the taskbar
Select Control Panel (if present), otherwise...
[Left-Click] the Windows Button on the taskbar
Select the Settings Icon (looks like a gear)
Type *Control Panel* in the search bar at the top of the page
Click and Run the Control Panel from the list

Change the View By Category option (on the right side of the screen) to Large or Small Icons
[Right-Click] the Control Panel link on the taskbar and Pin this program to the taskbar

Scroll Down and Select System
Select Advanced System Settings on the left side of the screen
Push the Settings button under Performance
Select Adjust For Best Performance

All checkboxes should now be deselected
Check Show shadows under mouse pointer
Check Show shadows under windows
Check Smooth edges of screen fonts
Check Use drop shadows for icon labels on the desktop
Click OK to save the changes

Switch to Desktop View
[Right-Click] the Windows Button on the taskbar
Select Run

Type regedit in the dialog and click OK

Go to
HKEY_LOCAL_MACHINE \ SYSTEM \ CurrentControlSet \ Services \ Cdrom

Change the Autorun value to 0

3)   ***This is one recommended way of setting the TaskBar to keep it out of the way of the
        main application window and yet still easily accessible****.*

        Switch to the Desktop view
        [Right-Click] the Taskbar
        Select TaskBar Settings
        Turn ON Lock Taskbar
        Turn ON AutoHide Taskbar in Desktop mode
        Turn ON Use Small Taskbar Buttons

4)   ***This is highly recommended for better and more stable performance as well as being
        visually uncluttered****.*

        Switch to Desktop view and run the Control Panel Program from the taskbar
        Select Power Options
        Select High Performance
        Select Change Plan Settings on the right side of the page
        Set every option to NEVER or adjust accordingly

5)   ***This is highly recommended to tame the Windows File Explorer and make it more
        useful.***

        If the File Explorer is on the taskbar, run it
        If not, switch to Desktop View
        [Right-Click] the Windows Button on the taskbar
        Select File Explorer
        Pin this app to the taskbar for easy access later

Click the *View* menu
Click Options and then select the Change Folder and Search options

General tab
Set Browse Folders to open in the same window
Set Click Items to double-click to open

View Tab
Uncheck all options
Then check:
Always Show Icons
Always Show Menus
Display File Icon on Thumbnails
Display File Size Info in folder tips
Display the Full Path in TitleBar
Check Show Hidden Files
Check Hide Folder Merge Conflicts
Check Hide Protected Operating System Files (hides Desktop.ini files on desktop)
Check Restore Previous Folders at logon
Check Show Drive letters
Check Show Popup Description for Folder and Desktop items
Check Show Preview Handlers in Preview Pane
Check Show Status Bar
Check Show Sync Provider Notifications
Check Use Sharing wizard
Select When typing into list view Select the typed item in the view

Click Apply
Click the Apply To Folders button

Close Windows Explorer

6)   ***This is highly recommended for better and more stable performance as well as all around Windows interface usability***.

From the Control Panel
Select System

Select Advanced System Settings
Select the Advanced tab
Push the Performance Settings button

Select the Advanced tab from this page

Set the Best Performance of Programs. (*This will deliver much higher overall performance especially for disk access, Sample Rate Conversion and Build Mixes)*

Select the Virtual Memory Change button
Set the min and max to the same value using the Custom Size option

If you have 8gb or more of ram, you may turn this OFF completely, NO Paging File (*Much smoother overall Windows performance in my experience*)

7)   ***This is highly recommended for better and more stable performance.***

From the Control Panel

Select System
Select Remote Settings from the left side of screen

Uncheck Allow Remote Assistance
Click OK to accept changes

8) ***These tips can improve the overall Windows experience.***

Turning off some not needed Services.

From the Control Panel
Select Administrative Tools
[Double-Click] the Services option

Select the Windows Update Service, if running. *(This will keep Windows from being automatically updated in the background)*

Then **[Right-Click]** and select properties
Then stop the service
Then set the startup type to manual or disabled. *(If set to disabled, you will need to temporarily change that and start the service when installing some devices or drivers)*

Select the Shell Hardware Detection Service, if running. *(This will stop the media scanning that occurs everytime you plug a usb stick into the computer)*

Then **[Right-Click]** and select properties
Then Stop the service
Then set the startup type to manual or disabled

Network Discovery and File Sharing Services *(Required for seeing and sharing files between computers on the network)*
Set each of these to Automatic Start and start them if needed
Function Discovery Provider Host - Start and Automatic
Function Discovery Resource Publication - Start and Automatic
SSDP Discovery - Start and Automatic
TCP/IP NetBios Helper - Start and Automatic
UPnP Device Host - Start and Automatic

9) ***Helps with network file sharing between computers***

From the Control Panel
Select Programs and Features
Select Turn Windows Features On and Off from the top left of the screen
Select SMB 1.0/CIFS File Sharing Support - Enable all of the options (if more than one)

10) ***Allows File Sharing on the network for users without passwords***

This uses the Group Policy Editor. If you are using Win 10 Home version you will have to search the web to find a patch to install it first.

Switch to Desktop View
[Right-Click] the Windows Button on the taskbar
Select Run

Type *gpedit.msc* to run the Group Policy Editor

Under Local Computer Policy/Computer Configuration/Administrative Templates/
Network/LanMan Worskstation/Enable Insecure Guest Logons - Enable

11) *Turn ON Network Discovery Options*

Switch to Desktop View
[Left-Click] the Windows Button on the taskbar
Select the Settings Icon

Select Network and Internet
Select the Status option and then the Sharing Options

Under the Private section Turn ON Network Discovery and the Automatic Setup checkbox
Turn ON File and Printer Sharing

Under the Guest or Public section Turn ON Network Discovery and the Automatic Setup
checkbox (if present)
Turn ON File and Printer Sharing

Under the All Networks section Turn OFF Password Protected Sharing

12) *Disable items in Task Schedular From Auto-Starting*

Win 10 uses the Task Schedular to startup many background processes that can run multiple
times scheduled by days and hours

Switch to Desktop View
[Right-Click] the Windows Button on the taskbar
Select Computer Management

Then select the Task Schedular and open all of the collapsed sections

Here are many of the tasks that should be safe to disable from starting.
Select the task group on the left panel and then right-click the various tasks on the right panel
and select disable.

These tasks may be included in your installation or not... simply disable the ones that match.

Some of these items may complain that you do not have permission to change the item... in
those cases you will need to use **PSexec** from the **PSTools** utilities to make the changes.
Download **PSTools** from the web and install... then run a command prompt as administrator
and type *psexec -i -d -s mmc taskschd.msc*

\Microsoft\Windows\.NET Framework
.NET Framework NGEN v4.0.30319
.NET Framework NGEN v4.0.30319 64
.NET Framework NGEN v4.0.30319 64 Critical
.NET Framework NGEN v4.0.30319 Critical

\Microsoft\Windows\Active Directory Rights Management Services Client
AD RMS Rights Policy Template Management (Automated)
AD RMS Rights Policy Template Management (Manual)

\Microsoft\Windows\AppID
EDP Policy Manager
PolicyConverter
SmartScreenSpecific

VerifiedPublisherCertStoreCheck

Microsoft\Windows\Application Experience
Microsoft Compatibilty Appraiser
ProgramDataUpdater
StartupAppTask

Microsoft\Windows\ApplicationData
appuriverifierdaily
appuriverifierinstall
CleanupTemporaryState
DsSvcCleanup

Microsoft\Windows\AppxDeploymentClient
Pre-staged app cleanup

Microsoft\Windows\Autochk
Proxy

Microsoft\Windows\Chkdsk
ProactiveScan
SyspartRepair

Microsoft\Windows\Clip
License Validation

Microsoft\Windows\CloudExperienceHost
CreateObjectTask

Microsoft\Windows\Customer Experience Improvement Program
Consolidator
HypervisorFlightingTask
KernelCeipTask
UsbCeipTask

Microsoft\Windows\Device Information
Device

Microsoft\Windows\DeviceDirectoryClient
HandleCommand
HandleWnsCommand
IntegrityCheck
LocateCommandUserSession
RegisterDeviceAccountChange
RegisterDeviceConnectedToNetwork
RegisterDeviceLocationRightsChange
RegisterDevicePeriodic1
RegisterDevicePeriodic24
RegisterDevicePeriodic6
RegisterDevicePolicyChange
RegisterDeviceScreenOnOff
RegisterDeviceSettingChange
RegisterUserDevice

Microsoft\Windows\DiskCleanup
SilentCleanup

Microsoft\Windows\DiskDiagnostic
Microsoft-Windows-DiskDiagnosticDataCollector
Microsoft-Windows-DiskDiagnosticResolver

Microsoft\Windows\DUSM
dusmtask

Microsoft\Windows\EDP
EDP App Launch Task
EDP Auth Task

Microsoft\Windows\EnterpriseMgmt
MDMMaintenanceTask

Microsoft\Windows\ErrorDetails
EnableErrorDetailsUpdate
ErrorDetailsUpdate

Microsoft\Windows\Feedback\Siuf
DmClient
DmClientOnScenarioDownload

Microsoft\Windows\FileHistory
File History (maintenance mode)

Microsoft\Windows\LanguageComponentsInstaller
Installation
Uninstallation

Microsoft\Windows\License Manager
TempSignedLicenseExchange

Microsoft\Windows\Location
Notifications
WindowsActionDialog

Microsoft\Windows\Management\Provisioning
Logon

Microsoft\Windows\Maps
MapsToastTask
MapsUpdateTask

Microsoft\Windows\Mobile Broadband Accounts
MNO Metadata Parser

Microsoft\Windows\MUI
LPRemove

Microsoft\Windows\NetCfg
BindingWorkItemQueueHandler

Microsoft\Windows\NetTrace
GatherNetworkInfo

Microsoft\Windows\Nlasvc
WiFiTask

Microsoft\Windows\Offline Files
Background Synchronization
Logon Synchronization

Microsoft\Windows\Pl
Secure-Boot-Update
Sqm-Tasks

Microsoft\Windows\Power Efficiency Diagnostics
AnalyzeSystem

Microsoft\Windows\Ras
MobilityManager

Microsoft\Windows\RecoveryEnvironment
VerifyWinRE

Microsoft\Windows\RemoteAssistance
RemoteAssistanceTask

Microsoft\Windows\RetailDemo
CleanupOfflineContent

Microsoft\Windows\Servicing
StartComponentCleanup

Microsoft\Windows\SettingSync
BackgroundUploadTask
BackupTask
NetworkStateChangeTask

Microsoft\Windows\Setup
SetupCleanupTask

Microsoft\Windows\SharedPC
Account Cleanup

Microsoft\Windows\Shell
CreateObjectTask
FamilySafetyMonitor
FamilySafetyMonitorToastTask
FamilySafetyRefreshTask
IndexerAutomaticMaintenance

Microsoft\Windows\SoftwareProtectionPlatform
SvcRestartTaskLogon
SvcRestartTaskNetwork

Microsoft\Windows\Speech
SpeechModelDownloadTask

Microsoft\Windows\Storage Tiers Management
Storage Tiers Management Initialization
Storage Tiers Optimization

Microsoft\Windows\Sysmain
HybridDriveCachePrepopulate

HybridDriveCacheRebalance
ResPriStaticDbSync
WsSwapAssessmentTask

Microsoft\Windows\TPM
Tpm-HASCertRetr
Tpm-Maintenance

Microsoft\Windows\UpdateOrchestrator
Maintenance Install
Policy Install
Reboot
Refresh Settings
Resume On Boot
Schedule Scan
USO_RebootDisplay
USO_UxBroker_Display
USO_UxBroker_ReadyToReboot
USO_UxBroker_WnfDisplay
USO_WnfDisplay

Microsoft\Windows\UPnP
UPnPHostConfig

Microsoft\Windows\User Profile Service
HiveUploadTask

Microsoft\Windows\WCM
WiFiTask

Microsoft\Windows\WDI
ResolutionHost

Microsoft\Windows\Windows Error Reporting
QueueReporting

Microsoft\Windows\Windows Media Sharing
UpdateLibrary

Microsoft\Windows\WindowsColorSystem
Calibration Loader

Microsoft\Windows\WindowsUpdate
Automatic App Update
Scheduled Start
sih
sihboot

Microsoft\Windows\Work Folders
Work Folders Logon Synchronization
Work Folders Maintenance Work

Microsoft\Windows\Workplace Join
Automatic-Device-Join

Microsoft\XblGameSave
XblGameSaveTask

XblGameSaveTaskLogon

13) **Allow Network File Access Without Password User Accounts**

[Right-Click] each Drive in The File Explorer
Select the Share With or Give Access To option
Select Advanced Sharing
Click The Advanced Sharing Button
Check Share This Drive and name the share (I use Drive_C or Drive_D etc)
Then Click The Permissions Button
Select The EveryOne Group and then Check all the access boxes
Click OK and then Apply and OK

Next Adjust The Security Options
[Right-Click] The Drive
Select Properties
Then Select The Security Tab
If The Everyone Group is not listed, Click The Edit Button
Click Add and enter *Everyone*
Click OK
With The Everyone Group Selected, adjust the Permissions for Full Access
Click OK
Click OK again

3.2   First Things First

3.2.1   Starting SAWStudio

Once you have successfully completed the setup program installation, you are ready to run the *SAWStudio* program.

⍔   [Left-Click] the *Start* menu on the taskbar, point to *Programs*. Point to **SAWStudio** and [Left-Click] the **SAWStudio** program icon.

☞   You may also create a program shortcut on the desktop and double-click the icon to start the program. To create a shortcut icon, open the *Windows Explorer*, and size the window so that a portion of the desktop is visible. Navigate to the **SAWStudio** folder, [Right-Click] on the **SAWStudio.exe** file and choose *Create Shortcut* from the popup menu. This will leave the shortcut in the SAWStudio folder. [Left-Drag] the shortcut to the desktop.

⌨M   [Left-Clicking] the *X* close button in the upper right corner of the program windows will close **SAWStudio**. You may also choose *Exit* from the *File* menu.

Startup Command Line Options

SAWStudio accepts a .wav or .edl filename on the command line when starting up. When using a .wav file, it will automatically open into the *SoundFile View*. When using a .edl file, it will automatically open into the *MultiTrack View*. With .edl filenames, you may also include a /P command option to immediately begin playback of the session EDL. Make sure to include the entire path and filename and leave a space after an .edl name before adding the /P.

For example, to have *SAWStudio* load and begin playback of an EDL upon startup from a shortcut icon on the desktop:

    1.   From the Windows desktop, right-click the *SAWStudio* shortcut icon.

    2.   Select *Properties* from the shortcut menu.

    3.   Click the *Shortcut* tab.

    4.   In the *Target* textbox, click at the end of the command line.

    5.   Add a space, then type the pathname for the EDL followed by another space then add a `/P`.

        Example: `C:\SAWStudio\SAWStudio.exe D:\Audio\Test\Test.edl /P`

    6.   Click OK.

    7.   Double-click the icon to start the program.

A .wav file example might look like this:
Example: `C:\SAWStudio\SAWStudio.exe D:\Audio\Test\Test.wav`

SAWStudio will also accept a .prf filename on the command line when starting up. In this manner, multiple preference files (including different shades) can be maintained and loaded automatically. You do not need path information for the .prf file, only the filename. It must be stored in the *Configuration* folder under the *SAWStudio* folder.

Example: `C:\SAWStudio\SAWStudio.exe Test.prf`

Note that if any of the target line paths or names contain spaces, be sure to enclose the full pathname in quotes, with the `/P` option (if used) placed outside of the quotes.

Example: `"C:\SAWStudio\SAWStudio.exe D:\Audio\Test 2\New Test.edl" /P`

SAWStudio will also accept multiple .fky filenames on the command line when starting up. The first .fky filename found will load as the default *F-Keys*. The next one found will load as the default *Alt-F-Keys*. The third one found will load as the *Midi WorkShop* default *F-Keys* (requires MWS Version 1.6f or higher). You do not need path information for the .fky files, only the filenames. The *SAWStudio* files must be stored in the *Configuration* folder under the *SAWStudio* folder. The *Midi WorkShop* file must be stored in the *MidiWorkShop_Configuration* folder under the *SAWStudio Native_PlugIns* folder.

Example: `C:\SAWStudio\SAWStudio.exe Test.fky TestAlt.fky TestMws.fky`

Related Topics:
Adjusting Device Parameters
Wave Devices
Creating Workspace Views
Opening Sessions
Using Undo

3.2.2   **Adjusting Device Parameters**

When you first run **SAWStudio,** you must configure the program to work with your audio device(s). From the *Options* menu, choose *Audio Device Setup*. There are several options to adjust.

Related Topics:
[Starting SAWStudio](#)
[Wave Devices](#)
[Creating Workspace Views](#)
[Opening Sessions](#)
[Using Undo](#)

3.2.3   Wave Devices

The *Audio Device Setup* window first displays the wave *output* device selections. Start with *Wave Device Out 01* and select the audio device driver that matches the device that you have installed. If you have more than one device installed, repeat this for each one. You may assign devices in any order, and leave unassigned devices in any location. Click the *Up/Down Arrow* zone to display the next 12 devices.

Next, click the *Out/In* device toggle zone to display the wave *input* device selections. Start with *Wave Device In 01* and select the audio device driver that matches the device that you have installed. If you have more than one device installed, repeat this for each one. If your audio device has an unmatched number of inputs and outputs, you should set the matching input and output pairs to the same device number, leaving unmatched devices set to *none*. You may, however, assign devices in any order, and leave unassigned devices in any location. Click the *Up/Down Arrow* zone to display the next 12 devices.

☞   For example, if your audio device has four stereo analog outputs and one stereo digital output, but only one stereo analog input and one stereo digital input (thereby creating an unmatched set of inputs and outputs), set *out* device 1 to driver-out 1-2, out device 2 to driver-out 3-4, out device 3 to driver-out 5-6, and out device 4 to driver-out 7-8, and out device 5 to driver-out digital 1-2. Then set *in* device 1 to driver-in 1-2, and in device 5 to driver-in digital 1-2, leaving in device 2, 3, and 4 set to *none*.

Out PreLoad Buffers

This setting controls how many buffers of data are preloaded to the audio device before playback begins. This affects the response time of live controls such as mutes, solos, faders, etc. If this setting is too low for your system, audio stuttering or glitching during playback may occur, especially when minimizing or sizing windows, etc. on a complex session. This setting combines with the *Out Buffer Size* setting to determine the final latency.

Use the *Out PreLoad Buffers* listbox to choose a setting between 1 and 10. Lower values will give you faster response times.

Out Buffer Size

Use the *Out Buffer Size* listbox to choose from eight different settings ranging from 64 to 4096 samples.

The combination of the *Out Buffer Size* and the *Out PreLoad Buffer* value control the latency of the real-time engine. Lower latency values give live, instantaneous response and the feel of a real physical console when adjusting controls and switches. Try different combinations to obtain the lowest comfortable working range while still not overloading your CPU. Good starting combinations are 4 to 6 buffers at 1024 size. If your system can handle it, 3 or 4 buffers at 512 size feels just like physical hardware.

☞   Some combinations that result in the same low latency value will cause the system to glitch while other combinations will perform comfortably. For instance, 2 buffers at 1024 size might cause static or glitching on certain audio devices, but the same latency value can be obtained by using 4 buffers at 512 size, and the audio device may play back perfectly.

In PreLoad Buffers

This setting is available when the *Audio Device Setup* window is toggled to the *In Device* selections.

This setting controls how many blank buffers are preloaded to the audio device before recording begins. This gives the system some breathing room while other events are stealing CPU time, to keep the recording from glitching. If this setting is too low for your system, audio stuttering or glitching during recording may occur. This setting combines with the *In Buffer Size* setting to determine the final latency.

Use the *In PreLoad Buffers* listbox to choose a setting between 1 and 10. Higher values decrease the chance of glitched recordings.

In Buffer Size

This setting is available when the *Audio Device Setup* window is toggled to the *In Device* selections.

Use the *In Buffer Size* listbox to choose from eight different settings ranging from 64 to 4096 samples.

This setting controls the response time of the recording meters. Lower values create a more real-time display. If using values equal to or below 1024, a suggested setting for the *In PreLoad Buffer* value would be between 6 and 10. The higher buffer values do not affect the visible response of the meter.

☞   If the buffer size is set too low, audio static and/or glitching might occur, especially during heavy CPU loads such as SRP Recording. A good starting combination might 8 buffers at 1024 size.

When you are finished with all adjustments, click *OK*, then save your default settings by clicking on the *File* menu and selecting *Preferences File | Save Default*.

Related Topics:
Starting SAWStudio
Adjusting Device Parameters
Creating Workspace Views
Opening Sessions
Using Undo

3.2.4   Setting Up Default File Paths

Having a thorough understanding of Windows file management is crucial to working with a program such as **SAWStudio** which creates and saves many related files for a single session. When working with computers, understanding file management is one of the most important necessities. We suggest either spending time with the Windows help files, or getting other file management instruction to aid in getting familiar with how the Windows Explorer functions. Knowledge of the Windows Explorer will greatly assist in the understanding of setting up default file paths in **SAWStudio**.

Understanding Default File Paths

M   From the *Options* menu, select *File Path Setup* to display the *Default File Path Setup* dialog box. There are several path options available as follows:

- The *Session EDL Path* text box allows you to specify the default location you wish to access when either opening or saving an edl. By default, this path is set to the *Audio* folder inside the *SAWStudio* program folder on the drive you installed the program. This default is intended as a temporary path only. We recommend creating an audio folder in a separate location from your *SAWStudio* program folder, and on a drive containing sufficient hard disk space.
- The *SoundFile Playback Path* determines the default location for opening a .wav soundfile.
- The *SoundFile Record Path* determines the default location where recorded audio will be automatically saved. This default can be overridden in the *Record Setup Window* which is explained in detail in chapter titled *Ready To Record*. If this text box is left blank, all newly recorded data will default to the currently open EDL file path location.
- The *Mix Template Path* determines the default location for opening and saving a *SAWStudio* mix template.
- The *Alternate PeakData Path* determines where newly created peakdata files are stored for soundfiles opened in *SAWStudio* which aren't accompanied by required peakdata information.
- The *EDL Undo Path* determines the default location for all session EDL undos. If left blank, all undo files will be saved to the currently open EDL file path location. We suggest creating a separate *EDL_Undo* folder to store all undos for all sessions, rather than adding all the undos to the project folders.
- The *SoundFile Undo Path* determines the default location for all undos done in the soundfile view. Again, if left blank, all undo files will be saved to the currently open EDL file path location.

Changing Default File Paths

🖑 [Left-click] inside the applicable text box, then click the *Browse* zone to display the *Browse For Folder* dialog box. Navigate to the desired location, then click *Ok* to change the default path to this new location. Click *Ok* on the *Default File Path Setup* window to accept your changes and close the window. Each time you choose *Open Session*, *Import Session*, or any of the *Save Session* options from the *File* menu, the file dialog will default to this new location.

☞ To permanently save any changes in the *Default File Path Setup* dialog, from the *File* menu, choose *Preferences File*, and *Save Default*. If you don't choose this step, once you close *SAWStudio*, your changes will be lost and your default paths will revert to their previous settings.

🖑 [Left-Clicking] inside of the text box whose path you wish to change, then [Left-Clicking] the *Current Path* zone replaces the existing default path with the path of the currently opened EDL or soundfile.

🖑 [Left-Clicking] the *Reset* zone can be used to revert back to the program default paths.

Related Topics:
Starting SAWStudio
Adjusting Device Parameters
Wave Devices
Creating Workspace Views
Opening Sessions
Using Undo

3.2.5 Creating Workspace Views

One of the biggest time-saving tips for working in **SAWStudio** is in this section.

As you work with **SAWStudio** and become more comfortable with the interface, you may wish to change the view of the main screen by moving and sizing the different windows to more easily facilitate your work. The *Function-Keys* are reserved as *WorkSpace View Holders*. You can arrange any combination of windows however you like and save them to a *Function-Key* by pressing the *Shift* key along with the desired function key. Pressing the applicable function key alone will instantly restore the *WorkSpace* to the saved view making it extremely quick and easy to navigate to different views within the same editing session. These function key sets can be saved in files for instant loading of different *WorkSpace* sets.

When **SAWStudio** starts for the first time, or after the default F-Key File has been cleared, F-Keys are automatically generated to fit the current screen resolution. These can be saved or modified and overwritten with new function key assignments at any time.

Assigning A Workspace View To A Function Key

⌨ After arranging the **SAWStudio** display to your specifications, press [Shift-F1] (or whatever function key you wish to assign the current view to.

☞ For another layer of function key assignments, press [Alt-Shift-FunctionKey] for a total of 24 workspace views on a 12 function key keyboard.

⌨🖑 To recall the view, press the assigned function key such as [F1], or press [Alt-FunctionKey] for the second layer of alternate workspace views.

☞ When assigning a workspace view to a function key, the active window information is also saved. Before saving your current view to a function key, be sure to click on the window you wish to have as the active window when accessing that view.

Saving Function Key Assignments

M After assigning desired workspaces to function keys, from the *File* menu select *F-Key File | Save*. The *Save F-Key File* dialog box is displayed. Enter an *F-key* filename and click *Save* to save the file with an .fky file extension.

Saving Alternate Function Key Assignments

M After assigning desired workspaces to the alternate function keys, from the *File* menu select *F-Key File | Save Alternate*. The *Save F-Key File* dialog box is displayed. Enter an *F-key* filename and click *Save* to save the file with an .fky file extension.

Opening An Existing Function Key File

M From the *File* menu, select *F-Key File | Open*. Choose the desired .fky file and click *Open*. This will load the complete set of workspace views from that template.

Opening An Existing Alternate Function Key File

M From the *File* menu, select *F-Key File | Open Alternate*. Choose the desired .fky file and click *Open*. This will load the complete set of alternate workspace views from that template.

Saving The Current Function Key Setup As The Default

M   From the *File* menu, select *F-Key File | Save Default*. A confirmation prompt is displayed. Click *OK* to accept the changes, or click *Cancel* to close the dialog box and cancel the operation.

To Clear The Default Function Key File

M   From the *File* menu, select *F-Key File | Clear Default*. A confirmation prompt is displayed. Click *OK* to clear the file and revert back to the internal *F-key* defaults, or click *Cancel* to close the dialog box and cancel the operation.

☞   Whenever the default *F-key* file is saved, the current workspace view becomes the default startup view.

When changing views using the function keys, the *MultiTrack View* display varies depending on the current *Hot Track*. If the view change results in fewer visible tracks, the first track displayed becomes the current *Hot Track* followed by as many tracks as will fit. If the view change results in more visible tracks, then the first track displayed will attempt to start with track one, and will be adjusted upward until the current *Hot Track* is visible.

Related Topics:
Starting SAWStudio
Adjusting Device Parameters
Wave Devices
Opening Sessions
Using Undo

3.2.6   Opening Sessions

There are two options available under the *File* menu in **SAWStudio** for opening a session. The *Open Session* option allows you to open an existing **SAWStudio** EDL. If you wish to open a session from an earlier 32-bit SAW program (*SAWPro, SAWPlus32, SAW32,* or *SAW32Lite*), use the *Import EditList File* option.

Importing An EditList File

Importing a session into **SAWStudio** from an earlier 32-bit SAW program will import *Region, MT Entry*, mute, volume and pan mix data. Any effects or marker data will not be imported. The first step to take before importing a session into **SAWStudio** is to 'clean it up' in the SAW program you last used it in.

☞   It is suggested that you keep your original session EDL intact by making a copy of it to clean up for import to **SAWStudio**. Before following the preparations instructions below, you may wish to create a separate folder in with your audio projects called **SAWStudio_Imports** for example. Then all of your cleaned up EDLs can be saved to this location, leaving your original session untouched and in it's original location.

Preparing For Import

Here is a helpful guideline for preparing your SAW sessions for import into **SAWStudio**. These steps will help to provide for the cleanest, fastest import. Though it looks like there are a lot of steps here, preparation time for each session should be under a minute.

1.   Open your session in the SAW program you last used it in.
2.   From the *File* menu choose *Save EditList File As*… and save the session with a new name

(preferably in a different folder). After you save it, you will be left working in the new copy you just created.

3.   From the *Regions* menu, select *Clear All Unused Regions*.

☞   This is an optional step which will clear out the *Regions List* leaving only those being used on the *MultiTrack*. If you have unused regions in your project which you may need later, then bypass this step and the import function will bring them all into **SAWStudio**.

4.   Press the [Ctrl] key and click on a yellow FX patch icon on any track to clear all effects from all tracks. This information can not be imported with your session.
5.   [Ctrl-Left-Click] on any track number display area to re-order the tracks.
6.   Update your EDL copy and close out of SAW.

Ready For Import

With the preparation steps completed you can easily bring your session into **SAWStudio** and begin working in it immediately!

M   Open **SAWStudio**, and from the *File* menu, select *Import EditList File.* The *Import EditList File* dialog box is displayed. Navigate to your 'import-ready' EDL, and click the *Open* button. You will see the **SAWStudio** session building with the imported data. The session will not be updated to a **SAWStudio** format until you choose *Update Session* or one of the *Save* options from the *File* menu.

☞   The next time you open a session that's been imported and saved in **SAWStudio**, use the normal *Open Session* option under the *File* menu.

Troubleshooting Import Errors

During a session import, if you encounter an error message that a referenced soundfile can not be found, clicking OK in the message prompt dialog box will bypass the error and continue loading the session. Pressing the [Ctrl] key while clicking *OK* will bypass all import errors load the entire session. At this point the session will not play as there are files internally marked as bad.

To attempt to reinitialize the bad file header information, save the session in its current state, then reopen it using the *Open Session* option under the *File* menu. When you receive the first file complaint, press the [Shift] key and click *OK* to open the browse window and navigate to the proper soundfile path. All following files will automatically look to this new alternate path before prompting you again. You may create up to ten alternate paths along the way which will each be added to the search list before prompting you again. This process will reinitialize all internal links and header information.

After the session has been loaded with all links intact, update the EDL to save the new file locations.

☞ If soundfile data is missing or inaccessible, a session import will not be able to complete successfully.

Troubleshooting Open Session Errors

When opening an EDL that has trouble finding its files, you will be prompted to try to automatically re-path to the drive the EDL resides on, or go directly to a Browse window to pick an alternative search path yourself. If your EDL resides on the drive where the soundfiles are, clicking *OK* will automatically find and re-path all the files. If the files cannot be found on the EDL drive, you will be prompted again and given a second chance to manually browse to setup a new search path. You will be prompted again for each missing file and be allowed to enter up to 10 alternate paths.

Related Topics:
Starting SAWStudio
Adjusting Device Parameters
Wave Devices
Creating Workspace Views
Using Undo

3.2.7 Using Undo

SAWStudio has some very powerful built-in undo features above and beyond the standard undo format. Reading this section will give you some important insight into the ways you can recover your session - from undoing a single EDL manipulation, to actually recovering the state of an entire session from days or months earlier!

Because *SAWStudio* automatically maintains an undo history file, it is possible to recover an unsaved EDL even after a system crash or a power failure. Take time now to understand the many undo and recover options available. One of them may save the day for you when you most need it.

SAWStudio's Undo system works by creating complete background .edls just before an editing function modifies the session. SAWStudio's assembly language code makes this possible while remaining virtually transparent to the user.

Only in extreme cases of incredibly large and complex projects with thousands of open files, complex MIDI, video and automation data, and VST plug-ins that are slow to initialize, etc. will there be a slight noticeable delay as you edit your session. In these cases, you may turn off the auto-undo option under the *Options* menu to eliminate the background undo file creation each time you edit. If you disable this feature, it is suggested you use the *SnapShot* function (* Key) to manually create undo files as you work.

Certain operations do not create auto undo files when their creation might interfere with normal workflow. For instance, to create an undo history while moving a fader from zero db to minus infinity would require the creation of 340 undo files, one for each 1/4 db step of the fade. Many mixing controls do not create undo files. In these instances, you can always use the *SnapShot* function (* Key) to manually create undo files prior to performing these operations. To become familiar with which operations do and don't create undo files, you can open the *Display Edl Undo History* view window from the *Edit* menu and observe whether or not undo entries are added to the list when editing functions are performed.

Undoing A Single EDL Manipulation

M   The *Undo EDL* option under the *Edit* menu allows you to undo the last EDL manipulation (i.e. functions affecting *MT Entries, Regions,* mix changes, etc.). *SAWStudio* has the ability to maintain up to 99 levels of multiple EDL undos. Each time this option is used, *SAWStudio* steps backward one more level in the undo history. When the oldest undo level is recalled, this option will be grayed and unavailable.

⌨   Pressing [Ctrl-<] performs the same function.

Redoing A Single EDL Manipulation

M   The *Redo EDL* option under the *Edit* menu allows you to redo the last *undo* operation. *SAWStudio* has the ability to maintain up to 99 levels of multiple EDL undos. Each time this option is used, *SAWStudio* steps forward one more level in the undo history. When the newest undo level is recalled, this option will be grayed and unavailable.

⌨   Pressing [Ctrl->] performs the same function.

Recovering An Undo File

M   The *Recover EDL Last Undo* option under the *Edit* menu opens a file dialog displaying the **U00** undo data information files for your different sessions. Pick the session of interest and the last stored undo file will attempt to be opened. In most cases this will recover you from unsaved or crashed data circumstances to the last, or close to the last, editing operation performed when the session was last open.

☞   If your session crashed or was closed without saving, exercise this option to open the session for the best chance of recovering potentially lost data. If this option fails to recover your session, try the *Display EDL Undo History* option to access all of the undo history files available for this session.

Recovering An EDL Undo

M   The *Recover EDL Undo* option under the *Edit* menu allows you to see all undo files (.u01 - .u99) for each session in a folder. You may select any one of them to attempt to recover a session that was somehow lost or corrupted.

Displaying Current Session Undo History

M   The *Display EDL Undo History* option under the *Edit* menu displays an *Undo History* listbox, with undo history listed from the most recent change to the oldest change, going back as many levels as you have setup in the *Set EDL Undo Levels* configuration. Each entry will have a date and time stamp and a text message describing the event. [Double-Clicking] any of the items will safely open that undo file allowing you to freely look around the entire history. This does not damage the list or main file in any way. The top of the list is the most recent operation saved. Sometimes one more level of redo is available to reach the final status of the session.

☞   EDL undo history is saved as separate EDL files, and can be accessed at anytime - even weeks or months after the session was last open.

☞   It is suggested that you set up a destination "EDL Undo" folder and file path within **SAWStudio**, for ease of use in organizing, storing and locating undo history files. Simply create a separate folder in Windows Explorer called "**EDL_Undo**". We suggest locating this folder inside of your active Audio folder. Next choose the *File Path Setup* option under the *Options* menu, and change the *EDL Undo Path* file path to the location of your new Undo folder.

Clearing An EDL Undo History File

M   The *Clear EDL Undo History* option under the *Edit* menu clears the undo files and the history of the open session or a session of your choice if there is no active session open.

If the current session has not been named, selecting this option opens the *File* dialog box, displaying all **.u00** files for all sessions. Select the session history file you wish to clear, and click *OK*. All associated .uxx history files for that EDL will be deleted.

If the current session is named, a confirmation prompt is displayed. Click *OK* to delete the history files for the current EDL, or *Cancel* to cancel the operation.

Setting EDL Undo Levels

M   The *Set EDL Undo Levels* option from the *Edit* menu allows you to select the number of undo levels that will be saved during EDL manipulations.
When selecting this option, a dialog box is displayed allowing you to enter a number from 1 to 99.
This setting can be saved with your preferences.

☙   **Regarding setting undo levels:** It is recommended that undo levels be set to a reasonable number like 10 or 20 to avoid creating large numbers of history files for each of your EDLs and using up valuable hard drive space unnecessarily. In most cases, the EDL condition has changed significantly after 10-20 manipulations, most likely making it meaningless to recover an EDL beyond that level.

Special Snapshot Function

⌨   Pressing the [*] key on the keyboard numpad will force a snapshot (undo) of your current session. This can later be recovered as an undo item. Use this before performing automation or recording so you can revert back to before the numerous changes were made if you change your mind. This function can be used during Rec/Rdy Mode.

☞   This feature overrides the *Auto EDL Undo* option. This allows you to turn off *Auto EDL Undo* under the *Options* menu for quicker editing when sessions are loaded down with tracks and plug-ins, and still create an instant undo backup file anytime you wish.

Related Topics:
Starting SAWStudio
Adjusting Device Parameters
Wave Devices
Creating Workspace Views
Opening Sessions

4   Navigation

4.1   Operating Console Controls

There are three basic console control types for adjusting mixer settings.

Knobs And Faders

🖰   [Left-Dragging] a knob or fader control allows direct adjustment of their levels. [Left-Right-Clicking] while grabbing a knob or fader control, the control will be reset to its default setting. Beside many of these controls are two small arrows. [Left-Clicking] on or near one of those arrows will adjust the control one value at a time in the direction of the arrow. A special version of this control type is also seen in the Eq graphic display bar near the bottom of the Eq section. This display, as well as graphically displaying the Eq level settings, can be grabbed as individual adjustment controls.

⌨🖰   [Left-Clicking] in the up/down arrow zone in the channel main faders increments and decrements the fader value by ¼ dB. [Ctrl-Left-Clicking] in the up/down arrow zone increments and decrements the fader value by 1 dB.

🖰   [Left-Clicking] a meter display in any mixer view displays a *Meter Options Menu*. The *Clear*

Current Meter Peaks option will clear the current meter's peak limit displays. The *Clear All Meter Peaks* will clear all meter's peak limit displays.

Switches

[⊕]   There are numerous on/off switches in the **SAWStudio** environment such as *Mute* and *Solo* switches. [Left-Clicking] these controls will toggle their state between *On* and *Off*.

Display/Control Combo Boxes

[⊕]   This type of control offers the most amount of power in the least amount of space, replacing rotary knob controls and separate display value windows. All of these controls have direction arrows in the right or left side of the display window. [Left-Clicking] on one of those arrows adjusts the control one value at a time in the direction of the arrow.

[Left-Holding] changes the mouse cursor to a *Plus/Minus* icon. Pushing the mouse *up* or *down* will latch an automatic adjustment mode. This mode will increment or decrement values at a speed dependent on how far you push the mouse off the center point which engaged the action. You do not have to keep the mouse moving, just positioned above or below the point which engaged the action. If the *Right* mouse button is tapped while in this mode, the control will be reset to its default setting.

Some of these controls have been enhanced for quicker control operation, displaying a popup variable-sized fader for instant and direct adjustment with a fader knob. The fader will adjust its length to fit the exact number of parameter values available for the control. When you release the mouse, the fader will disappear. The fader will popup to the right of the control zone to allow the readout to be used as a visible reference while you adjust the value. The mouse will automatically jump to the current fader position and return back to its original position when the fader disappears.

Some of these control types will contain a small triangular mark in the upper left corner of the display window. [Left-Clicking] the left side of one of these controls will popup a menu listing of all possible values for this control. [Left-Clicking] a selection will instantly set the control to this value. The default value is displayed in bold and the current value is displayed with a checkmark.

☞   When a triangular mark appears next to a control label or in a control section, [Left-Clicking] on that label or section will display other information. For example, you will find a triangular mark next to the labels *Pre Fader* and *Pst Fader* on the mixer views. [Left-Clicking] these labels will display the applicable FX patch windows. [Left-Clicking] anywhere in non-control area of the *Out Assign* console section will display a menu with all possible out assign options.

Other Navigation Topics:

4.2 Operating Special Dialog Box Controls

SAWStudio control dialog boxes, such as the *Enter Smpte Start Offset* dialog, allow you to adjust individual parameters in a number of ways.

⟋ [Left-Clicking] in the right side of a parameter display zone increments or decrements the value by one depending on whether the mouse position is above or below the vertical center of the zone. [Left-Holding] the mouse in the right side of a parameter display zone changes the cursor to a +/- shape that then allows you to increment or decrement the value by pushing or pulling the mouse position from vertical center. The further from the center that you push or pull, the faster the movement. [Right-Clicking] during this operation will reset the value to zero.

⟋ [Left-Clicking] in the left upper portion of a parameter display zone pops up a menu list of all possible values. The default value is bolded and the current value has a checkmark displayed next to it.

⌨⟋ [Left-Clicking] in the left lower portion of a parameter display zone latches keyboard entry mode. You may type the maximum number of characters in a zone, and automatically jump to the next zone, or you may type fewer characters and press the [Tab] key to jump to the next zone. Pressing the [Enter] key accepts the values and exits the dialog. Pressing the [Escape] key cancels any adjustments made and exits the dialog.

⟋ Each parameter zone has a *Lock* zone above it. [Left-Clicking] these zones toggles the zone between locked and unlocked mode. When a zone is locked, the value is displayed with gray text and the zone is no longer adjustable. [Left-Clicking] the *Default To Keyboard* button automatically sets dialog entry to keyboard mode so you can begin typing immediately.

⟋ [Left-Clicking] the *Close* zone in the upper right corner of the dialog will cancel any changes made and exit the dialog.

Other Navigation Topics:

4.3 Full View Mixer Window

The *Full View Mixer* window displays the mixing console in a reduced view for a larger overview of individual channels within the available screen resolution. The faders, and mute and solo buttons are directly reachable. The colored link buttons can be used as shortcut jumps into an exploded view of any specific section of the console.

🖰 [Right-Clicking] in this view or pressing the [Spacebar] will toggle *MultiTrack* playback operations.

⌨ Pressing the [Enter] key while in this view will preload the *MultiTrack*. Playback can then be initiated instantly on cue, with no delay, by pressing the [Enter] key again or clicking *OK* in the displayed message box. Pressing the [Esc] key or clicking *Cancel* will cancel playback.

⌨ When record meters are active, pressing the [Enter] key while in this view begins recording, and the [Spacebar] stops the operation.

Knobs And Switches

🖰 [Left-Clicking] on a fader, mute or solo switch will activate that control.

Hot Channel

🖰 [Left-Clicking] on any other part of the console display will change that channel to be the *Hot Channel*. The *Hot Channel* displays with a red highlight around it. This also links (optional) the *Zoom* and *Wide Mixer View* and the *MultiTrack View* changing those views to reflect this new *Hot Channel.*

Link Buttons

🖰 [Double-Clicking] on a colored link button or a non-control area of a channel displays an exploded view of the entire channel starting at the specific section of the channel you clicked on. For example, double clicking on the red Eq button links to an exploded view of the channel, positioned at the Eq section. [Right-Clicking] inside or [Left-Clicking] outside the *Exploded View* closes that view.

🖰 [Left-Clicking] on a colored link button of a channel will vertical scroll displayed E-Mixer and Z-Mixer sections, exactly like the section zones on the MT left Client edge. The dead zones just above the Full Mixer faders are also active zones for jumping to the fader sections.

☞ These colored links are also used to display *I/A, Eq*, *Dyn* and *Fx* status information. The *I/A* link display live input assignment information. *L-Only* sources display as a bar on the left side of the zone. *R-Only* sources display as a bar on the right side of the zone. Stereo and other combined mono sources display as a bar in the center of the zone. The *Eq* link displays *Eq* switch information in the center of the zone. The *Dyn* link displays *Gate* switch information to the left side of the zone and *Compressor* switch information to the right side of the zone. The *Fx* link displays *Pre Patch* information to the left side of the zone, *Post Patch* information to the right side of the zone, and *FRes Patch* information in the center of the zone.

Label Display Zone

🖰 [Shift-Left-Clicking] in the *Label Display* zone displays a track label dialog box, allowing a name for the channel to be entered. You must press the [Enter] key for the name to be accepted.

⌨🖰 [Ctrl-Left-Clicking] in the *Label Display* zone allows you to enter labels for sequential tracks. Pressing the [Enter] key after a label name has been entered will automatically prompt for a label name for the next track. To close or cancel the label dialog box, [Left-Click] either the *close* button or outside of the box, or press the [Esc] key.

☞ Channel labels may be entered even while playback is active. If record meters are open, the engine must be stopped to enter labels due to the already opened and linked record files.

Scrolling

🖱   [Left-Dragging] the mouse cursor to the left or right edge of this window, or inside of the mixer label area, initiates an automatic scroll in that direction. [Left-Clicking] near the left or right edge of this window initiates a single scroll action.

🖱   [Right-Holding] will change the mouse cursor to a four directional arrow icon. Pushing the mouse *up* or *down* when first engaged will latch a vertical scroll mode if the window is vertically sized down from its max size. This mode will scroll the window at a speed dependent on how far you push the mouse off the center point which engaged the scroll action. You do not have to keep the mouse moving, just positioned above or below the point which engaged the action. Pushing the mouse *left* or *right* when first engaged will popup a menu listing of every channel on the console, with named labels, allowing you to instantly jump to any particular channel by [Left-Clicking] on your selection. The selected channel will become the first displayed channel in the view, unless there are not enough channels left to fill the window size, in which case the display will adjust to fit to the end.

⌨   The [Left-Arrow] key scrolls the view to the left one channel at a time. Pressing [Shift-Left-Arrow] scrolls the view to the left one page (complete view width) at a time. Pressing [Ctrl-Left-Arrow] scrolls the view to the first channel. Pressing [Shift-Ctrl-Left-Arrow] scrolls the view to the previous console section (Inputs, Returns, Outputs). The [Right-Arrow] key scrolls the view incrementing one channel at a time. Pressing [Shift-Right-Arrow] scrolls the view incrementing one page (complete view width) at a time. Pressing [Ctrl-Right-Arrow] scrolls the view to the last channel. Pressing [Shift-Ctrl-Right-Arrow] scrolls the view to the next console section. The mousewheel may also be used to increment and decrement channels.

The [Up-Arrow] key scrolls the view towards the top of the channels. Pressing [Shift-Up-Arrow] scrolls the display faster towards the top of the channels. Pressing [Ctrl-Up-Arrow] scrolls the display to the top of the channels. The [Down-Arrow] key scrolls the view towards the bottom of the channels. Pressing [Shift-Down-Arrow] scrolls the display faster towards the bottom of the channels. Pressing [Ctrl-Down-Arrow] scrolls the display to the bottom of the channels.

The [Home] key scrolls the view to the first channel. The [End] key scrolls the view to the last channel.

[Tab] key combinations can be used from this view to navigate the *MultiTrack* entries while keeping the current mixer view window active.

Channel Selecting

🖱   [Left-Clicking] or [Left-Dragging] in the channel label area just beneath the title bar toggles channel selection *on* and *off*.

⌨🖱   [Alt-Left-Clicking] in the channel label area just beneath the title bar toggles channel selection from the last toggled channel to the current channel *on* and *off*. The selected channels are indicated by an inverse coloring of this label area. Selected channels are grouped and any selected channel can become the group master. Adjusting any control on the group master will also adjust the same control on all other selected channels. Any control that reaches its max or min levels will maintain its over-range internal value and keep its relative position within the group as the levels are brought back into range.

🖱   [Right-Clicking] in the channel label area just beneath the title bar toggles all selected channels *off*.

☞   Whenever channels are selected, the mixer mouse pointer will change to indicate that channels are selected. Selected channels respond as a group to mixer adjustments and this mouse pointer serves as a reminder that channels that may not be in view are currently selected, so

you may clear those selections if desired before adjusting controls.

Using Channel Group Menu Options

🖑 [Right-Clicking] on the *Full Mixer View* title bar displays the popup *Group* menu. This menu allows you to save and recall preset channel groups. There are 32 group preset assignments and a few special groups for mixer section selections (ie inputs, returns, and outputs). The preset groups are shared between the *MultiTrack* and the mixer windows.

🖑 [Left-Clicking] on one of the 32 group preset options clears any existing selected mixer channels and selects that group of mixer channels.

🖑 [Left-Clicking] on the *Select All* option selects all input, return, and output mixer channels. [Left-Clicking] on the *Select All Inputs, Select All Returns,* or *Select All Outputs* option selects the corresponding mixer channels.

⌨🖑 [Shift-Left-Clicking] one of the 32 group preset options creates a new group and assigns the currently selected channels to that group and prompts for a group name.

⌨🖑 [Ctrl-Left-Clicking] one of the 32 group preset options will blend the preset with any currently selected mixer channels.

When you are finished with the group operation, simply [Right-Click] in the channel label area just beneath the title bar to clear the group.
The group assignments will save with the edl and mix templates.

View Switching

⌨🖑 [Ctrl-Right-Clicking] on any area of the console brings the Zoom Mixer View to the top position at the current channel and specific section clicked on.

View Locking

🖑 [Right-Clicking] on the Close button of the Full, Zoom or Wide Mixer view, you can lock or unlock that view. Moving around in any of the other views will not cause the current locked view to chase along. You may still change chans in the locked view itself, but it will no longer be linked to affect other views. The Close button will change to display a small padlock when the view is locked.

Other Navigation Topics:

4.4   Zoom View Mixer Window

The *Zoom View Mixer* window displays the mixing console in a zoomed view showing all individual controls for each channel. The knobs and switches are directly reachable.

🖰   [Right-Clicking] in this view or pressing the [Spacebar] will toggle *MultiTrack* playback operations.

⌨   Pressing the [Enter] key while in this view will preload the *MultiTrack*. Playback can then be initiated instantly on cue, with no delay, by pressing the [Enter] key again or clicking *OK* in the displayed message box. Pressing the [Esc] key or clicking *Cancel* will cancel playback.

⌨   When record meters are active, pressing the [Enter] key while in this view begins recording, and the [Spacebar] stops the operation.

Knobs And Switches

🖰   [Left-Clicking] on any control will allow direct adjustment of its setting.

Hot Channel

🖰   [Left-Clicking] on any non-control part of the console display will change that channel to be the *Hot Channel*. The *Hot Channel* displays with a red highlight around it. This also links (optional) the *Full* and *Wide Mixer View* and the *MultiTrack View* changing those views to reflect this new *Hot Channel*.

Label Display Zone

🖰   [Shift-Left-Clicking] in the *Label Display* zone displays a track label dialog box, allowing a name for the channel to be entered. You must press the [Enter] key for the name to be accepted.

⌨🖰   [Ctrl-Left-Clicking] in the *Label Display* zone allows you to enter labels for sequential tracks. Pressing the [Enter] key after a label name has been entered will automatically prompt for a label name for the next track. To close or cancel the label dialog box, [Left-Click] either the *close* button or outside of the box, or press the [Esc] key.

☞   Channel labels may be entered even while playback is active. If record meters are open, the engine must be stopped to enter labels due to the already opened and linked record files.

Scrolling

🖰   [Left-Dragging] the mouse cursor to the left or right edge of this window, or inside of the mixer label area, initiates an automatic scroll in that direction. [Left-Clicking] near the left or right edge of this window initiates a single scroll action.

[Right-Holding] will change the mouse cursor to a four directional arrow icon. Pushing the mouse *up* or *down* when first engaged will latch a vertical scroll mode if the window is vertically sized down from its max size. This mode will scroll the window at a speed dependent on how far you push the mouse off the center point which engaged the scroll action. You do not have to keep the mouse moving, just positioned above or below the point which engaged the action. Pushing the mouse *left* or *right* when first engaged will popup a menu listing of every channel on the console, with named labels, allowing you to instantly jump to any particular channel by [Left-Clicking] on your selection. The selected channel will become the first displayed channel in the view, unless there are not enough channels left to fill the window size, in which case the

display will adjust to fit to the end.

The [Left-Arrow] key scrolls the view to the left one channel at a time. Pressing [Shift-Left-Arrow] scrolls the view to the left one page (complete view width) at a time. Pressing [Ctrl-Left-Arrow] scrolls the view to the first channel. Pressing [Shift-Ctrl-Left-Arrow] scrolls the view to the previous console section (Inputs, Returns, Outputs). The [Right-Arrow] key scrolls the view incrementing one channel at a time. Pressing [Shift-Right-Arrow] scrolls the view incrementing one page (complete view width) at a time. Pressing [Ctrl-Right-Arrow] scrolls the view to the last channel. Pressing [Shift-Ctrl-Right-Arrow] scrolls the view to the next console section. The mousewheel may also be used to increment and decrement channels.

The [Up-Arrow] key scrolls the view towards the top of the channels. Pressing [Shift-Up-Arrow] scrolls the display faster towards the top of the channels. Pressing [Ctrl-Up-Arrow] scrolls the display to the top of the channels. The [Down-Arrow] key scrolls the view towards the bottom of the channels. Pressing [Shift-Down-Arrow] scrolls the display faster towards the bottom of the channels. Pressing [Ctrl-Down-Arrow] scrolls the display to the bottom of the channels.

The [Page-Up] key scrolls the view up to the next console section (Faders, Labels, Out Assigns, Aux Sends, FX Patch, Dynamics, Eq, Input/Attenuator). The [Page-Down] key scrolls the view down to the next console section (Faders, Labels, Out Assigns, Aux Sends, FX Patch, Dynamics, Eq, Input/Attenuator).

The [Home] key scrolls the view to the first channel. The [End] key scrolls the view to the last channel.

[Tab] key combinations can be used from this view to navigate the *MultiTrack* entries while keeping the current mixer view window active.

Channel Selecting

[Left-Clicking] or [Left-Dragging] in the channel label area just beneath the title bar toggles channel selection *on* and *off*.

[Alt-Left-Clicking] in the channel label area just beneath the title bar toggles channel selection from the last toggled channel to the current channel *on* and *off*. The selected channels are indicated by an inverse coloring of this label area. Selected channels are grouped and any selected channel can become the group master. Adjusting any control on the group master will also adjust the same control on all other selected channels. Any control that reaches its max or min levels will maintain its over-range internal value and keep its relative position within the group as the levels are brought back into range.

[Right-Clicking] in the channel label area just beneath the title bar toggles all selected channels *off*.

Whenever channels are selected, the mixer mouse pointer will change to indicate that channels are selected. Selected channels respond as a group to mixer adjustments and this mouse pointer serves as a reminder that channels that may not be in view are currently selected, so you may clear those selections if desired before adjusting controls.

Using Channel Group Menu Options

[Right-Clicking] on the *Zoom Mixer View* title bar displays the popup *Group* menu. This menu allows you to save and recall preset channel groups. There are 32 group preset assignments and a few special groups for mixer section selections (ie inputs, returns, and outputs). The preset groups are shared between the *MultiTrack* and the mixer windows.

⏚ [Left-Clicking] on one of the 32 group preset options clears any existing selected mixer channels and selects that group of mixer channels.

⏚ [Left-Clicking] on the *Select All* option selects all input, return, and output mixer channels. [Left-Clicking] on the *Select All Inputs, Select All Returns,* or *Select All Outputs* option selects the corresponding mixer channels.

⌨⏚ [Shift-Left-Clicking] one of the 32 group preset options creates a new group and assigns the currently selected channels to that group and prompts for a group name.

⌨⏚ [Ctrl-Left-Clicking] one of the 32 group preset options will blend the preset with any currently selected mixer channels.

When you are finished with the group operation, simply [Right-Click] in the channel label area just beneath the title bar to clear the group.
The group assignments will save with the edl and mix templates.

View Switching

⌨⏚ [Ctrl-Right-Clicking] on any area of the console brings the Full Mixer View to the top positioned at the current channel.

View Locking

⏚ [Right-Clicking] on the Close button of the Full, Zoom or Wide Mixer view, you can lock or unlock that view. Moving around in any of the other views will not cause the current locked view to chase along. You may still change chans in the locked view itself, but it will no longer be linked to affect other views. The Close button will change to display a small padlock when the view is locked.

Other Navigation Topics:
Operating Console Controls
Operating Special Dialog Box Controls
Full View Mixer Window
Exploded View Mixer Window
Wide View Mixer Window
MultiTrack View Window
SoundFile View Window
Regions View Window
Library View Windows
Effects View Windows
Automation Gallery View Window
Control Track View Window
File View Window

4.5   Exploded View Mixer Window

The *Exploded View Mixer* window displays a single channel of the mixing console in a zoomed view showing all individual controls for that channel. The knobs and switches are directly reachable.

⏚ This view can be opened by [Double-Clicking] on a color link button or non-control area of the *Full View* window, or [Double-Clicking] in the left-client edge of the *MultiTrack View* channel control tool bar area. The window may be closed by [Left-Clicking] outside of its boundaries, or

[Right-Clicking] within its boundaries, or clicking the *close* button in the upper right corner of the mixer window.

If the interactive links in **SAWStudio** are active, while the *Exploded View Mixer* window is open, [Left-Clicking] on a track in the *MultiTrack* will keep the mixer window visible but reposition it off to the side of the *MultiTrack* with the current *Hot Track* selected as the active channel in the mixer. As you switch *Hot Tracks*, the mixer will automatically switch to the respective channel.

⌨   Pressing the [Spacebar] will toggle *MultiTrack* playback operations.

⌨   Pressing the [Enter] key while in this view will preload the *MultiTrack*. Playback can then be initiated instantly on cue, with no delay, by pressing the [Enter] key again or clicking *OK* in the displayed message box. Pressing the [Esc] key or clicking *Cancel* will cancel playback.

⌨   When record meters are active, pressing the [Enter] key while in this view begins recording, and the [Spacebar] stops the operation.

Knobs And Switches

🖱   [Left-Clicking] on any control will allow direct adjustment of its setting.

Label Display Zone

🖱   [Shift-Left-Clicking] in the *Label Display* zone displays a track label dialog box, allowing a name for the channel to be entered. You must press the [Enter] key for the name to be accepted.

☞   Channel labels may be entered even while playback is active. If record meters are open, the engine must be stopped to enter labels due to the already opened and linked record files.

Scrolling

🖱   [Right-Holding] will change the mouse cursor to a vertical directional arrow icon and latch a vertical scroll mode. This mode will scroll the window at a speed dependent on how far you push the mouse off the center point which engaged the scroll action. You do not have to keep the mouse moving, just positioned above or below the point which engaged the action.

⌨   The [Up-Arrow] key scrolls the view towards the top of the channel. Pressing [Shift-Up-Arrow] scrolls the display faster towards the top of the channel. Pressing [Ctrl-Up-Arrow] scrolls the display to the top of the channel. The [Down-Arrow] key scrolls the view towards the bottom of the channel. Pressing [Shift-Down-Arrow] scrolls the display faster towards the bottom of the channel. Pressing [Ctrl-Down-Arrow] scrolls the display to the bottom of the channel.

The [Page-Up] key scrolls the view up to the next console section (Faders, Labels, Out Assigns, Aux Sends, FX Patch, Dynamics, Eq, Input/Attenuator). The [Page-Down] key scrolls the view down to the next console section (Faders, Labels, Out Assigns, Aux Sends, FX Patch, Dynamics, Eq, Input/Attenuator).

⌨   The [Left-Arrow] key scrolls the view to the left one channel at a time. The [Right-Arrow] key scrolls the view incrementing one channel at a time. The mousewheel may also be used to increment and decrement channels.

Channel Selecting

🖱   [Left-Clicking] in the channel label area just beneath the title bar toggles channel selection *on* and *off*.

⌨‍👆 [Alt-Left-Clicking] in the channel label area just beneath the title bar toggles channel selection from the last toggled channel to the current channel *on* and *off*. The selected channels are indicated by an inverse coloring of this label area. Selected channels are grouped and any selected channel can become the group master. Adjusting any control on the group master will also adjust the same control on all other selected channels. Any control that reaches its max or min levels will maintain its over-range internal value and keep its relative position within the group as the levels are brought back into range.

👆 [Right-Clicking] in the channel label area just beneath the title bar toggles all selected channels *off*.

☞ Whenever channels are selected, the mixer mouse pointer will change to indicate that channels are selected. Selected channels respond as a group to mixer adjustments and this mouse pointer serves as a reminder that channels that may not be in view are currently selected, so you may clear those selections if desired before adjusting controls.

Using Channel Group Menu Options

👆 [Right-Clicking] on the *Exploded Mixer View* title bar displays the popup *Group* menu. This menu allows you to save and recall preset channel groups. There are 32 group preset assignments and a few special groups for mixer section selections (ie inputs, returns, and outputs). The preset groups are shared between the *MultiTrack* and the mixer windows.

👆 [Left-Clicking] on one of the 32 group preset options clears any existing selected mixer channels and selects that group of mixer channels.

👆 [Left-Clicking] on the *Select All* option selects all input, return, and output mixer channels. [Left-Clicking] on the *Select All Inputs, Select All Returns,* or *Select All Outputs* option selects the corresponding mixer channels.

⌨‍👆 [Shift-Left-Clicking] one of the 32 group preset options creates a new group and assigns the currently selected channels to that group and prompts for a group name.

⌨‍👆 [Ctrl-Left-Clicking] one of the 32 group preset options will blend the preset with any currently selected mixer channels.

When you are finished with the group operation, simply [Right-Click] in the channel label area just beneath the title bar to clear the group.
The group assignments will save with the edl and mix templates.

Other Navigation Topics:

4.6   Wide View Mixer Window

The *Wide View Mixer* window displays a single channel of the mixing console in a wide view showing all individual controls for a complete mixer channel at one time. The knobs and switches are directly reachable.

⌨🖰   This view can be opened by [Shift-Right-Clicking] in any area of the *Full* or *Zoom View* window, or in the left-client edge of the *MultiTrack View* channel control tool bar area.

🖰   The window may be closed by [Left-Clicking] the *close* button in the upper right corner of the mixer window.

🖰   [Right-Clicking] in this view or pressing the [Spacebar] will toggle *MultiTrack* playback operations.

⌨   Pressing the [Enter] key while in this view will preload the *MultiTrack*. Playback can then be initiated instantly on cue, with no delay, by pressing the [Enter] key again or clicking *OK* in the displayed message box. Pressing the [Esc] key or clicking *Cancel* will cancel playback.

⌨   When record meters are active, pressing the [Enter] key while in this view begins recording, and the [Spacebar] stops the operation.

Knobs And Switches

🖰   [Left-Clicking] on any control will allow direct adjustment of its setting.

Label Display Zone

🖰   [Shift-Left-Clicking] in the *Label Display* zone displays a track label dialog box, allowing a name for the channel to be entered. You must press the [Enter] key for the name to be accepted.

⌨🖰   [Ctrl-Left-Clicking] in the *Label Display* zone allows you to enter labels for sequential tracks. Pressing the [Enter] key after a label name has been entered will automatically prompt for a label name for the next track. To close or cancel the label dialog box, [Left-Click] either the *close* button or outside of the box, or press the [Esc] key.

☞   Channel labels may be entered even while playback is active. If record meters are open, the engine must be stopped to enter labels due to the already opened and linked record files.

Scrolling

⌨   The [Left-Arrow] key scrolls the view to the left one channel at a time. Pressing [Ctrl-Left-Arrow] scrolls the view to the first channel. Pressing [Shift-Ctrl-Left-Arrow] scrolls the view to the previous console section (Inputs, Returns, Outputs). The [Right-Arrow] key scrolls the view incrementing one channel at a time. Pressing [Ctrl-Right-Arrow] scrolls the view to the last channel. Pressing [Shift-Ctrl-Right-Arrow] scrolls the view to the next console section. The mousewheel may also be used to increment and decrement channels.

[Right-Holding] will change the mouse cursor to a four directional arrow icon. Pushing the mouse *up* or *down* when first engaged will latch a vertical scroll mode if the window is vertically sized down from its max size. This mode will scroll the window at a speed dependent on how far you push the mouse off the center point which engaged the scroll action. You do not have to keep the mouse moving, just positioned above or below the point which engaged the action. Pushing the mouse *left* or *right* when first engaged will popup a menu listing of every channel

on the console, with named labels, allowing you to instantly jump to any particular channel by [Left-Clicking] on your selection. The selected channel will become the first displayed channel in the view, unless there are not enough channels left to fill the window size, in which case the display will adjust to fit to the end.

⌨ The [Home] key jumps the view to the first channel. The [End] key jumps the view to the last channel.

[Tab] key combinations can be used from this view to navigate the *MultiTrack* entries while keeping the current mixer view window active.

Channel Menu

🖰 [Right-Holding] the mouse in *Wide View* pops up the *Channel* menu allowing you to change to any channel.

View Locking

🖰 [Right-Clicking] on the Close button of the Full, Zoom or Wide Mixer view, you can lock or unlock that view. Moving around in any of the other views will not cause the current locked view to chase along. You may still change chans in the locked view itself, but it will no longer be linked to affect other views. The Close button will change to display a small padlock when the view is locked.

Channel Selecting

🖰 [Left-Clicking] in the channel label area just beneath the title bar toggles channel selection *on* and *off*.

⌨🖰 [Alt-Left-Clicking] in the channel label area just beneath the title bar toggles channel selection from the last toggled channel to the current channel *on* and *off*. The selected channels are indicated by an inverse coloring of this label area. Selected channels are grouped and any selected channel can become the group master. Adjusting any control on the group master will also adjust the same control on all other selected channels. Any control that reaches its max or min levels will maintain its over-range internal value and keep its relative position within the group as the levels are brought back into range.

🖰 [Right-Clicking] in the channel label area just beneath the title bar toggles all selected channels *off*.

☞ Whenever channels are selected, the mixer mouse pointer will change to indicate that channels are selected. Selected channels respond as a group to mixer adjustments and this mouse pointer serves as a reminder that channels that may not be in view are currently selected, so you may clear those selections if desired before adjusting controls.

Using Channel Group Menu Options

🖰 [Right-Clicking] on the *Wide Mixer View* title bar displays the popup *Group* menu. This menu allows you to save and recall preset channel groups. There are 32 group preset assignments and a few special groups for mixer section selections (ie inputs, returns, and outputs). The preset groups are shared between the *MultiTrack* and the mixer windows.

🖰 [Left-Clicking] on one of the 32 group preset options clears any existing selected mixer channels and selects that group of mixer channels.

🖱   [Left-Clicking] on the *Select All* option selects all input, return, and output mixer channels. [Left-Clicking] on the *Select All Inputs, Select All Returns,* or *Select All Outputs* option selects the corresponding mixer channels.

⌨🖱   [Shift-Left-Clicking] one of the 32 group preset options creates a new group and assigns the currently selected channels to that group and prompts for a group name.

⌨🖱   [Ctrl-Left-Clicking] one of the 32 group preset options will blend the preset with any currently selected mixer channels.

When you are finished with the group operation, simply [Right-Click] in the channel label area just beneath the title bar to clear the group.
The group assignments will save with the edl and mix templates.

Other Navigation Topics:
Operating Console Controls
Operating Special Dialog Box Controls
Full View Mixer Window
Zoom View Mixer Window
Exploded View Mixer Window
MultiTrack View Window
SoundFile View Window
Regions View Window
Library View Windows
Effects View Windows
Automation Gallery View Window
Control Track View Window
File View Window

4.7   MultiTrack View Window

The *MultiTrack View* window is the heart of the editing environment. This is the place for assembling the entire session along a *TimeLine* style interface. This is an extremely complex window with many commands and modes.

Each button or zone of this window can be controlled through a combination of mouse clicks and keyboard commands, along with the three shift modifier keys (*Shift*, *Ctrl*, *Alt*). Learning the operation of this window is crucial to efficient editing and session work in the **SAWStudio** environment.

Top-Client Area

Transport Controls

🖱   [Left-Clicking] the transport control buttons controls playback operations. The buttons from left to right are, *Stop*, *Play*, *PlayMark* and *PlayLoop*.

AutoRewind

🖱   [Left-Clicking] the *AutoRewind* button will cause the *MultiTrack* to auto rewind to the original start position after playback is stopped. You may activate or deactivate this button during playback. *AutoRewind* mode saves with the preferences.

Grid Zone

⌨ Pressing the [G] key toggles the snap-to-grid on and off. When this option is on, two vertical bars will surround the current time mode display text under the time display area (*Grid Zone*), and the cursor will snap to invisible grid points based on the grid size set for each timeline mode. Moving entries will also snap along the grid points forcing the entries to start on an exact grid point. This option saves with the preferences.

[Right-Clicking] in the *Grid Zone* will toggle the *Grid Mode* on and off. [Left-Clicking] the *Grid Zone* will popup the grid settings and toggle the *Grid Mode* on if it is currently off.

Locate Point Controls

⌨🖱 Five *Locate Point Zones* are available to quickly mark and locate areas in the *MultiTrack*. [Shift-Left-Clicking] one of the first four zones will set the current cursor position as a *Locate Point*. [Ctrl-Left-Clicking] one of the first four zones will clear the current *Locate Point*.

🖱 [Left-Clicking] the zone again at any time will jump the cursor to this location. The *Locate Points* may be set or used during playback. These save with the session.

The last zone displays a popup menu of 30 *Locate Point* choices and options. The available locate point options are: Set, Clear and Rename. You can also use [Shift-Click] to set a point directly or [Ctrl-Click] to clear a point directly. When setting a point, the name dialog automatically pops up to facilitate setting and naming in one quick operation. You may set and name live during playback. Locate points will display their position in the current timeline format.

⌨🖱 [Alt-Left-Clicking] while selecting a *Locate Point* will mark from the current position to the new position at the same time the jump is made.

⌨ Pressing [Alt-NumPad Keys 1-9] will jump to *Locate Points* 1-9. Pressing [Alt-NumPad Key 0] will jump to *Locate Point* 10.

Mode Selection Buttons

🖱 [Left-Clicking] a mode selection button toggles different *MultiTrack* control and display modes *On* and *Off*. The buttons are *Select Mode*, *Wave Display Mode*, *Automation Mode*, and *Offset Mode.*

☞ The *Wave Display Mode* is saved with the preferences.

🖱 The *Solo Mode* light will flash as an indicator when any *Solo* switch is activated.[Left-Clicking] the light automatically clears all active *Solo* switches.

🖱 [Left-Clicking] on the *Solo Light* when no solo switches are active turns on *Hot Track Solo Mode*. The light turns solid red and the current *Hot Track* is soloed. Changing to another *Hot Track* automatically causes the solo to follow, always keeping the *Hot Track* soloed. The solo buttons are locked out when this mode is active. You may change *Hot Tracks* from the *MultiTrack*, *Full View* or *Zoom View* mixers.

[Left-Clicking] on the *Solo Light* again, turns this mode off.

🖱 [Left-Clicking] the *Sync Light* causes it to flash yellow whenever a trigger mode is activated and waiting for sync. The *Mark/Relative Time* display changes to a *Waiting For Sync* display and shows the incoming timecode reading during the lock-up phase. When the trigger point is reached, the *Sync Light* turns green.
The *Sync Light* will also turn green during any operation that is generating sync.

Left-Client Area

Track Locator Zone

🖰 [Left-Clicking] the *Track Locator* zone in the top corner pops up a menu listing of all possible tracks, with named labels, allowing you to instantly jump to any particular track by [Left-Clicking] on your selection. The *Zoom, Wide* and *Full Mixer Views* (optional) will follow the new *Hot Track* selection.

Mixer Link Zones

🖰 [Left-Clicking] the *Mixer Link* control zones instantly jumps to channel sections on the current *Zoom* or *Exploded Mixer View*. The zones from top to bottom are, *Input/Attenuator*, *Eq*, *Dynamics*, *Fx*, *Aux Sends*, *Out Assigns*, *Labels*, *Faders*.

Navigation - WaveForm Display Area

Hot Track Selection

🖰 [Left-Clicking] in a track selects that track as the new *Hot Track*. The *Zoom, Wide* and *Full Mixer Views* (optional) will follow the new *Hot Track* selection.

⌨ The [Down-Arrow] key or the [Up-Arrow] key increments or decrements the current *Hot Track* by one. Pressing [Shift-Down-Arrow] or [Shift-Up-Arrow] increments or decrements the current *Hot Track* by one page (*MultiTrack* height). Pressing [Ctrl-Down-Arrow] or [Ctrl-Up-Arrow] sets the current *Hot Track* to the first or last track. Pressing [Shift-Ctrl-Down-Arrow] or [Shift-Ctrl-Up-Arrow] key sets the current *Hot Track* to the next or previous section (Inputs, Returns, Outputs). The *Zoom, Wide* and *Full Mixer Views* (optional) will follow the new *Hot Track* selection.

Track Positioning

⌨🖰 [Shift-Left-Dragging] a track number display allows that track to be dragged to a new position out of numerical sequence.

⌨🖰 [Shift-Left-Clicking] a track number when one or more tracks have been selected (track number inversed) will move all selected tracks to this new destination and group them together. For example, to move tracks 8, 10, and 12 up to track position 2, select tracks 8, 10, and 12 by left-clicking in the track numbers, then shift-left-click track 2 as the destination. The new track order will then be set as 1, 8, 10, 12, 2, 3, 4, etc.

☞ If moving toward the top of the *MultiTrack* the top of the new group will reside at the destination track. If moving toward the bottom of the *MultiTrack*, the bottom of the new group will reside at the destination track.

⌨🖰 [Ctrl-Left-Clicking] on any track number automatically arranges all tracks in numerical order.

Play Cursor Positioning

🖰 [Left-Clicking] or [Left-Dragging] in the current *Hot Track* moves the play cursor to the new location.

⌨ The [Left-Arrow] key or the [Right-Arrow] key moves the play cursor one pixel in either direction. The number of samples that represents depends on the current zoom level.
If *Select Mode* is active, selected entries are automatically snapped to the cursor position.

⌨/🖰 Double-clicking within the *Time Line* display at a specific point causes that point to be centered

in the display and makes that the new *MultiTrack View cursor* position. You can also center the current cursor position by pressing the [=] key.

Scrolling

🖱 [Left-Dragging] and holding the mouse cursor near the *MultiTrack* wave display area edges, scrolls the *MultiTrack* in any direction. Vertical scrolling is active during *MultiTrack* play mode also.

[Left-Clicking] near any edge of this display area initiates a single scroll action.

[Right-Holding] in this display area will change the mouse cursor to a four directional arrow icon. Pushing the mouse *up* or *down* when first engaged will latch a vertical scroll mode. This mode will scroll the window at a speed dependent on how far you push the mouse off the center point which engaged the scroll action. You do not have to keep the mouse moving, just positioned above or below the point which engaged the action. Pushing the mouse *left* or *right* when first engaged will latch a horizontal scroll mode. This mode will scroll the window at a speed dependent on how far you push the mouse off the center point which engaged the scroll action. You do not have to keep the mouse moving, just positioned left or right of the point which engaged the action.

🖱 [Left-Clicking] on any of the three jump zones next to the *Zoom* buttons labeled I, R, and O will jump you to first *Input*, *Return*, or *Output* track respectively.

⌨🖱 [Shift-Left-Clicking] in one of these zones will jump to the next track in sequence of that section and keep incrementing until the end of the section is reached, at which time the jump will start at the beginning of the section again. These jumps will follow the physical sequential order regardless of how the tracks are re-arranged.

[Alt-Left-Clicking] in one of these zones jumps you back to the last selected *Hot Track* for that section. This allows you to jump to the output section, for example, and then immediately jump back to the last selected *Hot Track* you were working on in the input or return section.

Using Track Group Menu Options

🖱 [Right-Clicking] on the *MultiTrack* title bar displays the popup *Group* menu. This menu allows you to save and recall preset track groups. There are 32 group preset assignments and a few special groups for *MultiTrack* section selections (ie inputs, returns, and outputs). The preset groups are shared between the *MultiTrack* and the mixer windows.

🖱 [Left-Clicking] on one of the 32 group preset options clears any existing number-selected tracks and number-selects that group of tracks.

⌨🖱 [Alt-Left-Clicking] on one of the 32 group preset options clears any existing label-selected tracks and label-selects that group of tracks.

🖱 [Left-Clicking] on the *Select All* option number-selects all input, return, and output mixer channels. [Left-Clicking] on the *Select All Inputs, Select All Returns,* or *Select All Outputs* option number-selects the corresponding mixer channels.

⌨🖱 [Alt-Left-Clicking] on the *Select All* option label-selects all input, return, and output mixer channels. [Left-Clicking] on the *Select All Inputs, Select All Returns,* or *Select All Outputs* option label-selects the corresponding mixer channels.

⌨🖱 [Shift-Left-Clicking] one of the 32 group preset options will set the group to the current number-selected tracks and prompts for a group name. This will overwrite any previous group entries in that preset.

⌨🖰   [Ctrl-Left-Clicking] one of the 32 group will blend the preset with any currently number-selected tracks.

⌨🖰   [Ctrl-Alt-Left-Clicking] one of the 32 group will blend the preset with any currently label-selected tracks.

When you are finished with the group operation, simply [Right-Click] in any track number zone to clear number-selected groups, and [Alt-Right-Click] in any track label zone to clear label-selected groups. The group assignments will save with the edl and mix templates.

Other Navigation Topics:
Operating Console Controls
Operating Special Dialog Box Controls
Full View Mixer Window
Zoom View Mixer Window
Exploded View Mixer Window
Wide View Mixer Window
SoundFile View Window
Regions View Window
Library View Windows
Effects View Windows
Automation Gallery View Window
Control Track View Window
File View Window

4.8   SoundFile View Window

The *SoundFile View* window is used to record and audition soundfiles, and to create *Regions* or links to be used in the *MultiTrack* window.

Top-Client Area

🖰   [Left-Clicking] the active zones in the top-client area of the *SoundFile View* window allow you to zoom and magnify as well as mark begin and end positions. The buttons from left to right are, *+Zm Full, +Zm, -Zm, -Zm Full, Up, 0dB, Dn, Mrk Beg, Mrk End, Out,* and *Rec.*

Left-Client Area

SoundFile View Meter

The *SoundFile View* meter will actively display your current sample data during playback, and as you scrub the cursor.

🖰   You may [Left-Click] anywhere in the left-client area to display the *Sample Info View* window. This window displays the current sample data as decimal, hex, dB, and percentage values.

☞   If the *SoundFile View* window is sized down below the height of the meter, the meter will not be displayed.

Navigation - WaveForm Display Area

Cursor Placement

⏏ [Left-Clicking] or [Left-Dragging] within the *SoundFile View* controls the placement of the *SoundFile View cursor*. The cursor is used as a focal point for many *SoundFile View* operations and determines playback start position as well as *Region* boundary positions, and defines a point of action for various editing functions.

⌨/⏏ Double-clicking on a specific point within the waveform display causes that point of the waveform to be centered in the display and makes that the new *SoundFile View cursor* position. You can also center the current cursor position by pressing the [=] key.

Scrolling

⏏ You may side scroll the window by [Left-Holding] and pushing on the left or right edge of the window.

⌨ The [Left-Arrow] key and [Right-Arrow] key will center the cursor and the waveform display, moving the waveform one pixel left or right as the cursor remains centered. The zoom resolution determines the actual number of samples represented.

Pressing [Ctrl-Left-Arrow] or [Ctrl-Right-Arrow] will move the cursor to the beginning or end of a *Marked Area* respectively.

Pressing the [Home] and [End] keys will jump to the beginning or end of the soundfile.

Other Navigation Topics:

4.9 Regions View Window

The *Regions View* window displays all *Regions* which are the source segments of soundfiles upon which all *MultiTrack* entries are based. One *Region* may be used multiple times in the *MultiTrack*. *Regions* may be manually created or automatically created by various editing operations. Altering the source *Region* will affect all occurrences of that *Region* in the *MultiTrack*. *Regions* may be categorized into named groups of common type elements. The listbox will display all *Regions* or any one of the groups at a time.

Top-Client Area

Insert To MT Button

⏏ [Left-Clicking] the *Insert To MT* button adds selected *Regions* in the *Regions List* to successive *MultiTrack* tracks, starting at the current *Hot Track* and incrementing from there for each additional *Region*. Use the [Insert] key on the keyboard to perform the same function.

Group Button

⍟ [Left-Clicking] the *Group* button displays a group menu which allows you to create, name and maintain *Region* groups.

Navigation - Regions List Area

Scrolling

⌨/⍟ The *Regions List* may be scrolled by [Left-Dragging] the right scroll bar area, or by pressing the [Up-Arrow] or [Down-Arrow] keys.

Other Navigation Topics:
Operating Console Controls
Operating Special Dialog Box Controls
Full View Mixer Window
Zoom View Mixer Window
Exploded View Mixer Window
Wide View Mixer Window
MultiTrack View Window
SoundFile View Window
Library View Windows
Effects View Windows
Automation Gallery View Window
Control Track View Window
File View Window

4.10   Library View Windows

SAWStudio contains six *Library View* windows. These windows can be used to open sound effect EDL library files or other EDL files to link or import regions into the current session. You can also audition .wav files in a library view window and create a region linked to the original soundfile source, or import the soundfile into your project folder creating a link to the newly created source.

These windows can be saved with the *F-Key* workspace views for quick access to regions in other EDL files.

Top-Client Area

File Button

⍟ [Left-Clicking] the *File* button in any *Library View* window will allow you to open an EDL file regions list or a directory of .wav files into the window without disturbing the current session. You may audition and view these entries in the *SoundFile View* exactly like the normal regions in the *Regions View*.

Link Button

⍟ [Left-Clicking] the *Link* button, will instantly add the selected entries from the *Library* window into the current session's *Regions View* window. These regions are now part of the current session, with their soundfile reference still linked to the original *Library* source soundfiles.

Import Button

⍟ [Left-Clicking] the *Import* button, will add selected entries to the current session and copy the original source soundfile data to a new destination file that is now part of the current session.

Group Button

⊕ [Left-Clicking] the *Group* button will allow you to change groups if the EDL has been saved with active groups.

Navigation

Scrolling

⌨/⊕ The *Library View* windows may be scrolled by [Left-Dragging] the right scroll bar area, or by pressing the [Up-Arrow] or [Down-Arrow] keys.

Other Navigation Topics:

4.11   Effects View Windows

Top-Client Area - FX Patch Lists

Each of the three *FX Patch List* windows include the following buttons:

Add Button

⊕ [Left-Clicking] the *Add* button on any *Pre, Pst* or *F-Res* patch window will add the selected effect from the *FX Choices* list to the respective patch window.

Rem Button

⊕ [Left-Clicking] the *Rem* button on any *Pre, Pst* or *F-Res* patch window will remove the selected effect from the respective patch window.

Clr Button

⊕ [Left-Clicking] the *Clr* button on any *Pre, Pst* or *F-Res* patch window will clear all effects from the respective patch window. If the current track is one of a group of selected tracks, then all selected tracks will be affected.

⌨⊕ Pressing the [Ctrl] key when activating this function will clear all tracks of the associated *Pre, Pst* or *F-Res* patches.

FX Button

🖯   [Left-Clicking] the *FX* button on any *Pre, Pst* or *F-Res* patch window will display the *FX Choices* window.

☞   The title bar on each of the *FX Patch* windows contains a track label for easy track identification.

Top-Client Area - FX Choices List

Group Button

🖯   [Left-Clicking] the *Group* button on the *FX Choices* list window will allow you to group selected effects for easy organization and location. Up to 30 groups can be created. As groups are created, they are automatically saved to disk for exact recall the next time the program is run.

Navigation

Scrolling

⌨/🖯   The *Effects View* windows may be scrolled by [Left-Dragging] the right scroll bar area, or by pressing the [Up-Arrow] or [Down-Arrow] keys.

Other Navigation Topics:
Operating Console Controls
Operating Special Dialog Box Controls
Full View Mixer Window
Zoom View Mixer Window
Exploded View Mixer Window
Wide View Mixer Window
MultiTrack View Window
SoundFile View Window
Regions View Window
Library View Windows
Automation Gallery View Window
Control Track View Window
File View Window

4.12   Automation Gallery View Window

The *Automation Gallery View* window allows you to create and use *Automation Preset Files*.

This window can be saved with the *F-Key* workspace views.

Top-Client Area

File Button

🖯   [Left-Clicking] the *File* button in the *Automation Gallery View* window displays a popup menu of options:

The *Open Directory Of Automation Files* option allows you to pick a folder containing .aut files. The filenames then list in the *Gallery* listbox.

The *Save Automation File* option allows you to name and save a marked area of automation from the *MultiTrack* for later retrieval.

The *Clear Gallery Window* option clears the listbox and the thumbnail display.

Insert To MT Button

☝ [Left-Clicking] the *Insert To MT* button inserts the selected automation into the *MultiTrack* at the *MultiTrack Cursor* position.

⌨/☝ Automation may also be added to the *MultiTrack* by [Left-Double-Clicking] a selection in the *Gallery* window or by pressing the [Insert] key on the keyboard.

☞ If you mark an area of the *MultiTrack*, the automation is inserted and sized to fit within that area. *Automation Mode* must be active for the insert to function.

Navigation

Selecting Gallery Presets

☝ The *Automation Gallery* presets may be selected and viewed by [Left-Clicking] the individual preset names on the left. The preset automation thumbnail view will be displayed on the right.

Scrolling

⌨/☝ The *Automation Gallery View* window may be scrolled by [Left-Dragging] the right scroll bar area, or by pressing the [Up-Arrow] or [Down-Arrow] keys.

Other Navigation Topics:
Operating Console Controls
Operating Special Dialog Box Controls
Full View Mixer Window
Zoom View Mixer Window
Exploded View Mixer Window
Wide View Mixer Window
MultiTrack View Window
SoundFile View Window
Regions View Window
Library View Windows
Effects View Windows
Control Track View Window
File View Window

4.13 File View Window

The *File View* window displays a list of all files involved in a session. All audio, video and MIDI linked files are displayed. Session files that cannot be found will display an asterisk (*) next to the file type. Session files that are orphaned (not connected to any regions) will display a pound sign (#) next to the file type. You may select individual or multiple files and change the paths or names or both from the popup options menu available by [Left-Clicking] the small blue pyramid logo zone. This window locks out all further program operation until closed. Using these functions changes only the session edl links and does not alter the files or file locations themselves.

Top-Client Area

Options Icon

⟁ [Left-Clicking] on the blue pyramid *Options* icon displays a small popup menu containing the following options:

RePath Selected Entries
This option displays the *Browse for Folder* dialog box. Navigate to a new destination drive and folder and click *Ok*. This will change the linked path for all currently selected files.

✋ **Regarding the RePath Selected Entries option:** Using this function changes only the session edl links and does not alter the files or file locations themselves. You must move the files to their new destinations and rename them outside the *SAWStudio* environment. When closing the *File View* window after using this command, you will be prompted to save the new session edl and re-open it to refresh the session to the new parameters after the files have been altered to match. Do not continue editing the current session after file paths and names have been altered or random corruption of the edl can occur.

ReName Selected Entries
This option displays the *Enter New File Name* dialog for each of individual selected files one at a time. Type in a new name and press [Enter] or click *Ok* for each of the selected files until complete.

✋ **Regarding the ReName Selected Entries option:** Using this function changes only the session edl links and does not alter the files or file locations themselves. You must move the files to their new destinations and rename them outside the *SAWStudio* environment. When closing the *File View* window after using this command, you will be prompted to save the new session edl and re-open it to refresh the session to the new parameters after the files have been altered to match. Do not continue editing the current session after file paths and names have been altered or random corruption of the edl can occur.

ReFresh Selected Entries Peak Data Files
This option forces a peak data refresh on all selected files. Use this option after first opening an edl file created outside of the *SAWStudio* environment, such as one created from the EDL Convert Pro program or other edl manipulation utilities. In most cases, peak data files are not created by these programs and will need to be created in *SAWStudio* in order to see waveform data in the MultiTrack under most zoom conditions.

Delete Selected Entries
This option deletes file links from the session. If there are any connected Regions and MT Entries, you will be prompted to continue or not.

Navigation

Scrolling

⌨/⟁ The *File View* window may be scrolled by [Left-Dragging] the horizontal or vertical scroll bar area, or by pressing the arrow keys on the keyboard.

Entry Selection

⟁ [Left-Clicking] on an entry selects and highlights it in the listbox, clearing all other selections.

[Left-Dragging] selects all entries included in the drag.

[Shift-Left-Clicking] on an entry selects it and all entries between it and the last selected entry. [Ctrl-Left-Clicking] an entry selects and adds it to the other selected entries.

Using the [Up-Arrow] and [Down-Arrow] keys scrolls up and down the list selecting one entry at a time. [Shift-Up-Arrow] maintains the originally selected entry and adds contiguous entries one at a time moving up the list. [Shift-Down-Arrow] maintains the originally selected entry and adds contiguous entries one at a time moving down the list.

At least one entry will always be selected. To clear a selected group, simply [Left-Click] anywhere in the entry list.

The [Home] key will jump to the first entry in the list. The [End] key will jump to the last entry in the list.

Other Navigation Topics:
Operating Console Controls
Operating Special Dialog Box Controls
Full View Mixer Window
Zoom View Mixer Window
Exploded View Mixer Window
Wide View Mixer Window
MultiTrack View Window
SoundFile View Window
Regions View Window
Library View Windows
Effects View Windows
Automation Gallery View Window
Control Track View Window

4.14 Control Track View Window

The *Control Track* at the bottom of the *MultiTrack* can be used to hold *Control Entries* that can influence the *MultiTrack* play and record functions and also send MIDI commands to external devices. *Control Entries* are displayed as vertical colored lines on the *Control Track*.

Top-Client Area

Built-In Cmds Button

[Left-Clicking] the *Built-In Commands* button in the *Control Track View* window displays a popup menu of options:

The *Stop Playback* option causes playback to stop at this position.

The *Stop Playback / PreLoad* option causes playback to stop at this position and then does an immediate *MultiTrack* preload and waits for your command to activate playback.

The *Stop Playback / Cue Next* option causes playback to stop at this position and then cues to

the next *Cue Location* position.

The *Stop Playback / Cue Next / PreLoad* option causes playback to stop at this position and then cues to the next *Cue Location* position and does an immediate *MultiTrack* preload and waits for your command to activate playback.

The *Cue Location* option sets the current *MultiTrack Cursor* position as a cue point.

The *Cue Location / PreLoad* option sets the current *MultiTrack Cursor* position as a cue point and will force a preload once triggered.

The *Cue Location / Play* option sets the current *MultiTrack Cursor* position as a cue point and force playback once triggered.

The *Cue Beginning / Play* option sets the current *MultiTrack Cursor* position back to zero and initiates playback once triggered.

The *Midi Program Change* option sends a MIDI Program Change command to external devices.

The *Midi Note On* option sends a MIDI Note On command to external devices.

The *Midi Note Off* option sends a MIDI Note Off command to external devices.

The *Midi Note On / Off* option sends a MIDI Note On followed by an immediate MIDI Note Off command to external devices.

The *Midi Hex String* option sends a MIDI string of Hex numbers to external devices.

The *Midi Dec String* option sends a MIDI string of Decimal numbers to external devices.

Custom Cmds Button

⍟ [Left-Clicking] the *Custom Cmds* button in the *Control Track View* window displays a popup menu of options:

The *Add Current Selection To Custom List* option allows you to select any entry in the *Control-Track* listbox and add it to the list of *Custom Commands*. This list is automatically updated and saved and reloaded each time you start the program.

☞ Be sure to name each entry with a unique and identifiable name, before adding it to the *Custom Commands* list.

The *Select Item With Shift Key To Remove From Custom List* reminder option does no actual work, and serves as a reminder for removing a Custom Command from the list. To remove a *Custom Command* from the list [Shift-Left-Click] the actual command.

Navigation

⌨ Pressing [Tab] will snap you to the next *Control Entry* on the *Control Track*. Pressing [Shift-Tab] will snap you to the previous entry.

Other Navigation Topics:

5   Ready To Record

5.1   Recording In The MultiTrack

5.1.1   MultiTrack Record Setup

Recording in the *MultiTrack* is very powerful and easy to setup once you understand how **SAWStudio** handles file naming and input device assignment.

    ⍾   [Left-Clicking] a red *MT Record* button on any track in the *MultiTrack* displays a *Record Meter* and the *Record Remote Transport* window. If the track has a label, the label will be transferred to the *Record Meter*. Any meter can be closed by [Left-Clicking] on its associated *MT Record* button again. Each track will retain its last input assignment and automatically begin with that assignment when record is activated again on that track.

    ⌨⍾   All meters can be closed at once by [Left-Clicking] the *Close* button on the *Meter* window. [Ctrl-Left-Clicking] the *Close* button closes all meters at once and retains the last setup as the current active *Record Template*, which may be recalled by [Ctrl-Left-Clicking] on the *MT Record* button. The track assignments will start sequentially from the current *Hot Track*.

        You may use the *Open Record Template File* option under the *File* menu to open a preset *Record Template* that was previously saved, making it the current active template, which may then be recalled by [Ctrl-Left-Clicking] on the *MT Record* button.

    ⍾   [Shift-Left-Clicking] an *MT Record* button clears all previously saved track record input assignments and engages automatic input assignments, assigning the next higher available input with each engaged record track.

If the right edge of the *Record Meter* display reaches the right side of the screen, the meter display window will remain the same size as new meters are added and the left-most meters will be shifted off of the display allowing you to view newly added meters.

    ⌨   The [Left-Arrow] or [Right-Arrow] keys scroll the view to the left or right one meter at a time.

    ⍾   [Left-Dragging] the mouse cursor to the left or right edge of this window initiates an automatic scroll in that direction. [Left-Clicking] near the left or right edge of this window initiates a single scroll action. The *Mouse Wheel* may also be used to scroll left or right. Using the [Shift] key with either of these options will scroll an entire page of meters at once.

    ☞   The *Record Meter* window will allow horizontal sizing. The window can be sized down to one record meter or up to the maximum opened meters. The window can then be saved while open in a Function Key or Alt-Function Key. Function keys saved with open *Record Meters* will retain

the window size as a maximum lock. Whenever the function key is used, the current *Record Meters* will size down to fit the maximum saved size. If more meters are currently opened than will fit, they can be accessed by using the left or right arrow keys or [Left-Clicking] near the left or right edge of the window as mentioned previously. This feature allows you to create two simple function key views, one view with one meter, and one view with as many as you might use at any one time. When doing a recording session with 16 meters open for example, you can simply use one function key to instantly compact the meters down to one meter while playing back the last recording. This allows you to have access to the mixer and multitrack views without all the meters on top, but still keeps the meters open for access to the retake commands, if you decide to do a retake. Then, using the other function key, you can instantly expand all the meters across the screen again to do another recording.

☞ If the *Record Meter* window is sized smaller than the maximum amount of open meters, the displays will actively chase MultiTrack tracks and keep the hottrack meter (if active) visible within the Record Meter window. If mixer navigation links to the MT are active, the record meter displays will also chase mixer hotchan changes. [Right-Clicking] the Record Meter window *Close* zone will toggle a lock option to freeze the meter displays from chasing. You are still free to scroll the meters within the window with the wheel mouse or arrow keys.

File Naming

File naming is handled automatically in the following manner. If there is a default *Record Soundfile Path*, then this path is used, otherwise the current EDL path is used; If there is a session name, then this is appended to the path, otherwise the *Save As* dialog box is displayed prompting you for a session folder and name before recording begins; If there is a track label, then this is appended as '**_Label**', otherwise '**_Trackxx**' is used; The **.wav** extension is appended at the end. An example filename for an unnamed track in a session in the **D:\Audio** folder called '**Project01**' would appear as: **D:\Audio\Project01_Track01.wav**.

MultiTrack Setup Options

⌘ [Left-Clicking] in the *Setup* zone at the top of the *Record Remote Transport* window displays a *Record Setup* window. Here you may view and change all of the filenames and paths if desired. If you change the *Base* filename, all other files will be reset to the default names based on the new *Base* filename. Therefore, change the *Base* filename first before changing individual filenames.

The *Record Setup* window also displays current session *SampleRate*, and *Bit Resolution* settings. [Left-Clicking] in any of these zones, will display a popup list of available choices. [Left-Clicking] any choice will make that the current session setting for that parameter.

Record Remote Hide/Show (H/S) Zone

⌘ [Left-Clicking] in the *H/S* zone at the top of the *Record Remote Transport* window hides SAWStudio and leaves the *Record Remote Transport* visible as an OnTop window above other programs. This can be useful for recording from SAC, for instance, where the record operations can be controlled from within the SAC environment without having to switch back and forth between the two programs. [Left-Clicking] the *H/S* zone a second time, will restore (show) SAWStudio again.

Input Assignment

⌘ Each *Record Meter* has a *Track* and *Input* assignment zone. You may re-assign the meter to a different track by [Left-Clicking] in the *Track* zone. You may re-assign the meter to a different input source by [Left-Clicking] in the *Input* zone. The input source may come from a stereo

device pair, a mono left or right device, or an input channel of the console. Selecting a mixer channel as a record source activates live monitoring capability. The *Mono Switch* setting of the channel determines whether a mono or stereo file is created. If the channel is set to an input device source, live input signals will be routed through the channel strip, utilizing all eq, gate and compressor functions as well as fx patches and aux sends.

☞   If the SACLink is active, you will see a list of SAC channel sources with SAC labels, as well as the 8 SAC Output Record Bus options.

If the channel is also assigned to an output, the signal can be directly monitored. If aux send masters are assigned to output devices, they can be used as headphone feeds, back to the performer. The recording signal is taken pre-fader after *the Pre Fx* patch. The main fader and mute and solo switches can be used to control the control room monitor mix without affecting the recorded signal.

If the channel input is set to the *MultiTrack* source, the recording will pickup whatever signal is on the track, which could be disk data or a VST synth patched pre, and record directly from the track output with no need to physically route the signal thru A/D or D/A converters and cables. All three record modes will activate the monitor thru capability.

Input Level Adjustment

The Adjust Input Level and Reset Input Level options on the Input Zone menu can be used to adjust the actual signal level of the recorded data on the way to the hard drive. Even the level of digital input sources can be adjusted here. Both of these options are available while recording is active or inactive. If you change a record meter to another track by using the popup Track zone, the current input level will be transferred to the new track. If you [Shift-Left-Click] any record button to clear input assignments back to default, all input levels will be reset also. Each track will retain its last level adjustment until cleared.

Input Monitoring

Input monitoring is dependent on the audio device driver abilities. Some devices have control applets for adjusting various parameters including how the device monitors incoming signals. Some devices allow you to directly monitor the incoming signal at the device outputs or not, and/or allow signal routing to separate monitor outputs. In many cases, turning off device monitoring, and monitoring from the source signal at the mic preamp or mixer output is probably the most familiar way to record in the *SAWStudio* environment. Blending playback outputs of the *MultiTrack* with the incoming source signal in an external mixer and sending a headphone mix to the performer(s) from the external mixer can be a simple arrangement.

If your system is capable of low latency driver performance, you have other powerful options available to monitor directly within the *SAWStudio* virtual environment, with no need for external mixers or signal routing. These options require that your system and audio card drivers are capable of stable glitch-free performance with buffer settings of 3 x 128 or lower. 3 x 64 is a great choice for virtual realtime signal monitoring. The *Out* and *In* buffer sizes should be set the same. The *In-buffer-count* should be set to 4 or higher and will not add to the monitor latency. The *Out-buffer-count* does add to the monitor latency and should set as low as possible while still maintaining stable system operation. Only a few audio card drivers are capable of this performance using the MME driver model. Most will require you to use the ASIO driver model to approach these low latencies.

The record meter input assignment allows you to select a *Stereo Device*, *Mono Device*, or *Mixer Channel* as the signal source. All three of these selections will offer monitoring capabilities with the use of the *Tape-Style Auto Audio-Monitoring Switching* options found under the *Options* menu.

One option is called *Tape Style – Playback / Input Switching*. This option will switch between the record

signal input and the *MultiTrack* playback automatically when you punch-in record. In *Rec/Rdy* or *Rec* mode, the record signal input will be routed through the record channel console module. When *SRP* is engaged, the *MultiTrack* playback data will be the monitor source and when you engage the *Rec* button to punch-in, the monitor source will switch to the record signal input, exactly like most professional multitrack tape decks.

The second option is called *Tape Style – Input Always On*. In *Rec/Rdy* or *Rec* mode, the record signal input will be routed through the record channel console module. When *SRP* is engaged, the *MultiTrack* playback will be mixed with the record signal input allowing you to monitor both sources together. When the *Rec* button is engaged to punch-in, the monitor source will switch to the record signal input only, muting the *MultiTrack* playback signal.

These exciting engine features make recording and monitoring possible completely in the virtual environment. It's now very easy to setup headphone mixes using the pre-aux sends and even blend reverb into the phones mixes without the need for any external mixing hardware.

If you select *Mixer Channels* as record sources and you have assigned those channels to *Live Input Devices*, instead of *MultiTrack* sources, the channel assignments for those tracks will automatically switch to *MultiTrack* playback if there is region data on them and will mute the playback when record is punched in. If the *Tape Style – Input Always On* option is active, the live input channels will stay active and blend with the *MultiTrack* track playback until record is punched in.

The *Pre Patch Signal Flow* routing will be handled correctly in that, if the recording point is post *Eq* and *Dynamics*, the monitor playback will be post of the processing also, so you will not double process the playback data. If the recording point is pre *Eq* and *Dynamics*, the monitor playback will route pre processing so it sounds the same as when monitoring the input source.

When monitoring through the *SAWStudio* virtual console, you can create your own main mix for the control room (usually Device-Out 1) as well as up to 6 stereo Aux-Send mixes directed to headphones for the performers (Aux Masters assigned to Device Outs 2-7). In most cases you will set the Aux mixes to *Pre Fader* so changes to your control room mix do not affect the headphone mixes. You can also use 1 Aux bus for virtual reverb and still have 5 stereo headphone mixes, which can also receive the reverb returns through *Output* channel assigns properly routed.

You must be careful not to use plugins which alter buffer sizes or add latency (by withholding samples) when using live virtual monitoring. The input latency will be affected and cause monitoring delays. An icon will display on the main window titlebar if active plugins are altering buffer sizes. You can click on the icon to see which plugin on which channel is the first in the processing chain with this behavior. You should bypass all plugins exhibiting this behavior until the recording and live monitoring process is complete.

☞ One of the record modes must be engaged for metering and monitoring signals to be active. Use *Rec/Rdy* while sitting idle to set levels and adjust headphone mixes with the realtime monitoring. You may then engage *SRP* and *Rec* modes directly from *Rec/Rdy* without stopping the engine. When you do press *Stop* on the *Record Remote Transport*, *Rec/Rdy* will be re-engaged keeping the meters and monitor signals active.

☞ Normal recording direct from device-ins, while monitoring from an external mixer source, adjusts the record region sync position using the *Auto Latency Adjust* value only. Sync is not dependent on buffer latency size settings and therefore makes perfect recordings even on slow audio drivers and hardware. Overdubbing will be in perfect sync when monitoring playback from any bus out directly or from *Aux-Send-Masters* assigned to device outs. This mode uses an external mixer (or soundcard driver hardware mixer) to split the source signal and blend it with the playback signal from *SAWStudio* for headphone monitoring during recording.

☞ Recording direct from device-ins, while monitoring direct from the *SAWStudio* virtual console, adjusts the record region sync position using a combination of the *Auto Latency Adjust* value as

well as the exact internal buffer latency present in the monitor chain. The record signal is taken directly from the device input before any channel processing. This allows you to freely use all channel processing for the monitor mixes without affecting the record signal itself..

☞ Recording from mixer channels assigned to live device-ins, while monitoring direct from the *SAWStudio* virtual console, adjusts the record region sync position using a combination of the *Auto Latency Adjust* value as well as the exact internal buffer latency present in the monitor chain. Recording from mixer channels with *VST* synths patched into the *Pre Patch* point, while monitoring direct from the *SAWStudio* virtual console, adjusts the record region sync position using the exact internal buffer latency present in the monitor chain only. Overdubbing will be in perfect sync, regardless of the monitor latency, when monitoring playback from any bus out directly or from *Aux-Send-Masters* assigned to device outs. The record signal is taken from the *Pre Patch* point when recording from mixer channel sources. The record signal will include the *EQ* and *Dynamics* section of the virtual mixer unless the *Pre Patch* point routing has been changed in the *Mixer* menu *Pre-Fx Patch Signal Flow* option. You may monitor the *Control Room* signal from the main faders and freely use the *Mute* and *Solo* buttons without disturbing the recording. You may also use *Pre* or *Pst Aux Sends* to send monitor mixes to performers through headphones. If you are not using one of the *Tape-Style* monitor modes, temporary playback override of the mixer channel device-in source assignments can be done by pressing the [Shift] key when you start playback. This will force all mixer channels to *MultiTrack* source for the duration of this playback so you can easily listen back to the recording without having to change your input assignments. When you are finished recording, you should then change all mixer channel source assignments to *MultiTrack* for normal editing and mixing operations.

☞ A special *Live Aux-Send-Return* processing loop feature is designed into the engine to allow the use of hardware processing gear to be blended into the mix in perfect sync regardless of the latency buffer settings. This mode is automatically engaged when an *Aux-Send-Master* is assigned to an out-device and its corresponding *Return* is assigned to an in-device. This mode splits the engine and delays the out buffers while leaving the *Aux-Send* signals in original time, thereby allowing the normally delayed hardware processing data to arrive and mix into the playback in perfect time. This does not require low latency buffer settings, but it does however delay the normal playback signal, and therefore will add latency to *Live Mode* virtual monitoring. Only the *Aux-Send-Return* device pairs will be affected, therefore you may still use other aux sends as headphone monitors, as well as any other bus out. The record signals will all be properly adjusted to drop in perfect sync regardless of the added monitor delay. This mode is best suited for mixdown operations where hardware processing gear is desired in realtime. It is recommended that you do not assign *Return* channels to in-devices when using *Live* input channels for virtual monitoring, in order to obtain the lowest possible monitor latency.

Record Meter Peak Reset

🖱   [Left-Clicking] in the Record Meter LED display area will display a popup menu for clearing meter peaks as follows:

Clear Current Rec Meter Peaks
Clears the current record meter peak displays.

Clear All Rec Meter Peaks
Clears all record meter peak displays.

Other MultiTrack Record Topics:
Activating Record In The MultiTrack

5.1.2   Activating Record In The MultiTrack

Normal Recording

⍾   [Left-Clicking] on the *Rec Rdy* button activates the recording meters without writing data to disk, so that levels and adjustments can be set prior to recording. If *Rec-Rdy* is active when you start SRP or Record mode, *Rcd-Rdy* will automatically restore when you stop the SRP or Record operation.

☞   Many functions remain active while *Rec/Rdy* mode is engaged. This makes it much easier to keep this mode active during a recording session with live monitoring and still manipulate the *MultiTrack*. The functions active in *Rec/Rdy m*ode are:

Cursor positioning with mouse
Position display
Marking MT areas
Changing MT layers
The RTZ zone
The Home-Key
The End-Key
The Tab-Key
The D-Key
The G-Key
The K-Key
The M-Key
The R-Key
The S-Key
The U-Key
The *-Key
The Select Mode button
The Grid zone
Locate Points
Disabling MT tracks
Clearing all track entries
Entering track labels
Moving MT-Entries
Alt-Grab adjustment of MT-Entries
Changing record tracks with the record meter Track zone
Undo files are created the same as when the engine is stopped
Retake Options

⍾   [Left-Clicking] on the *Rec* button begins immediate recording. This does not activate MT playback.

☞   When either SMPTE or MTC generate mode is active, this button automatically latches the *SRP* button since sync generation is dependent on *MultiTrack* playback timing loops.

[Left-Clicking] on the *Stop* button stops the recording process and automatically creates a *Region* and places an *MT Entry* at the original record start position, for each assigned recording track.

SRP Recording

SRP (Simultaneous Record and Play) recording allows you to hear other tracks in the *MultiTrack* at the

same time you record new tracks.
This feature can be used to overdub vocals to music, apply instrument solos to existing rhythm tracks, etc. SRP recording is sound card dependent and requires an SRP capable driver and hardware.

☞ SRP recording will automatically force the playback loop, even if all tracks are empty, allowing for SMPTE generate recording even on an empty *MultiTrack*. The first record meter track assignment is used, and it must be assigned to a valid output path.

⌨/🖰 [Left-Clicking] the *SRP* button begins MT playback with simultaneous record ready to go. [Left-Clicking] the *Rec* button will punch in and automatically mute any underlying data on a recording track.

⌨🖰 [Shift-Left-Clicking] on the *SRP* button will activate *MultiTrack* playback and punch in the *Rec* button simultaneously. [Left-Clicking] the *SRP* button again will punch out and keep MT playback active, un-muting the recording track's underlying data.

☞ When the *Auto Record / SRP Latch* option on the *Options* menu is activated, clicking the SRP button will also latch and engage the Rec button. Pressing the [Shift-Key] when engaging the SRP button will override this option. When this option is not engaged, the SRP button works independently UNLESS the [Shift-Key] is also pressed. This option saves with the preferences.

🖰 Creating an MT *Marked Area* sets up an *Auto Punch*. [Left-Clicking] the *SRP* button then begins *MultiTrack* playback. You can now press REC at any time to arm the record operation, which will cause the REC button to flash, letting you know a recording operation is pending. Recording will automatically punch in and out at the marked area boundaries. You can override the punch in point by [Left-Clicking] the *Record* button again. You can override the punch out point by [Left-Clicking] *Stop* or *SRP* again. Note that the auto record will not engage unless you first press the REC button to start the armed flashing display. You could also use the *Auto Record / SRP Latch* option or the [Shift-Key] when first pressing the SRP button to latch the REC button automatically.

☞ After recording, you may audition the tracks just recorded by activating normal *MultiTrack* playback with a [right-click] in the *MultiTrack* area, or by clicking the *Play* button in the *MultiTrack Top Client Area* without having to close the record meters.

Pressing the [Shift] key while starting *MultiTrack* playback using one of the above mentioned methods will internally force all tracks to *MultiTrack* source, for playback of *MultiTrack* data even while the track is assigned to a *Device-In* source. This is a temporary condition for this playback only. All *Device-In* assignments remain intact. This is like an automatic line/tape switch on a more expensive recording console.

Special keyboard shortcuts for recording operations

⌨ [Enter] activates *Record m*ode or punches in and out when *SRP* mode is active.

[Shift-Enter] activates *Rec/Rdy* mode.

[SpaceBar] toggles between *SRP* mode and the last active state of *Stop*, *Rec/Rdy* or *Live* mode.

[Shift-SpaceBar] toggles between *SRP/Rec* mode (forcing a record punch) and the last active state of *Stop*, *Rec/Rdy* or *Live* mode.

[Ctrl-SpaceBar] forces *Stop* mode breaking any links to *Rec/Rdy* or *Live* mode toggling.

Record Retake In The MultiTrack

🖱   [Left-Click] the *Retake Zone* in the record panel while recording in the *MultiTrack* to display the following retake options:

➢   **ReTake To Last Record Position**
This option removes the last recorded regions and resets the file pointers for each active file to the last punch-in position.
⌨   Press the [Backspace] key to perform the same function.

➢   **ReTake To Current MT Cursor Position**
This option splits the last recorded regions at the *MultiTrack* cursor position and removes the right half, resting the file pointers to this same position.
⌨   Press [Shift-Backspace] to perform the same function.

➢   **ReTake All**
This option clears all regions associated with the active record files and resets the file pointers to the beginning of the file. Be careful, these options are all final and destructive.
⌨   Press [Ctrl-Backspace] to perform the same function.

Multi-Take Loop Recording

🖱   [Left-Click] the *Retake Zone* in the record panel while recording in the *MultiTrack* to display the following loop-record options:

➢   **Multi-Take Loop Record**
Activating this option allows you to mark a punch-in/out area on the *MultiTrack*, then place the start cursor position in front of the marked section to allow for some pre-roll time and start SRP playback. When the punch-in area is reached, recording is engaged automatically and disengaged at the punch-out position. The region (or regions for multi tracks at once) will be stamped with the starting date and time and take number, as well as the normal file or track label name. The system then automatically stops and restarts the process again at the original pre-roll start position and continues to loop, each time dropping new takes in the recording area. When you stop the process or when the loop counter runs out, you will be left with the last complete take onscreen. The other takes are grouped together by the date and time stamp and it becomes an extremely easy process to add any take group back onto the *MultiTrack*. Simply select the take number region of interest (or multiple regions for *MultiTrack* recordings) and use the [Shift] key when you click the Insert To MT button, or press [Shift-Insert] on the keyboard. The region or group of regions will instantly insert themselves and overwrite the current set of regions at the original record position.

➢   **Multi-Take Layer Loop Record**
This option works similarly to the Multi-Take Loop Record, but adds the extra feature of placing each new group of takes on the next layer (automatically) until the layers are filled, at which time it keeps inserting the new takes on the last layer.

➢   **Multi-Take Loop Record Count**
This option sets the number of loop counts from 1 to 100. When the loop count has been reached, the loop record function is automatically stopped.

Other MultiTrack Record Topics:
MultiTrack Record Setup

5.2   Recording In SoundFile View

5.2.1   SoundFile View Record Setup

Recording soundfiles in the *SoundFile View* window records audio data that has no reference to time as far as the *MultiTrack* session is concerned. In other words, this audio data will be placed at a later time in the front, middle or end of the actual non-linear session we are building. This method of recording is very useful for bringing unconnected pieces of an entire project into the editing environment, which we will then assemble in a certain order as the session progresses.

[♀]   [Left-Clicking] the red *Record* button in the top-client area of the *SoundFile View* window displays a *Record Meter* and the *Record Remote Transport* window. The meter can be closed by [Left-Clicking] on the *SF Record* button again

You may also close the record meter by [Left-Clicking] the *Close* button on the *Meter* window.

Input Assignment

[♀]   [Left-Clicking] the input zone on the record meter allows you to set an input device. The input source may come from a stereo device pair, or a mono left or right device.

Input Level Adjustment

The Adjust Input Level and Reset Input Level options on the Input Zone menu can be used to adjust the actual signal level of the recorded data on the way to the hard drive. Even the level of digital input sources can be adjusted here. Both of these options are available while recording is active or inactive. You may [Shift-Left-Click] the record button to reset the input level, otherwise the last setting will remain in effect.

Input Monitoring

Input monitoring is dependent on the audio device driver abilities. Some devices have control applets for adjusting various parameters including how the device monitors incoming signals. Some devices allow you to directly monitor the incoming signal at the device outputs or not, and/or allow signal routing to separate monitor outputs. In many cases, turning off device monitoring, and monitoring from the source signal at the mic preamp or mixer output is probably the most familiar way to record in the *SAWStudio* environment.

If your system is capable of low latency driver performance, you have other powerful options available to monitor directly within the *SAWStudio* virtual environment, with no need for external mixers or signal routing. These options require that your system and audio card drivers are capable of stable glitch-free performance with buffer settings of 3 x 128 or lower. 3 x 64 is a great choice for virtual realtime signal monitoring. The *Out* and *In* buffer sizes should be set the same. The *In-buffer-count* should be set to 4 or higher and will not add to the monitor latency. The *Out-buffer-count* does add to the monitor latency and should set as low as possible while still maintaining stable system operation. Only a few audio card drivers are capable of this performance using the MME driver model. Most will require you to use the ASIO driver model to approach these low latencies.

The record meter input assignment allows you to select a *Stereo Device*, or *Mono Device*. Either of these selections will offer monitoring capabilities with the use of the *Tape-Style Auto Audio-Monitoring Switching* options found under the *Options* menu.

Record Meter Peak Reset

🖱   [Left-Clicking] in the Record Meter LED display area will display a popup menu for clearing meter peaks as follows:

Clear Current Rec Meter Peaks
Clears the current record meter peak displays.

Clear All Rec Meter Peaks
Clears all record meter peak displays.

File Naming

You may record without entering a filename. *SoundFile View* recording will create an automatic default name when you press the *SF Record* button as follows:

- If no default *Record SoundFile* path has been setup in the *File Path Setup* dialog box under the *Options* menu, and no current session name exists, then a file named **Untitled_SF.wav** will be placed in the *Audio* folder created in the **SAWStudio** program folder, for example **C:\SAWStudio\Audio\Untitled_SF.wav**. If a current session name exists, then that path and name will be used as a base, for example **D:\Projects\CurSession_SF.wav**. The **_SF** is added to denote *SoundFile* recording.

- If a default *Record SoundFile* path has been setup in the *File Path Setup* dialog box under the *Options* menu, and no current session name exists, then a file named **Untitled_SF.wav** will be placed in that folder, for example **D:\Audio\Untitled_SF.wav**. If a current session name exists, then that name will be used as a base and appended to the default path instead of **Untitled_SF.wav**, for example **D:\Audio\CurSession_SF.wav**. The **_SF** is again added to denote *SoundFile* recording.

The last used name will be remembered the next time you press the *SF Record* button within the same session. Closing the session and/or opening a new session will clear the last used soundfile record name.

The current soundfile record file name is displayed as a label on the record meter during *SoundFile View* recording.

SoundFile Setup Options

🖱   [Left-Clicking] in the *Setup* zone at the top of the *Record Remote Transport* window displays a *Record Setup* window. Here you may view and override the default auto naming if desired. It is recommended that you take control of the naming and pathing of these files.

     The *Record Setup* window also displays current *SampleRate*, and *Bit Resolution* settings for the *SoundFile View*. These settings are not associated with the *MultiTrack* and will not affect or change current session parameters. [Left-Clicking] in any of these zones, will display a popup list of available choices. [Left-Clicking] any choice will make that the current setting for that parameter.

Other SoundFile View Record Options:
Activating Record In SoundFile View

5.2.2 Activating Record In SoundFile View

🖰 [Left-Clicking] on the *Rec Rdy* button activates the recording meter without writing data to disk, so that levels and adjustments can be set prior to recording.

⌨/🖰 [Left-Clicking] on the *Rec* button begins immediate recording. SRP recording is not used in *SoundFile View* so the *SRP* button is inactive while recording here. As you record in *SoundFile View*, the file you are recording to will be loaded and displayed in the *SoundFile View* window. The cursor will jump to the end position, and a *Marked Area* will begin displaying and expanding to indicate the progression of the recording.

When the record meter is active, pressing the [Enter] key also begins recording, and the [Spacebar] stops the operation.

🖰 [Left-Clicking] the *Stop* button stops the recording. The waveform updates and the *Marked Area* is ready for you to adjust and create a *Region* with if you desire.

☞ To add a region to the *MultiTrack*, see *Editing And Control* under Using the Soundfile View .

Record Retake In SoundFile View

🖰 [Left-Clicking] the *Retake Zone* in the record panel while recording in the *SoundFile View* will display a menu of three choices:

➢ **ReTake To Last Record Position**
This option removes the last recorded soundfile data and resets the file pointers for each active file to the last punch-in position.
⌨ Press the [Backspace] key to perform the same function.

➢ **ReTake To Current SF Cursor Position**
This option splits the last recorded soundfile at the soundfile cursor position and removes the right half, resting the file pointers to this same position.
⌨ Press [Shift-Backspace] to perform the same function.

➢ **ReTake All**
This option clears all soundfile data associated with the active record files and resets the file pointers to the beginning of the file. Be careful, these options are all final and destructive.
⌨ Press [Ctrl-Backspace] to perform the same function.

Other SoundFile View Record Options:
SoundFile View Record Setup

6   Using The MultiTrack

6.1   Overview

6.1.1 MultiTrack Overview

The *MultiTrack View Window* is the core of the **SAWStudio** editing environment. This is the place for assembling the entire session along a timeline style interface. This is an extremely powerful and complex window with many commands and modes. Most of your work will be done right here.

The *MultiTrack View Window* displays *Input tracks*, *Return tracks*, *Output tracks*, a *Video track*, and a *Control track* in its center editing area. This area also contains track number and label display zones on the left side.

The *Input Tracks* are used for placing your source audio region data to be edited and played sequentially along the time line.
Return Tracks control the patching and mixing of effects normally fed by the aux sends on each of the *Input Tracks*. These tracks contain no region entry data, but may contain automation data.

The *Output Tracks* control the overall master levels and global effects of each of the output devices. *Input*, *Return, and Output Tracks* may be assigned to different *Output Tracks* as a final destination. These tracks contain no region entry data, but may contain automation data.

The *Video Track* is used for placing your source video region data, to be adjusted and played sequentially along the time line, in sync to *MultiTrack* audio playback.
The *Control Track* is used to place *Control Entries* that can influence the *MultiTrack* play and record functions and also send MIDI commands to external devices.
The window has a top-client area which contains displays, control zones and buttons and a left-client area which also contains control zones.

The *MultiTrack Input Tracks* each have eight layers. Multiple versions of audio edits may be stored on each layer, but only the top layer becomes part of the playback.
Each button or zone on this window can be controlled through a combination of mouse clicks and keyboard commands, along with the three shift modifier keys (*Shift*, *Ctrl*, *Alt*). Learning the operation of this window is crucial to efficient editing and session work in the **SAWStudio** environment.

Before continuing this section, it is strongly recommended that you thoroughly read and understand the section on *Navigation* so that you are comfortable with the interlinking between all of the separate windows in **SAWStudio**. We will be reviewing *MultiTrack* navigation techniques in the *Interface* section of the helpfile.

6.2 Interface

6.2.1 MultiTrack Top-Client Area

Transport Controls

↷   [Left-Clicking] the transport control buttons controls playback operations. The buttons from left to right are, *Stop*, *Play*, *PlayMark* and *PlayLoop.*

AutoRewind

↷   [Left-Clicking] the *AutoRewind* button will cause the *MultiTrack* to auto rewind to the original start position after playback is stopped. You may activate or deactivate this button during playback. If you engage the Auto-Rewind switch during playback while pressing the [Shift-Key], the original rewind position is reset to the current playback cursor position. *AutoRewind* mode saves with the preferences*.*

Grid Zone

Pressing the [G] key toggles the snap-to-grid on and off. When this option is on, two vertical bars will surround the current time mode display text under the time display area (*Grid Zone*), and the cursor will snap to invisible grid points based on the grid size set for each timeline mode. Moving entries will also snap along the grid points forcing the entries to start on an exact grid point. This option saves with the preferences.

[Right-Clicking] in the *Grid Zone* will toggle the *Grid Mode* on and off. [Left-Clicking] the *Grid Zone* will popup the grid settings and toggle the *Grid Mode* on if it is currently off.

Locate Point Zones

Five *Locate Point Zones* are available to quickly mark and locate areas in the *MultiTrack*. [Shift-Left-Clicking] one of the first four zones will set the current cursor position as a *Locate Point*. [Ctrl-Left-Clicking] one of the first four zones will clear the current *Locate Point*.

[Left-Clicking] the zone again at any time will jump the cursor to this location. The *Locate Points* may be set or used during playback. These save with the session.

The last zone displays a popup menu of 30 *Locate Point* choices and options. The available locate point options are: Set, Clear and Rename. You can also use [Shift-Click] to set a point directly or [Ctrl-Click] to clear a point directly. When setting a point, the name dialog automatically pops up to facilitate setting and naming in one quick operation. You may set and name live during playback. Locate points will display their position in the current timeline format.

[Alt-Left-Clicking] while selecting a *Locate Point* will mark from the current position to the new position at the same time the jump is made.

Pressing [Alt-NumPad Keys 1-9] will jump to *Locate Points* 1-9. Pressing [Alt-NumPad Key 0] will jump to *Locate Point* 10.

Mode Selection Buttons

[Left-Clicking] a mode selection button toggles different *MultiTrack* control and display modes *On* and *Off*. The buttons are *Select Mode*, *Wave Display Mode*, *Automation Mode*, and *Offset Mode.*

☞ The *Wave Display Mode* is saved with the preferences.

Position Readout

The *Position Readout* displays the current *MultiTrack or SoundFile View* (whichever is the active window) position in *Time, Samples*, *Smpte* or *Tempo*. The different display modes are selected from the *TimeLine* menu.

[Right-Clicking] in the *Position Readout* will toggle between the current and the last selected time display mode. For example, if *Tempo Mode* is selected from the *TimeLine* menu, then *Smpte Mode* is selected, [Right-Clicking] in the *Position Readout* will toggle between the two modes.

The keyboard shortcut for this feature is [Ctrl-T].

While in Smpte Mode you may [Left-Click] in the *Position Readout* to display the *Input Smpte Dialog Box*. Entering a SMPTE position will jump the *MultiTrack* cursor to that position when the dialog box is closed without canceling.

Marked Time / Relative Time Readout

The *Marked Time/Relative Time* readout displays the length of the current *MultiTrack or SoundFile View Marked Area* (whichever is the active window), if one exists, or the relative difference between two points on the waveform as the mouse is dragged.

MT Load Readout

The *MT Load Readout* displays the CPU load during *MultiTrack* playback. As numbers climb closer to 100%, real-time playback operations will not be possible.

Src Load Readout

The *Src Load Readout* displays the percentage load of the data gathering routine that reads and prepares the audio data from the disk or RAM and places it into the *MultiTrack* source track buffers. If this routine is keeping fully ahead of the *MultiTrack* and sound card demands, then the value will hover around 0%. If this routine is having difficulty keeping up, the value will rise and stop playback as it reaches 100%.

Solo Mode Light

The *Solo Mode* light will flash as an indicator when any *Solo* switch is activated.

🖰   [Left-Clicking] the light automatically clears all active *Solo* switches.

🖰   [Left-Clicking] on the *Solo Light* when no solo switches are active turns on *Hot Track Solo Mode.* The light turns solid red and the current *Hot Track* is soloed. Changing to another *Hot Track* automatically causes the solo to follow, always keeping the *Hot Track* soloed. The solo buttons are locked out when this mode is active. You may change *Hot Tracks* from the *MultiTrack*, *Full View* or *Zoom View* mixers.

🖰⌨   [Shift-Left-Clicking] on the *Solo Light* when no solo switches are active turns on *Hot Track Solo Mode,* keeping the Return Channels active so you can hear the Return effects. Each time you switch to a new *Hot Track* it will react to the [Shift] key, so you can switch the Returns on and off at will as you jump around by pressing the [Shift] key or not.The light turns solid red and the current *Hot Track* is soloed. Changing to another *Hot Track* automatically causes the solo to follow, always keeping the *Hot Track* soloed. The solo buttons are locked out when this mode is active. You may change *Hot Tracks* from the *MultiTrack*, *Full View* or *Zoom View* mixers.

🖰   [Left-Clicking] on the *Solo Light* again, turns this mode off.

Sync Light

This light flashes yellow whenever a trigger mode is activated and waiting for sync. The *Mark/Relative Time* display changes to a *Waiting For Sync* display and shows the incoming timecode reading during the lock-up phase. When the trigger point is reached, the *Sync Light* turns green.
The *Sync Light* will also turn green during any operation that is generating sync.

Other MultiTrack Interface Topics:
MultiTrack Left-Client Area
MultiTrack WaveForm Display Area

6.2.2   MultiTrack Left-Client Area

Track Locator Zone

🖰   [Left-Clicking] the *Track Locator* zone in the top corner pops up a menu listing of all possible tracks, with named labels, allowing you to instantly jump to any particular track by [Left-Clicking] on your selection. The *Zoom, Wide* and *Full Mixer Views* (optional) will follow the new *Hot Track* selection.

Mixer Link Zones

🖰   [Left-Clicking] the *Mixer Link* control zones instantly jumps to channel sections on the current *Zoom Mixer View*. The zones from top to bottom are, *Input/Attenuator*, *Eq*, *Dynamics*, *Fx*, *Aux Sends*, *Out Assigns*, *Labels*, *Faders*.

Other MultiTrack Interface Topics:
MultiTrack Top-Client Area
MultiTrack WaveForm Display Area

6.2.3   MultiTrack WaveForm Display Area

Hot Track Selection

🖰   [Left-Clicking] in a track selects that track as the new *Hot Track*. The *Zoom, Wide* and *Full Mixer Views* (optional) will follow the new *Hot Track* selection.

⌨   The [Down-Arrow] key or the [Up-Arrow] key increments or decrements the current *Hot Track* by one. Pressing [Shift-Down-Arrow] or [Shift-Up-Arrow] increments or decrements the current *Hot Track* by one page (*MultiTrack* height). Pressing [Ctrl-Down-Arrow] or [Ctrl-Up-Arrow] sets the current *Hot Track* to the first or last track. Pressing [Shift-Ctrl-Down-Arrow] or [Shift-Ctrl-Up-Arrow] key sets the current *Hot Track* to the next or previous section (Inputs, Returns, Outputs). The *Zoom, Wide* and *Full Mixer Views* (optional) will follow the new *Hot Track* selection.

Track Positioning

⌨🖰   [Shift-Left-Dragging] a track number display allows that track to be dragged to a new position out of numerical sequence.

⌨🖰   [Shift-Left-Clicking] a track number when one or more tracks have been selected (track number inversed) will move all selected tracks to this new destination and group them together. For example, to move tracks 8, 10, and 12 up to track position 2, select tracks 8, 10, and 12 by left-clicking in the track numbers, then shift-left-click track 2 as the destination. The new track order will then be set as 1, 8, 10, 12, 2, 3, 4, etc.

☞   If moving toward the top of the *MultiTrack* the top of the new group will reside at the destination track. If moving toward the bottom of the *MultiTrack*, the bottom of the new group will reside at the destination track.

⌨🖰   [Ctrl-Left-Clicking] on any track number automatically arranges all tracks in numerical order.

Play Cursor Positioning

🖰   [Left-Clicking] or [Left-Dragging] in the current *Hot Track* moves the play cursor to the new location.

⌨   The [Left-Arrow] key or the [Right-Arrow] key moves the play cursor one pixel in either direction. The number of samples that represents depends on the current zoom level.

       If *Select Mode* is active, selected entries are automatically snapped to the cursor position.

⌨   The [Tab] key or the [Shift-Tab] key jumps the play cursor to the next or previous *MT Entry*

boundary.

⌨ The [Alt-Left-Arrow] or the [Alt-Right-Arrow] key jumps the play cursor to the next or previous *SoftEdge* boundary. If there is no *SoftEdge* for the current entry, the jumps are to the region boundary, working identical to the *Tab* function.

⌨/🖱 Double-clicking within the *Time Line* display at a specific point causes that point to be centered in the display and makes that the new *MultiTrack View cursor* position. You can also center the current cursor position by pressing the [=] key.

🖱 [Left-Clicking] in the *Time Line* during normal *MultiTrack* playback performs a live jump to the current cursor position, much the same as a *Locate Point* jump during playback.

Scrolling

🖱 [Left-Dragging] and holding the mouse cursor near the *MultiTrack* wave display area edges, scrolls the *MultiTrack* in any direction. Vertical scrolling is active during *MultiTrack* play mode also.

[Left-Clicking] near any edge of this display area initiates a single scroll action.

[Right-Holding] in this display area will change the mouse cursor to a four directional arrow icon. Pushing the mouse *up* or *down* when first engaged will latch a vertical scroll mode. This mode will scroll the window at a speed dependent on how far you push the mouse off the center point which engaged the scroll action. You do not have to keep the mouse moving, just positioned above or below the point which engaged the action. Pushing the mouse *left* or *right* when first engaged will latch a horizontal scroll mode. This mode will scroll the window at a speed dependent on how far you push the mouse off the center point which engaged the scroll action. You do not have to keep the mouse moving, just positioned left or right of the point which engaged the action.

[Left-Clicking] on any of the three jump zones next to the *Zoom* buttons labeled I, R, and O will jump you to first *Input*, *Return*, or *Output* track respectively, and will force the applicable section to the left edge of any open mixer views.

⌨🖱 [Shift-Left-Clicking] in one of these zones will jump to the next track in sequence of that section and keep incrementing until the end of the section is reached, at which time the jump will start at the beginning of the section again. These jumps will follow the physical sequential order regardless of how the tracks are re-arranged.

[Alt-Left-Clicking] in one of these zones jumps you back to the last selected *Hot Track* for that section. This allows you to jump to the output section, for example, and then immediately jump back to the last selected *Hot Track* you were working on in the input or return section.

Adjusting Track Height

⌨ The [Page-Up] and [Page-Down] keys adjust the track height larger and smaller for the entire *MultiTrack*. Pressing [Ctrl-Page-Up] and [Ctrl-Page-Down] adjusts the track height to the maximum and minimum values respectively.

Adjusting Track Waveform Scaling Factor

⌨ The [Shift-Page-Up] and [Shift-Page-Down] keys adjust the scaling factor used to draw the waveform display to a higher or lower value. Raising the value magnifies the display of low level audio data. Pressing [Shift-Ctrl-Page-Up] and [Shift-Ctrl-Page-Down] sets the scaling factor to the maximum and minimum values respectively.

⌨ Pressing [Ctrl] with the numpad keys will change to preset waveform scaling factors, increasing with higher number keys. [Ctrl - Numpad 1] will set the scale back to the minimum (0 dB) value.

⌨/🖱 The [Ctrl-MouseWheel] will also operate the waveform vertical scaling function.

All of these options respond to number-selected tracks.

Transfer to Soundfile View

⌨/🖱 [Double-clicking] on an *MT Entry,* or pressing the [T] key loads and displays the associated *Region*, at its saved zoom levels, to the *SoundFile View* and transfers the cursor position to the same relative position with the *Marked Area* representing the *Region* within the soundfile. This creates a link between the two windows. The *Region* can be auditioned, zoomed, or magnified without breaking the link, however, adjusting either boundary, altering the *Region*, will break the link. Adjusting the cursor position to a new point within the *SoundFile's Marked Area* and then clicking inside the *MultiTrack*, to make it the active window, snaps the *MultiTrack cursor* to the exact relative sample position as selected in the *SoundFile View*.

☞ The double-click feature may be deactivated by selecting *Dbl-Clk Entry Transfer To SoundFile View* from the *MultiTrack* menu. The [T] key option will still be available.

☞ The saved zoom and magnification levels can be overridden by using the *Lock* feature.

Other MultiTrack Interface Topics:
MultiTrack Top-Client Area
MultiTrack Left-Client Area

6.3   Operation - Normal Mode

6.3.1   MultiTrack Playback

⌨/🖱 [Right-Clicking] in the active wave display track area of this view, or pressing the [spacebar] while the *MultiTrack View* window is active will toggle *MultiTrack* playback operations.

Pressing the [Shift] key while starting *MultiTrack* playback using one of the above mentioned methods will internally force all tracks to *MultiTrack* source, for playback of *MultiTrack* data even while the track is assigned to a *Device-In* source. This is a temporary condition for this playback only. All *Device-In* assignments remain intact. This is like an automatic line/tape switch on a more expensive recording console.

⌨/🖱 Pressing the [Enter] key will preload the *MultiTrack*. Playback can then be initiated instantly on cue, with no delay, by pressing the [Enter] key again or clicking *OK* in the displayed message box. Pressing the [Esc] key or clicking *Cancel* will cancel playback.

Playback Using the MultiTrack Top-Client Area

🖱 [Left-Clicking] the *Play* button in the *MT Top-Client Area* will begin immediate playback.

[Right-Clicking] the *Play* button toggles *Live Input Mode* on and off.

[Left-Clicking] the *Stop* button will stop playback.

[Left-Clicking] the *PlayMark* button will play back a *Marked Area* if one exists. If the *MultiTrack*

View cursor is outside of the *Marked Area*, playback begins from the beginning of the *Marked Area* and plays back the entire area. If the cursor is within the boundaries of the *Marked Area* however, playback begins at the cursor position and plays to the end of the area.

[Left-Clicking] the *PlayLoop* button will loop playback of a *Marked Area* if one exists. If the cursor is outside of the *Marked Area*, playback begins from the beginning of the *Marked Area* and plays back and loops the entire area. If the cursor is within the boundaries of the *Marked Area* however, playback begins at the cursor position and plays to the end of the area and loops back to the beginning.

🕐 *MultiTrack* playback is responsive to selected track groups. If one or more tracks are selected, then only those tracks will play. This enhances preload time and processing time because all un-selected tracks are bypassed completely. Use this option in place of soloing for an instant and quick repeated playback within a complex session. Press [Ctrl] when activating playback, to bypass the selection and play all tracks leaving the selection group intact. You may also freely select tracks while playback is active for use with layer switching. See *Selecting Tracks* .

Other Normal Mode Operation Topics:
MultiTrack Editing And Control - WaveForm Display Area
MultiTrack Editing And Control - Track Number / Label Display Area

6.3.2   MultiTrack Editing And Control - WaveForm Display Area

Waveform Display Mode

🖑 [Left-Clicking] the *Wv* button in the top-client area of the *MultiTrack* toggles *Waveform Display Mode*.

🖑 [Right-Clicking] the *Wv* button in the top-client area of the *MultiTrack* activates a special display mode that shows automation entries dimmed overtop of the waveform normal display. This allows you to see automation entries while still being free to make control adjustments without actually writing automation data. A red outline around the *Wv* button indicates that this special view mode is active. When the normal *Automation* mode is engaged, the automation entries will display in full color over the dimmed waveform display and automation writing will be engaged as normal.

⌨ Pressing the [W] key in the *MultiTrack View* toggles *Waveform Display Mode*.

Marking Areas

Marked Areas will be displayed in the *Marked Area Readout* in the top-client area of the *MultiTrack*.

🖑 [Left-Dragging] in the *TimeLine* display area marks and highlights the area included in the drag. The *Marked Area* is displayed inversed on the current *Hot Track*. If a *Marked Area* already exists, this action serves to extend or shrink the closest boundary to the current drag position.

🖑 [Shift-Left-Dragging] in the *TimeLine* display area near either the begin or end position of an already existing *Marked Area,* will drag the marked area to a new location while maintaining the *Marked Area* size.

⌨ The [B] key marks the begin point of a *Marked Area*. The [E] key marks the end point. If a *Marked Area* already exists, these options serve to extend or shrink the existing *Marked Area* size.

☞   If *Play Mode* is active, pressing the [B] key starts a live marking update on the *HotTrack*, and pressing the [E] key stops the growing marked area. You may continue to press the [E] key to expand the area to the current cursor position. Pressing the [B] key again, starts the live update of a new area.

⌨   Pressing [Shift-B] will adjust the begin position of an already existing *Marked Area* to the current cursor location and automatically shift the end position to maintain the same *Marked Area* size. Pressing [Shift-E] will adjust the end position of an already existing *Marked Area* to the current cursor location and automatically shift the begin position to maintain the same *Marked Area* size.

⌨   Pressing [Ctrl-B] or [Ctrl-E] will exactly mark the entire *MT Entry* under the mouse cursor on the current *Hot Track*.

⌨   Pressing [Alt-B] or [Alt-E] will exactly mark the entire *MT Entry* under the mouse cursor on the current *Hot Track* including its softedges.

⌨🖰   Pressing [Ctrl] while dragging a *Marked Area* will exactly mark the entire *MT Entry* under the mouse cursor on the current *Hot Track*.

⌨   Pressing [Shift End] marks from the current cursor position to the end of the session.

⌨   Pressing [Alt End] marks the entire track no matter where the current cursor position is.

⌨   Pressing [Ctrl-Left-Arrow] jumps the cursor to the *Mark Begin* position of a *Marked Area*. [Ctrl-Right-Arrow] jumps to the *Mark End* position of a *Marked Area*.

Clearing A Marked Area

🖰   [Right-Clicking] in the *TimeLine* display area will clear any *Marked Area*.

⌨   The [C] key clears the *Marked Area*.

Moving Marked Areas

⌨🖰   When in normal display mode, [Shift-Left-Dragging] a *Marked Area* on the *MultiTrack* will slide the area forward or backward. All *MT Entries* and automation entries within the area will be affected. If the current *Hot Track* is also a selected track, all selected tracks will be affected. If the *Marked Area* begins or ends within a *Region* boundary, the *Region* will be split at the area begin or end position depending on the direction of the slide.

Removing Marked Area Entries

⌨   The [Delete] key will split and remove all entries within a *Marked Area* on the current *Hot Track* without affecting following entries. Pressing [Shift-Delete] will split and remove all entries within a *Marked Area* on the current *Hot Track* and pull following butt-spliced entries forward. Pressing [Ctrl-Delete] will split and remove all entries within a *Marked Area* on the current *Hot Track* and pull all following entries forward.

Adding MT Entries To The MultiTrack

⌨   Pressing the [Insert] key will add the currently selected *Region* from the *Regions View* to the *MultiTrack* current curser position.

Conflicts at the new destination position are handled as follows:

- If the begin boundary of the new entry overlaps the end boundary of the existing entry, the new entry will be butt-spliced to the end of the existing entry.
- If the end boundary of the new entry overlaps the begin boundary of the existing entry, the new entry will be butt-spliced to the front of the existing entry.

⌨ Pressing [Alt-Insert] will insert the currently selected *Region* from the *Regions View* to the *MultiTrack* current curser position, overwriting any existing data and adjusting existing *Region* boundaries accordingly. If *Automation Mode* is active, then existing automation is preserved.

☞ If the Library Lock function is active any *Library View*, the data is selected from the *Library View* instead of the *Region View*.

For more information:
- See *Using The SoundFile View - Adding MT Entries To The MultiTrack Using Drag And Drop*
- See *Using The Regions View - Adding Regions To The MultiTrack*
- See *Using Library Views - Linking Library Entries Directly To The MultiTrack*

Adding Entries Within The MultiTrack Based On MT Marked Areas

⌨🖰 With a *Marked Area* defined in the *MultiTrack View*, you can easily add a new *MT Entry* by [Alt-Left-Clicking] anywhere in the *MT Marked Area*. This will change the mouse pointer to a drag-and-drop icon, allowing you to move the pointer to visually position the placement for the new entry on any visible track. [Left-Clicking] will drop the newly created entry in place. The default name for the entry will be the original region name and a unique number identifier in brackets. As the new entry is being added to the *MultiTrack*, a corresponding *Region* will automatically be added to the *Regions View* window in alphabetical order.

If the size of a new entry conflicts with existing entries on the track, a warning message is displayed indicating that the entry is too large, giving you the option to continue anyway, or cancel the operation. Continuing the operation will move all conflicting entries forward in their relative positions, butt-splicing the end boundary of the new entry with the begin boundary of the first conflicting entry.

[Shift-Left-Clicking] when dropping the newly created entry in place will insert and overwrite any existing data, eliminating entry conflicts.

🖰 You may cancel a drag-and-drop operation by [Left-Clicking] anywhere outside the *MultiTrack View* window.

☞ If the *MultiTrack View* is in *Automation* mode, this option is not functional and the *Marked Area* is used to manipulate automation entries.

⌨ [Ctrl-C] can be used to copy a *Marked Area* defined in the *MultiTrack View,* instantly creating a new region. The region is automatically selected in the *Regions View* allowing you to instantly follow up with an [Insert] or [Shift-Insert] keystroke to paste the data to a new location.

Altering MT Entry Boundaries

⌨🖰 [Alt-Left-Dragging] grabs the nearest *MT Entry* boundary and allows you to extend or shrink it. The [U] key does the same adjustment to the current cursor position. This operation only affects the current entry.

Grabbing the left boundary of a butt-splice and [Alt-Shift-Left-Dragging] extends or shrinks the left *MT Entry* and automatically adjusts the following butt-spliced positions to remain attached. Pressing [Shift-U] does the same adjustment to the current cursor position. This operation does

not alter edit points of the following entries.

Grabbing either boundary of a butt-splice and [Alt-Ctrl-Left-Dragging] extends or shrinks both entries, keeping them attached and keeping the overall time sync unaffected. Pressing [Ctrl-U] does the same adjustment to the current cursor position.

☞ If the current *Hot Track* is also a selected track, all selected tracks will be affected. Be careful that all selected tracks have associated entry boundaries at the cursor position or you may obtain unexpected results on certain tracks.

Altering MT Entry Data Within Boundaries

⌨🖱 [Shift-Right-Dragging] within an *MT-Entry* will slide the data within the entry boundaries without affecting the entry size or position. This can be very helpful when making slight adjustments on various tracks to align horn or vocal parts, for example. This function will respond to number-selected tracks for group editing. The group editing function can be temporarily overridden by using the [Alt] modifier key while executing the command.

Moving And Copying Individual MT Entries

⌨🖱 [Shift-Left-Dragging] an entry will move its position along the timeline on the current track. [Ctrl-Left-Dragging] an entry will move it up and down to a new track without altering its sync position. Beginning either type of move and then releasing the [Shift] or [Ctrl] key will free the constraints and allow you to position the entry anywhere. Tapping the [Right Mouse] button during the move will set a copy flag and actually duplicate the entry at the new location, leaving the original intact.

Conflicts at the new destination position are handled as follows:

- If the begin boundary of the new entry overlaps the end boundary of the existing entry, the new entry will be butt-spliced to the end of the existing entry.
- If the end boundary of the new entry overlaps the begin boundary of the existing entry, the new entry will be butt-spliced to the front of the existing entry.
- If both boundaries of the new entry overlap the existing entry, then you will be prompted to insert the new entry splitting and overwriting the existing data or cancel the operation.

☞ Automation entries within the SoftEdge extended MT Entry boundaries will be included in the move or copy operation.

⌨🖱 Pressing the [Alt] key as you release the mouse to finish the move forces an insert and overwrite condition for conflicting entries at the destination.

These operations do not require *Select Mode* to be active.

Splitting MT Entries

An *MT Entry* is based on a single *Region*. Splitting an entry automatically moves the original *Region's* end boundary forward to the split point and creates and butt-splices a new *Region* from the split point to the end. The name of the new *Region* is the same as the original with an appended unique identifier number.

⌨ Position the *MultiTrack* cursor at the desired *MT Entry* split point on the current *Hot Track*. Pressing the [K] key will split and keep both entries on the current *Hot Track*. Pressing [Ctrl-K] extends the operation across all tracks.

⌨ Pressing the [R] key will split an *MT Entry* and remove the new entry to the left of the cursor

position on the current *Hot Track* without affecting following entries. Pressing [Ctrl-R] extends the operation across all tracks.

⌨   Pressing the [Alt-R] key will split an *MT Entry* and remove the new entry to the right of the cursor position on the current *Hot Track* without affecting following entries. Pressing [Ctrl-Alt-R] extends the operation across all tracks.

⌨   Pressing the [D] key will split an *MT Entry* and delete the new entry to the left of the cursor position on the current *Hot Track* pulling following butt-spliced entries forward. Pressing [Ctrl-D] extends the operation across all tracks.

⌨   Pressing the [Alt-D] key will split an *MT Entry* and delete the new entry to the right of the cursor position on the current *Hot Track* pulling following butt-spliced entries forward. Pressing [Ctrl-Alt-D] extends the operation across all tracks.

⌨   Pressing the [M] key will split an *MT Entry* and mark the new entry on the left of the cursor position on the current *Hot Track* for *Select Mode*. Pressing [Ctrl-M] extends the operation across all tracks. (When entering *Select Mode* after a series of these operations, use [Shift-S] to retain the marked entries.)

☞   If the current *Hot Track* is also a selected track, all selected tracks will be affected.

Replacing MT Entries

⌨   Placing the MT Cursor on an entry and pressing [Shift-R] will replace the entry with the currently selected *Region Listbox* region. If *Automation Mode* is active when you engage the operation, automation entries are preserved.

Removing Individual MT Entries

⌨   The [Delete] key will delete the entry under the current cursor position without affecting following entries. Pressing [Shift-Delete] will delete the entry under the current cursor position and pull following butt-spliced entries forward. Pressing [Ctrl-Delete] will delete the entry under the current cursor position and pull all following entries forward.

Locating the Nearest Zero-Cross Position

⌨   Pressing the [Z] key in the *MultiTrack View* with the cursor over an *MT Entry* finds the nearest *ZeroCross* lowest energy point within 800 samples on either side of the cursor. The *ZeroCross* point is found by searching the resultant file contents after applying any SampleRate conversion or Vari-Pitch factors first. You may use this function before splitting regions in order to eliminate pops at the split point.

☞   For automatic zero cross detection, choose *Auto Zero Cross* from the *Options* menu. When this mode is active, marking and splitting functions will perform an automatic zero cross detection. This will snap the cursor to the nearest zero cross point before performing the operation.

Using SoftEdge In Normal Mode

Any *MT Entry* may be given a *SoftEdge* value in milliseconds, up to 99,999 milliseconds, which automatically and non-destructively extends it's splice point boundaries in both directions, creating a perfect -6dB ramp live in real-time, with no background or pre-processing stem files written. A special *SoftEdge* display overlay allows you to see the invisible overlap with down-to-the-sample accuracy as sloped lines that ramp through the center of the entry boundaries. The program attempts to trap and

adjust for invalid softedge entries that may be created when editing and adjusting entries with softedges already in place.

✍ **Regarding using SoftEdge:** For the length of each overlap, the track count increases by one, which should be considered to avoid overrunning your machine's track load capabilities.

⌨☞ [Alt-Right-Clicking] or [Left-Right-Clicking] on an *MT Entry* displays the *MT Entry Properties* popup menu.

Set SoftEdge
This option may be used to set a *SoftEdge* on the start, end, or both boundaries of the underlying entry.

➢ **Start-**
Allows you to enter a start *SoftEdge* value to be applied to the begin boundary of the underlying *MT Entry.*

➢ **End-**
Allows you to enter an end *SoftEdge* value to be applied to the end boundary of the underlying *MT Entry.*

➢ **Both**
Allows you to enter a *SoftEdge* value to be applied to both the begin and end boundaries of the underlying *MT Entry*.

➢ **Start Splice**
Allows you to enter a start *SoftEdge* value to be applied to both the begin boundary of the underlying *MT Entry* and the end boundary of the butt-spliced entry before it, effectively creating a crossfade.

➢ **End Splice**
Allows you to enter an end *SoftEdge* value to be applied to both the end boundary of the underlying *MT Entry* and the begin boundary of the butt-spliced entry following it, effectively creating a crossfade.

➢ **Both Splices**
Allows you to enter a *SoftEdge* value to be applied to both the begin and end boundaries of the underlying *MT Entry* and the adjoining boundaries of the butt-spliced entries on both sides, effectively creating two crossfades.

➢ **To Marked Area**
Allows you to set a *SoftEdge* within an *MT Marked Area* as follows:

• If the *Marked Area* contains just the begin boundary of an isolated *MT Entry*, this option will create a start *SoftEdge* only. The value of this *SoftEdge* is determined by the distance between the mark begin position of the *Marked Area* and the begin boundary of the underlying entry.

• If the *Marked Area* contains just the end boundary of an isolated *MT Entry*, this option will create an end *SoftEdge* only. The value of this *SoftEdge* is determined by the distance between the end boundary of the underlying entry and the mark end position of the *Marked Area*.

• If the *Marked Area* contains the splice point of two butt-spliced *MT Entries*, this option will create a crossfade. The value of the start *SoftEdge* is determined by the distance between the mark begin position of the *Marked Area* and the begin boundary of the second entry. The end *SoftEdge* value is determined by the distance between the end boundary of the first entry and the mark end position of the *Marked Area*.

Clear SoftEdge

➢ **Start-**

Allows you to clear a start *SoftEdge* on the begin boundary of the underlying *MT Entry*.

➢ **End-**

Allows you to clear an end *SoftEdge* on the end boundary of the underlying *MT Entry*.

➢ **Both**

Allows you to clear a *SoftEdge* on both the begin and end boundaries of the underlying *MT Entry*.

➢ **Start Splice**

Allows you to clear a start *SoftEdge* value on both the begin boundary of the underlying *MT Entry* and the end boundary of the butt-spliced entry before it.

➢ **End Splice**

Allows you to clear an end *SoftEdge* on both the end boundary of the underlying *MT Entry* and the begin boundary of the butt-spliced entry after it.

➢ **Both Splices**

Allows you to clear a *SoftEdge* on both the begin and end boundaries of the underlying *MT Entry* and the adjoining boundaries of the butt-spliced entries on both sides.

Clearing Multiple SoftEdges

⤷ [Right-Clicking] in the *Label Display* zone displays the *Track Properties* popup menu. [Left-Clicking] the *Clear All (Or Marked) SoftEdges On Current Layer* option allows you to clear all *SoftEdges* on the current layer for the current *Hot Track,* or a *Marked Area* of the current track if one exists. If the current *Hot Track* is one of a group of selected tracks, then this operation will be performed on all selected tracks.

⌨⤷ Pressing [Ctrl] while selecting this option performs this function on all tracks.

⤷ [Left-Clicking] the *Clear All (Or Marked) SoftEdges On All Layers* option allows you to clear all *SoftEdges* on all layers for the current *Hot Track,* or a *Marked Area* of the current track if one exists. If the current *Hot Track* is one of a group of selected tracks, then this operation will be performed on all selected tracks.

⌨⤷ Pressing [Ctrl] while selecting this option performs this function on all tracks.

Creating Automatic CrossFades With SoftEdge

⌨ A crossfade *SoftEdge* can be created by marking an area in the *MultiTrack* across the splice point of two butt-spliced entries, and pressing the [X] key. The *Marked Area* can be balanced around the splice point, or off balanced to create crossfades that favor one side of the splice or the other. If there is no *Marked Area*, the [X] Key creates a *SoftEdge* balanced on both sides of the splice your multitrack cursor is in front of, calculating the length based on the distance from the cursor to the splice point.

If the cursor is tabbed directly to an MT-Entry boundary before using the X-Key crossfade feature, the current crossfade, if any, is cleared and set to zero.

☞ If the current *Hot Track* is also a selected track, all selected tracks will be affected. Be careful that all selected tracks have associated entry boundaries at the cursor position or you may obtain unexpected results on certain tracks.

🕐   The [X] key can also be used to create start or end *SoftEdges* on isolated entries in the same manner without the need to display the *MT Entry Properties* menu.

Using Offset Features

Offset options allow you to easily set an offset position which can then be jumped to at any time.

⌨   When an entry offset has been set, using this entry as the *Key Entry* and pressing [Alt-Backspace] during *Select Mode* move and copy operations causes the offset position to be the reference for the current destination cursor position.

⌨🖱   [Alt-Right-Clicking] or [Left-Right-Clicking] on an *MT Entry* displays the *MT Entry Properties* popup menu.

Set Offset To MT Mark-Beg Position
Allows you to set an internal offset reference for the entry. Set the *Mark Beg* position to the desired offset position within the entry boundaries and select this option.

Jump To Offset
Allows you to jump the cursor to the current offset position.

Clear Offset
Allows you to clear the current offset.
The offsets save with each entry in the edl files.

Using Reverse Audio

⌨🖱   [Alt-Right-Clicking] or [Left-Right-Clicking] on an *MT Entry* displays the *MT Entry Properties* popup menu.

Reverse Audio
Reverse Audio reverses the audio of the *MT Entry* when active. This option responds to multi-selected entries in *Select Mode* also.

☞   Reverse audio entries will display a small white mark in the top left corner of the displayed entry rectangle.

Using Vari-Speed/Pitch

Vari-Speed/Pitch options allow individual *MT Entries* to be played back at different speeds without affecting adjacent entries. Speeding up an entry will also pitch it up and shorten its length, where slowing down an entry will pitch it down and expand the length.

The quality and speed of the *Vari-Pitch* algorithm used is dependant on the choice selected in the *RealTime SampleRate Conversion / Vari-Pitch Quality* option under the *MultiTrack* menu. See the *Menu Reference* chapter for details.

You will be prompted if there is a conflict because of an expanding entry size. You may choose to adjust all following entries to accommodate the expanded size or force the setting to adjust to accommodate the largest expansion it can without moving following entries. Butt-Spliced Entries will be treated as a single group unit. This applies to *Select Mode* multi-entry operations also, and the prompt answer will apply to all entry conflicts that follow.

⌨🖱   [Alt-Right-Clicking] or [Left-Right-Clicking] on an *MT Entry* displays the *MT Entry Properties* popup menu.

Set Vari-Speed
This option allows you to set a *Vari-Speed* factor in .0001 of a percent. Selecting this option displays the *Set Vari-Speed Factor* dialog box where you may type in a value from 50% - 200%.

Sweep Vari-Speed To Destination Value
This option will cause a smooth sweep of the Vari-Speed factor by splitting and adding *Regions* within a *Marked Area*, each with a slightly incrementing or decrementing Vari-Speed value. The *Marked Area* may not span the starting entry boundaries and care must be taken when expanding entries running into the next separated entry. If the desired results are not achieved, simply use the undo option and try again with altered settings.

Set Vari-Pitch
This option allows you to set a *Vari-Pitch* factor in hundredths of a semitone. Selecting this option displays the *Set Vari-Pitch Factor* dialog box where you may type in a value from -12 to +12 SemiTones.

Sweep Vari-Pitch To Destination Value
This option will cause a smooth sweep of the Vari-Pitch factor by splitting and adding *Regions* within a *Marked Area*, each with a slightly incrementing or decrementing Vari-Pitch value. The *Marked Area* may not span the starting entry boundaries and care must be taken when expanding entries running into the next separated entry. If the desired results are not achieved, simply use the undo option and try again with altered settings.

Set Vari-Speed/Pitch To MT Mark End Position
This option calculates a vari-speed/pitch factor based on the *Mark End* position of a *Marked Area*. This is useful if you wish to pitch an entry to an exact position on the *MultiTrack* without knowing the exact percentage pitch factor. Simply mark a small area with the *Mark End* position being at the desired *MT Entry* end position. Using this option will then automatically calculate the correct pitch factor to shrink or stretch the *MT Entry* so that the end boundary adjusts to the *Mark End* position. You may adjust the factor to half or twice the original entry length.

🕐 Since the *Mark End* position is all that is used in this calculation, instead of marking an area, you may also simply place the *MT Cursor* at the desired end boundary position and press the [E] key to set the *Mark End* position before using this option.

☞ When an entry has a vari-speed/pitch factor attached to it, the entry will display a small white mark in the top left corner of the displayed entry rectangle.

Clear Vari-Speed/Pitch
This option clears the vari-speed/pitch factor for the desired *MT Entry*.

☞ When clearing *Vari-Pitch* values, you will be prompted if there is a conflict because of expanding entry size. You may choose to adjust all following entries to accommodate the expanded size or bypass the operation. This applies to *Select Mode* multi-entry operations also, and the prompt answer will apply to all entry conflicts that follow.

Other Normal Mode Operation Topics:
MultiTrack Playback
MultiTrack Editing And Control - Track Number / Label Display Area

6.3.3   MultiTrack Editing And Control - Track Number / Label Display Area

Zooming

⍈ [Left-Clicking] the *Zoom* buttons at the bottom of the label display area will adjust the display resolution in and out.

⌨ The [Plus] and [Minus] keys on the keyboard number pad perform the same function.

⍈ [Right-Clicking] the *Zoom* buttons at the bottom of the label display area opens a zoom selection menu allowing you to go directly to any specific zoom level referenced as Samples per Pixel.

⍈ The MouseWheel can also control the zoom functions in the MultiTrack dependent on the selected option in the *MouseWheel* option in the *MultiTrack* menu.

The NumPad number keys are assigned to zoom levels for the MultiTrack view. The values are as follows:
1 key = 1 sample per pixel
2 key = 4 samples per pixel
3 key = 16 samples per pixel
4 key = 64 samples per pixel
5 key = 256 samples per pixel
6 key = 1024 samples per pixel
7 key = 4096 samples per pixel
8 key = 16384 samples per pixel
9 key = 65536 samples per pixel

☞ The NumLock mode must be active.

When zoomed in below the 64 samples per pixel level, the playback cursor freezes onscreen and automatically resets the play position back to the starting point.

⌨ Pressing [Shift-T] allows you to transfer to the actual stopped playback position while in this close zoom if desired.

Selecting Tracks

⍈ [Left-Clicking] or [Left-Dragging] in the *Track Number* zone area toggles track number-selection *on* and *off*.

⌨⍈ [Alt-Left-Clicking] in the *Track Number* zone area toggles track number-selection from the last toggled track to the current track *on* and *off*. The *Track Number* zone is inversed to display the track as selected.

⍈ [Right-Clicking] in the *Track Number* zone area toggles all number-selected tracks *off*.

☞ Whenever tracks are number-selected using the *Track Number* zone, the *MultiTrack* mouse pointer will change to indicate that tracks are selected. Many functions respond to number-selected tracks and this mouse pointer serves as a reminder that tracks that may not be in view are currently selected, so you may clear those selections if desired before executing a function.

⌨⍈ [Alt-Left-Clicking] in the *Label Display* zone allows you to toggle special playback track label-selection on or off. The *Label Display* zone is inversed to display the track as selected.

⌨⍈ [Alt-Left-Dragging] the mouse in the *Label Display* zone continues label-selecting special playback tracks. The *MultiTrack* will scroll up or down when you reach the top or bottom.

⌨⍈ [Alt-Ctrl-Clicking] the mouse in the *Label Display* zone will label-select all tracks between the last selected track and the current one.

⌨🖰 [Alt-Shift-Clicking] the mouse in the *Label Display* zone of any label-selected track will transfer and add all the selections to the track numbers for a quick way to group editing functions on the fly.

⌨🖰 [Alt-Right-Clicking] in the *Label Display* zone toggles all special label-selected playback tracks off.

☞ Whenever tracks are selected using the *Label Display* zone, the tracks are not included in group editing functions, but are only active as special playback groups.

🕐 *MultiTrack* playback is responsive to both number-selected and label-selected track groups. Only those tracks within the group will play. This enhances preload time and processing time because all un-selected tracks are bypassed completely. Use this option in place of soloing for an instant and quick repeated playback within a complex session. Press [Ctrl] when activating playback, to bypass the selection and play all tracks leaving the selection group intact. You may also freely select tracks while playback is active for use with layer switching.

Using Track Group Menu Options

🖰 [Right-Clicking] on the *MultiTrack* title bar displays the popup *Group* menu. This menu allows you to save and recall preset track groups. There are 32 group preset assignments and a few special groups for *MultiTrack* section selections (ie inputs, returns, and outputs). The preset groups are shared between the *MultiTrack* and the mixer windows.

🖰 [Left-Clicking] on one of the 32 group preset options clears any existing number-selected tracks and number-selects that group of tracks.

⌨🖰 [Alt-Left-Clicking] on one of the 32 group preset options clears any existing label-selected tracks and label-selects that group of tracks.

🖰 [Left-Clicking] on the *Select All* option number-selects all input, return, and output mixer channels. [Left-Clicking] on the *Select All Inputs, Select All Returns,* or *Select All Outputs* option number-selects the corresponding mixer channels.

⌨🖰 [Alt-Left-Clicking] on the *Select All* option label-selects all input, return, and output mixer channels. [Left-Clicking] on the *Select All Inputs, Select All Returns,* or *Select All Outputs* option label-selects the corresponding mixer channels.

⌨🖰 [Shift-Left-Clicking] one of the 32 group preset options will set the group to the current number-selected tracks and prompts for a group name. This will overwrite any previous group entries in that preset.

⌨🖰 [Ctrl-Left-Clicking] one of the 32 group will blend the preset with any currently number-selected tracks.

⌨🖰 [Ctrl-Alt-Left-Clicking] one of the 32 group will blend the preset with any currently label-selected tracks.

When you are finished with the group operation, simply [Right-Click] in any track number zone to clear number-selected groups, and [Alt-Right-Click] in any track label zone to clear label-selected groups. The group assignments will save with the edl and mix templates.

Re-Ordering Tracks

⌨🖰 [Shift-Left-Dragging] in the *Track Number* zone area allows a track to be dragged to a new location out of order from a normal sequential count.

✎👆 [Shift-Left-Clicking] a track number when one or more tracks have been selected (track number inversed) will move all selected tracks to this new destination and group them together. For example, to move tracks 8, 10, and 12 up to track position 2, select tracks 8, 10, and 12 by left-clicking in the track numbers, then shift-left-click track 2 as the destination. The new track order will then be set as 1, 8, 10, 12, 2, 3, 4, etc.

☞ If moving toward the top of the *MultiTrack* the top of the new group will reside at the destination track. If moving toward the bottom of the *MultiTrack*, the bottom of the new group will reside at the destination track.

✎👆 [Ctrl-Left-Clicking] on any track number automatically arranges all tracks in numerical order.

Labeling Tracks

👆 [Left-Clicking] in the *Label Display* zone displays a track label dialog box, allowing a name for the track to be entered. You must press the [Enter] key or click the OK button on the title bar for the name to be accepted.

✎👆 [Ctrl-Left-Clicking] in the *Label Display* zone allows you to enter labels for sequential tracks. Pressing the [Enter] key or clicking the OK button on the title bar after a label name has been entered will automatically prompt for a label name for the next track. To close or cancel the label dialog box, [Left-Click] either the *close* button or outside of the box, or press the [Esc] key.

☞ Track labels may be entered even while playback is active. If record meters are open, the engine must be stopped to enter labels due to the already opened and linked record files.

Adjusting Track Special Properties

👆 [Right-Clicking] in the *Label Display* zone pops up a special properties menu of track options.

Set MT Entry Texture
👆 This option pops up a list of colored texture choices for the *MT Entries* on the track. [Left-Clicking] an option selects the texture to be used for the current layer of the current track.

✎👆 [Shift-Left-Clicking] an option selects the texture to be used for all layers of the current track. If the current track is one of a group of selected tracks, then all selected tracks are processed.

[Ctrl-Left-Clicking] an option selects the texture to be used for all tracks. [Ctrl-Shift-Left-Clicking] an option selects the texture to be used for all layers of all tracks.

Copy Track (Or Marked Area) To
👆 This option allows you to copy an MT *Marked Area* to another layer. If the current *Hot Track* is one of a group of selected tracks, then this operation will be performed on all selected tracks.

✎👆 [Shift-Left-Clicking] performs this function copying to all layers.

✎👆 [Ctrl-Left-Clicking] performs this function on all tracks.

☞ New *Regions* will only be created for *Regions* which do not completely fit within the marked area. If there is no marked area, the entire track is copied, using the current *Regions* unmodified.

Copy Selected MT-Entries To
This option allows you copy selected *MT Entries* in *Select Mode* to another layer. [Left-Clicking] performs this function on the current *Hot Track* or selected tracks only.

[Ctrl-Left-Clicking] performs this function on all tracks.

Copy Texture To
This option allows you to copy the current texture to another layer. [Left-Clicking] performs this function on the current track only.

[Ctrl-Left-Clicking] performs this function all tracks.

Copy All (Or Marked) Automation To
This option allows you to copy the entire track automation or automation within an *MT Marked Area* to another layer. [Left-Clicking] performs this function on the current *Hot Track* or selected tracks only.

[Shift-Left-Clicking] performs this function copying to all layers.

[Ctrl-Left-Clicking] performs this function on all tracks.

Clear All Entries On Current Layer
This option allows you to clear all *MT Entries* on the current layer for the current *Hot Track*.

Pressing [Ctrl] while selecting this option performs this function on all tracks.

Clear All Entries On All Background Layers
This option allows you to clear all *MT Entries* and automation entries on all hidden layers, leaving the current top layer untouched.

Pressing [Ctrl] while selecting this option performs this function on all tracks.

Clear All Entries On All Layers
This option allows you to clear all *MT Entries* on all layers for the current *Hot Track*.

Pressing [Ctrl] while selecting this option performs this function on all tracks.

Clear All (Or Marked) SoftEdges on Current Layer
This option allows you to clear all *SoftEdges* on the current layer for the current *Hot Track,* or a *Marked Area* of the current track if one exists. If the current *Hot Track* is one of a group of selected tracks, then this operation will be performed on all selected tracks.

Pressing [Ctrl] while selecting this option performs this function on all tracks.

Clear All (Or Marked) SoftEdges On All Layers
This option allows you to clear all *SoftEdges* on all layers for the current *Hot Track,* or a *Marked Area* of the current track if one exists. If the current *Hot Track* is one of a group of selected tracks, then this operation will be performed on all selected tracks.

Pressing [Ctrl] while selecting this option performs this function on all tracks.

Slip Track To Cursor Position On Current Layer (Marked Area)

🖰 This option will slip a *Marked Area* of track forward or backward to the MT cursor position on the current layer.

⌨🖰 Pressing [Ctrl] while selecting this option will affect all tracks. If the current *Hot Track* is part of a group of selected tracks, all selected tracks will be affected. This option adjusts all entries and automation within the *Marked Area.* If the *Marked Area* begins or ends within a region boundary, the region will be split at the area begin or end position depending on the direction of the slip.

☞ Whenever the video track is include in the slip track operation, video and audio will be moved together. Both types of entries will contribute to movement limits resulting from bumping into other nearby entries. All movements will be forced to frame boundaries to maintain proper video entry placement.

Slip Track To Cursor Position On All Layers (Marked Area)

🖰 This option will slip a *Marked Area* of track forward or backward to the MT cursor position on all layers.

⌨🖰 Pressing [Ctrl] while selecting this option will affect all tracks. If the current *Hot Track* is part of a group of selected tracks, all selected tracks will be affected. This option adjusts all entries and automation within the *Marked Area.* If the *Marked Area* begins or ends within a region boundary, the region will be split at the area begin or end position depending on the direction of the slip.

☞ Whenever the video track is include in the slip track operation, video and audio will be moved together. Both types of entries will contribute to movement limits resulting from bumping into other nearby entries. All movements will be forced to frame boundaries to maintain proper video entry placement.

Remove Silence From Track (Or Marked Area) - Automatic

🖰 This option will strip silent sections of audio from solid tracks of data, immediately splitting and removing the silent regions. This option also respond to selected tracks and will perform the operation on all selected tracks at once. You may also mark an area on the *MultiTrack* to limit the range of the operation. These options use default settings for the *Attack*, *Release* and *Threshold* settings applied to the algorithm. These may be set and saved with the preferences. If you activate the *Gate* on any track, you may override the settings for that track by adjusting the *Gate* settings.

Remove Silence From Track (Or Marked Area) - Split/Mark

🖰 This option turns on *Select Mode* and selects (marks) the regions to be removed. You get to look at the details and when ready, simply press the [Delete] key to remove them. This option also respond to selected tracks and will perform the operation on all selected tracks at once. You may also mark an area on the *MultiTrack* to limit the range of the operation. These options use default settings for the *Attack*, *Release* and *Threshold* settings applied to the algorithm. These may be set and saved with the preferences. If you activate the *Gate* on any track, you may override the settings for that track by adjusting the *Gate* settings.

Set Defaults From HotChan Gate [-.005 sec Att, 1.0 sec Rel, -20.00 db Thrsh]

🖰 The Remove Silence options use default values for the Attack, Release, and Threshold settings applied to the algorithm. The current defaults are displayed on this menu item. Adjusting the Attack, Release, and Threshold settings on the Hot Channel dynamics gate, and selecting this

option will change the default settings to the adjusted values. These may be saved with the preferences.

Disable Track

⍋   This option disables an input track and removes it from the MultiTrack load.

⌨⍋   Pressing the [Ctrl] key when activating this option operates on all tracks. Activating this option on one of a selected group of tracks operates on the selected group.

This option saves with the session .edl file.

Enable Track FX Auto Bypass

☞   This option is for Input tracks only.

    When active, this option scans incoming FX data and outgoing FX data, and automatically bypasses the FX processing for that track when both buffers contain all zero data values. This helps give back CPU time to the rest of the MultiTrack during blank track sections. The output buffer scan allows reverb trails to dissipate before bypassing further processing.

⌨⍋   Pressing the [Ctrl] key when activating this option operates on all tracks. Activating this option on one of a selected group of tracks operates on the selected group.

This option saves with the session .edl file.

✋   Regarding the Enable Track FX Auto Bypass function: Be aware that certain plug-ins with meter decays might freeze meter displays because buffer processing has been bypassed and displays might not complete their decay. Also, do not use this option for tracks that alter overall track length like Time Compressors, because those plug-ins must process every buffer to properly output the new length data stream.

Layer 1 Through 8

⍋   These options allow you to select another layer and bring it to the top. The current top layer is displayed with a checkmark. Layers that contain data are displayed with <> beside them. [Left-Clicking] a selection changes the layer for that track. If the current track is one of a group of selected tracks, then all selected tracks are processed.

⌨⍋   [Ctrl-Left-Clicking] changes the layer for all tracks. The Label Display zone displays a small number in the lower left corner indicating which layer is currently on top for that track. If layers other than the current top layer contain data, a small plus sign (+) will display next to the layer number.

🕐   The number keys 1 through 8 at the top of the keyboard can also be used to switch layers on the current Hot Track or selected tracks. Pressing the [Ctrl] key at the same time will switch all tracks to that layer.

Using Layers

    Layers are an amazing bonus for overdubbing multiple takes. For example, during a session, record a first take on Track 1, Layer 1, then switch to layer 2 on the same track by simply pressing the [2] key at the top of the keyboard, and do another take. Record up to seven different takes on different layers, leaving the eighth layer empty where you'll build your final composite take. When you're ready to hear the different takes, during playback simply press the number keys 1-7 to switch live between layers to decide which segments of each take you

wish to use. Mark each segment and copy it down to layer eight. Switch layers, mark the segments and continue building the composite take on layer eight. Bring layer eight to the top as your final take! The other originals are still underneath, untouched for later retrieval.

☞   MultiTrack layers may be switched live on the fly during playback and the new layer will synchronize itself into the loop. This does require the processing threads to be momentarily shutdown while buffers and pointers are switched, so in a dense session, it might force you to increase your latency a bit to keep from causing playback to stop during the transition. If you start playback on a blank layer, the layer can be switched to a layer with data on it, but the data will not be part of the current playback cycle because the track was never initialized into the playback loop. You must stop and restart playback to hear the new layer data.

Other Normal Mode Operation Topics:
MultiTrack Playback
MultiTrack Editing And Control - WaveForm Display Area

6.4   Operation - Select Mode

6.4.1   MultiTrack Operation - Select Mode

Activating *Select Mode* changes the mouse pointer to a square shape with an arrow through it. This mode allows multiple *MT Entries* to be selected and moved, copied and manipulated in various ways. The last entry selected is considered the *Key Entry*. This entry is used as the reference entry for many *Select Mode* operations. The *MultiTrack* is split into two distinct control sections when *Select Mode* is active - The WaveForm Display area, and the TimeLine Display area.

Other Select Mode Operation Topics:
MultiTrack Select Mode - WaveForm Display Area
MultiTrack Select Mode - TimeLine Display Area

6.4.2   MultiTrack Select Mode - WaveForm Display Area

⌨🖱   While *Select Mode* is active, the waveform display area no longer directly controls cursor positioning and playback operations. The cursor position will be frozen for use as a destination point with moving and copying operations. [Ctrl-Shift-Left-Dragging] will override the cursor lock and allow you to re-locate the cursor and change *Hot Tracks.*

Activating Select Mode

⌨/🖱   [Left-Clicking] on the *Select Mode* button or pressing the [S] key toggles *Select Mode on* and *off* and clears all entry selections when activating.

⌨🖱   [Shift-Left-Clicking] on the *Select Mode* button or pressing [Shift-S] toggles *Select Mode on* and *off* and pre-selects the last group of selected entries when activating.

Selecting MT Entries

🖱   [Left-Clicking] on an *MT Entry* selects and highlights it. [Left-Dragging] across multiple entries across multiple tracks selects all entries that lie within the dragged path, regardless of how fast you drag.

⌨🖱   [Alt-Left-Clicking] selects all entries between the last selected entry and the current entry, even

across multiple tracks. When selecting multiple entries in this manner, the starting entry remains the key entry.

⌨/🖱   [Right-Clicking] or pressing the [C] key clears all selected entries allowing for a new selection.

⌨🖱   [Shift-Right-Clicking] clears the current entry only.

⌨   The [End] key selects all entries to the end of the current track starting with the last selected entry. Pressing [Shift-End] selects all entries from the last selected entry (or first entry) to the end of the set of butt-spliced entries on the current *Hot Track*. [Ctrl-End] selects all entries to the end of the current track and down across all following tracks.

The [Home] key selects all entries to the beginning of the current track starting with the last selected entry. Pressing [Shift-Home] selects all entries from the last selected entry to the beginning of the set of butt-spliced entries on the current *Hot Track*. [Ctrl-Home] selects all entries to the beginning of the current track starting with the last selected entry and down across all following tracks.

The [Ctrl-A] key selects all entries on all tracks.

If no entries are selected on the *MultiTrack*, the [End] key selects all entries on the current *Hot Track*.

Moving And Copying MT Entries

⌨🖱   [Shift-Left-Dragging] a selected entry moves all selected entries along the timeline to a new sync position. [Ctrl-Left-Dragging] a selected entry moves all selected entries up or down to a new track without altering sync position along the timeline.

Beginning either type of move and then releasing the [Shift] or [Ctrl] key will free the constraints and allow you to position the entries anywhere.

🖱   [Left-Right-Clicking] during the move will set a copy flag and actually duplicate the entries at the new location, leaving the originals intact.

Conflicts of the key entry at the new destination position are handled as follows:

• If the begin boundary of the key entry overlaps the end boundary of the existing entry, the key entry will be butt-spliced to the end of the existing entry.
• If the end boundary of the key entry overlaps the begin boundary of the existing entry, the key entry will be butt-spliced to the front of the existing entry.
• If both boundaries of the key entry overlap the existing entry, then you will be prompted to insert the key entry splitting and overwriting the existing data or cancel the operation.

Conflicts of the other selected entries at their new destination positions are handled as follows:

• If one or more conflicts exist with any existing entry, you will be prompted to insert the new data, splitting and overwriting the existing data, or cancel the operation.

☞   Automation entries within the SoftEdge extended MT Entry boundaries will be included in the move or copy operation.

⌨   The [Backspace] key will snap all selected entries, aligning the front of the *Key Entry* to the current cursor position on the current *Hot Track*. Pressing [Shift-Backspace] will snap all selected entries, aligning the back of the *Key Entry* to the current cursor position on the current *Hot Track.* Pressing [Ctrl-Backspace] will copy and snap the new copies of all selected entries,

aligning the front of the *Key Entry* to the current cursor position on the current *Hot Track*. Pressing [Ctrl-Shift-Backspace] will copy and snap the new copies of all selected entries, aligning the back of the *Key Entry* to the current cursor position on the current *Hot Track*.The [Insert] key will snap and insert selected entries, aligning the front of the *Key Entry* to the current cursor position on the current *Hot Track*, splitting and overwriting any conflicting entries at the destination. Pressing [Shift-Insert] will snap and insert selected entries, aligning the back of the *Key Entry* to the current cursor position on the current *Hot Track*, splitting and overwriting any conflicting entries at the destination. Pressing [Ctrl-Insert] will copy and snap the new copies of all selected entries, aligning the front of the *Key Entry* to the current cursor position on the current *Hot Track,* splitting and overwriting any conflicting entries at the destination. Pressing [Ctrl-Shift-Insert] will copy and snap the new copies of all selected entries, aligning the back of the *Key Entry* to the current cursor position on the current *Hot Track,* splitting and overwriting any conflicting entries at the destination.

The [Left-Arrow] and [Right-Arrow] keys will snap and nudge all selected entries, aligning the front of the *Key Entry* to the current cursor position on the current *Hot Track,* in the associated direction. Pressing [Shift-Left-Arrow] or [Shift-Right-Arrow] will snap and nudge all selected entries, aligning the back of the *Key Entry* to the current cursor position on the current *Hot Track,* in the associated direction. Pressing [Shift-Alt-Left-Arrow] or [Shift-Alt-Right-Arrow] will snap and nudge all selected entries, aligning the offset position of the *Key Entry,* if one has been set, to the current cursor position on the current *Hot Track,* in the associated direction. The current zoom level determines the amount of samples nudged with each pixel of cursor movement.

⌨ When an entry offset has been set, using this entry as the *Key Entry* and pressing [Alt-Backspace] during *Select Mode* move and copy operations causes the offset position to be the reference for the current destination cursor position.

☞ Whenever selected entries include video entries, video and audio will be moved together, regardless of which type of entry is grabbed. Both types of entries will contribute to movement limits resulting from bumping into other nearby entries. All movements will be forced to frame boundaries to maintain proper video entry placement.

☞ If the *Control Track* is selected (by clicking on the Control Track number) during any of these operations, the operations will include all *Control Track* entries within the range of selected audio/video entries from the earliest start position to the latest end position.

Select Mode Options

🖰 [Right-Clicking] on the *Select Mode* button pops up the *Select Mode* menu options. Entry selection group options as well other special functions can be found here.

Add Selected To
This option allows you to add the currently selected entries to any group.

Remove Selected From
This option allows you to remove the currently selected entries from any group.

Clear All From
This option allows you to clear all entries from any group.

Rename
This option allows you to enter names for any group.

Include Orphan Automation
When this option is activated, automation entries that are not attached (within the boundaries of a

Region entry) that lie between the first and last selected entries will be included in the operation.

This setting can be saved with your preferences.

Associate Selected In Regions View
This option selects and highlights all *Regions* in the *Regions View* associated with all MT *Selected Entries* in *Select Mode*. A very easy way to visually select groups of regions for an export or rename operation.

Group 1 Through 30
⍟ [Left-Clicking] one of these options clears all current selections and instantly selects all entries within the group.

⌨⍟ [Shift-Left-Clicking] one of these options, merges all entry selections within the group with the current selected entries.

Using SoftEdge In Select Mode

*See Using SoftEdge In Normal Mode

SoftEdge works the same in *Select Mode* with all options applying to the selected entries instead of the underlying entry. *Marked Area* options are not applicable in *Select Mode*.

Other Select Mode Operation Topics:
MultiTrack Operation - Select Mode
MultiTrack Select Mode - TimeLine Display Area

6.4.3 MultiTrack Select Mode - TimeLine Display Area

When *Select Mode* is active, the timeline area is used for cursor positioning and playback control, and is no longer needed or accessible for creating *Marked Areas*.

Play Cursor Positioning

⍟ [Left-Clicking] or [Left-Dragging] in the timeline area moves the play cursor to the new location.

⌨⍟ [Ctrl-Shift-Left-Dragging] will override the cursor lock and allow you to re-locate the cursor and change *Hot Tracks*.

Playback Control

⍟ [Right-Clicking] in the timeline area toggles playback on and off.

Other Select Mode Operation Topics:
MultiTrack Operation - Select Mode
MultiTrack Select Mode - WaveForm Display Area

6.5 Operation - Automation Mode

6.5.1 MultiTrack Operation - Automation Mode

Automation Mode allows you to save and manipulate mix changes which then store with the session for exact duplication of the mix during each playback.

When automation mode is engaged, any control on any of the mixer views can be adjusted, and changes will be stored. You are free to write automation live during playback, or offline with playback stopped. The automation may also be written with external fader and/or mixer controllers supported by the *SAWStudio* environment.

☞   When writing offline automation, creating a *Marked Area* on the *MultiTrack* and adjusting any console control that writes automation will adjust the marked range to the new setting and reset the old setting at the end of the range. This feature writes the new value at the *Mark Begin* position and then writes the original value at the *Mark End* position automatically.

☞   As a shortcut for making quick fader adjustments while in the *MultiTrack*, press the *Greater-Than* key [>] (used by itself without the Shift) to increment the *Hot Track* fader .25db. The *Less-Than* key [<] (used by itself without the Shift) will decrement the *Hot Track* fader .25db.

The automation changes are displayed in a special visual overlay mode to the waveforms in the *MultiTrack* with each individual automation change referenced as color-coded lines. The lines vary in height and angle displaying value and slope information. A special *View Filter* allows you to see one automation group at a time. When this filter is active, all automation editing changes apply only to the visible group.

When automation mode is not engaged, stored automation changes will still be processed, and the mixer views will chase stored automation as you move through the *TimeLine* in the *MultiTrack*, giving you a visual indication of every mix change within the session. Adjusting controls at this time will no longer write new automation changes, but instead, set the default console starting positions for that control.

During playback, you may override any mixer control manually, but any automation for that control will take back the control when it's time. If you adjust controls that have no programmed automation, you will be adjusting the default starting position for that control. If there is automation in front of the current position for that control, you will be overriding the current setting temporarily only, and the original programmed automation setting will be restored during the next playback.

The default starting values and the automation saves with the EDL. You may automate certain tracks and not others, allowing you to manually control certain tracks. Note that these non-automated tracks will retain only the last setting as a default. If you like, you can program a starting value for certain controls on certain tracks, and then be free to mix manually. Each time you start playback over, the starting settings will be restored and then the controls will be free to mix manually.

Any group of automation changes may be stretched, shrunk, moved, copied, deleted, offset, etc. instantly with easy built-in editing commands.

Other Automation Mode Operation Topics:
MultiTrack Automation Mode - Navigation
MultiTrack Automation Mode - Editing And Control

6.5.2   **MultiTrack Automation Mode - Navigation**

⌨   Pressing [Ctrl-Tab] will snap you to the next automation change on the current *Hot Track*. Pressing [Ctrl-Shift-Tab] will snap you to the previous automation change.

Other Automation Mode Operation Topics:
MultiTrack Operation - Automation Mode
MultiTrack Automation Mode - Editing And Control

6.5.3   MultiTrack Automation Mode - Editing And Control

Activating Automation Mode

🖱   [Left-Clicking] the *Aut* button in the top-client area of the *MultiTrack* toggles *Automation Mode*.

🖱   [Shift-Left-Clicking] the *Aut* button in the top-client area of the *MultiTrack* disables automation. When this option is active, a red X will be drawn over the *Aut* button and all automation is disabled, and all channel controls are reset back to their starting default condition. This can be used live during playback for comparison purposes also.

🖱   [Right-Clicking] the *Aut* button in the top-client area of the *MultiTrack* displays a special *View Filter* menu.

⌨   Pressing the [A] key in the *MultiTrack View* toggles *Automation Mode*.

⌨   Pressing [Shift-A] key in the *MultiTrack View* disables automation. When this option is active, a red X will be drawn over the *Aut* button and all automation is disabled, and all channel controls are reset back to their starting default condition. This can be used live during playback for comparison purposes also.

Setting Default Slope Values

The *Automation* menu contains options for setting the default *Mute*, *Fader* and *Pan* slopes.

- The *Set Default Mute Slope* option sets the default slope value for mute switches in milliseconds. This controls how fast the switch ramps the level up or down.
- The *Set Default Fader Slope* option sets the default slope value for channel faders in milliseconds. This controls how fast the fader ramps the level up or down.
- The *Set Default Pan Slope* option sets the default slope value for channel pans in milliseconds. This controls how fast the pan ramps to the new setting.

☞   Any fader, pan or mute move with a slope value of zero milliseconds will force an immediate change with no ramping. You may change slope values after they have been written, or you may force a slope value of zero by holding the [Shift] key while writing an automation change. All fades and individual automation entries written offline, while playback is not engaged, on exact *MT Entry* boundaries, will force a zero slope value. This allows you to tab to the start of an *MT Entry* and write a fade or volume change, which will then happen precisely on the first sample of the region.

Changing A Marked Area Automation Slope

M   The *Change Marked Automation Slope* option under the *Automation Menu* changes the slope value for all entries within an *MT Marked Area*. If the current track is one of a group of selected tracks, then all selected tracks will be affected.

⌨**M**   Pressing the [Ctrl] key when activating this option will affect all tracks. The forward slash [/] key on the keyboard number pad will activate this option and bypass the *Ok/Cancel* prompts. Using [Shift] with the forward slash [/] key on the keyboard number pad will activate the *Auto-Slope* feature which will adjust each automation entry slope to exactly fill the gap to the next automation entry, creating a seemless smoth fade.

Clearing Automation Entries

M   The *Clear All Entries On Track(s)* option under the *Automation Menu* clears the track automation buffers on the current track and reclaims the memory. If the current track is one of a group of selected tracks, then all selected tracks will be affected.

⌨**M**   Pressing the [Ctrl] key when activating this option will clear all automation entries on all tracks.

⌨   The [Delete] key can be used to clear an *MT Marked Area* of automation entries. If the current track is one of a group of selected tracks, then all selected tracks will be affected. Pressing [Ctrl-Delete] will affect all tracks.

☞   Deleting marked automation entries responds to selected tracks, performing the operation across multiple tracks at once.

Moving And Copying Automation Entries

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

M   The *Copy Marked Automation To* option in the *Track Properties* popup menu on the *MultiTrack* allows you to copy marked automation to another layer.

⌨   Pressing the [Backspace] key will snap marked automation entries to the current cursor position. Pressing [Shift-Backspace] will snap the back end of marked automation entries to the current cursor position. Pressing the [Ctrl-Backspace] key will snap a copy of marked automation entries to the current cursor position. Pressing the [Left-Arrow] or [Right-Arrow] key will nudge marked automation entries in the respective direction.

☞   Moving and snapping marked automation entries responds to selected tracks, performing the operation across multiple tracks at once.

Adjusting Automation Relative Position Timing

⌨🖰   [Alt-Left-Dragging] an *MT Marked Area* grabs the nearest boundary and stretches or shrinks all automation entries relative positions within the area, adjusting the playback timing of the automation.

☞   Stretching marked automation responds to selected tracks, performing the operation across multiple tracks at once.

Using View Filters

⌨   The [V] key toggles the *View Filter* on and off. When the filter is active, a red outline is displayed around the automation button in the top-client area and only the current automation types are visible. The *Zoom* and *Exploded* mixer views, if visible, will jump to the vertical offset required to display the current automation type control. This places the control within easy reach for adjusting. The current type will be defined by the last automation entry at or before the current cursor position. You can select a type by simply dragging the cursor within a group of entries or [Ctrl-Tabbing] to an exact entry. When this filter is active, all *MT Marked Area* operations will affect only this type of data.

[Right-Clicking] the *Aut* button displays a popup filter menu of every automation data type. Selecting one of these options sets the *View Filter* ON for that data type. If the *View Filter* is

already active when displaying this menu, the current filter data type will be checked. A special feature allows all Fx plug-in automation data types to be shown at once if the cursor position is not directly behind an Fx automation data type when selecting this option. If the last tracked data type is an Fx automation type, only that specific type will be displayed.

☞   The *Zoom* and *Exploded* mixer views will vertical scroll only if the current *Hot Track* module is visible.

Creating An Automatic Fade

⌨/**M**   When *Automation Mode* is active, you may add a preset fade by using the *Fade Dn/Up To Next Automation Change* option from the *Automation* menu, or by pressing the [F] key on the keyboard. Marking an area and activating this option will build a fade from the starting volume to the ending volume. This fade will ramp up or down according to the relative boundary volumes. If there is no starting volume, it uses Zero dB as a default. If there is no ending volume it uses mute as a default and ramps down. All automation entries will be written with the default slope value.

⌨**M**   Choosing the *Fade Up To Next Automation Change* option from the *Automation* menu, or pressing the [Shift-F] key on the keyboard forces a fade up regardless of the start and end volumes. If no area is marked, the fades will start at the current cursor position and ramp to the next volume change. If no starting volume is found, it uses mute as a default. If no ending volume is found, it will default to a 2-second ramp, using the default volume values. All automation entries will be written with the default slope value.

☞   If the *View Filter* is active displaying any other control type such as pans or eq, etc., these functions will create a smooth transition on that control type from the starting to the ending values, using that control type's default values if needed.

Other Automation Mode Operation Topics:

6.6   Operation - Offset Mode

6.6.1   MultiTrack Operation - Offset Mode

When *Offset Mode* is active, the mixer views take a snapshot and freeze the current control positions. Automation is still being processed for you to hear, but no longer chased onscreen. Adjusting any control now adds an offset value to the processed automation, raising or lowering the overall track or *MT Marked Area* settings.

Other Offset Mode Operation Topics:

6.6.2   MultiTrack Offset Mode - Editing And Control

Activating Offset Mode

🖰   [Left-Clicking] the *Ofst* button in the top-client area of the *MultiTrack* toggles *Offset Mode*.

⌨   Pressing the [O] key in the *MultiTrack View* toggles *Offset Mode*.

⌨/🖰 You may freely adjust any combination of controls, then [Left-Click] the *Ofst* button again, or press the [O] key, to exit *Offset Mode* and apply the offsets to all automation entries that were affected, reactivating the mixer chase operation. [Right-Clicking] the *Ofst* button, or pressing [Ctrl-O], exits *Offset Mode,* canceling the changes and leaving all automation as it was originally.

⌨/🖰 [Shift-Left-Clicking] the *Ofst* button, or pressing [Shift-O], enters a *Relative Offset Mode* condition. All mixer controls will be set to a center reference position and all switches will be set off. You may then reference any control up or down by relative dB values. Applying the changes is handled in the same manner as when exiting normal *Offset Mode.*

Other Offset Mode Operation Topics:
MultiTrack Operation - Offset Mode

6.7 Using The Control Track

6.7.1 Using The Control Track

The *Control Track* at the bottom of the *MultiTrack* can be used to hold *Control Entries* that can influence the *MultiTrack* play and record functions and also send MIDI commands to external devices on MIDI ports or Comm (serial) ports. *Control Entries* are displayed as vertical colored lines on the *Control Track.*

Other Control Track Topics:
Control Track - Navigation
Control Track - Editing And Control

6.7.2 Control Track - Navigation

⌨ Pressing [Tab] will snap you to the next *Control Entry* on the *Control Track.* Pressing [Shift-Tab] will snap you to the previous entry.

Other Control Track Topics:
Using The Control Track
Control Track - Editing And Control

6.7.3 Control Track - Editing And Control

Displaying The Control Track View Window

🖰 [Left-Clicking] on the *Control Track* label displays the *Control Track View* window. The *Control Track* window allows access to the various *Control Entry Types* for insertion onto the *Control Track*, and also displays the current entries in listbox format in sequential fashion as they are positioned along the timeline. This view may also be displayed by selecting *Control Track* from the *View* menu. See the helpfile chapter titled *Using The Control Track View* for more information.

Clearing Control Entries

⌨ The [Delete] key can be used to clear an *MT Marked Area* of *Control Entries.*

Moving And Copying Control Entries

⌨🖱   [Shift-Left-Dragging] inside an *MT Marked Area* moves all *Control Track* entries within the area to a new position on the same track. [Right-Clicking] before finishing the move will create a copy of all *Control Track* entries within the area, leaving the originals intact.

⌨   Pressing the [Backspace] key will snap the Mark-Beg position of marked *Control Track* entries to the current cursor position. Pressing the [Shift-Backspace] key will snap the Mark-End position of marked *Control Track* entries to the current cursor position.Pressing [Ctrl-Backspace] will snap a copy of marked *Control Track* entries to the current cursor position.

Other Control Track Topics:
Using The Control Track
Control Track - Navigation

6.8   Using the Video Track

6.8.1   Using The Video Track

The *Video Track* in SAWStudio may be used to arrange your video. Use the *Video Track* to quickly copy, move, delete, and arrange your video clips in the exact order you desire, all the while maintaining perfect lock with the audio.

Navigation

⌨   Pressing [Tab] will snap you to the next *Clip Entry* on the *Video Track*. Pressing [Shift-Tab] will snap you to the previous entry.

Editing And Control

For complete information on using the *Video Track* and the *Video Viewer*, see the chapter titled *Using the Video Track/Viewer.*

7   Using The SoundFile View

7.1   Overview

7.1.1   SoundFile View Overview

Using any of the *Open SoundFile* functions from the *File* menu will open and display the *SoundFile View* window. This view shows both the left and right channels of a stereo file in detail. The left channel is displayed on top, the right on the bottom. Mono files show only one channel. You may zoom in or out to display the audio waveform data in more or less detail. You may also magnify the amplitude (height) of the display to see low volume waveform data in more detail.

One of the most common uses for the *SoundFile View* window is to create *Region* links to the soundfile data which are then added to the *Regions List*, or directly to the *MultiTrack* as part of your project file. The *SoundFile View* allows for easy auditioning, and precise selection of just the data you need for your project.

7.2　Interface

7.2.1　SoundFile View Top-Client Area

🖰　[Left-Clicking] the active zones in the top-client area of the *SoundFile View* window allow you to zoom and magnify as well as mark begin and end positions. You may also select the output device for playback and engage recording direct to the *SoundFile View*. The different zones are listed below and include their keyboard shortcut equivalents.

+Zm Full

🖰　[Left-Clicking] the +*Zm Full* zone takes the waveform display to the maximum zoomed-in view of one sample per pixel.

+Zm

🖰　[Left-Clicking] the +*Zm* zone zooms the waveform display *in* to the next level and decreases the time reference increments in the *TimeLine* display. Use this zone to help find a comfortable display of visual detail for the particular waveform you are working with.

☞　*SAWStudio* uses special peak data files to display waveforms quickly at decreased zoom levels. As the zoom level increases beyond a certain point (soundfile length dependent), *SAWStudio* displays true, sample-accurate, vector graphic waveform displays for precise representation of the actual waveform.

🖰　[Right-Clicking] this button opens a zoom selection menu allowing you to go directly to any specific zoom level referenced as Samples per Pixel.

-Zm

🖰　[Left-Clicking] the -*Zm* zone zooms the waveform display *out* to the next level and increases the time reference increments in the *TimeLine* display. Use this zone to help find a comfortable display of visual detail for the particular waveform you are working with.

🖰　[Right-Clicking] this button opens a zoom selection menu allowing you to go directly to any specific zoom level referenced as Samples per Pixel.

-Zm Full

🖰　[Left-Clicking] the -*Zm Full* zone takes the waveform display to the required zoomed-out view that displays the complete soundfile at once.

🖰　The MouseWheel also controls the zoom functions in the *SoundFile View* window. This action is independent of the MouseWheel option selection for the *MultiTrack*.

The NumPad number keys are assigned to zoom levels for the SoundFile view. The values are as follows:

1 key = 1 sample per pixel
2 key = 4 samples per pixel
3 key = 16 samples per pixel
4 key = 64 samples per pixel
5 key = 256 samples per pixel
6 key = 1024 samples per pixel

7 key = 4096 samples per pixel
8 key = 16384 samples per pixel
9 key = 65536 samples per pixel

☞ The NumLock mode must be active.

When zoomed in below the 64 samples per pixel level, the playback cursor freezes onscreen and automatically resets the play position back to the starting point.

⌨ Pressing [Shift-T] allows you to transfer to the actual stopped playback position while in this close zoom if desired.

Lock Zone

🖰 [Left-Clicking] the small padlock icon *Lock Zone* can be used to lock the waveform zooms and magnification levels and output device to the current settings as you double-click elements into the *SoundFile View*. When the lock is open, the zooms and magnification follow the individual elements as they were saved.

Up

⌨/🖰 [Left-Clicking] the *Up* zone, or pressing [Shift-Page Up] on the keyboard, increases the amplitude (height) of the waveform display. By using this zone, you can magnify low level sections of the audio data to help locate and remove background noises.

⌨/🖰 Pressing [Ctrl] and clicking the *Up* zone, or pressing [Shift-Ctrl-Page Up], will increase the amplitude to the maximum waveform height.

0dB

🖰 [Left-Clicking] the *0dB* zone sets the amplitude of the waveform display so that full digital clipping is reached at the top and bottom of the respective channel displays, showing the waveform at the exact recorded level.

Dn

⌨/🖰 [Left-Clicking] the *Dn* zone, or pressing [Shift-Page Down] on the keyboard, decreases the amplitude (height) of the waveform display. By using this zone, you can reduce magnification of loud sections of audio data that might be extending beyond the visible limits of the respective channel displays.

⌨/🖰 Pressing [Ctrl] and clicking the *Dn* zone, or pressing [Shift-Ctrl-Page Down], will decrease the amplitude to the minimum waveform height, or the same as the *0dB* zone.

⌨ Pressing [Ctrl] with the numpad keys will change to preset waveform scaling factors, increasing with higher number keys. [Ctrl - Numpad 1] will set the scale back to the minimum (0 dB) value.

Mrk Beg (B)

🖰 [Left-Clicking] the *Mrk Beg* zone marks the current *SoundFile View cursor* position as the beginning boundary of a *Marked Area* of data. If the end boundary is beyond this point, the *Marked Area* between boundaries will be highlighted.

⌨🖰 Pressing [Ctrl] and clicking the *Mrk Beg* zone, or pressing [Ctrl-B] marks the entire soundfile.

Mrk End (E)

⊙ [Left-Clicking] the *Mrk End* zone marks the current *SoundFile View cursor* position as the ending boundary of a *Marked Area* of data. If the beginning boundary is before this point, the *Marked Area* between boundaries will be highlighted.

⌨⊙ Pressing [Ctrl] and clicking the *Mrk End* zone, or pressing [Ctrl-E] marks the entire soundfile.

You may clear a *Marked Area* at any time by pressing the [C] key, or by [Right-Clicking] the *TimeLine*.

Out

⊙ [Left-Clicking] the *Out* zone will display a menu of *Out Devices*, allowing you to direct the *SoundFile View* playback to any available out device. This setting will save with the preferences as a default.

Rec

⊙ [Left-Clicking] the red *Rec* button opens a record meter to initiate recording a soundfile directly to the *SoundFile View* window.
Once recording is finished, the waveform will be instantly displayed in the *SoundFile View* window. Recording in the *SoundFile View* records raw audio data that is not inherently part of the current EDL session or has no basis in time for that session until placed in the *MultiTrack View*.

Other SoundFile View Interface Topics:
SoundFile View Left-Client Area
SoundFile View Navigation - WaveForm Display Area

7.2.2   SoundFile View Left-Client Area

SoundFile View Meter

The *SoundFile View* meter will actively display your current sample data during playback, and as you scrub the cursor.

⊙ You may [Left-Click] anywhere in the left-client area to display the *Sample Info View* window. This window displays the current sample data as decimal, hex, dB, and percentage values.

☞ If the *SoundFile View* window is sized down below the height of the meter, the meter will not be displayed.

Other SoundFile View Interface Topics:
SoundFile View Top-Client Area
SoundFile View Navigation - WaveForm Display Area

7.2.3   SoundFile View Navigation - WaveForm Display Area

Cursor Placement

⊙ [Left-Clicking] or [Left-Dragging] within the *SoundFile View* controls the placement of the

SoundFile View cursor. The cursor is used as a focal point for many *SoundFile View* operations and determines playback start position as well as *Region* boundary positions, and defines a point of action for various editing functions.

⌨/🖱   Double-clicking on a specific point within the waveform display causes that point of the waveform to be centered in the display and makes that the new *SoundFile View cursor* position. You can also center the current cursor position by pressing the [=] key.

Scrolling

🖱   You may side scroll the window by [Left-Clicking] and pushing on the left or right edge of the window.

⌨   The [Left-Arrow] key and [Right-Arrow] key will center the cursor and the waveform display, moving the waveform one pixel left or right as the cursor remains centered. The zoom resolution determines the actual number of samples represented.

Pressing [Ctrl-Left-Arrow] or [Ctrl-Right-Arrow] will move the cursor to the beginning or end of a *Marked Area* respectively.

Pressing the [Home] and [End] keys will jump to the beginning or end of the soundfile.

M   Selecting *SoundFile Fixed Position Scroll Mode* from the *Options* menu, *SoundFile View* playback will center the playback position and live scroll the entire waveform display past this fixed play position. If you zoom in below zoom level 8, the display will resemble a real-time oscilloscope.

Other SoundFile View Interface Topics:
SoundFile View Top-Client Area
SoundFile View Left-Client Area

7.3   Operation - Normal Mode

7.3.1   SoundFile View Playback

⌨/🖱   [Right-Clicking] in the *SoundFile View*, or pressing the [Spacebar] while the SoundFile View window is active, toggles playback on and off.
SoundFile View playback will respond to live re-positioning of the playback cursor. [Left-Clicking] to a new playback position within the file will immediately jump the playback cursor and continue playback at the new location.

⌨/🖱   [Shift-Right-Clicking] or [Shift-Spacebar] plays back just a *Marked Area* if one exists. [Ctrl-Right-Clicking] or [Ctrl-Spacebar] plays and loops a *Marked Area* if one exists.

Other SoundFile View Operation Topics:
SoundFile View Editing And Control
Sample Edit Zoom Mode

7.3.2   SoundFile View Editing And Control

Marking Areas

🖱   [Left-Dragging] in this *TimeLine* display area marks and highlights the area included in the drag.

The *Marked Area* is displayed inversed. If a *Marked Area* already exists, this action serves to extend or shrink the closest boundary to the current drag position. *Marked Areas* will be displayed in the *Marked Time Readout* in the top-client area of the *MultiTrack*.

🖱 [Shift-Left-Dragging] in the *TimeLine* display area near either the begin or end position of an already existing *Marked Area,* will drag the marked area to a new location while maintaining the *Marked Area* size.

⌨/🖱 Pressing the [B] key or [Left-Clicking] the *Mrk Beg* zone marks the beginning of a *Marked Area*. Pressing the [E] key or [Left-Clicking] the *Mrk End* zone will mark the end of and highlight the *Marked Area*.

⌨ Pressing [Shift-B] will adjust the begin position of an already existing *Marked Area* to the current cursor location and automatically shift the end position to maintain the same *Marked Area* size. Pressing [Shift-E] will adjust the end position of an already existing *Marked Area* to the current cursor location and automatically shift the begin position to maintain the same *Marked Area* size.

⌨ Pressing [Ctrl-Left-Arrow] or [Ctrl-Right-Arrow] will move the cursor to the beginning or end of a *Marked Area* respectively.

Marking Areas During Playback

⌨/🖱 Pressing the [B] key or [Left-Clicking] the *Mrk Beg* zone during playback will start building a *Marked Area*. Pressing the [E] key or [Left-Clicking] the *Mrk End* zone will end the *Marked Area*, continuing playback.

☞ During *Loop Playback*, the *Marked Area* begin and end boundaries may be altered live by [left-clicking] in the waveform display area of the *SoundFile View*.

Clearing Marked Areas

⌨/🖱 You may clear a *Marked Area* at any time by pressing the [C] key, or by [Right-Clicking] in the *TimeLine*.

Creating Regions

⌨ To create a new *Region* from a *Marked Area*, from the *Regions* menu select *Create New Region*. The *Create New Region* dialog box is displayed with a generic default *Region* name. Enter a new name and press [Enter] to add the *Region* to the *Regions List*. You may also use the [N] key while the *SoundFile View* window is active to perform the same function.

Locating the Nearest Zero-Cross Position

⌨ Pressing the [Z] key in an active soundfile in the *SoundFile View* finds the nearest *ZeroCross* lowest energy point within 800 samples on either side of the cursor. You may use this function before creating regions in order to eliminate pops at the regions boundaries.

Viewing Regions

🖱 [Double-Clicking] a *Region* in the *Regions View* window will open the entire soundfile into the *SoundFile View* window and highlight the *Marked Area* containing the *Region* data. The window zoom levels will be restored as saved in the *Marked Area*. The *Out* device will be set to the default device.

Auditioning Regions

🖰   [Right-Clicking] a *Region* in the *Regions View* will load, display and begin *Marked Area* playback in the *SoundFile View*. You may select another *Region* and [Right-Click] that one to begin playback without interruption.

⌨   The [Spacebar] may be used to toggle playback on and off. The [Return] key can be used to begin or re-start playback without interruption.

⌨   The [Up-Arrow] and [Down-Arrow] keys may also be used to select *Regions* for immediate auditioning with the [Return] key. Simply [Arrow] up or down and press [Return] to audition *Regions* as quickly as you can select them.

Adding MT Entries To The MultiTrack Using Drag And Drop

⌨🖰   With a *Marked Area* defined in the *SoundFile View*, you can easily add a new *MT Entry* to the *MultiTrack* by [Alt-Left-Clicking] anywhere in the *SoundFile* waveform area. This will change the mouse pointer to a drag-and-drop icon, allowing you to move the pointer to the *MultiTrack* and visually position the placement for the new entry on any visible track. [Left-Clicking] will drop the newly created entry in place. The default name for the entry will be the soundfile name and a unique number identifier. As the entry is being added to the *MultiTrack*, a corresponding *Region* will automatically be added to the *Regions View* window in alphabetical order.
If the size of a new entry conflicts with existing entries on the track, a warning message is displayed indicating that the entry is too large, giving you the option to continue anyway, or cancel the operation. Continuing the operation will move all conflicting entries forward in their relative positions, butt-splicing the end boundary of the new entry with the begin boundary of the first conflicting entry.

🖰   You may cancel a drag-and-drop operation by [Left-Clicking] anywhere outside the *MultiTrack View* window.

☞   You may freely open other soundfiles at any time, without disturbing the current session, including already existing *Regions* and *MT Entries.* In this way, you can create new *Regions*, one at a time, from many different soundfile sources, blending them all into one session.

Updating Regions

M   To update an existing *Region* currently displayed in the *SoundFile View*, select *Update Region* from the *Regions* menu. This option updates the *Region* currently selected in the *Regions View* listbox, based on the current *SoundFile View* data.

⌨   You may also use the [U] key while the *SoundFile View* window is active to perform the same function. An *Update Region Name* dialog box is displayed with the current *Region* name. You may keep the current name or enter a new name. Press [Enter] to accept your changes. This option allows you to update region boundaries, zoom levels, and the region name.

⌨/🖰   Press the [Esc] key or [Left-Click] outside the update dialog box to cancel the operation.

Interactive Links To The MultiTrack And Regions View

🖰   [Double-Clicking] an *MT Entry* in the *MultiTrack View* window will open the associated *Marked Area* into the *SoundFile View* window and highlight its *Marked Area*. The *Out* device will be set to the first output assignment for the track that contains the entry. The *MT Entry* will also be selected in the *Regions View* window.

If a *Regions* group is selected and the *MT Entry* is part of the group, the group remains as the current

group. If the *MT Entry* is not in the current group, the first group that the entry is part of will be selected as the current group. If the entry is not part of a group, the *All Regions* group will be displayed.

The *SoundFile View* cursor will be positioned in the exact offset position from the *Marked Area* beginning as the *MultiTrack* cursor offset from the *MT Entry* beginning. The window zooms will be restored as saved in the *Region* entry.

Changing the *SoundFile View* cursor will transfer this new position back to the *MultiTrack* when the *MultiTrack View* is made the active window, as long as the *SoundFile* cursor is within the boundary marks and the boundary marks were not changed. You can make the *MultiTrack View* the active window by [Left-Clicking] anywhere within it, or by transferring back from the *SoundFile* View by pressing the [T] key.

Other SoundFile View Operation Topics:
SoundFile View Playback
Sample Edit Zoom Mode

7.4   Operation - Sample Edit Zoom Mode

7.4.1   Sample Edit Zoom Mode

Sample Edit Zoom mode allows you to see and manipulate the individual sample points that are part of a soundfile. *Sample Edit Zoom* mode is engaged when you zoom in past the *+Zoom Full* position. The further you zoom in, the further apart the samples will appear. Each sample is represented as a small square within the waveform display.

Sample Edit Zoom Mode Editing And Control

Engaging Sample Edit Zoom Mode

⍟   [Left-Clicking] the *+Zm Full* button takes the waveform display to the maximum zoomed-in view of one sample per pixel. [Left-Clicking] the *+Zm* button at this point will engage *Sample Edit Zoom* mode. Continue to click the *+Zm* or *-Zm* buttons to zoom in or out while in this mode. Zooming out past the *+Zm Full* position disengages *Sample Edit Zoom* mode. Any process that opens a different soundfile will also disengage this mode.

Adjusting The Display Center

⌨   Pressing the [Up-Arrow] key and [Down-Arrow] key will shift the *SoundFile View* display center up or down allowing you to see the tips of magnified transient waveforms in detail. The [Ctrl-Up-Arrow] key or [Ctrl-Down-Arrow] key will reset the display center to the center position.

Waveform Drawing

Waveform Drawing allows you to manually edit the position of any individual sample in your soundfile, or *draw* a new shape for a group of connected samples. *Waveform Drawing* is an incredibly powerful feature for removing clicks, pops, or any other unwanted random noises that appear as out of place samples when compared to neighboring samples. Even clipped soundfiles can sometimes be fixed by adjusting the samples surrounding the clipped portion of the waveform attempting to reshape the wave to remove the distortion.

> ✋ **Regarding Waveform Drawing:** This is a ***destructive*** process with no automatic undo. To restore settings, you must manually drag the individual samples back into position.

⌨☝ When in *Sample Edit Zoom* mode, grab any sample point by [Shift-Left-Clicking] on the sample. The cursor changes to an X shaped pointer. Dragging the mouse up or down will adjust the value of that sample. As you drag the mouse left or right once this drawing mode is activated, you can adjust each sample point that you pass over. The waveform will rubber band to your new shape.

The sample you are controlling does not change to the next sample until your cursor passes over the middle position between samples.

Other SoundFile View Operation Topics:
SoundFile View Playback
SoundFile View Editing And Control

8   Using The Regions View

8.1   Overview

8.1.1   Regions View Overview

The *Regions View* window displays all *Regions* which are the source segments of soundfiles upon which all *MultiTrack* entries are based. One *Region* may be used multiple times in the *MultiTrack*. *Regions* may be manually created or automatically created by various editing operations. Altering the source *Region* will affect all occurrences of that *Region* in the *MultiTrack*. *Regions* may be grouped into named groups of common type elements. The listbox will display all *Regions* or any one of the groups at a time.
The title bar of this window always displays the current *Region* count. There is no built in limit to the number of *Regions* one session can handle, only the limitation of your RAM.

When *Region PeakData Memory Caching* is activated, the title bar also displays the percentage of *PeakData* information belonging to the *Regions* currently used in the *MultiTrack* that has been cached into RAM, and maintains this display dynamically as editing progresses. The value is displayed as '**P-100%**'.

When *Region Memory Caching* is activated, the title bar also displays the percentage of normal *Region* data belonging to the *Regions* currently used in the *MultiTrack* that has been cached into RAM, and maintains this display dynamically as editing progresses. The value is displayed as '**N-100%**'.

8.2   Interface

8.2.1   Regions View Top-Client Area

Insert To MT Button

☝ [Left-Clicking] the *Insert To MT* button adds selected *Regions* in the *Regions List* to successive *MultiTrack* tracks, starting at the current *Hot Track* and incrementing from there for each additional *Region*. Use the [Insert] key on the keyboard to perform the same function.

☞   For more information on using the Insert to MT button, see *Regions View Editing and Control*.

Group Button

✐   [Left-Clicking] the *Group* button displays a group menu which allows you to create, name and maintain *Region* groups.

Other Regions View Interface Topics:

8.2.2   Regions View Navigation - Regions List Area

Scrolling

⌨/✐   The *Regions List* may be scrolled by [Left-Dragging] the right scroll bar area, or by pressing the [Up-Arrow] or [Down-Arrow] keys.

Region Selection

⌨✐   [Left-Clicking] on a *Region* selects and highlights it in the listbox, clearing all other selections. [Left-Dragging] selects all *Regions* included in the drag.

⌨✐   [Shift-Left-Clicking] on a *Region* selects it and all *Regions* between it and the last selected *Region*. [Ctrl-Left-Clicking] a *Region* selects and adds it to the other selected *Regions*.

⌨   Using the [Up-Arrow] and [Down-Arrow] keys scrolls up and down the list selecting one *Region* at a time. [Shift-Up-Arrow] maintains the originally selected *Region* and adds contiguous *Regions* one at a time moving up the list. [Shift-Down-Arrow] maintains the originally selected *Region* and adds contiguous *Regions* one at a time moving down the list.

✐   At least one *Region* will always be selected. To clear a selected group, simply [Left-Click] anywhere in the *Regions List*.

⌨   The [Home] key will jump to the first *Region* in the list. The [End] key will jump to the last *Region* in the list.

Other Regions View Interface Topics:

8.3   Operation

8.3.1   Regions View Editing And Control

Creating Regions

M   To create a new *Region* from a *SF Marked Area*, from the *Regions* menu select *Create New Region*. The *Create New Region* dialog box is displayed with a generic default *Region* name. Enter a new name and press [Enter] to add the *Region* to the *Regions List*.

⌨ You may also use the [N] key while the *SoundFile View* window is active to perform the same function.

Renaming Regions

M To rename a *Region*, from the *Regions* menu, select *Re-Name Region(s)*. The *Re-Name Regions* dialog box is displayed with the current name. Enter a new name and press [Enter] to accept your changes. Press the [Esc] key or [Left-Click] outside the rename dialog box to cancel the operation.

☞ This option will re-name the currently selected *Regions* in the *Regions Listbox*. If a single *Region* is selected, the new name will be directly applied. If multiple *Regions* are selected, the new name will be used as a base name with an increasing number count applied down the list.

Viewing Regions

⊕ [Double-Clicking] a *Region* in the *Regions View* window will open the entire soundfile into the *SoundFile View* window and highlight the *Marked Area* containing the *Region* data. The window zoom levels will be restored as saved in the *Region*. The *Out* device will be set to the default device.

Auditioning Regions

⊕ [Right-Clicking] a *Region* in the *Regions View* will load, display and begin *Marked Area* playback in the *SoundFile View*. You may select another *Region* and [Right-Click] that one to begin playback without interruption. Right-clicking on a *Region* does not toggle playback on and off in the *SoundFile View*, but rather re-cues playback, immediately auditioning the currently selected *Region*.

☞ [Right-Click] in the *Top-Client Area* of the *Regions View* window to stop playback without restarting.

⌨ The [Spacebar] may be used to toggle playback on and off. The [Enter] key can be used to begin or re-start playback without interruption.

The [Up-Arrow] and [Down-Arrow] keys may also be used to select *Regions* for immediate auditioning with the [Enter] key. Simply [Arrow] up or down and press

[Enter] to audition *Regions* as quickly as you can select them.

Adding Regions To The MultiTrack

⌨/⊕ Selecting a single *Region* and [Left-Clicking] the *Insert To MT* button or pressing the [Insert] key will add it to the *MultiTrack* at the current cursor position on the current *Hot Track*.

Selecting multiple *Regions* in the *Regions List* before performing this function will add the *Regions* to successive *MultiTrack* tracks, starting at the current *Hot Track* and incrementing from there for each additional *Region*.

⌨/⊕ Pressing [Ctrl] when using the *Insert To MT* button in the *Regions View* or pressing [Ctrl-Insert] in the *MultiTrack View* to add a *Region* or group of *Regions*, will insert the entries to the current *Hot Track* back to back, one behind the other. If a *Marked Area* has been defined, multiple copies of the *Regions* will be added to the *MultiTrack* to form a repeating loop within the *Marked Area*. Multiple selected *Regions* will be looped onto successive tracks.

☞   When using the *Snap-To-Grid* feature while [Ctrl-Inserting] a region in a *Marked Area*, the length of the region is automatically truncated to the grid length forcing all entries to add properly on the next grid point regardless of whether the region length is too long to fit. This operation tracks tempo map changes. This makes building a click track to tempo an extremely simple procedure.

⌨☝   Every *Region* created by recording directly into the *MultiTrack*, maintains its original time-stamped position. Inserting the *Region* to the *MultiTrack* later by pressing the [Shift] key when using either the *Insert To MT* zone or pressing the [Insert] key, forces the insert at the original time-stamped position. All time-stamped *Regions* display the '@' symbol after the name. This operation forces an insert which overwrites any underlying region data.

⌨☝   Pressing [Alt] when using the *Insert To MT* button in the *Regions View* or pressing [Alt-Insert] in the *MultiTrack View* to add a *Region* or group of *Regions*, will insert the entries to the current *Hot Track* and overwrite any underlying data. This differs from the [Shift-Insert] function by forcing even time-stamped data to the current cursor position.

Adding Regions To The MultiTrack Using Drag And Drop

⌨☝   Easily add a *Region* from the *Regions List* to the *MultiTrack* by [Alt-Left-Clicking] the desired *Region* name. This will change the mouse pointer to a drag-and-drop icon, allowing you to move the pointer to the *MultiTrack* and visually position the placement for the new entry on any visible track.

☝   [Left-Clicking] will drop the newly created entry in place. If the size of a new entry conflicts with existing entries on the track, a warning message is displayed indicating that the entry is too large, giving you the option to continue anyway, or cancel the operation. Continuing the operation will move all conflicting entries forward in their relative positions, butt-splicing the end boundary of the new entry with the begin boundary of the first conflicting entry.

☝   [Shift-Left-Clicking] will drop the newly created entry in place, cutting and inserting itself on top of existing entries. If *Automation Display Mode* is active, current automation entries at the insert position will not be disturbed, otherwise automation entries at the insert position will be cleared.

☝   You may cancel a drag-and-drop operation by [Left-Clicking] anywhere outside the *MultiTrack View* window.

☞   Before dropping the entry, you may use the [Right-Hold] vertical and horizontal scroll modes and wheel mouse zoom adjustments to navigate to a drop position.

🕐   Add more copies of the same entry by pressing the [Insert] key while the *Regions View* window is active.

Locating Regions In The MultiTrack

⌨   To link a *Region* to all *MT Entries* that reference it, with a region selected in the *Regions View* window press the [Tab] key to immediately link and snap the *MultiTrack* to the first use of the *Region*. Pressing the [Tab] key again will sequentially snap to the next use of the *Region*. If you select a different *Region* and press the [Tab] key, the incrementing usage count will reset to the first entry usage for the new *Region*. Pressing the [Shift-Tab] on any *Region* will reset the usage count to the first entry usage.

Replacing an MT Entry with a Selected Region

⌨   To replace the *MT Entry* under the *MultiTrack* cursor, select a *Region* in the *Regions Listbox*,

and press [Shift-R].

Updating Regions

M   To update an existing *Region*, [Double-Click] the desired *Region* from the *Regions List* to display the associated soundfile *Marked Area* in the *SoundFile View*, make any desired changes to *Marked Area* boundaries or zoom levels, then from the *Regions* menu select *Update Region*. This option updates the *Region* currently selected in the *Regions View* listbox based on the current *SoundFile View* data. An *Update Region Name* dialog box is displayed with the current *Region* name. You may keep the current name or enter a new name. Press [Enter] to accept your changes. Press the [Esc] key or [Left-Click] outside the update dialog box to cancel the operation. This option allows you to update region boundaries, zoom levels, and the region name.

⌨   You may also use the [U] key while the *SoundFile View* window is active to perform the same function.

Deleting Regions

⌨   The [Delete] key removes all selected *Regions* and associated *MT Entries* without affecting following entries on the timeline. Pressing [Shift-Delete] removes all selected *Regions* and associated *MT Entries*, pulling all following butt-spliced entries forward on the timeline. Pressing [Ctrl-Delete] removes all selected *Regions* and associated *MT Entries*, pulling all following entries forward on the timeline.

Grouping Regions

⌒   [Left-Clicking] the *Group* button displays a group menu which allows you to create, name and maintain *Region* groups.

Add Selected To
This option allows you to add the currently selected *Regions* to any group.

Remove Selected From
This option allows you to remove the currently selected *Regions* from any group.

Clear All From
This option allows you to clear all *Regions* from any group.

Rename
This option allows you to enter names for any group.

Group 1 Thru 30
Choosing one of these options clears the listbox and displays only those *Regions* belonging to the selected group. *Regions* may belong to multiple groups.

Exporting Regions To SoundFiles

M   Choosing the *Export Region(s) To SoundFile(s)* option under the *Regions* menu allows you to export multiple selected *Regions* in the *Regions View* to individual soundfiles. You will be prompted for a destination folder, then a dialog box is displayed asking whether or not to create SAWStudio peak data files also. The files created will be named the same as the *Region* names. (Illegal filename characters will be substituted with an underscore character.) If any destination file already exists, you will be prompted to overwrite or cancel the operation. Pressing [Ctrl] and clicking *Ok* will skip all subsequent warnings.

9   Using Library Views

9.1   Overview

9.1.1   Library View Overview

SAWStudio contains six *Library View* windows. These windows can be used to open sound effect EDL library files or other EDL files to link or import regions into the current session. You can also audition .wav files in a library view window and create a region linked to the original soundfile source, or import the soundfile into your project folder creating a link to the newly created source.

The title bars of the *Library View* windows display the library window number, the current entry count, and the pathname to the currently opened EDL or .wav file directory. Active *Library View* windows save with the session EDLs.

These windows can be saved with the *F-Key* workspace views for quick access to regions in other EDL files.

9.2   Interface

9.2.1   Library View Top-Client Area

File Button

⏏   [Left-Clicking] the *File* button in any *Library View* window will allow you to open an EDL file regions list or a directory of .wav files into the window without disturbing the current session. You may audition and view these entries in the *SoundFile View* exactly like the normal regions in the *Regions View*.

Link Button

⏏   [Left-Clicking] the *Link* button, will instantly add the selected entries from the *Library* window into the current session's *Regions View* window. These regions are now part of the current session, with their soundfile reference still linked to the original *Library* source soundfiles.

Import Button

⏏   [Left-Clicking] the *Import* button, will add selected entries to the current session and copy the original source soundfile data to a new destination file that is now part of the current session.

Group Button

⏏   [Left-Clicking] the *Group* button will allow you to change groups if the EDL has been saved with active groups.

Other Library View Interface Topics:
Library View Navigation

9.2.2   Library View Navigation

Scrolling

⌨/🖱   The *Library View* windows may be scrolled by [Left-Dragging] the right scroll bar area, or by pressing the [Up-Arrow] or [Down-Arrow] keys.

Selection

🖱   [Left-Clicking] on a *Library View* entry selects and highlights it in the listbox, clearing all other selections. [Left-Dragging] selects all entries included in the drag.

⌨🖱   [Shift-Left-Clicking] on an entry selects it and all entries between it and the last selected entry. [Ctrl-Left-Clicking] an entry selects and adds it to the other selected entries.

⌨   Using the [Up-Arrow] and [Down-Arrow] keys scrolls up and down the list selecting one entry at a time. [Shift-Up-Arrow] maintains the originally selected entry and adds contiguous entries one at a time moving up the list. [Shift-Down-Arrow] maintains the originally selected entry and adds contiguous entries one at a time moving down the list.

🖱   At least one entry will always be selected. To clear a selected group, simply [Left-Click] anywhere in the *Library View* window.

⌨   The [Home] key will jump to the first entry in the list. The [End] key will jump to the last entry in the list.

Other Library View Interface Topics:
Library View Top-Client Area

9.3   Operation

9.3.1   Library View Editing And Control

Opening Library View Windows

M   To open a *Library View* window, from the *View* menu, point to *Library*, and from the submenu, select the desired *Library View* window number. **SAWStudio** allows up to six *Library View* windows to be open at the same time.

Each time a *Library View* window is used to access region or .wav file data, the directory or EDL last accessed in that window will be displayed each time the same library window is opened until it is either cleared, or a different directory or EDL is selected for viewing.

🕐   This feature is a terrific time saver for projects requiring access to numerous sound effects. Simply open up to six different sound effects library EDLs and create a workspace view including the library windows. You may freely switch to a different view to allow more real estate for other project windows, then jump back to the view including the library windows when you need to immediately access your sound effects!

☞   *Library View* windows are automatically cleared after closing a session or opening a new session, saving any active *Library View* windows with the session EDL. When opening an EDL which contains active *Libraries*, those windows will be opened to their saved state.

Accessing EDL Regions

⌁   [Left-Clicking] the *File* button in any *Library View* window and selecting *Open Library EDL* will display an *Open Library EDL File* dialog box. Navigate to the EDL containing the *Regions* you wish to view and click *Open*. You may audition and view these *Regions* in the *SoundFile View* exactly like the normal *Regions* in the *Regions View*.

Accessing .Wav or .Aif Audio Files

⌁   [Left-Clicking] the *File* button in any *Library View* window and selecting *Open Directory Of Audio Files* will display an *Open Library Folder* dialog box. Navigate to the audio file directory you wish to view and click *Open*. You may audition and view any **.wav**, .**aif** or **.aiff** files from the selected directory in the *SoundFile View* exactly like the normal *Regions* in the *Regions View*.

Clearing A Library View Window

⌁   [Left-Clicking] the *File* button in any *Library View* window and selecting *Clear Library Window* will put away all open entries in that window.

Refreshing A Library View Window

⌁   [Left-Clicking] the *File* button in any *Library View* window and selecting *Refresh Library Window* will re-scan the current open library source updating the list box.

☞   Use this if new files are added to an open library folder to make them visible in the list box.

Viewing Library View Entries

⌁   [Double-Clicking] an entry in any *Library View* window will open the entire soundfile into the *SoundFile View* window and highlight the *Marked Area* containing the selected entry data. The window zoom levels will be restored as saved in the *Region*. The *Out* device will be set to the default device.

Auditioning Entries

⌁   [Right-Clicking] an entry in any *Library View* window will load, display and begin playback in the *SoundFile View*. You may [Right-Click] another entry to begin playback of that one without interruption. Right-clicking on a *Library View* entry does not toggle playback on and off in the *SoundFile View*, but rather re-cues playback, immediately auditioning the currently selected entry.

☞   [Right-Click] in the *Top-Client Area* of the *Library View* window to stop playback without restarting.

⌨   The [Spacebar] may be used to toggle playback on and off. The [Enter] key can be used to begin or re-start playback without interruption.

The [Up-Arrow] and [Down-Arrow] keys may also be used to select entries for immediate auditioning with the [Enter] key. Simply [Arrow] up or down and press [Enter] to audition entries as quickly as you can select them.

Adding Library Entries To The MultiTrack

🖑   [Left-Clicking] the *File* button in any *Library View* window and selecting *Add Selected To MultiTrack*, adds the selected entries to the *MultiTrack* at the cursor position starting from the *Hot Track* and continuing in sequential order downward.

⌨   Pressing the [Insert] key on the keyboard is the shortcut for this option.

🖑   [Left-Clicking] the *File* button in any *Library View* window and selecting *Add Selected To MultiTrack HotTrack*, adds the selected entries to the current *Hot Track* , back to back, one behind the other.

⌨   Pressing [Ctrl-Insert] on the keyboard is the shortcut for this option.

🖑   [Left-Clicking] the *File* button in any *Library View* window and selecting *Insert Selected To MultiTrack*, inserts the selected entries to the *MultiTrack* at the current cursor position, and overwrites any underlying regions.

⌨   Pressing [Shift-Insert] on the keyboard is the shortcut for this option.

Linking Library Entries To The Current Session

🖑   [Left-Clicking] the *Link* button in any *Library View* window, will instantly add the selected entries into the current session's *Regions View* window. These regions are now part of the current session, with their soundfile reference still linked to the original *Library* source soundfiles.

Linking Library Entries Directly To The MultiTrack

⌨   You may select entries in any *Library View* window and use the [Insert] key to link the entries directly to the *MultiTrack* starting at the current cursor position and *Hot Track*. Multiple selections are placed on successive tracks.

Linking Library Entries To The MultiTrack Using Drag And Drop

⌨🖑   Easily add an entry from any *Library View* to the *MultiTrack* by [Alt-Left-Clicking] the desired entry name. This will change the mouse pointer to a drag-and-drop icon, allowing you to move the pointer to the *MultiTrack* and visually position the placement for the new *MT Entry* on any visible track.

🖑   [Left-Clicking] will drop the newly created entry in place. If the size of a new entry conflicts with existing entries on the track, a warning message is displayed indicating that the entry is too large, giving you the option to continue anyway, or cancel the operation. Continuing the operation will move all conflicting entries forward in their relative positions, butt-splicing the end boundary of the new entry with the begin boundary of the first conflicting entry.

🖑   [Shift-Left-Clicking] will drop the newly created entry in place, cutting and inserting itself on top of existing entries. If *Automation Display Mode* is active, current automation entries at the insert position will not be disturbed, otherwise automation entries at the insert position will be cleared.

🖑   You may cancel a drag-and-drop operation by [Left-Clicking] anywhere outside the *MultiTrack View* window.

    ☞   Before dropping the entry, you may use the [Right-Hold] vertical and horizontal scroll modes and wheel mouse zoom adjustments to navigate to a drop position.

    🕐   Quickly add more copies of the same entry by pressing the [Insert] key while the *Library View* window is active.

Importing Library Entries To The Current Session

⊕   [Left-Clicking] the *Import* button, will add the selected entries to the current session and copy the original source soundfile data to a new destination file that is now part of the current session.

If the selected audio file is open in the *SoundFile View* when using the import function, *Marked Area* positions will be utilized, allowing you to import a small section of the file instead of the entire file.

This option displays an *Import Destination File* dialog box allowing you to accept the default import filename (which paths to the current session name), or change the name and path to one of your choosing. The base filename will be altered to reflect differences in file formats as the regions or .wav files are copied.

A 200 millisecond blank zone will be added in front of and after the new region copy to allow for adding soft-edge ramps later. The actual region boundaries are not altered and do not contain this separator blank zone. The *Import* function frees up the current session from any references to the original *Library* soundfiles.

Accessing EDL Region Groups

⊕   *Library View* windows allow you to access *Region* group information that may have been saved with an EDL. Region grouping is setup in the *Regions View* window and is saved with the EDL when it is updated. When accessing an EDL inside of a *Library View* window, [Left-Clicking] the *Group* button will display *Region* groups for that EDL allowing you to view just a select group of *Regions* rather than the entire EDL *Region* list. If no *Region* group data was saved with the EDL, then the group list will be grayed out and unavailable.

Locking the Library View

The use of the Insert key for adding entries to the *MultiTrack* requires that the *Library View* be the active window. The normal default behavior for the Insert key, if the *MultiTrack* is the active window, is to insert entries from the *Regions View*. This default behavior may be overridden by locking the *Library View* which forces inserts to look to the *Library View* as its source regardless of whether or not it is the active window.

⊕   [Right-Clicking] the *Close* button in any *Library View* window toggles *Library View* locking on and off. When the view is locked, a small lock icon will display in place of the close button. Only one *Library View* may be locked at one time.

10   Using Effects Views

10.1   Overview

10.1.1   Effects View Overview

SAWStudio will display all installed plug-ins in the *FX Choices* view. These plug-ins may be grouped for easy location and organization. Supported effects include all plug-ins written under the **SAWStudio** API, and any *DirectX* or *VST* plug-ins.

The patched plug-in position and visibility information is saved with the EDL so that any opened FX plug-ins will re-open to their same position when you open the EDL. All of the *FX View* windows can also be saved with the *F-Key* workspace views.

✋ **Regarding installation of VST Plug-ins:** Many VST installers will ask for a destination folder. You should choose the VST_PlugIns folder under the SAWStudio main folder. Some of these installers will create another subfolder inside of the chosen folder. For VST plug-ins to show up correctly inside of SAWStudio, they must be directly inside of the VST_PlugIns folder. If a VST plug-in does not show up in the SAWStudio FX Choices list, check the VST_PlugIns folder to see if a subfolder was created and simply move the applicable plug-in .dll file(s) into the VST_PlugIns folder directly.

Some VST Plug-In installations will hardcode or otherwise force their plug-in path to remain intact as installed and will not allow the .dlls to be moved into the SAW VST_PlugIns folder. SAWStudio will allow VST Plugins to reside in any folder on any drive by placing an .ini file substitute in the VST_Plugins folder pointing to the full path of the dll file itself. Create an ascii text .ini file in the Notepad and name it the same as the original .dll file. Inside the file, type the full drive and path and original .dll filename on the first line of the file. Make sure to finish the line with a carriage return. For example, if a VST Plugin called TestPlug.dll is installed to D:\VST\Work, then create an .ini file called TestPlug.ini and inside the file type the line D:\VST\Work\TestPlug.dll followed by a carriage return. This .ini file, placed in the VST_PlugIns folder under SAWStudio, will now link SAWStudio to find the VST plug-in in its originally installed path. This can help solve compatibility issues with hardwired path plug-ins and their various copy protection schemes.

✋ **Regarding VST Plug-In Latency:** Some VST plug-ins add a certain amount of latency delay to the processed buffers depending on their processing algorithms. SAWStudio automatically compensates for plug-in latency as reported by the plug-ins themselves by absorbing the extra blank buffers that are sent back at the start of buffer processing. Using any external latency compensator or otherwise adjusting the track data to compensate is not necessary. The bypass switch is backward compensated to allow bypassing during live playback without loosing sync. Unpatching the plug-in during live playback is not backward compensated however, and will cause data sync to be incorrect. You must stop and restart playback to correct the track sync. Also, realize that plug-ins that have latency will add their latency to live inputs creating delays and in some cases may force the engine to shutdown. (See Latency Override options under the VST Options Icon.)

✋ **Regarding FX Buffer Size Changing:** FX buffer size changing plugins will now cause a notice to appear on the main window titlebar when the engine is activated. Clicking in the displayed message zone will display the plugin's name and the channel it's patched into. This warning message picks up and displays the first plugin to alter the buffer size only. Be aware that when you are depending on any live input monitoring during *Live Mode*, playback or recording, buffer size altering will most likely cause latency drift due to the engine attempting to loop multiple times to fill the buffer in a look-ahead mode and live device inputs have no look-ahead data available so blank buffers are inserted. You should find and bypass all plugins causing this warning while attempting to monitor live device inputs.

10.2   Interface

10.2.1   Effects View Top-Client Area - FX Patch Lists

Each of the three *FX Patch List* windows include the following buttons:

Add Button

🕹   [Left-Clicking] the *Add* button on any *Pre, Pst* or *F-Res* patch window will add the selected effect from the *FX Choices* list to the respective patch window.

Rem Button

🕹   [Left-Clicking] the *Rem* button on any *Pre, Pst* or *F-Res* patch window will remove the selected effect from the respective patch window.

Clr Button

🕹   [Left-Clicking] the *Clr* button on any *Pre, Pst* or *F-Res* patch window will clear all effects from the respective patch window. If the current track is one of a group of selected tracks, then all selected tracks will be affected.

⌨🕹   Pressing the [Ctrl] key when activating this function will clear all tracks of the associated *Pre, Pst* or *F-Res* patches.

FX Button

🕹   [Left-Clicking] the *FX* button on any *Pre, Pst* or *F-Res* patch window will display the *FX Choices* window.

Other Effects View Interface Topics:
Effects View Top-Client Area - FX Choices List
Effects View Navigation

10.2.2   Effects View Top-Client Area - FX Choices List

Group Button

🕹   [Left-Clicking] the *Group* button on the *FX Choices* list window will allow you to group selected effects for easy organization and location. Up to 30 groups can be created. As groups are created, they are automatically saved to disk for exact recall the next time the program is run.

Grouping FX Plug-Ins

🕹   [Left-Clicking] the *Group* button displays a group menu which allows you to create, name and maintain plug-in groups.

Add Selected To
This option allows you to add the currently selected plug-ins to any group.

Remove Selected From
This option allows you to remove the currently selected plug-ins from any group.

Clear All From
This option allows you to clear all plug-ins from any group.

Rename
This option allows you to enter names for any group.

Group 1 Thru 30
Choosing one of these options clears the listbox and displays only those plug-ins belonging to the selected group. Plug-ins may belong to multiple groups.

Set Cur Group As Default
This option displays the current default group and will change it to the currently active group when selected. The default group will be the active group when the program first starts.

Other Effects View Interface Topics:
Effects View Top-Client Area - FX Patch Lists
Effects View Navigation

10.2.3 Effects View Navigation

Scrolling

⌨/🖑 The *Effects View* windows may be scrolled by [Left-Dragging] the right scroll bar area, or by pressing the [Up-Arrow] or [Down-Arrow] keys.

Selection

🖑 [Left-Clicking] on an *Effect View* entry selects and highlights it in the listbox, clearing all other selections. [Left-Dragging] selects all entries included in the drag.

⌨🖑 [Shift-Left-Clicking] on an entry selects it and all entries between it and the last selected entry. [Ctrl-Left-Clicking] an entry selects and adds it to the other selected entries.

⌨ Using the [Up-Arrow] and [Down-Arrow] keys scrolls up and down the list selecting one entry at a time. [Shift-Up-Arrow] maintains the originally selected entry and adds contiguous entries one at a time moving up the list. [Shift-Down-Arrow] maintains the originally selected entry and adds contiguous entries one at a time moving down the list.

⌨ The [Home] key will jump to the first entry in the list. The [End] key will jump to the last entry in the list.

Other Effects View Interface Topics:
Effects View Top-Client Area - FX Patch Lists
Effects View Top-Client Area - FX Choices List

10.3 Operation

10.3.1 Effects View Editing And Control

Opening Effects View Windows

M To open an *Effects View* window, from the *View* menu, click the desired FX window. Four views are available for effects handling:

   • **FX Choices**
   This window displays a list of all effects plug-ins installed, including DirectX, VST, and VSTi.

   • **FX Pre Patches**
   This window displays a list of all plug-ins patched to the *Pre Fader FX* patch on the current *MT*

Hot Track. This window chases the *Hot Track* and updates the list.

• **FX Post Patches**
This window displays a list of all plug-ins patched to the *Post Fader FX* patch on the current *MT Hot Track*. This window chases the *Hot Track* and updates the list.

• **FX F-Res Patches**
This window displays a list of all plug-ins patched to the *Final Res FX* patch on the output tracks. This window chases the *Hot Track* and updates the list when the *Hot Track* is one of the *Output* tracks.

🖐 [Left-Clicking] the *Pre Fader*, *Pst Fader*, or *Final Res* labels on any mixer view will display the applicable FX patch window.

🕐 Hint: Quickly get to the effects portion of the *Zoom Mixer* view by clicking on the *FX* hot link in the *MultiTrack* left-client area.

🕐 Create at least one *F-Key* workspace view that contains the *Effects View* windows you use, arranged neatly in their own space with no window overlapping. This way, you may simply press the assigned *F-Key* when you need to add, remove, or otherwise access your plug-ins.

Patching In Plug-Ins

🖐 Plug-ins are patched by first selecting a plug-in from the *FX Choices* window and then [Left-Clicking] the *Add* button of the desired patch window. Assigning a plug-in to any of the three patch windows will display a connecting patchbar on the FX portions of the *Zoom*, *Exploded* and *Wide Mixer* views, and will automatically open the plug-in for adjustment.

⌨🖐 [Shift-Left-Clicking] the *Add* button of the desired patch window will assign the selected plug-in without opening the plug-in setup window.

🖐 [Left-Clicking] on the yellow *FX* icon on the mixer will toggle between *Bypass* and *Normal* FX mode. Bypass is displayed as a broken patchbar.

☞ With the exception of the *F-Res* patch window, plug-ins have full freedom with regard to buffer size changes and can be patched anywhere, including *Aux Returns*. Plug-ins that change the overall length of buffers, however, will cause cursor tracking and meter tracking anomalies.

Re-Ordering Pre, Pst and F-Res Patches

⌨ Selecting any patched plug-in from the *Pre*, *Pst*, or *F-Res* views and pressing [Ctrl-Up-Arrow] will shift the plug-in up one position in the patch order.

⌨ Selecting any patched plug-in from the *Pre*, *Pst*, or *F-Res* views and pressing [Ctrl-Down-Arrow] will shift the plug-in down one position in the patch order.

☞ This procedure can be done live during playback with no interruption in the signal flow.

🖐 **Regarding Re-Ordering Patches:** This function does NOT save an undo file since it does no real irreversible damage to the session.

Clearing Pre, Pst and F-Res Patches

⍟ [Left-Clicking] the *Rem* button on any *Pre, Pst* or *F-Res* patch window will remove the selected effect from the current *Hot Track* for the associated patch window.

[Left-Clicking] the *Clr* button on any *Pre, Pst* or *F-Res* patch window will clear all effects from the current *Hot Track* from the associated patch window. If the current track is one of a group of selected tracks, then all selected tracks will be affected.

⌨⍟ Pressing the [Ctrl] key when activating this function will clear all tracks of the associated *Pre, Pst* or *F-Res* patches.

11 Using The Automation Gallery View

11.1 Overview

11.1.1 Automation Gallery View Overview

The *Automation Gallery View* window allows you to create and use *Automation Preset Files*. The *Gallery* comes with a default set of presets to choose from or you can create your own.

Automation presets can be added to the *MultiTrack* at the current cursor position, or can be fit into an *MT Marked Area*. All automation can be moved, adjusted, shrunk, or stretched after it's been applied to the *MultiTrack*.

This window can be saved with the *F-Key* workspace views.

11.2 Interface

11.2.1 Automation Gallery Top-Client Area

File Button

⍟ [Left-Clicking] the *File* button in the *Automation Gallery View* window displays a popup menu of options:

The *Open Directory Of Automation Files* allows you to pick a folder containing .aut files. The filenames then list in the *Gallery* listbox. This can be saved with the preferences.

The *Save Automation File* option allows you to name and save a marked area of automation from the *MultiTrack* for later retrieval.

The *Clear Gallery Window* clears the listbox and the thumbnail display.

Insert To MT Button

⍟ [Left-Clicking] the *Insert To MT* button inserts the selected automation into the *MultiTrack* at the *MultiTrack Cursor* position.

Other Automation Gallery Topics:
Automation Gallery Navigation
Automation Gallery Editing And Control

11.2.2 Automation Gallery Navigation

Selecting Gallery Presets

🖰 The *Automation Gallery* presets may be selected and viewed by [Left-Clicking] the individual preset names on the left. The preset automation thumbnail view will be displayed on the right.

Scrolling

⌨/🖰 The *Automation Gallery View* window may be scrolled by [Left-Dragging] the right scroll bar area, or by pressing the [Up-Arrow] or [Down-Arrow] keys.

Other Automation Gallery Topics:
Automation Gallery Top-Client Area
Automation Gallery Editing And Control

11.3 Operation

11.3.1 Automation Gallery Editing And Control

Opening The Automation Gallery View Window

M To open the *Automation Gallery View* window, from the *View* menu choose *Automation Gallery*.

Viewing Automation Presets

🖰 To open and view automation presets, [Left-Click] the *File* button and select *Open Directory Of Automation Files*. This will display the *Select Automation Gallery Folder* dialog box. Navigate to a folder containing automation files with a .aut file extension. All automation file names will be displayed on the left side of the *Gallery* window. A thumbnail image of the selected preset will be displayed on the right. This can be saved with the preferences. [Left-Click] the desired preset file to view the applicable thumbnail.

Adding Automation To The MultiTrack

🖰 [Left-Clicking] the *Insert To MT* button inserts the selected automation into the *MultiTrack* at the *MultiTrack Cursor* position.

⌨/🖰 Automation may also be added to the *MultiTrack* by [Left-Double-Clicking] a selection in the *Gallery* window or by pressing the [Insert] key on the keyboard.

☞ If you mark an area of the *MultiTrack*, the automation is inserted and sized to fit within that area. *Automation Mode* must be active for the insert to function.

Creating Automation Presets

SAWStudio allows you to select any automation or combination of automation in the *MultiTrack* and save it as a preset for use in the *Automation Gallery*. If you have a favorite fade curve you like to use, simply save it as a preset so it can be opened in the *Gallery* anytime and quickly applied with a click of the mouse!

🖰 To create an automation preset, mark an area in the *MultiTrack* extending over the automation

you wish to save. [Left-Click] the *File* button in the *Automation Gallery View* window and choose *Save Automation File*. The *Save Automation Preset File* dialog box is displayed. Select the desired location and preset name and click *Save* to save your new preset. If the preset file you save is located in a folder currently open in the *Gallery View* window, the new preset will be automatically added and listed in the *Gallery* window ready for use.

☞   Automation presets can be created using combinations of different types of automation, or on filtered automation using *View Filters*.

Clearing The Automation Listbox

🖑   [Left-Click] the *File* button and choose *Clear Gallery Window* to clear the listbox and the thumbnail display.

Other Automation Gallery Topics:
Automation Gallery Top-Client Area
Automation Gallery Navigation

12   Using the File View

12.1   Overview

12.1.1 File View Window Overview

The *File View* window displays a list of all files involved in a session. All audio, video and MIDI linked files are displayed. Session files that cannot be found will display an asterisk (*) next to the file type. Session files that are orphaned (not connected to any regions) will display a pound sign (#) next to the file type. You may select individual or multiple files and change the paths or names or both from the popup options menu available by [Left-Clicking] the small blue pyramid logo zone. This window locks out all further program operation until closed. Using these functions changes the session edl links and alters the files and/or file locations themselves.

12.2   Interface

12.2.1 File View Window Top-Client Area

Options Icon

🖑   [Left-Clicking] on the blue pyramid *Options* icon displays a small popup menu containing the following options:

RePath Selected Entries And Actual Files
This option displays the *Browse for Folder* dialog box. Navigate to a new destination drive and folder and click *Ok*. This will change the linked path for all currently selected files and move the files to the new path.

ReName Selected Entries And Actual Files

This option displays the *Enter New File Name* dialog for each of individual selected files one at a time. Type in a new name and press [Enter] or click *Ok* for each of the selected files until complete. This will also rename the actual file on the disk drive.

RePath Selected Entries Only

This option displays the *Browse for Folder* dialog box. Navigate to a new destination drive and folder and click *Ok*. This will change only the linked path for all currently selected files and not alter the actual files in any way. This option then requires that you move the files in question yourself. This option will warn you of any missing files directly after you alter the paths, if you have not already moved the proper files before changing the links in the session EDL.

ReName Selected Entries Only

This option displays the *Enter New File Name* dialog for each of individual selected files one at a time. Type in a new name and press [Enter] or click *Ok* for each of the selected files until complete. This will change only the linked name for all currently selected files and not alter the actual files in any way. This option then requires that you rename the files in question yourself. This option will warn you of any missing files directly after you alter the names, if you have not already renamed the proper files before changing the links in the session EDL.

ReFresh Selected Entries Peak Data Files

This option forces a peak data refresh on all selected files. Use this option after first opening an edl file created outside of the *SAWStudio* environment, such as one created from the EDL Convert Pro program or other edl manipulation utilities. In most cases, peak data files are not created by these programs and will need to be created in *SAWStudio* in order to see waveform data in the MultiTrack under most zoom conditions.

Delete Selected Entries

This option deletes file links from the session. If there are any connected Regions and MT Entries, you will be prompted to continue or not.This option does not delete the physical file from the disk.

Other File View Window Topics:
File View Window Overview
File View Window Navigation

12.2.2 File View Window Navigation

Scrolling

⌨/🖰 The *File View* window may be scrolled by [Left-Dragging] the horizontal or vertical scroll bar area, or by pressing the arrow keys on the keyboard.

Entry Selection

🖰 [Left-Clicking] on an entry selects and highlights it in the listbox, clearing all other selections. [Left-Dragging] selects all entries included in the drag.

⌨🖰 [Shift-Left-Clicking] on an entry selects it and all entries between it and the last selected entry. [Ctrl-Left-Clicking] an entry selects and adds it to the other selected entries.

⌨ Using the [Up-Arrow] and [Down-Arrow] keys scrolls up and down the list selecting one entry at a time. [Shift-Up-Arrow] maintains the originally selected entry and adds contiguous entries one at a time moving up the list. [Shift-Down-Arrow] maintains the originally selected entry and adds contiguous entries one at a time moving down the list.

🖱 At least one entry will always be selected. To clear a selected group, simply [Left-Click] anywhere in the entry list.

⌨ The [Home] key will jump to the first entry in the list. The [End] key will jump to the last entry in the list.

Other File View Window Topics:
File View Window Overview
File View Window Top-Client Area

13   Using The Control Track View

13.1   Overview

13.1.1   Control Track View Overview

The *Control Track* is used to place *Control Entries* that can influence the *MultiTrack* play and record functions and also send MIDI commands to external devices on MIDI ports or Comm (serial) ports. *Control Entries* are displayed as vertical colored lines in the *Control Track*.

The *Control Track* window allows access to the various *Control Entry Types* for insertion onto the *Control Track,* and also displays the current entries in listbox format in sequential fashion as they are positioned along the timeline.

The *Control Track* window will chase the current cursor position in the *MultiTrack*.

This window can be saved with the *F-Key* workspace views.

13.2   Interface

13.2.1   Control Track Top-Client Area

Built-In Cmds Button

🖱 [Left-Clicking] the *Built-In Cmds* button in the *Control Track View* window displays a popup menu of options:

The *Stop Playback* option causes playback to stop at this position.

The *Stop Playback / PreLoad* option causes playback to stop at this position and then does an immediate *MultiTrack* preload and waits for your command to activate playback.

The *Stop Playback / Cue Next* option causes playback to stop at this position and then cues to the next *Cue Location* position.

The *Stop Playback / Cue Next / PreLoad* option causes playback to stop at this position and then cues to the next *Cue Location* position and does an immediate *MultiTrack* preload and waits for your command to activate playback.

The *Stop Playback / Cue Next / Live Mode* option causes playback to stop at this position and then cues to the next *Cue Location* position and turns on *Live Mode*.

The *Stop Playback / Cue Next / Play* causes playback to stop at this position and then cues to the next *Cue Location* position and begins playback immediately.

The *Cue Location* option sets the current *MultiTrack Cursor* position as a cue point.

The *Cue Location / Trigger PreLoad* option sets the current *MultiTrack Cursor* position as a cue point and will force a preload once triggered.

The *Cue Location / Trigger Play* option sets the current *MultiTrack Cursor* position as a cue point and force playback once triggered.

The *Cue Beginning / Play* option sets the current *MultiTrack Cursor* position back to zero and initiates playback once triggered.

The *Cue Location / Wait For Time* option allows you to place a *Cue* mark and designate a *Wait For Time* value in 24 hour time format. When this *Control Track Entry* is activated, the system stops and displays a message window showing the wait for time value and the current time value. The current time continues to update until the wait for time is reached. At that point, the system starts playback, or SRP playback if record meters are active. If you have the *SRP/Record Latch* turned on, then the system will begin recording immediately. If instead, you mark an area on the *MultiTrack*, recording will auto punch in and out. Using this feature, you can designate a defined length recording, and then stop the system with a *Control Track Stop* command at the end of the *Marked Area*. You may cancel the wait for time feature when the time window is displayed and counting by pressing the [Esc] key.

The *Midi Program Change* option sends a MIDI Program Change command to external devices.

The *Midi Note On* option sends a MIDI Note On command to external devices.

The *Midi Note Off* option sends a MIDI Note Off command to external devices.

The *Midi Note On / Off* option sends a MIDI Note On followed by an immediate MIDI Note Off command to external devices.

The *Midi Hex String* option sends a MIDI string of Hex numbers to external devices.

The *Midi Dec String* option sends a MIDI string of Decimal numbers to external devices.

The *Midi Bank Select* option allows you to send a Bank Select command to your chosen Midi channel.

The *Midi Bank Select / Program Change* option automatically follows the Bank Select with a Program Change command.

The *Midi Ascii String* option sends straight *Ascii Text* strings to external devices. You may include *Ctrl* char codes such as carriage returns and linefeeds by using the "^" character

followed by the *Ctrl* code letter such as "^m" for a carriage return (dec 13) and "^j" for a linefeed (dec 10).

The *SacLink Recall Cur Scene* option allows you to send a command to SAC (when connected with the SAC Link option) to recall the currently selected scene in the Scenes View listbox.

The *SacLink Recall Scene By Name* option allows you to send a command to SAC (when connected with the SAC Link option) to recall a named scene from anywhere in the Scenes View listbox. This command will find the scene and jump to it in the listbox, and then recall it.

Custom Cmds Button

🖑   [Left-Clicking] the *Custom Cmds* button in the *Control Track View* window displays a popup menu of options:

    The *Add Current Selection To Custom List* option allows you to select any entry in the *Control-Track* listbox and add it to the list of *Custom Commands*. This list is automatically updated and saved and reloaded each time you start the program.

☞   Be sure to name each entry with a unique and identifiable name, before adding it to the *Custom Commands* list.

    The *Select Item With Shift Key To Remove From Custom List* reminder option does no actual work, and serves as a reminder for removing a Custom Command from the list. To remove a *Custom Command* from the list [Shift-Left-Click] the actual command.

Jump-To Control Track Zone

🖑   [Left-Clicking] the *Jump-To Control Track* zone in the *Control Track View* window jumps the *MultiTrack* view directly to the *Control Track*.

Other Control Track View Topics:

13.2.2 Control Track View Navigation

Scrolling

⌨/🖑   The *Control Track List* may be scrolled by [Left-Dragging] the right scroll bar area, or by pressing the [Up-Arrow] or [Down-Arrow] keys.

Entry Selection

🖑   [Left-Clicking] on an entry selects and highlights it in the listbox, clearing all other selections. [Left-Dragging] selects all entries included in the drag.

⌨🖑   [Shift-Left-Clicking] on a entry selects it and all entries between it and the last selected entry. [Ctrl-Left-Clicking] a entry selects and adds it to the other selected entries.

⌨   Pressing the [Up-Arrow] or [Down-Arrow] keys scrolls up or down the list selecting one entry at a time. [Shift-Up-Arrow] maintains the originally selected entry and adds contiguous entries one at a time moving up the list. [Shift-Down-Arrow] maintains the originally selected entry and adds

contiguous entries one at a time moving down the list.

⌐   To clear a selected group, simply [Left-Click] anywhere in the *Control Track List*.

⌨   The [Home] key will jump to the first entry in the list. The [End] key will jump to the last entry in the list.

Other Control Track View Topics:

13.3   Operation

13.3.1   Control Track View Editing And Control

Playback

⌨/⌐   [Right-Clicking] in the *Control Track View* window, or pressing the [spacebar] will toggle *MultiTrack* playback operations.

⌨/⌐   Pressing the [Enter] key will preload playback or stop. Playback can then be initiated instantly on cue, with no delay, by pressing the [Enter] key again or clicking *OK* in the displayed message box. Pressing the [Esc] key or clicking *Cancel* will cancel playback.

☞   This feature used along with the *Cue Location* command creates an excellent markers list. Each control track command type has special leading characters in the listbox to help locate them. The *Stop* commands will have '- - -' in front of the name. The *Cue* commands will have '@' in front of the name, and the *Midi* commands will have '> ' in front of the name.

⌨/⌐   Use the mouse or keyboard to select *Cue Location* selections within the listbox during playback, to jump and continue playback for instant live cueing operations.

Opening The Control Track View Window

⌐   [Left-Clicking] on the *Control Track* label on the *MultiTrack* displays the *Control Track View* window. This view may also be displayed by selecting *Control Track* from the *View* menu.

Placing And Editing Control Entries

⌐   [Left-Clicking] in the *Built-In Cmds* or *Custom Cmds* zone will pop up a menu of command types. Selecting a command then displays a dialog box with the various parameters applicable to that command type. You may change any of the parameters that are displayed in yellow text and [Left-Click] the *OK* zone to enter the command at the current *MultiTrack Cursor* position. Command parameter string formats are displayed for each command type under the parameter string zone.

⌐   [Left-Clicking] an entry snaps the *MultiTrack Cursor* position to that entry's position. [Left-Double-Clicking] an entry in the listbox opens up the entry edit dialog box.

With the *MultiTrack View* window as the active window, cue locations may be easily placed on the *Control Track* with the keyboard while playback is stopped or active.

⌨   Pressing the [Q] key activates a *Cue Location* command on the *Control Track* at the current cursor position.

Pressing [Shift-Q] activates a *Cue Location / PreLoad* command on the *Control Track* at the current cursor position.
Pressing [Ctrl-Q] activates a *Cue Location / Play* command on the *Control Track* at the current cursor position.

When using these commands, a dialog box is displayed allowing you to name the cue and also attach a *Midi Note-On/Off* trigger. The dialog will accept keystrokes for the Name [N] key, Parameter Data [P] key, Midi Trigger [T] key, and Midi Note On/Off [O] key.

⍟   [Left-Clicking] in the *Midi Trigger* readout displays a menu listing the full range of MIDI notes. There is also a *Last Midi Input* option that will accept the last MIDI note played from a keyboard or other MIDI device. While the menu is active, the *Client-Y* area of the *Control Track View* window will display live, all incoming MIDI notes above the *Midi-Trigger* column heading.

Finding the Marked Time between Entries

The *Control Track View* allows you to determine the time between control entries.

⍟   [Left-Click] the first entry of interest, then [Alt-Left-Click] the next entry (further down the timeline), and the area between them will be marked and displayed in the *Marked Time* zone on the *MultiTrack*.

Deleting Control Entries

⌨   You may select single or multiple entries in the listbox and press the [Delete] key to delete the selected entries.

Options Icon

⍟   [Right-Clicking] on the blue pyramid *Options* icon will hide (minimize) SAWStudio and leave the Control Track view visible on top of whatever is underneath. This can be used to control SAWStudio's playback functions from inside SAC for instance. Right–Clicking the zone again will restore SAWStudio to the screen.

⍟   [Left-Clicking] on the blue pyramid *Options* icon displays a small popup menu containing the following options:

Output Bypass
When this option is selected, all Control Track output data is suppressed and. the listbox will display as dark gray. The listbox will still chase current entries and can be still be used for Cue Location points.

Midi Receive Trigger Active
This option toggles the *Control Track Note On/Note Off* MIDI trigger features. When this option is off, *Control Track Midi* trigger information will be discarded. This option is saved with each session Edl. When sessions are closed, this option is turned off automatically.

☞   Any sessions previously saved which use *Control Track Midi Note* triggering will need to be opened and re-saved with this option active. They will operate normally after that.

Midi Receive Chan
This option selects a MIDI channel just for the *Control Track* commands.

Global Play Midi Trigger
This option allows you to set a MIDI note assignment to act as a global Play command. When the system is cued and in a preload wait state, this key can be used to start playback. This key will press

the SRP button when record meters are active (instead of the Play button) and can trigger record in two ways: A *Marked Area* auto punch section, or by using the SRP/Rec latch option in the *Options* menu.

Global Stop Midi Trigger
This option allows you to set a MIDI note assignment to act as a global Stop command. When the system is cued and in a preload wait state, this key can be used to cancel the preload.

Set Cue Base Name
This option allows you to enter a cue base name which will be used automatically as the name for all following *Cue Location* entries until changed or cleared. This can help you locate all cue locations, for example, that you entered during a vocal overdub session as markers by first setting the base name to "Vocal OD." All entries can be easily seen, and edited after the overdub, because they will all be labeled "Vocal OD" in the *Control Track View* listbox.

Other Control Track View Topics:
Control Track Top-Client Area
Control Track - Navigation

14   Using the Show Control View

14.1   Overview

14.1.1   Show Control View Overview

The *Show Control View* offers features for playlist-style operation. The *Show Control View* resides outside of and separate from the session EDLs, and actually allows lists of independent EDLs to be controlled in a sequential or non-sequential playback arrangement.

The view is basically a listbox where you may add session EDL entries in a specific order. Each entry may have a *Continue* option and a *Midi Trigger* option that controls the playback flow of the list at that point.

You can use *Show Control* playback in combination with *Control Track* options inside each session to setup some very powerful playback options for theater and production show automation.

Show Control playback can be operated using a Remote computer connection over the network.

This window can be saved with the *F-Key* workspace views.

☞   Place the view in an *F-Key* workspace where no other views overlap, and from this view you can control an entire show of independent EDLs.

14.2 Interface

14.2.1 Show Control Top-Client Area

Options Icon

🖰 [Right-Clicking] on the blue pyramid *Options* icon will hide (minimize) SAWStudio and leave the Show Control view visible on top of whatever is underneath. This can be used to control SAWStudio's Show Control playback functions from inside SAC for instance. Right–Clicking the zone again will restore SAWStudio to the screen.

🖰 [Left-Clicking] on the blue pyramid *Options* icon displays a small popup menu containing the following options:

Open Show Control File
This options opens a pre-saved *Show Control* file containing the list of EDLs with all *Show Control* options. The file extension is .shw. Opening a *Show Control* file loads all entries and settings into the listbox and opens the first EDL in the list, ready for playback.

Close Show Control File
This option closes an open *Show Control* file. If unsaved changes have been made to the current file entries, you will be prompted to save the file before closing.

Recent Show Control FileList
This option displays a list of the last 30 accessed Show Control files and complete paths, which can be used to quickly re-open commonly accessed Show Control files. The list is ordered with the most recent session file on top.

⌨🖰 Pressing the [Shift] key when selecting an entry will remove that entry from the list.

Save and Update Show Control File
This option saves and updates the current *Show Control* file without prompting, unless the current file has not yet been named.

Save Show Control File As...
This option prompts for a new name and save the current file to that new file name. The new file will then become the current working *Show Control* file.

Save Show Control Copy As...
This option prompts for a new name and saves the current file to that new file name. The current file remains as the current working *Show Control* file.

Add New Session Entry (Ins)
This option opens a new EDL session file and adds the session to the listbox. The *Show Control* entry dialog box is displayed for you to set the entry options. You may edit the name of the entry as it will appear in the list. You may also set the *Continue* option to one of three values:

- **Yes** - Causes the playback flow to continue onto the next entry when this session finishes playing and begin immediate playback.
- **PreLoad** - Causes the playback flow to continue onto the next entry when this session finishes playing, but preload only, presenting a message box and waiting for a manual play command to continue.
- **Wait** - Causes the playback flow to continue onto the next entry when this session finishes playing and load and sit idle, waiting for a go command. No message box is displayed.
- **No** - Causes the playback flow to stop when this session finishes playing.

You may also select a *Midi Trigger* note for starting playback of this entry. You may select a *Midi Trigger* note from the popup menu, or press a key on your midi controller keyboard and choose the last midi note played as your selection. You may also select a *Note-On / Off* option which controls how the trigger is applied. If set to *Note-On*, the session will be opened and playback will start as fast as it can. If set to *Note-Off*, the session will be opened and preloaded, waiting for the *Note-Off* signal when you release the midi key to start playback instantly.

Edit Current Session Entry (Alt-Double-Click)
This option you to edit an entry by displaying the *Show Control* entry dialog box with all options available for editing. Closing the dialog by clicking the *OK* button will apply the changes. Closing the dialog using the *Close* button in the upper right corner will cancel any changes.

Midi Receive Trigger Active
This option toggles the ability for *Show Control* to receive *Midi Trigger* data from the Midi ports. This option must be on to trigger from midi data, along with the *Midi Control-In Active* option on the *Smpte / Midi* main menu.

Midi Receive Chan
This option sets the midi receive channel for the *Show Control Midi Trigger*. If the receive channel is the same as the *Control Track* receive channel, make sure trigger notes for *Show Control* entries are not conflicting with trigger notes for *Control Track* data in any of the listed session EDLs.

Global Play Midi-Trigger
This option sets a midi note-on value that acts as a global Show Control Play trigger. This will activate the Show Control view and load and begin playback of the currently selected listbox entry.

Global Stop Midi-Trigger
This option sets a midi note-on value that acts as a global Show Control Stop trigger. This will end Show Control playback mode.

Global Prev Midi-Trigger
This option sets a midi note-on value that acts as a global Show Control previous entry selector. This will activate the Show Control view and select the previous entry in the listbox.

Global Next Midi-Trigger
This option sets a midi note-on value that acts as a global Show Control next entry selector. This will activate the Show Control view and select the next entry in the listbox.

File Lock Active
This option locks the current *Show Control* file from being altered. No editing will be allowed when this option is active. When this option is active, a small lock icon is displayed in place of the *Close* button on the *Show Control* view window.

Set Default Show Control Fade Time
This option sets the default automatic fade time (in milliseconds) for the special feature that allows you to force an automatic fade cutoff of the current playback entry and jump to the next Show Control entry automatically.

All of these options save with the *Show Control* files.

Show Light

The *Show Light* lights up when playback is currently being controlled in *Show Playback* mode.

🖰   [Left-Clicking] the *Show Light* stops playback and exits *Show Playback* mode.

Other Show Control View Topics:

14.2.2 Show Control View Navigation

Scrolling

⌨/🖱 The *Show Control List* may be scrolled by [Left-Dragging] the right scroll bar area, or by pressing the [Up-Arrow] or [Down-Arrow] keys.

Entry Selection

🖱 [Left-Clicking] on an entry selects and highlights it in the listbox, clearing all other selections. [Left-Dragging] selects all entries included in the drag.

⌨🖱 [Shift-Left-Clicking] on a entry selects it and all entries between it and the last selected entry. [Ctrl-Left-Clicking] a entry selects and adds it to the other selected entries.

⌨ Pressing the [Up-Arrow] or [Down-Arrow] keys scrolls up or down the list selecting one entry at a time. [Shift-Up-Arrow] maintains the originally selected entry and adds contiguous entries one at a time moving up the list. [Shift-Down-Arrow] maintains the originally selected entry and adds contiguous entries one at a time moving down the list.

⌨ Pressing the [Ctrl-Up-Arrow] or [Ctrl-Down-Arrow] keys moves an entry up or down in the list to a new position.

🖱 To clear a selected group, simply [Left-Click] anywhere in the *Show Control List.*

⌨ The [Home] key will jump to the first entry in the list. The [End] key will jump to the last entry in the list.

Other Show Control View Topics:

14.3   Operation

14.3.1 Show Control View Operation

Opening The Show Control View Window

🖱 This view may be displayed by selecting *Show Control* from the *View* menu.

Adding and Editing Entries to the Listbox

⌨/🖱 Selecting the *Add New Session Entry* option from the Option menu, or pressing the [Insert] key inserts a new session EDL at the current listbox position and allow you to set the options for the entry.

⌨ Pressing the [Delete] key deletes all currently selected entries.

⌨ Pressing the [Ctrl-Up-Arrow] or [Ctrl-Down-Arrow] keys moves an entry up or down in the list to a new position.

🖱 [Double-Clicking] an entry opens that session to the *MultiTrack*.

🖱 [Alt-Double-Clicking] an entry opens the *Show Control* entry dialog for editing that entry's options.

Playback

Whenever playback is started from the *Show Control View*, the *Show Light* lights up and playback will flow through the *Show Control* list according to the *Continue* options for each entry. Playback may be started and stopped from within the individual sessions (for example, with *Control Track* entries) without deactivating *Show Playback* mode. As long as *Show Playback* mode is engaged, playback flow will continue through the list when the current session plays to its end.

⌨/🖱 [Right-Clicking] an entry in the *Show Control View* window, or pressing the [spacebar] opens the currently selected entry and begins immediate playback at the start of the session. If playback is already active, this will stop playback and disengage *Show Playback* mode, turning off the *Show Light*.

⌨ Pressing the [Enter] key opens the currently selected entry and preloads, waiting for a playback go command. If playback is already active, this will stop playback and disengage *Show Playback* mode, turning off the *Show Light*.

* Show Control playback mode now recognizes Control Track Stop commands within a Show Control entry and allows the next Show Control playback toggle to continue playback within the same entry, instead of forcing Show Control playback to start over again from the beginning. If the entry selection has been changed, then the next playback will load and start the new entry from the beginning as normal.

⌨/🖱 During playback in Show Control Mode, pressing [Shift-Right-Click], [Shift-Spacebar] or [Shift-Return] will force an automatic fadeout of the current session entry and an immediate jump to the next entry which will then continue, wait or preload, according to the new entry's setting. You may also activate this feature by [Right-Clicking] in the Show Control light. The light will flash during the duration of the automativ fade.

Other Show Control View Topics:

15   Using the Video Track/Viewer

15.1   Overview

15.1.1   Video Track/Viewer Overview

The SAWStudio *Video Viewer* is based on the DirectShow interface and therefore allows access to the many varieties of file types and functions that this interface supports. The *Video Viewer* displays applicable file types to the computer screen without the need for any additional hardware, or to an external full screen video monitor with the use of the DV file format, a 1394 FireWire port, and a FireWire capable camcorder or external DV converter box.

This viewer is dynamically linked to the *Video Track* in the *MultiTrack* and will track precisely with all *MultiTrack* cursor movements. As you move the *MultiTrack* cursor, the viewer will chase accurately frame by frame or you may use the viewer's controls and the *MultiTrack* cursor will chase frame by frame. The link works both ways. Placing audio regions in exact sync with video becomes a simple procedure.

The *Video Track* in SAWStudio may be used to arrange your video. Use the *Video Track* to quickly copy, move, delete, and arrange your video clips in the exact order you desire, all the while maintaining perfect lock with the audio.

The *Video Viewer* is an on-top window, independent of the function key workspace assignments. As a suggestion, you can create alternate workspace views on the Alt F-key assignments with the viewer open, positioning windows around the viewer.

☞   As the viewer is completely reliant on the DirectShow interface, in order to utilize the variety of video file formats and the use of the DV FireWire port, you must have the latest version of DirectX installed on your machine. At the time of the this writing, DirectX 9.0c in Windows 2000 or Windows XP will give the maximum performance and range of functionality. Windows NT and Service Pack 6a limits the DirectX version availability, and certain features may not work. It is particularly difficult, if not impossible, to get DV FireWire output functioning in Windows NT.

☞   The viewer has compatibility for some HD mp4 formats, and extended compatibility for many mpeg and quicktime formats. Many DVD .vob files can also be opened and converted directly inside the viewer, depending on the actual compression format used to create them. Some HD formats may require the installation of the ffdshow codecs, or others available on the web.

15.2   Interface

15.2.1   Video Viewer Top-Client Area

Video Viewer Top-Client Area

Pyramid Icon

☞   [Left-Clicking] the pyramid icon displays the *Video Viewer* menu.

V-Letter Zone

🖰 [Left-Clicking] the *V-Letter* zone jumps the *MultiTrack* directly to the *Video Track*, similar to the *I, R* and *O* zones at the bottom of the *MultiTrack* view.

Edit Light

🖰 The *Edit Light* will turn on when in *Edit Mode*. You can toggle *Edit Mode* on and off by [Left-Clicking] the *Edit Light*.

Video Control Buttons

🖰 [Left-Clicking] the play and stop buttons plays and stops the video.

🖰 [Left-Clicking] the step forward and backward buttons allows you to step, one frame at a time, in either direction.

[Left-Holding] one of these buttons steps the video in very slow motion, about 100 ms per frame.

⌨ While in *TimeLine Mode*, pressing the [Left-Arrow] and [Right-Arrow] keys on the keyboard when the video track is the *Hot Track* allows you to step, one frame at a time, in either direction.

⌨ While in *Edit Mode*, pressing the [Left-Arrow] and [Right-Arrow] keys on the keyboard with the *Viewer* as the active window, allows you to step, one frame at a time, in either direction.

🖰 [Left-Clicking] the *In* and *Out* buttons allows you to mark in and out frames for creating and extracting clips from the total file.

⌨/🖰 While in *TimeLine Mode*, the current video track entry under the cursor can be nudged in either direction one frame at a time by [Shift-Left-Clicking] the step forward and backward buttons on the *Viewer*, or by pressing the [Shift-Left-Arrow] and [Shift-Right-Arrow] keys on the keyboard when the *Viewer* is the active window.

Other Video Viewer Interface Topics:
Video Viewer Bottom-Client Area

15.2.2 Video Viewer Bottom-Client Area

Scrub Zone

🖰 [Left-Clicking] or [Left-Dragging] in the scrub zone at the bottom of the viewer allows you to jump or scrub through the video file from front to back. The scrub zone always represents the entire length of the file.

⌨🖰 [Shift-Left-Clicking] near the red center line in the scrub zone will slowly jog the video forward or backward depending on which side of the red line center position you are.

Other Video Viewer Interface Topics:

Video Viewer Top-Client Area

15.3   Operation

15.3.1   Getting Started

Getting Started

Opening The Video Viewer

M   To open the *Video Viewer*, from the *View* menu choose *Video Viewer*.

⏻   The *Video Viewer* may also be opened by [Left-Clicking] the *Video Track* label area.

Edit Mode vs TimeLine Mode

The *Video Viewer* has two distinct modes of operation; *Edit Mode* and *TimeLine Mode. Edit Mode* separates the viewer from the *MultiTrack* timeline and causes it to act on its own, similar to *SoundFile View*. In *TimeLine Mode* the viewer locks to the *MultiTrack* timeline and forces the video playback in sync with the *MultiTrack* audio.

Opening Files in the Video Viewer

⏻   To open a file into the *Video Viewer*, [Left-Click] on the blue pyramid icon to display the *Video Viewer* menu and select *Open Video File* from the *File* menu option. The *Open Video File* dialog box is displayed where you may navigate and select a video file. Any video file type that has a codec in the system can be opened. This includes DV/Avi, mpg, indeo, certain QuickTime formats and others. This option opens the video file into the viewer and automatically activates *Edit Mode* where you can audition the entire video file and mark sections to be made into clips to be arranged on the *Video Track*.
You may also select *Open Image File* from the *File* menu option to load image files including .bmp, .jpg, .gif, and .tga formats. (Typically only operational in Windows 2000 or XP.)

⏻   Selecting *Open Video File And Add To MT* or *Open Image File And Add To MT* from the viewer *File* menu opens a video or image file and places the file as a clip at the current cursor position on the *Video Track* all at once.

     If the current cursor position is on an existing entry, the new entry will be butt-spliced to the end boundary of the existing entry.

     If the size of a new entry conflicts with existing entries further down the track, a warning message is displayed indicating that the entry is too large, giving you the option to continue anyway, or cancel the operation. Continuing moves all conflicting video entries forward in their relative positions, butt-splicing the end boundary of the new entry with the begin boundary of the first conflicting entry.

⏻   [Left-Clicking] the *Open Video File And Insert To MT* or *Open Image and Insert to MT* option from the viewer *File* menu opens a video or image file and places the file as a clip at the current cursor position on the *Video Track*, inserting and overwriting any existing underlying entries, leaving everything in its relative position.

Video Playback

⏻   [Left-Clicking] the play and stop buttons plays and stops the video. No audio is played while in *Edit Mode*.

✎⏚ Pressing [Shift-Left-Clicking] the *Play* button plays just the clip area indicated by the *In* and *Out* points.

✎⏚ Pressing [Ctrl-Left-Clicking] the *Play* button plays and loops just the clip area indicated by the *In* and *Out* points.

Zoom Options

⏚ The viewer may be zoomed to various preset standard sizes using the *Zoom* option from the *Video Track* menu. Selecting the *Actual Size* option displays the video at it's original rendered size. You may also find the 1/2 and 1/4 Actual Size selections useful when displaying HD files.

⏚ You may also size the viewer to any size by [Left-Dragging] the window's top or bottom edges to the desired size. The aspect ratio will be automatically maintained. The scaling is done with the DirectDraw interface and maintains a high quality size adjustment to keep the video looking sharp.

⏚ The Video Track Viewer may be stretched out of proportion by dragging the left or right border.

Closing Video Files

⏚ Files loaded into the viewer can be closed by selecting *Close Video/Image File* from the viewer *File* menu option. This closes the file open in *Edit Mode* only and does not affect files associated with clips on the *Video Track*.

Getting File Properties

⏚ [Right-Clicking] on the video image display in either mode displays information about the associated video clip and/or file including file location, compression scheme, frame rate, length, size, and audio resolution. The current number of files and clips in the session is also displayed at the bottom of the information dialog.

Adjusting Video File FrameRate

⏚ To adjust a video file framerate, [Left-Click] on the blue pyramid icon to display the *Video Viewer* menu and select *Stamp New Avi File FrameRate* from the *File* menu option.This option allows you to change the framerate stamped in an avi file header. This can be very useful to force odd framerate stamps like 24.999 to 25.000 which will stop mismatched framerate warnings when adding clips and force perfect frame accurate sync on the timeline.

Other Video Track/Viewer Operation Topics:
Using Edit Mode
Using TimeLine Mode
Viewer Editing And Control
Video Viewer Special Options

15.3.2 Using Edit Mode

Edit Mode separates the viewer from the *MultiTrack* timeline and causes it to act on its own, similar to *SoundFile View*. While in *Edit Mode*, you are working with one file at a time in the viewer. Each time you open a new video file, any previously opened file is closed before the newly selected file is loaded.

The top-client area of the viewer displays the current frame count in this mode, and the current *In*

Frame and *Out Frame.*

Activating Edit Mode

🖰   The *Edit Light* will turn on when in *Edit Mode*. You can toggle *Edit Mode* on and off by [Left-Clicking] the *Edit Light*.

🖰   [Double-Clicking] any video entry on the *Video Track* will open that clip in the viewer in *Edit Mode* with the *In* and *Out* points properly set to those of the associated clip. The frame at the current cursor position will be the frame displayed in the viewer.

Scrubbing / Stepping Video

🖰   [Left-Clicking] in the scrub zone at the bottom of the viewer while in *Edit Mode* allows you to scrub through the currently open video file from front to back. The scrub zone always represents the entire length of the file.

⌨🖰   [Shift-Left-Clicking] near the red center line in the scrub zone will slowly jog the video forward or backward depending on which side of the red line center position you are.

🖰   [Left-Clicking] the step forward and backward buttons allows you to step, one frame at a time, in either direction.
[Left-Holding] one of these buttons steps the video in very slow motion, about 100 ms per frame.

⌨   Pressing the [Left-Arrow] and [Right-Arrow] keys on the keyboard with the *Viewer* as the active window, allows you to step, one frame at a time, in either direction.

Setting In and Out Points

The *In* and *Out* buttons allow you to mark in and out frames for creating and extracting clips from the total file.

🖰   To set an *In* or *Out* point, use the scrub zone or the step-forward/back buttons to find an exact location in the viewer then [Left-Click] the *In* button to set the begin point of a clip or the *Out* button to set the end point of a clip.

⌨🖰   To jump to the current *In* or *Out* point, press [Ctrl] and click the step-forward/back buttons.

⌨🖰   Pressing [Ctrl] and clicking the *In* button clears the current *In* point defaulting to the first frame in the video. Pressing [Ctrl] and clicking the *Out* button clears the *Out* point defaulting to the last frame in the video.

🖰   Clicking the *In* button, then the *Out* button at the same point clears both points at the same time.

Adding Clips to the MultiTrack

🖰   [Left-Clicking] the blue pyramid logo in the viewer and selecting the *Create New Clip And Add To MT* option from the viewer *Clip* menu, creates a clip from the *In* and *Out* frame markers and adds the clip to the *Video Track* at the *MultiTrack* cursor position. The clip will be displayed as a video entry on the *Video Track* in the *MultiTrack*.

       If the current cursor position is on an existing entry, the new entry will be butt-spliced to the end boundary of the existing entry.
       If the size of a new entry conflicts with existing entries further down the track, a warning

message is displayed indicating that the entry is too large, giving you the option to continue anyway, or cancel the operation. Continuing moves all conflicting video entries forward in their relative positions, butt-splicing the end boundary of the new entry with the begin boundary of the first conflicting entry.

🖱   [Left-Clicking] the *Create New Clip And Insert To MT* option from the viewer *Clip* menu creates a clip from the *In* and *Out* frame markers and adds the clip to the *Video Track* at the *MultiTrack* cursor position, inserting and overwriting any existing underlying entries, leaving everything in its relative position.

        ☞   You will be warned if a clip's framerate does not match the current *MultiTrack* framerate settings when the clip is placed on the *TimeLine*. It is recommended that you set the *MultiTrack TimeLine* to the SMPTE display mode and set the final session SMPTE framerate (29.97, 30 drop-frame, etc.) prior to adding clips to the *MultiTrack*. If you are working with NTSC DV video, select 29.97 non-drop, with a recommended 48k samplerate. Some DV equipment will not handle other samplerates properly. Those working with PAL video will want to set the samplerate to 25.

Renaming a Clip

⌨🖱   To rename a clip on the *Video Track*, [double-click] the clip entry in the *MultiTrack* to load the source file into the viewer displaying the region's *In/Out* points in *Edit Mode*. [Left-Click] the blue pyramid icon and from the *Clip* menu option, select *Re-Name Clip*. The *Re-Name Clip* dialog box is displayed showing the current clip name. Enter a new name or edit the existing name and press the [Enter] key or click the *OK* button on the dialog box to accept the new name and update the *Video Track* entry.

Deleting a Clip

Deleting a video *clip* works much like deleting soundfile regions. A source video file is first loaded into the *Video Viewer* by double-clicking the applicable video clip entry in the *MultiTrack* (just like double-clicking a soundfile region to load the complete source soundfile into the *SoundFile View*.) The viewer loads the entire video file with the clip's *In* and *Out* points displayed in the *Scrub Zone* (comparable to a *Marked Area* in the *SoundFile View*.)

Deleting a clip from your session leaves the original video file untouched, but removes the clip and any associated clip entries from the *MultiTrack*. If the video file associated with the deleted clip is not linked to any other clips, the video file is closed and removed from the session at the same time, freeing precious system resources from the DirectShow interface.

🖱   [Double-Click] a clip's entry in the *MultiTrack* to load it into the viewer and activate *Edit Mode*. Selecting *Delete Clip* from the viewer's *Clip* menu while in *Edit Mode* will delete the loaded clip from the session along with any associated entries on the *Video Track*.

🖱   Selecting *Delete All Unused Clips* from the viewer's *Clip* menu will delete all clips from the session that are not being used on the *Video Track*. Any video files not linked to remaining clips are closed and removed from the session at the same time, freeing precious system resources from the DirectShow interface, as each opened video file creates an associated DirectShow Filter Graph which can be very resource intensive.
This option can also be used in *TimeLine Mode*.

🖱   Selecting *Delete All Clips* from the viewer's *Clip* menu will delete all clips from the session along with the associated entries on the *Video Track*. This closes and removes all video/image files associated with the session, freeing up valuable system resources.
This option can also be used in *TimeLine Mode*.

☞ When using the viewer to delete video clips, *Edit Mode* will leave the last loaded video file in the viewer, ready for continued use.

Converting Video

The *Video Viewer* convert options allow you to convert and extract the currently displayed video clip to various video formats, with or without audio. The *In* frame and *Out* frame settings are used to control the portion of the file that is included in the operation.

🖑 With a video file open in the viewer, to convert a file, [Left-Click] the blue pyramid icon and from the *Convert/Extract* menu select one of the following conversion choices:

- Convert To DV Type-1 Avi File
- Convert To DV Type-1 (Mute Audio) Avi File
- Convert To DV Type-2 Avi File
- Convert To DV Type-2 (Mute Audio) Avi File
- Convert To Custom Avi File

The *Convert To Custom Avi File* option displays a dialog box allowing you to select any compressor in the system for both audio and video options.

🖑 [Left-Clicking] the *Stop* button, or choosing Stop Convert/Extract from the Convert/Extract menu option in the viewer at any time will cancel the process, leaving the partial output file intact.

☞ Microsoft has created two standards for storing DV files in an AVI format. DV files are interleaved video/audio streams. The DV Type-1 format maintains the interleaving and stores the data in a single stream. For backward AVI file compatibility, the DV Type-2 format splits the video and audio into two separate streams which many earlier applications expect when handling AVI files. This format is slightly larger, and more resource intensive, but much more compatible with a wider range of software.

Extracting Audio

🖑 Selecting the *Extract Audio* option from the *Convert/Extract* menu in the viewer, extracts the audio from the open video file and saves it to a designated .wav file. The *In* and *Out* points are used (like a *Marked Area*) to determine what portion of the file's audio is output to a .wav file.

🖑 [Left-Clicking] the *Stop* button, or choosing Stop Convert/Extract from the Convert/Extract menu option in the viewer at any time will cancel the process, leaving the partial output file intact.

Other Video Track/Viewer Operation Topics:
Getting Started
Using TimeLine Mode
Viewer Editing And Control
Video Viewer Special Options

15.3.3 Using TimeLine Mode

In *TimeLine Mode* the viewer locks to the *MultiTrack* timeline and forces the video playback in sync with the *MultiTrack* audio.

The top-client area of the viewer displays the current SMPTE time in this mode, even if the *MultiTrack* is using a different *TimeLine* display mode.

☞   It is recommended that you set the *MultiTrack TimeLine* to the SMPTE display mode and set the final session SMPTE framerate (29.97, 30 drop-frame, etc.) prior to adding clips to the *MultiTrack*. If you are working with NTSC DV video, select 29.97 non-drop, with a recommended 48k samplerate. Some DV equipment will not handle other samplerates properly. Those working with PAL video will want to set the samplerate to 25.

Activating TimeLine Mode

☞   The *Edit Light* will turn off when in *TimeLine Mode*. You can toggle *TimeLine Mode* on and off by [Left-Clicking] the *Edit Light*.

☞   [Left-Clicking] in the *MultiTrack* automatically switches the viewer to *TimeLine Mode*.

Scrubbing / Stepping Video

☞   [Left-Dragging] the cursor anywhere in the *MultiTrack* scrubs the video in sync to the current cursor position.

☞   [Left-Dragging] the cursor on the *Video Track* scrubs the video, and automatically snaps the cursor position to exact frame boundaries necessary for all video clip positioning and editing. This is separate from using the *TimeLine Grid* option and works independently. When using video functions that require *MultiTrack Marked Areas*, it is highly recommended that you mark while the video track is the active track, thereby engaging this frame snap mode to ensure accuracy.

☞   [Left-Clicking] in the scrub zone at the bottom of the viewer while in *TimeLine Mode* allows you to scrub through all video clips on the *MultiTrack TimeLine* from front to back. The scrub zone always represents the entire length of the session.

⌨☞   [Shift-Left-Clicking] near the red center line in the scrub zone will slowly jog the video forward or backward depending on which side of the red line center position you are. The *MultiTrack* cursor position is locked to the viewer position and will always remain in perfect sync with the viewer scrub position.

⌨/☞   [Left-Clicking] the step forward and backward buttons, or pressing the [Left/Right Arrow] keys, allows you to step one frame at a time in either direction.

      [Left-Holding] one of these buttons or keys steps the video in very slow motion, about 100 ms per frame (or keyboard repeat rate.)

⌨   Pressing the [Left-Arrow] and [Right-Arrow] keys on the keyboard when the video track is the *Hot Track* allows you to step, one frame at a time, in either direction.

Video Playback

Engaging *MultiTrack* playback by any method, automatically activates *TimeLine Mode*, playing back audio regions and video clips in sync.

☞   [Left-Clicking] the viewer play and stop buttons while in *TimeLine Mode* activates playback of the *MultiTrack*, playing back audio regions and video clips in sync on the *MultiTrack*.

    ☞   All video formats can be handled without conversion in the *TimeLine Mode*. Only DV format files can be live rendered to the Firewire output without conversion. Individual file framerates will be automatically conformed to the *MultiTrack* framerate setting.

Other Video Track/Viewer Operation Topics:
Getting Started
Using Edit Mode
Viewer Editing And Control
Video Viewer Special Options

15.3.4 Viewer Editing And Control

By default the audio tracks are not linked to the *Video Track* for editing operations. All synchronized audio/video editing must be initiated from the *Video Track*.

When editing is done on the *Video Track*, any of the editing commands that use the [Ctrl] key modifier will extend the command across all audio tracks at the current cursor position. If the *Video Track* is part of a group of selected audio tracks, the selected audio tracks will also be affected.

Updating In and Out Points

Updating *In* and *Out* points on existing clips on the *Video Track* is done directly in the *MultiTrack* using one of two methods.

⌨🖱 Position the *MultiTrack* cursor over the video clip entry, using the viewer to visually locate a new *In* or *Out* point. (Hint: Use the left and right arrow keys to find a precise frame location.) Press the [U] key on the keyboard to *Update* the entry's begin or end boundary, which automatically updates the set *In/Out* points.

⌨🖱 [Alt-Left-Drag] a clip's region boundaries to adjust either side of the clip's in or out boundary, using the viewer as a visual guide.

Grabbing the left boundary of a butt-splice and [Alt-Shift-Left-Dragging] extends or shrinks the left clip entry and automatically adjusts the following clips butt-spliced positions to remain attached. Pressing [Shift-U] does the same adjustment to the current cursor position. This operation does not alter edit points of the following entries.

Grabbing either boundary of a butt-splice and [Alt-Ctrl-Left-Dragging] extends or shrinks both entries, keeping them attached and keeping the overall time sync unaffected. Pressing [Ctrl-U] does the same adjustment to the current cursor position.

Moving And Copying Individual Clips

⌨🖱 [Shift-Left-Dragging] an entry will move its position along the timeline on the *Video Track*. Tapping the [Right Mouse] button during a move will set a copy flag and actually duplicate the entry at the new location, leaving the original intact.

Conflicts at the new destination position are handled as follows:

• If the begin boundary of the new entry overlaps the end boundary of the existing entry, the new entry will be butt-spliced to the end of the existing entry.
• If the end boundary of the new entry overlaps the begin boundary of the existing entry, the new entry will be butt-spliced to the front of the existing entry.
• If both boundaries of the new entry overlap the existing entry, then you will be prompted to insert the new entry splitting and overwriting the existing data or cancel the operation.

These operations do not require *Select Mode* to be active. Using *Select Mode* while editing in the *Video Track* will affect all selected regions on all tracks. Using *Select Mode* from an audio track will not affect *Video Track* entries.

Splitting Video Clips

Splitting a clip on the *MultiTrack* automatically moves the original clip's end boundary forward to the split point and creates and butt-splices a new clip from the split point to the end. The name of the new clip is the same as the original with an appended unique identifier number.

⌨   Position the *MultiTrack* cursor at the desired entry's split point on the *Video Track*. Pressing the [K] key will split and keep both entries. Pressing [Ctrl-K] extends the operation across all tracks.

⌨   Pressing the [R] key will split an entry and remove the new entry to the left of the cursor position on the *Video Track* without affecting following entries. Pressing [Ctrl-R] extends the operation across all tracks.

⌨   Pressing the [Alt-R] key will split an entry and remove the new entry to the right of the cursor position on the *Video Track* without affecting following entries. Pressing [Ctrl-Alt-R] extends the operation across all tracks.

⌨   Pressing the [D] key will split an entry and delete the new entry to the left of the cursor position on the *Video Track* pulling following butt-spliced entries forward. Pressing [Ctrl-D] extends the operation across all tracks.

⌨   Pressing the [Alt-D] key will split an entry and delete the new entry to the right of the cursor position on the *Video Track* pulling following butt-spliced entries forward. Pressing [Ctrl-Alt-D] extends the operation across all tracks.

☞   The Audio Tracks in SAWStudio are not latched to the Video Track and any editing commands performed on an audio track will not affect the video track.

☞   Editing done from the Video track will automatically latch to the audio tracks. Video editing can *then* be applied across all tracks or to a selected group.

Removing Clip Entries From the Video Track

⌨   Placing the *MultiTrack* cursor over a clip's entry on the *Video Track* and pressing the [Delete] key will delete (remove) the clip entry from the *MultiTrack*, leaving the entry in the session for later use. This option will not affect following entries.

Pressing [Shift-Delete] will delete the entry under the cursor and pull following butt-spliced entries forward.

Pressing [Ctrl-Delete] will delete the entry under the cursor and pull all following entries forward.

Extracting Audio to the MultiTrack

Clips may be arranged and adjusted on the *TimeLine* and then audio from those clips can be extracted, in sync, directly to the *MultiTrack*.

🖱   Selecting the *Extract Audio To MT* option from the *Convert/Extract* menu in the viewer, extracts the audio to a designated .wav file, and places that audio on the current *Hot Track* in the *MultiTrack* for further processing and mixing. This option responds to a marked area of the *MultiTrack*, or the entire track if not marked. Select a blank audio track, then activate this option and all audio will be extracted and placed on the track, in sync, from each separate clip.

Using Video Track Layers

The *Video* track has the same layer capabilities as the *MultiTrack* audio tracks. You may add video entries to different layers by first changing to a new layer before adding new entries.

⌨ You may change layers, while the *MultiTrack* is the active window, by pressing the number keys as with any other track.

🖰 You may [Right-Click] on the *Video* track label zone to display the *Track Properties* menu and change layers from there.

🖰 You may also use the menu to *Copy Marked* or *Selected* video sections to another layer to build a composite track.

Video track layers can be extremely useful when comparing multiple camera angle source footage. Place each camera's video on a different layer, in proper sync position, and simply switch layers to check different shots at any position. Layers may be switched during playback for an instant camera angle comparison.

Rendering to FireWire in RealTime

🖰 If your system supports FireWire (1394) ports, you may select a FireWire device by [Left-Clicking] the blue pyramid icon and selecting the *Select FireWire Device* option. You may then select the *Render RealTime To FireWire* option to send DV video out to an external camera or converter box live, in sync, with all *TimeLine* or *Edit Mode* operations. Any video that's not a DV format that matches the selected device will render out as a black frame.

☞ The FireWire device selection, as well as the viewer size and position, can be saved as a default by using *Save Video Viewer Preferences* menu option.

🖰 The live scrub and *TimeLine* FireWire output can sometimes jitter or skip while it attempts to maintain perfect sync with the *MultiTrack* playback. To output a perfectly smooth final render to an external FireWire device, you should select the *LayBack To FireWire* option under the viewer menu. This option opens a finished rendered DV/Avi file and outputs it directly to the FireWire port using the port clock for a perfect playback.

☞ The Microsoft DV camera and VCR device choice works with most name brand equipment and is the usual device selection. Be sure your device is plugged in and turned on in order for it to appear in the list.

🖰 From the viewer menu, select either the *Use NTSC DV Output Format* or *Use PAL DV Output Format* option to match your hardware's format. The most common choice in the United States is NTSC. Selecting one of these options rebuilds all filter graphs to force DV Render and FireWire outputs to the selected NTSC or PAL format. Make sure to adjust your *TimeLine* to the proper SMPTE format. For example, 29.97 Frames Per Sec for NTSC and 25 Frames Per Sec for PAL. These options save with the *Video Preferences*.

Rendering to an Overlay Hardware Video Out

🖰 If your system supports video or TV output ports that link to a DirectDraw hardware overlay surface, you may [Left-Click] the blue pyramid icon and select the *Render Realtime To Overlay Video Out* option to send video out to an external monitor live in sync, with all *TimeLine* or *Edit Mode* operations.

This option can be used with the Matrox Dual-Head video cards that support the DVDMax feature to output the Video Track video, full screen to a second computer monitor or TV monitor. The DVDMax feature can be activated in the Matrox settings advanced section under the Dual-Head options tab. Other video Dual-Head cards, like ATI and nVidia, may also work if

they output an overlay full screen rendering to their TV out or VGA hardware output.

You may [Left-Click] the blue pyramid icon and select the *Overlay Render Size* to control the size of the internal overlay renders. Using larger sizes can improve overlay output quality, at the expense of more cpu time. Using exact sizes as the source video can generally give the best combination of quality and speed results. The default size of 360 x 240 (half DV size) usually delivers good results. If you are using PAL, select the half DV PAL size of 360 x 288. A great compromise for speed and quality can be achieved on DV-avi files by using the full DV decoder resolution with the half *Overlay Render Size*. When displaying HD files, use the actual size or 1/2 or 1/4 actual size options.

    ☞   This option, as well as the viewer size and position, can be saved as a default by using *Save Video Viewer Preferences* menu option.

Rendering to an Extended Monitor Out

    🖰   If your system supports dual monitors with an extended desktop on the second monitor, you may [Left-Click] the blue pyramid icon and select the *Render Realtime To Extended Monitor* option to send full screen video out to the second monitor live in sync, with all *TimeLine* or *Edit Mode* operations.

You may also use the *Keep Original Video Aspect On Extended Monitor* option to force the video aspect ratio to remain the same and scale the video full screen in a letter box format with black bars at the top and bottom.

These options will output a full-screen display on a secondary extended monitor. The display is scaled using hi-speed software manipulation to replace the missing overlay output capabilities. This now allows you to create very inexpensive video slave machines using small NetBook computers or laptops, as long as they have a dual monitor video output, which most currently do. You can then run them as TCP/IP remotes or video slaves for perfect video sync, feeding video projectors in shows using separate video streams.

    ☞   This option, as well as the viewer size and position, can be saved as a default by using *Save Video Viewer Preferences* menu option.

Rendering Final Output to DV

    🖰   [Left-Clicking] the blue pyramid icon and selecting either the *Render To DV/Avi Type-1 File* or *Render To DV/Avi Type-2 File* option allows you to render the final *MultiTrack* audio and video splices to a brand new DV/Avi file. All audio assigned to *Output Chan 1* is merged, in sync, with the video clips on the *Video Track* to build a single finished video file. Video clips of different formats will be automatically converted to the DV format during the render. This option responds to a marked area of the *MultiTrack*, or the entire track if not marked.

    🖰   From the viewer menu, select either the *Use NTSC DV Output Format* or *Use PAL DV Output Format* option to match your hardware's format. The most common choice in the United States is NTSC. Selecting one of these options rebuilds all filter graphs to force DV Render and FireWire outputs to the selected NTSC or PAL format. Make sure to adjust your *TimeLine* to the proper SMPTE format. For example, 29.97 Frames Per Sec for NTSC and 25 Frames Per Sec for PAL. These options save with the *Video Preferences*.

Capturing DV Video from a FireWire Device

You may capture DV video directly into the viewer from the FireWire port, using a FireWire equipped camcorder, external DV converter box, or DV capture card.

While capturing, the viewer will display the incoming video signal. The display may jitter but this should not affect the actual captured file. Keeping the viewer zoom size small should improve the display smoothness. The captured frame count and number of dropped frames will be displayed in the top-client area. As long as there are no dropped-frames, the resulting capture file should be smooth.

🖰   [Left-Click] the blue pyramid icon and from the *Capture From FireWire* option select one of the following capture choices:

- Capture To DV Type-1 Avi File
- Capture To DV Type-1 (Mute Audio) Avi File
- Capture To DV Type-2 Avi File
- Capture To DV Type-2 (Mute Audio) Avi File

The *Set Video Capture File* dialog box is displayed. Enter a name for the new capture file and click *OK*.

🖰   [Left-Click] the viewer's *Play* button to toggle between capture and pause. This allows you to stream different video clips back to back into one file if desired.

⌨/🖰   [Left-Click] the viewer's *Step Forward* [>] button or press the [spacebar] to capture a single frame for stop motion or animation projects.

🖰   [Left-Click] the *Stop* button to complete the capture process and properly close the file.

Capturing Video from an Analog Device

You may capture video directly into the viewer from an analog capture board or USB device. This option captures video only, without audio.

While capturing, the viewer will display the incoming video signal. The display may jitter but this should not affect the actual captured file. Keeping the viewer zoom size small should improve the display smoothness. The captured frame count and number of dropped frames will be displayed in the top-client area. As long as there are no dropped-frames, the resulting capture file should be smooth.

🖰   [Left-Click] the blue pyramid icon and from the *Capture From Analog* option select one of the following capture choices:

- Capture To DV Type-1 (Mute Audio) Avi File
- Capture To DV Type-2 (Mute Audio) Avi File
- Capture To Custom Avi File

If the *Capture To Custom Avi File* option is selected, the compression options dialog box is displayed. Select a video compression option. The Audio compression options are disabled.

The *Set Video Capture File* dialog box is displayed. Enter a name for the new capture file and click *OK*.

🖰   [Left-Click] the viewer's *Play* button to toggle between capture and pause. This allows you to stream different video clips back to back into one file if desired.

⌨/🖰   [Left-Click] the viewer's *Step Forward* [>] button or press the [spacebar] to capture a single frame for stop motion or animation projects.

🖰   [Left-Click] the *Stop* button to complete the capture process and properly close the file.

Other Video Track/Viewer Operation Topics:
Getting Started
Using Edit Mode

15.3.5 Video Viewer Special Options

The *Special Options* selection on the *Viewer* menu opens a submenu displaying the following choices:

🖑   The *Test Static Seek Time* option measures how many milliseconds per frame it takes to seek independent frames one by one. This is how the system works during scrub modes. This works in both *TimeLine Mode* and *Edit Mode*.

🖑   The *Test Running Seek Time* option measures how many milliseconds per frame it takes to seek successive frames that may be built upon information contained in the previous frame. This time should be faster in most instances. This is how the system works during playback. This works in both *TimeLine Mode* and *Edit Mode*.

☞   The viewer display size may influence these times considerably. You should try to adjust your viewer display size to keep running times under 20-25 ms per frame, thereby not overly loading down the system, and allowing plenty of remaining CPU time to maintain good *MultiTrack* performance.

🖑   The *Use Audio For Edit Mode Playback* option activates audio playback direct from the current video file that is loaded in *Edit Mode* during *Edit Mode* playback. This option saves with the *Video Viewer Preferences*.

🖑   The *Viewer Visible As Default* option allows the *Viewer* to default onscreen when the main program is loaded using the size and position settings saved with the *Video Viewer Preferences*.

🖑   The *DV Video Decoder Res = Half* option allows you to set the DV Video Decoder resolution to half. Newer versions of Windows XP may default the resolution to Full, which may slow down the DV decoding process considerably, effecting live rendering to Overlay or FireWire performance if your machine is not fast enough. Defaulting the resolution to Half like Windows 2000 can increase DV performance significantly with only a slight video quality decrease in most cases. This option saves with the *Video Viewer Preferences*.

🖑   The *DV Video Decoder Res = Full* option allows you to set the DV Video Decoder resolution to full. If your machine is fast enough, setting this option to Full will give you the highest quality DV rendering both onscreen, and to external Overlay and FireWire rendering. This option saves with the *Video Viewer Preferences*.

🖑   The *Wait For Vertcal Blanking* option attempts to draw between vertical blanking pulses on the hardware which may improve video tearing on the TV screen in some instances. This option saves with the *Video Viewer Preferences*.

🖑   The *TCP/IP Remote/Slave Mode – Ignore Video* option can be activated to completely ignore video file requests on a remote or slave machine whenever the host machine opens sessions that contain video files. This is a way to save video network loading from a remote or slave machine and this option can be saved with the *Video Viewer Preferences*.

Other Video Track/Viewer Operation Topics:

16   Understanding The Virtual Console

16.1   Routing And Signal Flow

16.1.1   Input Modules

The console is divided into three main sections - the *Input Channel* modules, the *Return/Aux Master Channel* modules, and the *Output Channel* modules.

Input Modules

There are 72 *Input Modules* each linked directly to a *MultiTrack* track. The following information will help with understanding the signal flow through an *Input Module*.

✋   **Regarding Signal Flow:** The input module *Eq, Dynamics*, and *Pre-Fx Patch insert point* signal flow may be altered from the default. The *Pre-Fx Patch* insert point may be moved in front of the *Eq / Dynamics* section, and the *Dynamics* section can be moved in front of the *Eq* section using the signal flow options from the *Mixer* menu. For details, see the *Mixer Menu* section in the *Menu Reference* chapter.

Input Source

Each input channel can obtain its source audio data from either the *MultiTrack* or from any one of the stereo device inputs.

When set to the *MultiTrack*, the data is gathered from the disk or RAM cache (if active) and format converted to the *MultiTrack's* internal 24 bit stereo format. The disk gathering routine calculates the region offsets into the proper soundfiles and places the data properly timed into the *Input Source* buffer for each channel. If the samplerate of the source data is not the same as the *MultiTrack* session rate, the data is samplerate converted at the same time. If *SoftEdges* are active, the *Region* boundaries are adjusted on the fly to gather the extra data needed for the *SoftEdge* application.

Each channel maintains its own source data buffer independent of every other channel.

When set to an input device, the data is gathered live from the device and formatted and adjusted in a similar fashion before being placed in the channel source data buffers.

Using buffer settings of 4 at 128 or less will actually emulate realtime. The console is capable of realtime performance for live record performance monitoring or live input sound reinforcement operation with these low latency buffer settings.

Multiple input channels may be assigned to the same source input device for internally duplicated signal creation. This can be useful when assigning two channels to the same device and setting one channel's Mono selection to *Left* and the other to *Right.* This allows complete separation of input devices as mono signals.

This setting must be preset before playback and may not be automated.

Input Attenuator

The data next passes through the *Input Attenuator* routine which can trim the signal level down from 0 dB (data untouched), to a muted condition. This can be used to adjust the level of very strong source data right at the top of the module to eliminate potential clipping problems in the following processing sections, and/or to adjust the final working range of the channel fader more into the nominal range of the fader's position when mixing. In most cases this control can be left at its default 0 dB setting.

This setting may be automated.

Input Phase Reverse Switch

This switch will flip the audio phase of the data 180 degrees. This can help adjust frequency cancellation problems with out-of-phase microphone placements and reverse phased signal cabling problems that might be part of the original recorded signal.

🖑   [Left-Clicking] on the "Phs Rvs" label next to the button displays an options menu. The choices are: Both; L Only; R Only.

        This can be useful when a stereo file contains left and right signals that are out of phase. Playing such a file in mono will cause the signal to cancel badly. Using the Left Only or Right Only phase reverse can instantly solve this problem.

☞   Deactivating and reactivating the Phs Rvs button will return the setting to the default L Plus R (-6dB.)

This switch may be automated.

Input Swap L/R Switch

This switch swaps the left and right signals of the stereo source data.

This switch may be automated.

Input Mono Switch

This switch sums the left and right signals together and applies a 6 dB level adjustment to the result. By default, the resulting data will be exactly the same on both the left and right signal paths from this point on.

🖑   [Left-Clicking] on the "Mono" label next to the button displays an options menu. The choices are: L Plus R (-6db); L Plus R; L Only; R Only; L Minus R (-6db); L Minus R.

☞   Deactivating and reactivating the Mono button will return the setting to the default L Plus R (-6dB.)

This switch may be automated.

Input EQ Section

The data next passes through the *EQ* routines. There are five high-resolution bandpeaking filters that can be adjusted independently or all at the same time. Each filter includes an overlapping frequency center from 40 to 15,000 hertz. The Q or bandwidth adjustment ranges from .1 to 3 octaves, and the boost/cut gain ranges from plus to minus 15 dB.

There is also a *Hi Cut* filter that ranges from 15,000 to 2000 hertz which attenuates frequencies above the filter setting using an 12 dB per octave roll-off.

There is also a *Lo Cut* filter that ranges from 40 to 2000 hertz which attenuates frequencies below the filter setting using an 12 dB per octave roll-off.

A set of graphic adjustable bars can be used for quick boost and cut adjustment, much like a simple set of graphic EQ sliders.

At the bottom of the EQ section is a *Reset Flat* switch which resets all gain adjustments to flat and the master EQ *In/Out* switch to allow for quick bypass of the EQ routines for comparison or for use in automating the EQ in and out of the mix.

All EQ settings may be automated.

Input Dynamics Section

The data next passes through the *Dynamics* routines. Both the *Gate* and *Compressor* use the same *Key Buffer* to activate their threshold detecting routines. The *Key Buffer* contains the source data used to trigger the *Gate* and *Compressor* into action. This data is available from the channel source data itself (Self), or from any other channel source data (1 - 72). The data is processed through a *Hi Cut* and *Lo Cut* overlapping EQ routine that pre-processes what the threshold detecting routines see. This can be used effectively to allow the *Compressor* to work as a de-esser or the *Gate* and *Compressor* to trigger and respond to a limited range of frequencies.

The virtual console *Gate Threshold*, *Gate Floor* and *Compressor Threshold* display reference lines in the *MultiTrack* waveform display area and the *SoundFile* display area. In the *MultiTrack*, the *MT Cursor* must be over an active region. In the *SoundFile View*, an open soundfile must be present. If the *Key* has been set to another channel, the threshold display lines will display on the *Key* channel/track for accurate reference to what is actually keying the dynamics.

The *Key Listen* switch acts as a *Solo* switch for the *Key Buffer*. This allows you to audition precisely what the threshold detecting routines are seeing.

The *Gate Attack* setting controls how fast the *Gate* opens up when the signal goes above the threshold setting.

The *Gate Release* setting controls how fast the *Gate* shuts down when the signal drops below the threshold again.

The *Gate Floor* setting controls how far the *Gate* shuts down. The lower the setting, the farther the signal is attenuated.

The *Gate Threshold* setting determines the trigger level where the *Gate* responds.

The *Gate Rvrs* switch causes the gate to operate in reverse. When the signal is greater than the threshold, the gate closes down to the floor setting and when the signal falls below the threshold, the gate opens back up to full. This can be used to create a simple and powerful ducking processor by assigning the key to another track which will then control when this track lowers its level. Set the floor value to the desired ducked level and adjust the attack, release and threshold to control the overall timing. You can also use this mode with self keying to create a new sounding limiting effect. When the signal rises above the threshold on loud transients, the gate will lower the level to the fixed floor level. This sounds different than limiting or compression, because the transient is actually dropped below the level of the rest of the average signal.

The *Gate On* switch allows for a quick bypass of the *Gate* routines for comparison or for use in automating the *Gate* in and out of the mix.

The *Compressor Attack* setting controls how fast the *Compressor* starts to squeeze when the signal goes above the threshold setting.

The *Compressor Release* setting controls how fast the *Compressor* lets go when the signal drops below the threshold again.

The *Compressor Ratio* setting determines the ratio of signal attenuation when the *Compressor* is triggered.

The *Compressor Threshold* setting determines the trigger level where the *Compressor* responds.

The *Compressor On* switch allows for a quick bypass of the *Compressor* routines for comparison or for use in automating the *Compressor* in and out of the mix.

The *Dynamics Gain* setting allows you to adjust the overall output gain of the *Gate* or *Compressor* when either one or both are active.

The *Dynamics Gain Reduction Meter* displays the overall amount of signal gain reduction occurring as a combination of the *Gate* and *Compressor* action.

All *Dynamics* settings may be automated, except the *Key* setting and the *Key Listen* switch.

Input FX Pre Fader Patch

The data next passes through the *FX Pre Fader Patch*. This allows you to patch in **SAWStudio** native plug-ins, or *DirectX* or *VST* plug-ins. These FX process in the order they are patched. This *FX Patch* allows plug-ins to alter the size of data buffers while still maintaining overall sync playback.

☞   The yellow FX icon will display a bar graphic across the two holes when plug-ins are assigned. [Left-Clicking] on this icon will display a broken bar, which means the plug-ins are bypassed.

This *FX Patch* processes the data at an internal resolution of 24 bits, regardless of the final session resolution setting.

The bypass may be automated and used to activate and deactivate pre-patched plug-ins as a group. Bypassing plug-ins during silent sections of a track can improve overall performance by giving back CPU time to other tracks.

Input Aux Sends

At this point the data stream can be split off into multiple directions at once. There are six stereo *Aux Sends* which can mix the channel data stream with other channel data streams into the *Aux Master* section. The *Aux Masters* can be routed back to the *Return* channels virtually, allowing reverb and other plug-ins to be processed across multiple channels at once, or can be routed externally to any of the audio device outs for headphone monitor feeds or external processing units like reverbs, which can then be brought back into the mix live, in real-time sync, with the rest of the *MultiTrack*.

The *Aux Send Pan* allows left/right balance adjustment of the data being sent to the *Aux Master* mix.

The *Aux Send Volume Slider* allows level adjustment of the data being sent to the *Aux Master* mix.

The *Aux Send In* switch allows the send to be activated or deactivated.

The *Aux Send Post Fader* switch forces the data split off to occur after the channel fader and pan controls when engaged and before the fader and pan controls when not engaged.

The *Aux Send Post FX* switch forces the data split-off point to be after the *FX Patch* when engaged and before the *FX Patch* when not engaged. If the *Aux Send* is set to *Pre Fader*, the *Pre FX Patch* is used. If the *Aux Send* is set to *Post Fader*, the *Post FX Patch* is used. When this switch is not engaged and the *Aux Send* is set to *Post Fader*, the signal tap point is before the pan as well as before the *Post*

FX Patch.

All *Aux Send* settings may be automated.

[Left-Clicking] on the individual Aux Number text (1, 2, 3, etc.) or the main *Aux Asgn* text in any of the *Aux Send* sections will display a menu of special *Aux Send* options.

Solo Aux Mix Out-Device

When using one of the solo bus modes, this option will solo this *Aux Mix Out-Device* if one is assigned to the corresponding *Aux Master*. This makes use of a special link between the *Aux Master Output Assign* and the solo bus. If the *Aux Master* is assigned to an out device, for example as a headphone feed, and that device output channel is assigned to itself as a hardware output, this option will link to the out channel *Solo* switch directly, and solo the *Aux Mix* and the out channel simultaneously.

Aux Master Labels

This section displays the *Aux Master* labels for reference only. Selecting any item will close the menu. No action will be taken.

Duplicate Main Mix
Duplicate Aux-1 Mix
Duplicate Aux-2 Mix
Duplicate Aux-3 Mix
Duplicate Aux-4 Mix
Duplicate Aux-5 Mix
Duplicate Aux-6 Mix

These options will duplicate a mix into the current *Aux Send,* across all channels, from the main mix settings or from one of the other *Aux Mixes*, depending on which option is selected.

Engage Aux Mix

This option engages the *In* switch for the current *Aux Send* across all channels.

Disengage Aux Mix

This option disengages the *In* switch for the current *Aux Send* across all channels.

Set Aux Mix to Pre Fader

This option engages the *Pre-Fader* switch for the current *Aux Send* across all channels.

Set Aux Mix to Pst Fader

This option engages the *Pst-Fader* switch for the current *Aux Send* across all channels.

Clear Aux Mix

This option clears the current *Aux Send* across all channels.

☞ **Using an Aux Send as a headphone monitor feed**

The *Aux Masters* for each Aux mix are normally defaulted to a virtual output routing assignment. This then feeds the signal down to the *Return* section underneath it for use as a virtual FX channel.

To use the mix as a feed to an external headphone amplifier, set the *Aux Master Out Assign* to a *Device Out*. Connect the physical audio device outputs to a headphone amplifier.

You can also route a reverb return into the headphone mix by setting up the corresponding output channel on the virtual console to assign to itself as a hardware device output. For instance, if the *Aux Master* out is set to device 3, assign *Output Channel 3* to itself, 3. This will turn the fader knob dark red and set the output as a hardware device out, feeding its signal to the same headphone device. Now all that is needed is to also assign any reverb return channel to this same output and the output channel fader will act as a separate reverb return level for the headphone mix.

An added bonus when using one of the solo bus modes is that [Left-Clicking] the output channel solo will solo both the reverb signal and the Aux mix assigned to the same device, allowing you to instantly hear the exact mix being sent to the headphones. You can also select the *Solo Aux Mix Out-Device* option from the popup *Aux Special Options* menu and you will hear the same headphone mix, without the need to jump to the specific output channel to click the solo switch.

Input Solo Switch

The data next passes through the *Solo* routine. The output and input solos may be operated together, and output group solos may be nested with individual channels still contained within the group. The routines keep an internal updated count on each channel that is soloed.

You may combine solos from multiple channels to hear a blend of selected signals.

⌨🖱   Pressing the [Shift] key when activating the first *Solo* switch, keeps the *Return* channels active so you may hear the blend of reverb returns with the soloed channels.

⌨🖱   Pressing the [Ctrl] key when deactivating any *Solo* switch will automatically deactivate all engaged *Solo* switches.

Whenever any solo is activated, a flashing *Solo Mode* light in the top right corner of the *MultiTrack* top-client area will keep you informed.

🖱   [Left-Clicking] on this flashing light automatically clears all active solo switches.

The *Solo* switch may not be automated.

Input Mute Switch

The data next passes through the *Mute* routine. This switch mutes all data from this point on. All signals before this switch are still active and untouched.

This switch has a slope value associated with it that controls how fast the muting action occurs. Smaller slope values create a more instant response, and larger values create a slower response, which can be used in place of a quick fade to ramp a signal up or down smoothly.

This switch may be automated.

Input Channel Fader

The data next passes through the *Channel Fader* routine. This controls the overall direct signal strength for this channel in the mix.

This control has a slope value associated with it that controls how fast the level change occurs. Smaller

slope values create a more instant response, and larger values create a slower response.

This control may be automated.

Input Pan Slider

The data next passes through the *Pan* routine. This controls the left/right balance of the data in the overall stereo levels of this channel signal.

This control has a slope value associated with it that controls how fast the level change occurs. Smaller slope values create a more instant response, and larger values create a slower response.

This control may be automated.

Input FX Post Fader Patch

The data next passes through the *FX Post Fader Patch*. This allows you to patch in **SAWStudio** native plug-ins, or *DirectX* or *VST* plug-ins. These FX process in the order they are patched. This *FX Patch* allows plug-ins to alter the size of data buffers while still maintaining overall sync playback.

⌐   The yellow FX icon will display a bar graphic across the two holes when plug-ins are assigned. [Left-Clicking] on this icon will display a broken bar, which means the plug-ins are bypassed.

This *FX Patch* processes the data at an internal resolution of 24 bits, regardless of the final session resolution setting.

The bypass may be automated and used to activate and deactivate pre-patched plug-ins as a group. Bypassing plug-ins during silent sections of a track can improve overall performance by giving back CPU time to other tracks.

Input XY Surround Pan

The data next passes through the *XY Surround Pan* routine. This joystick type control adjusts the balance of signal levels split off to the eight surround points designated around the perimeter of the control. These eight split off signals are blended together in the surround pan internal buffers and output to discreet audio device outs based on the *XY Pan Out Assignments* on the output channels.

The *Sub Send* controls the signal level sent to the separate *Sub XY Pan Out Assignment*.

The *Center Send* controls the signal level sent to the separate *Center XY Pan Out Assignment*.

The *XY Pan In/Out* switch enables or disables the use of the *XY Pan* routine for this channel. If surround panning is not being used, this switch should be left out, so there is no unnecessary extra load on the CPU. Processing the signal to the surround buffers will add processing load to the overall playback performance.

The *XY Pan* has individual node point control. You may click on each of the eight node surround points on any channel, and the node will toggle between active and inactive. The node turns red when it is inactive. When a node is inactive, audio from that *XY Pan* will not feed that particular output bus. You may use this feature to keep music out of the center channel for instance. These nodes may be automated, allowing you to toggle them during automated playback.

All of the *XY Pan* section controls may be automated except the *XY Pan In/Out* switch which must be preset before playback begins.

Input Out Assign

The data ends up at the *Out Assign* switches. These switches control the destination routing of the channel signal. These switches may be combined allowing the channels to be routed to multiple output destination devices at the same time.

These switches represent stereo audio device outputs. To force the destination to one side of the output device, use the *Pan Slider*, coupled with the *Mono* switch if needed.

    🖑   [Left-Clicking] in between the switches in the *Out Assign* section will display a menu listing all available output devices. Selecting one of these options will assign the routing the same as selecting the associated switch.

When using the *XY Surround Pans*, the *Out Assign* switches should most likely be left off and the final signal destination will be controlled by the *XY Pan Out Assignments* on the *Output Channels*.

These switches must be preset before playback and may not be automated.

Other Routing And Signal Flow Topics:
Return/Aux Master Modules
Output Modules
Channel Store/Recall

16.1.2 Return/Aux Master Modules

There are six *Return Modules* each also linked directly to a *MultiTrack* track. The following information will help in understanding the signal flow through a *Return Module*.

Aux Master Out Assign

The mix of data sent from the *Aux Sends* arrives at the top of the *Aux Master* section. The mix for each of the *Aux Sends* can be routed to either the internal *Virtual Buffers* or any of the audio device outputs.

When set to the *Virtual Buffers*, the data is passed straight down to the corresponding *Return Section* below it.

When set to an audio device output, the data is fed to the final output stage which feeds directly to the assigned audio device. This allows the data to be used externally for headphone monitor feeds or as a feed to an external processing unit.

This setting must be preset before playback and may not be automated.

    ☞   **Using an Aux Send as a headphone monitor feed**

        The *Aux Masters* for each Aux mix are normally defaulted to a virtual output routing assignment. This then feeds the signal down to the *Return* section underneath it for use as a virtual FX channel.

        To use the mix as a feed to an external headphone amplifier, set the *Aux Master Out Assign* to a *Device Out*. Connect the physical audio device outputs to a headphone amplifier.

        You can also route a reverb return into the headphone mix by setting up the corresponding output channel on the virtual console to assign to itself as a hardware device output. For instance, if the *Aux Master* out is set to device 3, assign *Output Channel 3* to itself, 3. This will turn the fader knob dark red and set the output as a hardware device out, feeding its signal to the same headphone device. Now all that is needed is to also assign any reverb return channel to this same output and the output channel fader will act as a separate reverb return level for

the headphone mix.

An added bonus when using one of the solo bus modes is that [Left-Clicking] the output channel solo will solo both the reverb signal and the Aux mix assigned to the same device, allowing you to instantly hear the exact mix being sent to the headphones. You can also select the *Solo Aux Mix Out-Device* option from the popup *Aux Special Options* menu and you will hear the same headphone mix, without the need to jump to the specific output channel to click the solo switch.

Aux Master Pan Slider

The data next passes through the *Aux Master Pan* routine. This controls the left/right balance of the data in the overall *Aux Master* signal.

This control may be automated.

Aux Master Channel Fader

The data next passes through the *Aux Master Channel Fader* routine. This controls the overall direct signal strength for this *Aux Master Send*.

This control has a slope value associated with it that controls how fast the level change occurs. Smaller slope values create a more instant response, and larger values create a slower response.

This control may be automated.

Return Input Source

Each *Return* channel can obtain its source audio data from either the internal *Virtual Buffers* or from any one of the stereo device inputs.
When set to the internal *Virtual Buffers*, the data is gathered directly from the corresponding *Aux Master* above it. The *Aux Master* must also be set to *Virtual* in order to complete the connection.

When set to an input device and the corresponding aux master above it is set to an output device, a special zero latency loopback mode is activated. The data is gathered live from the device input and placed in the channel source data buffers. Since input device data is always at least one buffer late, other factors enter into the *MultiTrack* loop when there are active *Return* device selections. The rest of the *MultiTrack* will be delayed to make up for the incoming data delay, thereby keeping the *MultiTrack* and live input data in sync regardless of buffer latency settings.

This setting must be preset before playback and may not be automated.

Return Attenuator

The data next passes through the *Return Attenuator* routine which can trim the signal level down from 0 dB (data untouched), to a muted condition. This can be used to adjust the level of very strong source data right at the top of the module to eliminate potential clipping problems in the following processing sections, and/or to adjust the final working range of the channel fader more into the nominal range of the fader's position when mixing. In most cases this control can be left at its default 0 dB setting.

This setting may be automated.

Return Phase Reverse Switch

This switch will flip the audio phase of the data 180 degrees. This can help adjust frequency

cancellation problems with out of phase microphone placements and reverse phased signal cabling problems that might be part of the original recorded signal.

🖑 [Left-Clicking] on the "Phs Rvs" label next to the button displays an options menu. The choices are: Both; L Only; R Only.

This can be useful when a stereo file contains left and right signals that are out of phase. Playing such a file in mono will cause the signal to cancel badly. Using the Left Only or Right Only phase reverse can instantly solve this problem.

☞ Deactivating and reactivating the Phs Rvs button will return the setting to the default L Plus R (-6dB.)

This switch may be automated.

Return Swap L/R Switch

This switch swaps the left and right signals of the stereo source data.

This switch may be automated.

Return Mono Switch

This switch sums the left and right signals together and applies a 6 dB level adjustment to the result. By default, the resulting data will be exactly the same on both the left and right signal paths from this point on.

🖑 [Left-Clicking] on the "Mono" label next to the button displays an options menu. The choices are: L Plus R (-6db); L Plus R; L Only; R Only; L Minus R (-6db); L Minus R.

☞ Deactivating and reactivating the mono button will return the setting to the default L Plus R (-6dB.)

This switch may be automated.

Return FX Pre Fader Patch

The data next passes through the *FX Pre Fader Patch*. This allows you to patch in **SAWStudio** native plug-ins, or *DirectX* or *VST* plug-ins. These FX process in the order they are patched. This *FX Patch* allows plug-ins to alter the size of data buffers while still maintaining overall sync playback.

🖑 The yellow FX icon will display a bar graphic across the two holes when plug-ins are assigned. [Left-Clicking] on this icon will display a broken bar, which means the plug-ins are bypassed.

This *FX Patch* processes the data at an internal resolution of 24 bits, regardless of the final session resolution setting.

The bypass may be automated and used to activate and deactivate pre-patched plug-ins as a group. Bypassing plug-ins during silent sections of a track can improve overall performance by giving back CPU time to other tracks.

Return Solo Switch

The data next passes through the *Solo* routine. The output and return solos may be operated together, and output group solos may be nested with individual channels still contained within the group. The

routines keep an internal updated count on each channel that is soloed.

You may combine solos from multiple channels to hear a blend of selected signals.

☞ The *Return* solos are enhanced to maintain the in-place solo feature while still allowing both pre and post *Aux Send* input channel information to reach the *Return* bus. Therefore you may solo just *Return* tracks and hear the blend of all *Aux Send* information coming through that *Return*.

⌨🖱 Pressing the [Ctrl] key when deactivating any *Solo* switch will automatically deactivate all engaged *Solo* switches.

Whenever any solo is activated, a flashing *Solo Mode* light in the top right corner of the *MultiTrack* top-client area will keep you informed.

🖱 [Left-Clicking] on this flashing light automatically clears all active solo switches.

The *Solo* switch may not be automated.

Return Mute Switch

The data next passes through the *Mute* routine. This switch mutes all data from this point on. All signals before this switch are still active and untouched.
This switch has a slope value associated with it that controls how fast the muting action occurs. Smaller slope values create a more instant response, and larger values create a slower response, which can be used in place of a quick fade to ramp a signal up or down smoothly.

This switch may be automated.

Return Channel Fader

The data next passes through the *Channel Fader* routine. This controls the overall direct signal strength for this channel in the mix.

This control has a slope value associated with it that controls how fast the level change occurs. Smaller slope values create a more instant response, and larger values create a slower response.

This control may be automated.

Return Pan Slider

The data next passes through the *Pan* routine. This controls the left/right balance of the data in the overall stereo levels of this channel signal.

This control has a slope value associated with it that controls how fast the level change occurs. Smaller slope values create a more instant response, and larger values create a slower response.

This control may be automated.

Return FX Post Fader Patch

The data next passes through the *FX Post Fader Patch*. This allows you to patch in **SAWStudio** native plug-ins, or *DirectX* or *VST* plug-ins. These FX process in the order they are patched. This *FX Patch* allows plug-ins to alter the size of data buffers while still maintaining overall sync playback.

🖱 The yellow FX icon will display a bar graphic across the two holes when plug-ins are assigned. [Left-Clicking] on this icon will display a broken bar, which means the plug-ins are bypassed.

This *FX Patch* processes the data at an internal resolution of 24 bits, regardless of the final session resolution setting.

The bypass may be automated and used to activate and deactivate pre-patched plug-ins as a group. Bypassing plug-ins during silent sections of a track can improve overall performance by giving back CPU time to other tracks.

Return XY Surround Pan

The data next passes through the *XY Surround Pan* routine. This joystick type control adjusts the balance of signal levels split off to the eight surround points designated around the perimeter of the control. These eight split off signals are blended together in the surround pan internal buffers and output to discreet audio device outs based on *the XY Pan Out Assignments* on the output channels.

The *Sub Send* controls the signal level sent to the separate *Sub XY Pan Out Assignment*.

The *Center Send* controls the signal level sent to the separate *Center XY Pan Out Assignment*.

The *XY Pan In/Out* switch enables or disables the use of the *XY Pan* routine for this channel. If surround panning is not being used, this switch should be left out, so there is no unnecessary extra load on the CPU. Processing the signal to the surround buffers will add processing load to the overall playback performance.

The *XY Pan* has individual node point control. You may click on each of the eight node surround points on any channel, and the node will toggle between active and inactive. The node turns red when it is inactive. When a node is inactive, audio from that *XY Pan* will not feed that particular output bus. You may use this feature to keep music out of the center channel for instance. These nodes may be automated, allowing you to toggle them during automated playback.

All of the *XY Pan* section controls may be automated except the *XY Pan In/Out* switch which must be preset before playback begins.

Return Out Assign

The data ends up at the *Out Assign* switches. These switches control the destination routing of the channel signal. These switches may be combined allowing the channels to be routed to multiple output destination devices at the same time.

These switches represent stereo audio device outputs. To force the destination to one side of the output device, use the *Pan Slider*, coupled with the *Mono* switch if needed.

⌐   [Left-Clicking] in between the switches in the *Out Assign* section will display a menu listing all available output devices. Selecting one of these options will assign the routing the same as selecting the associated switch.

When using the *XY Surround Pans*, the *Out Assign* switches should most likely be left off and the final signal destination will be controlled by the *XY Pan Out Assignments* on the *Output Channels*.

These switches must be preset before playback and may not be automated.

Other Routing And Signal Flow Topics:
Input Modules
Output Modules
Channel Store/Recall

16.1.3 Output Modules

There are 24 *Output Modules* each also linked directly to a *MultiTrack* track. The *Output Modules* may be used as direct device out master channels or as sub-group channels which can be re-routed to other *Output Modules* as a final destination. The following information will help with understanding the signal flow through an *Output Module*.

The source data for all *Output* channels comes from the *Input* and *Return* channels that are assigned to this particular *Output* as a destination and/or the *XY Surround Pan Buffers*, if assigned.

Output Mono Switch

This switch sums the left and right signals together and applies a 6 dB level adjustment to the result. By default, the resulting data will be exactly the same on both the left and right signal paths from this point on.

☝ [Left-Clicking] on the "Mono" label next to the button displays an options menu. The choices are: L Plus R (-6db); L Plus R; L Only; R Only; L Minus R (-6db); L Minus R.

☞ Deactivating and reactivating the mono button will return the setting to the default L Plus R (-6dB.)

This switch may be automated.

Output FX Pre Fader Patch

The data next passes through the *FX Pre Fader Patch*. This allows you to patch in **SAWStudio** native plug-ins, or *DirectX* or *VST* plug-ins. These FX process in the order they are patched. This *FX Patch* allows plug-ins to alter the size of data buffers while still maintaining overall sync playback.

☝ The yellow FX icon will display a bar graphic across the two holes when plug-ins are assigned. [Left-Clicking] on this icon will display a broken bar, which means the plug-ins are bypassed.

This *FX Patch* processes the data at an internal resolution of 24 bits, regardless of the final session resolution setting.

The bypass may be automated and used to activate and deactivate pre-patched plug-ins as a group. Bypassing plug-ins during silent sections of a track can improve overall performance by giving back CPU time to other tracks.

Output Solo Switch

The data next passes through the *Solo* routine. The output and input solos may be operated together, and output group solos may be nested with individual channels still contained within the group. The routines keep an internal updated count on each channel that is soloed.

You may combine solos from multiple channels to hear a blend of selected signals.

⌨☝ Pressing the [Ctrl] key when deactivating any *Solo* switch will automatically deactivate all engaged *Solo* switches.

Whenever any solo is activated, a flashing *Solo Mode* light in the top right corner of the *MultiTrack* top-client area will keep you informed.

☝ [Left-Clicking] on this flashing light automatically clears all active solo switches.

The *Solo* switch may not be automated.

Output Mute Switch

The data next passes through the *Mute* routine. This switch mutes all data from this point on. All signals before this switch are still active and untouched.

This switch has a slope value associated with it that controls how fast the muting action occurs. Smaller slope values create a more instant response, and larger values create a slower response, which can be used in place of a quick fade to ramp a signal up or down smoothly.

This switch may be automated.

Output Channel Fader

The data next passes through the *Channel Fader* routine. This controls the overall direct signal strength for this channel in the mix.

This control has a slope value associated with it that controls how fast the level change occurs. Smaller slope values create a more instant response, and larger values create a slower response.

This control may be automated.

Output Pan Slider

The data next passes through the *Pan* routine. This controls the left/right balance of the data in the overall stereo levels of this channel signal.

This control has a slope value associated with it that controls how fast the level change occurs. Smaller slope values create a more instant response, and larger values create a slower response.

This control may be automated.

Output FX Post Fader Patch

The data next passes through the *FX Post Fader Patch*. This allows you to patch in **SAWStudio** native plug-ins, or *DirectX* or *VST* plug-ins. These FX process in the order they are patched. This *FX Patch* allows plug-ins to alter the size of data buffers while still maintaining overall sync playback.

⍾   The yellow FX icon will display a bar graphic across the two holes when plug-ins are assigned. [Left-Clicking] on this icon will display a broken bar, which means the plug-ins are bypassed.

This *FX Patch* processes the data at an internal resolution of 24 bits, regardless of the final session resolution setting.

The bypass may be automated and used to activate and deactivate pre-patched plug-ins as a group. Bypassing plug-ins during silent sections of a track can improve overall performance by giving back CPU time to other tracks.

Output XY Pan Assign

If *XY Surround Panning* is being used and has been assigned on *Input* and *Return* channels, these switches are used to control the final destination for each of the eight surround points and the separate sub and center channels.

- **LR Front**
  This switch mixes the *Left* and *Right Front* surround points into this *Output* channel.

- **LR Center**
  This switch mixes the *Left* and *Right Center* surround points into this *Output* channel.

- **LR Rear**
  This switch mixes the *Left* and *Right Rear* surround points into this *Output* channel.

- **FB Center**
  This switch mixes the *Front* and *Back Center* surround points into this *Output* channel.

- **Sub**
  This switch mixes the separate *Sub* send into this *Output* channel.

- **Center**
  This switch mixes the separate *Center* send into this *Output* channel.

Output Out Assign

The data ends up at the *Out Assign* switches. These switches control the destination routing of the *Output* channel signal.

- **Direct Audio Device Output**
  If the *Out Assign* switch that matches the current *Output* channel number is engaged, the channel represents a direct audio device output. For example, *Out Assign* switch 1 set on *Output Channel* 1, *Out Assign* switch 2 set on *Output Channel* 2, etc. When assigned as a Direct Device output, the other assignment switches cannot be used.

  Direct Audio Device Output channels will display their fader and pan knobs as a deep red color.

- **Sub-Group Output**
  If an *Out Assign* switch not matching the current *Output* channel number is engaged, the channel becomes a sub-group output and will re-route its signal data back to the selected destination channel. The selected destination chan must be a Direct Device output chan, not another sub out chan. You may assign a sub to multiple Direct Device out chans at the same time.

  Assigning a sub out to another sub out chan will cause a warning message when playback is activated.

  These switches represent stereo audio device outputs. To force the destination to one side of the output device, use the *Pan Slider*, coupled with the *Mono* switch if needed.

- ⍟ [Left-Clicking] in between the switches in the *Out Assign* section will display a menu listing all available output devices. Selecting one of these options will assign the routing the same as selecting the associated switch.

  Sub-Group Output channels will display their fader and pan knobs as a pale red color.

These switches must be preset before playback and may not be automated.

Output FX Final Resolution Patch

The data finally passes through the *FX Final Resolution Patch* after the application of dither (if chosen) and conversion to the final session resolution. This allows you to patch in **SAWStudio** native plug-ins,

or *DirectX* or *VST* plug-ins. These FX process in the order they are patched. This *FX Patch* does not allow plug-ins to alter the size of data buffers.

The red FX icon will display a bar graphic across the two holes when plug-ins are assigned. Left-Clicking on this icon will display a broken bar, which means the plug-ins are bypassed.

This *FX Patch* processes the data at the final session resolution setting.

The bypass may be automated and used to activate and deactivate pre-patched plug-ins as a group. Bypassing plug-ins during silent sections of a track can improve overall performance by giving back CPU time to other tracks.

☞ This patch should be used only for special output type converters like a CD burner plug-in or file converter (like MP3) plug-in. It will not allow buffer size changes and it processes after the dither and soft-clipping routines. If it adds gain, clipping the final output is possible.

Other Routing And Signal Flow Topics:
Input Modules
Return/Aux Master Modules
Channel Store/Recall

16.1.4 Channel Store/Recall

The *Channel Store/Recall* feature allows you to store all or part of the mixer channel settings to one of four possible memory cell locations. You can then recall those settings from any of the memory cells to the same or a different mixer channel. This allows instant copying of channel settings, including FX plug-ins with all the plug-in parameters, between channels.

If the *Recall* channel is one of a selected group of channels, the recall operation will duplicate the settings and FX plug-ins on all selected channels. You can also use this for a quick compare between different settings on a single channel - for example, storing different EQ settings to different cells, and then recalling them for an instant compare between settings. These functions work during playback also for real-time comparisons.

The four memory cells are stored as internal clipboards and will retain stored information until the SAWStudio application is closed. This allows you to transfer settings from one EDL to another.

Applying Stored Channel Settings to Another Channel

⌨🖑 [Alt-Right-Clicking] or [Left-Right-Clicking] in any mixer view displays the *Store/Recall* menu.

🖑 Select one of the *Store* options to choose which section of the channel you wish to store in one of four cells. To apply the stored channel information to another channel, switch to the destination channel and choose the desired *Recall* option. Stored channel date must be recalled to the same channel type (i.e. inputs to inputs, returns to returns, and outputs to outputs). All memory cells are set to console channel default settings when SAWStudio is first run, therefore recalling a cell section that had nothing stored to it will apply default settings.

✋ **Regarding Channel FX Store/Recall:** Recalling FX plug-ins will clear and overwrite any currently patched plug-ins in the destination channel. For more efficient handling, the FX recall options will not automatically open patched FX windows.

Clearing Channel Settings

✍☝ [Alt-Right-Clicking] in any mixer view displays the *Store/Recall* menu. Selecting the *Clear Current Channel* option clears the current channel to default settings. If the current channel is one of a group of selected channels, all selected channels are cleared.

Saving Channel Settings

✍☝ [Alt-Right-Clicking] in any mixer view displays the *Store/Recall* menu. The *Save All To File From Memory* and *Load All From File To Memory* options allow any memory cell to be saved to a disk channel template file or loaded from a disk channel template file. The file extension used is .cht.

✍☝ The *Store All From Channel To File* and *Recall All From File To Channel* options allow direct transfers to and from channel template files to mixer channels through memory cell 1. This can act as a very powerful partial mix template system.

These options operate across selected channels. The starting channel opens the *File Dialog* allowing you to specify a path and name. The default name is filled in to match the channel label. Each selected channel will write a separate file named the same as the channel label. This creates a channel mix template of individual files, one per selected channel. Recalling channel settings from a file also operates across selected channels. The starting channel opens the *File Dialog* allowing you to specify a path and name. The default name is filled in to match the first channel label. Each selected channel will look for a file named the same as its label and if one is found in the specified path, it will load. If no matching file is found it will leave this channel alone. This allows you to recall settings to multiple channels in a new edl with channel labels that match the channel template names. This is extremely useful for an album project, for instance. You have recorded 10 songs, all of which are very similar, but not identical in track layout. The basic rhythm tracks are the same, Kick, Snare, Toms, Cym LR, Bass, Guitar, etc… Now, after finishing the mix of the first song, you select all the channels and store the settings to files. It's a good idea to create a *Mix Template* folder under the main project folder. You then open the next song, and select all channels and recall the files from this folder. This will find and match each channel with its associated file settings, including patched plugins, even if the track order has been changed, and ignore any channel with a different label that was not part of the other song. By labeling tracks in a similar fashion across all projects, you can easily exchange mix settings from one unrelated project edl to another, one channel at a time, or all at once.

✍☝ The *Recall All From File And Duplicate To Selected Channels* option opens the file dialog and allows you to select a file. The settings will be recalled and duplicated on all selected channels.

Other Routing And Signal Flow Topics:
Input Modules
Return/Aux Master Modules
Output Modules

17   Using Plug-In Effects

17.1   Equalizer

Overview

This plug-in effect offers many different ways to alter the frequency content of your audio. Adjusting the slider controls creates a somewhat-graphic representation of the overall shape of the resulting EQ curve. Each of the seven bands has adjustments for center-frequency and bandwidth. There are also adjustable *Hi-Cut* and *Lo-Cut* filters and a control to trim the output volume.

The *Equalizer* plug-in interface includes a popup menu list of all settings for each control. The frequencies for each band include the entire range from 40 to 15k with many smaller increments in between. The bandwidth ranges from 1/10 to 3 octaves. All parameters can be automated, except the reset switch.

This effect is completely non-destructive and operates in real-time.

Operation

Effect Automation

The *Equalizer* effect can be automated by activating *Automation Mode* in the *MultiTrack. Automation Mode* allows you to save and manipulate control adjustments which then store with the session for exact duplication during each playback. For more information on automation, see *Operation - Automation Mode* in the <u>*Using The MultiTrack*</u> chapter.

Playback

🖰   [Right-clicking] in the *Equalizer* window in an area other than a control zone will start and stop *MultiTrack* playback.

Slider Controls

The *Slider Controls* adjust the amount of boost or cut at the associated center frequency. The dB representation is displayed above each control.

🖰   [Left-Dragging] a slider adjusts the EQ.
[Left-Right Clicking] resets any control back to zero dB.

Freq

The *Freq* controls adjust the center frequency for each of the seven frequency bands. The frequency range covers the full spectrum from 40-15000 cycles, allowing complete versatility in setting frequency combinations.

Each frequency band is a high-resolution bandpeaking filter that affects only the audio frequencies that are near the center frequency setting and lie within the bandwidth range evenly balanced on either side.

🖰   [Left-Holding] the right half of a frequency control and moving the mouse forward or backward changes the frequency setting.

[Right-Clicking] turns the individual band on or off.

[Left-Clicking] the left half of a frequency control button displays a popup menu of all available settings. Click the desired setting, or click anywhere outside of the menu to close it.

☞   The default value for this control is displayed in bold on the menu.

[Left-Right Clicking] on the right half of a control resets it to the default frequency for that band.

Width

The *Width* controls adjust the bandwidth of the frequency range affected by the filter. A smaller

bandwidth has a sharper sound and can be used to zero in tight on a specific frequency. A larger bandwidth has a smoother sound and can be used to affect a wider range of frequencies with one control.

🖑 [Left-Holding] the right half of a bandwidth control and moving the mouse forward or backward changes the bandwidth setting.

[Left-Clicking] the left half of a bandwidth control button displays a popup menu of all available settings. Click the desired setting, or click anywhere outside of the menu to close it.

☞ The default value for this control is displayed in bold on the menu.

[Left-Right Clicking] the right half of a control resets it to the default bandwidth.

Hi-Cut Filter

The *Hi-Cut* filter control is a shelving filter that will attenuate high frequencies above the cutoff frequency setting. The rate of attenuation is 12 dB per octave.

🖑 [Left-Holding] the right half of the control and moving the mouse forward or backward changes the filter setting.

[Right-Clicking] the control turns the filter on or off.

[Left-Clicking] the left half of the control displays a popup menu of all available settings. Click the desired setting, or click anywhere outside of the menu to close it.

☞ The default value for this control is displayed in bold on the menu.

[Left-Right Clicking] the right half of the control resets it to its default setting.

Lo-Cut Filter

The *Lo-Cut* filter control is a shelving filter that will attenuate low frequencies below the cutoff frequency setting. The rate of attenuation is 12 dB per octave.

🖑 [Left-Holding] the right half of the control and moving the mouse forward or backward changes the filter setting.

[Right-Clicking] the control turns the filter on or off.

[Left-Clicking] the left half of the control displays a popup menu of all available settings. Click the desired setting, or click anywhere outside of the menu to close it.

☞ The default value for this control is displayed in bold on the menu.

[Left-Right Clicking] the right half of the control resets it to its default setting.

Vol Trim

The *Vol Trim* control can be used to trim the overall volume to eliminate clipping that may occur when boosting or cutting frequency bands in a loud section of audio.

🖑 [Left-Dragging] the *Vol Trim* slider trims the volume. When this control is at the top, no volume processing occurs.

Track Number Display

The *Track Number Display* shows the reference track for the currently displayed settings. Opening a new *EQ* on another track will change settings and track reference numbers on the same open window.

🖰   [Left-Clicking] the *Track Number Display* shows a list of all tracks that have an *EQ* assigned, and allows you to select another track to view.
There is also an *Auto Tracking* option at the top of the list which allows the display to change automatically with the current *Hot Track* selection in the *MultiTrack*. This option may be saved with the module preferences.

[Left-Click] anywhere in the *Equalizer* window to close the popup list box without changing selections.

Reset

🖰   [Left-Clicking] the *Reset* button resets all EQ frequency bands to the center, flat position. This button does not change the frequency or bandwidth settings.

Bypass

🖰   [Left-Clicking] the *Bypass* button bypasses this effect without affecting other modules patched into this track.

Close

🖰   [Left-Clicking] the *Close* button closes the EQ window. Any settings that were made remain in effect.

Options Icon

🖰   [Left-Clicking] on the blue pyramid *Options* icon displays a small popup menu containing the following options:

Save Preferences
This option allow you to save preferences for the EQ module which includes the load and save file paths, and the current EQ window position.

Clear Preferences
This option clears the default preferences for the EQ module.

Load Presets
This option loads a previously saved preset file containing all adjustable settings for a specific EQ setup. A file dialog box is displayed allowing you to select the folder and file name of the preset file you wish to load. *Equalizer* preset files use the .EQ extension.

Save Presets
This option saves a preset file containing all adjustable settings for the current EQ setup. A file dialog box is displayed allowing you to select a folder and enter a file name for the preset file you wish to save.

About
This option displays the *About* information window including current version information.

Other Plug-In Topics:

17.2 Echo/Delay

Overview

This effect creates a variety of digital delay and repeating echo effects. Individual left and right controls are available for the *Delay Time, Feedback* and *Strength* of the delayed signals. There is absolutely no noise and no degradation of the audio signal on repeating echoes.

The *Echo/Delay* plug-in interface includes a popup menu list of all settings for each control. *Echo/Delay* times will now display a reference line offset from the current cursor position when being adjusted in both the *MultiTrack View* and the *SoundFile View*. All parameters can be automated.

This effect is completely non-destructive and operates in real-time.

Operation

Effect Automation

The *Echo/Delay* effect can be automated by activating *Automation Mode* in the *MultiTrack*. *Automation Mode* allows you to save and manipulate control adjustments which then store with the session for exact duplication during each playback. For more information on automation, see *Operation - Automation Mode* in the <u>*Using The MultiTrack*</u> chapter.

Playback

🖰 [Right-clicking] in the *Echo/Delay* window in an area other than a control zone will start and stop *MultiTrack* playback.

Left/Right Delay Time

The *Delay Time* setting determines the amount of time between echo repeats. Pressing the [Ctrl] key when adjusting the left or right settings will latch both channels together.

🖰 [Left-Holding] the right half of the *Delay Time* readout area and moving the mouse forward or backward changes the delay time by 1 millisecond (ms) increments.

[Shift-Left-Holding] doubles the speed of the changes.

[Left-Clicking] the left half of the *Delay Time* control displays a popup menu of available settings in various increments. This menu also displays a reference distance in Feet or Meters (selectable in the Blue Pyramid Options) based on the speed of sound through dry air at 68 degrees-F (20 degrees-C). Click the desired setting, or click anywhere outside of the menu to close it.

☞ The default value for this control is displayed in bold on the menu.

☞ The DelayTime and FeedBack controls can be stereo latched when using the [Ctrl] key and any of the control adjustment methods.

[Right-clicking] on the *Delay Time* setting will cause it to match the delay time value of the opposite channel.

[Left-Right Clicking] the right half of the control resets it to its default setting.

A special link to the *MultiTrack* and *SoundFile View* provides a unique and powerful feature to assist in setting precise delay times.

⍚ [Double-clicking] an *MT Entry* from the current track into the *SoundFile View,* or referencing the *MultiTrack Entry* directly, provides the opportunity for a visual display of the current *Delay Time* setting referenced against the audio waveform. When adjusting the *Delay Time* setting, a vertical cursor will appear on top of the waveform indicating the exact *Delay Time* distance from the *SoundFile View* or *MultiTrack View cursor.*

☞ Use this feature to set echo repeats precisely in rhythm with a piece of music by placing the *SoundFile View* or *MultiTrack View cursor* on a downbeat or upbeat, and adjusting the delay time to align the vertical cursor to the next beat, or halfway to the next beat.

Left/Right Tap Lights

These Lights activate Tap Mode which allows you to set *Delay Time* by tapping to the tempo. Pressing the [Ctrl] key when clicking either of these lights will latch both channels together.

⍚ [Left-clicking] in the Tap zone between the lights twice in succession, when either light is active, will calculate the delay time between taps and set the active channels.

⌨ Pressing the [Left-Arrow], [Right-Arrow], [Up-Arrow], or [Down-Arrow] keys twice in succession (when the Echo plugin is the active window) will calculate the delay time between taps and set the active channels.

⌨ Pressing the [Space-Bar] key twice in succession (when the Echo plugin is the active window) will calculate the delay time between taps and set the active channels.

☞ You can tap any combination of these keys once each for quicker response times and the delay time will be calculated between taps.

Left/Right Feedback

The *Feedback* setting determines how much of the echo signal is fed back to the input. This creates repeating echoes, spaced at the *Delay Time* interval, each one at a slightly lower volume than the previous, eventually fading away to nothing. Using 0% *Feedback* creates a single echo of the original sound, acting as a simple delay effect. Pressing the [Ctrl] key when adjusting the left or right settings will latch both channels together.

⍚ [Left-Holding] the right half of the *Feedback* readout area and moving the mouse forward or backward will change the *Feedback* amount by 1% increments.

[Shift-Left-Holding] doubles the speed of the change.

[Left-Clicking] the left half of the *Feedback* control displays a popup menu of available settings in increments of five. Click the desired setting, or click anywhere outside of the menu to close it.

☞   The default value for this control is displayed in bold on the menu.

[Right-clicking] on the *Feedback* setting will cause it to match the feedback value of the opposite channel.

[Left-Right Clicking] the right half of the control resets it to its default setting.

Left/Right Strength

Pressing the [Ctrl] key when adjusting the left or right fader will latch both channels together.

☞   [Left-Dragging] the *Strength* setting controls the loudness of the main echo relative to the original audio volume. It will also affect how many repeats are heard at a particular *Feedback* setting.

[Right-clicking] on the *Strength* setting will cause it to match the feedback value of the opposite channel.

[Left-Right Clicking] resets the control to its default setting.

Src Vol

☞   [Left-Dragging] the *Src Vol* control will adjust the level of the original source signal in the output mix. Dropping the level to zero will remove the original source signal completely, leaving only the echoes and delays.

[Left-Right Clicking] resets the control to its default setting.

Mode

☞   [Left-Clicking] the *Mode* setting switches between *Normal* and *Cross* delay.

[Left-Holding] in the *Mode* readout area and moving the mouse forward or backward will also change the setting.

Normal delay mode keeps the left and right echoes in place on their respective channels.

Cross delay mode crosses the left channel echo over to the right channel and the right channel echo over to the left channel. With a high percentage of feedback, you can create a ping-ponging effect of echoes bouncing back and forth between channels. With 0% feedback and a delay time of 20 to 40 ms, you can create the effect known as *Cross Delay Stereo*, which can give the illusion of a wider overall stereo image from a mono signal source.

☞   Creating a *Cross Delay Stereo* effect requires that the plug-in be patched in *Post Fader*. The source track must be panned to one side or the other, and the *Delay Time* should be set between 20-40 ms. Set the *Strength* for that channel to the maximum setting and select *Cross* delay mode. This should result in the mono signal being spread across the left/right stereo image. The width of the spread can be controlled by the delay setting.

Track Number Display

The *Track Number Display* shows the reference track for the currently displayed settings. Opening a new *Echo/Delay* on another track will change settings and track reference numbers on the same open window.

[🖑]   [Left-Clicking] the *Track Number Display* shows a list of all tracks that have an *Echo/Delay* assigned, and allows you to select another track to view.
There is also an *Auto Tracking* option at the top of the list which allows the display to change automatically with the current *Hot Track* selection in the *MultiTrack*. This option may be saved with the module preferences.

[🖑]   [Left-Click] anywhere in the *Echo/Delay* window to close the popup list box without changing selections.

Bypass

[🖑]   [Left-Clicking] the *Bypass* button bypasses this effect without affecting other modules patched into this track.

Close

[🖑]   [Left-Clicking] the *Close* button closes the *Echo/Delay* window. Any settings that were made remain in effect.

Options Icon

[🖑]   [Left-Clicking] on the blue pyramid *Options* icon displays a small popup menu containing the following options:

Save Preferences
This option allows you to save preferences for the *Echo/Delay* module which includes the load and save file paths and the current *Echo/Delay* window position.

Clear Preferences
This option clears the default preferences for the *Echo/Delay* module.

Load Presets
This option loads a previously saved preset file containing all adjustable settings for a specific *Echo/Delay* setup. A file dialog box is displayed allowing you to select the folder and file name of the preset file you wish to load. *Echo/Delay* preset files use the .EKO extension.

Save Presets
This option saves a preset file containing all adjustable settings for the current *Echo/Delay* setup. A file dialog box is displayed allowing you to select a folder and enter a file name for the preset file you wish to save.

Ms Menu Distance-Reference In Feet
This option displays the Ms distance reference in feet. This option saves with the plugin preferences.

Ms Menu Distance-Reference In Meters
This option displays the Ms distance reference in meters. This option saves with the plugin preferences.

About
This option displays the *About* information window including current version information.

Other Plug-In Topics:
Equalizer
DirectX & VST Plug-Ins

17.3   DirectX & VST Plug-Ins

Installed *DirectX* and *VST* plug-ins will be listed in the *FX Choices* listbox. *DirectX* plug-ins list in pink and *VST* plug-ins list in Green. Only *VST* plug-ins that supply their own graphic interface will be listed and usable.

☝   **Regarding installation of VST Plug-ins:** Many VST installers will ask for a destination folder. You should choose the VST_PlugIns folder under the SAWStudio main folder. Some of these installers will create another subfolder inside of the chosen folder. For VST plug-ins to show up correctly inside of SAWStudio, they must be directly inside of the VST_PlugIns folder. If a VST plug-in does not show up in the SAWStudio FX Choices list, check the VST_PlugIns folder to see if a subfolder was created and simply move the applicable plug-in .dll file(s) into the VST_PlugIns folder directly.

Some VST Plug-In installations will hardcode or otherwise force their plug-in path to remain intact as installed and will not allow the .dlls to be moved into the SAW VST_PlugIns folder. SAWStudio will allow VST Plugins to reside in any folder on any drive by placing an **.ini** file substitute in the **VST_Plugins** folder pointing to the full path of the dll file itself. Open the Notepad (or any other ascii text editor) to create a new text file. Inside the file, type the full drive and path and original .dll filename on the first line of the file. Make sure to finish the line with a carriage return by pressing the [Enter] key to return the cursor to the start of the next line. Then save the file as an **.ini** file using the same name as the plugin itself. For example, if a VST Plugin called **TestPlug.dll** is installed to **D:\VST\Work**, then create an **.ini** file called **TestPlug.ini** and inside the file type the line **D:\VST\Work\TestPlug.dll** followed by a carriage return. This **.ini** file, placed in the **VST_PlugIns** folder under SAWStudio, will now link SAWStudio to find the VST plug-in in its originally installed path. This can help solve compatibility issues with hardwired path plug-ins and their various copy protection schemes.

Some of the newer VST plugins, like Waves Version 6.0, are now using a Shell loader instead of direct access to the individual plugin dlls. With these types of Shell VST loaders, you can use a utility like Shell2VST to extract the dll loaders from the Shell as separate dlls. These can then be opened by placing them in the SAWStudio VST_Plugins folder or using the .ini linker method.

☝   **Regarding VST Plug-In Latency:** Some VST plug-ins add a certain amount of latency delay to the processed buffers depending on their processing algorithms. SAWStudio automatically compensates for plug-in latency as reported by the plug-ins themselves by absorbing the extra blank buffers that are sent back at the start of buffer processing. Using any external latency compensator or otherwise adjusting the track data to compensate is not necessary. The bypass switch is backward compensated to allow bypassing during live playback without loosing sync. Unpatching the plug-in during live playback is not backward compensated however, and will cause data sync to be incorrect. You must stop and restart playback to correct the track sync. Also, realize that plug-ins that have latency will add their latency to live inputs creating delays and in some cases may force the engine to shutdown. (See Latency Override options under the VST Options Icon.)

✍ **Regarding FX Buffer Size Changing:** FX buffer size changing plugins will now cause a notice to appear on the main window titlebar when the engine is activated. Clicking in the displayed message zone will display the plugin's name and the channel it's patched into. This warning message picks up and displays the first plugin to alter the buffer size only. Be aware that when you are depending on any live input monitoring during *Live Mode*, playback or recording, buffer size altering will most likely cause latency drift due to the engine attempting to loop multiple times to fill the buffer in a look-ahead mode and live device inputs have no look-ahead data available so blank buffers are inserted. You should find and bypass all plugins causing this warning while attempting to monitor live device inputs.

Operation - DirectX

FX Bypass

🖰 The *DirectX* and *VST* plug-in windows include an *FX Bypass* icon in the top left corner. [Left-Clicking] this icon allows each effect to be individually bypassed. This control is automated. For more information on automation, see *Operation - Automation Mode* in the <u>*Using The MultiTrack*</u> chapter.

Close

🖰 [Left-Clicking] the *Close* button closes the plug-in window. Any settings that were made remain in effect.

Options Icon

Clicking on the blue pyramid *Options* icon in DirectX plug-in displays a small popup menu containing the following options:

Built-In Presets
This option opens a list of built-in presets that come with the individual plug-ins (if any).

Load SAWStudio Presets
This option loads presets for the filter, that were previously saved with the *Save SAWStudioPresets* option.

Save SAWStudio Presets
For *DirectX* plug-ins, this option saves presets for the filter. A folder is created under the **SAWStudio** main folder called *DirectX_Presets* and preset files (.dxp) are placed in separate folders for each filter using the filter's name as a folder name.

Help
This option opens up the plug-in's *HelpFile*, if provided.

Operation - VST

FX Bypass

🖰 The *DirectX* and *VST* plug-in windows include an *FX Bypass* icon in the top left corner. [Left-Clicking] this icon allows each effect to be individually bypassed. This control is automated. For more information on automation, see *Operation - Automation Mode* in the <u>*Using The MultiTrack*</u> chapter.

Close

⊖   [Left-Clicking] the *Close* button closes the plug-in window. Any settings that were made remain in effect.

Options Icon

Clicking on the blue pyramid *Options* icon displays a small popup menu containing the following options:

Set SoftSynth Midi-In Port
This option is active for VST SoftSynth plug-ins as well as for other VST effects plug-ins that accept midi data, and offers selections for all Midi-In hardware ports, as well as 16 MWS virtual ports if the Midi WorkShop is installed. The MIDI port selected becomes the source of trigger information for the SoftSynth to create its sounds, or as control data for plug-in parameters.

Assign SoftSynth Multi-Out Chans
This option displays a popup menu of synth output channel choices. The stereo / mono grouping of the synth is displayed next to the associated pre-assigned *SAWStudio* track. The track assignments follow in sequence starting with the track that the synth is patched into. The outputs are kept inactive for performance reasons until selected on this menu. The alternate outputs of the synth are then routed to the *Pre-Fx Patch* insert point on the associated tracks. By altering the signal flow of the *Pre-Fx Patch* insert point, you may route the synth signals directly into the console *Eq* and *Dynamics* section for direct processing. These assignments save with the session edl and also with the *SAWStudio* presets.

Disable SoftSynth
This option allows you to completely bypass the internal routing of a VST Synth plug-in and pass underlying audio track data through. This allows you to keep a patched synth on the track, but still record the data as audio on the same track and ignore the patched synth, while still keeping it in the edl with all its settings in case you need to make changes and re-record again. When this option is active, a large Red X displays across the Blue Pyramid *Options* Icon. This option saves with the session edl.

Built-In Presets
This option opens a list of built-in presets that come with the individual plug-ins (if any).

Load SAWStudio Presets
This option loads presets for the filter, that were previously saved with the *Save SAWStudioPresets* option.

Save SAWStudio Presets
For *VST* plug-ins, this option saves presets for the plug-in. A folder is created under the **SAWStudio** main folder called *VST_Presets* and preset files (.vsp files) are placed in separate folders for each plug-in using the plug-in's name as a folder name.

Cancel 'Always On Top' Status
This option cancels the *On Top* status of the window, allowing misbehaved dialog boxes on some VST plug-ins to display on top of the plug-in window. This option will remain set even when the window is hidden. The option will be cleared when the plug-in is unpatched. This option saves with the session edl.

Override Auto Latency Compensation
This option will display the reported latency delay in samples that the plugin returns to SAWStudio when asked. This option can also be used to override that value. If overridden, the new compensation value used will be taken from the second option setting, which can also be set to zero to bypass all automatic latency compensation.Some plugins report latency differently than expected or not at all. This option allows you to correct for VST latency or bypass it altogether. This option saves with the edl

and with individual saved presets to allow for the same plugin to have different latency values dependent on the actual plugin parameter settings.

Override Auto Latency Compensation Value
This option allows you to set a new latency compensation value in samples. If the latency compensation override is active, the new compensation value used will be taken from this setting, which can also be set to zero to bypass all automatic latency compensation.Some plugins report latency differently than expected or not at all. This option allows you to correct for VST latency or bypass it altogether. This option saves with the edl and with individual saved presets to allow for the same plugin to have different latency values dependent on the actual plugin parameter settings.

VST Virtual Instruments and SoftSynth Plug-Ins

The VST implementation is designed to handle VST Virtual Instruments and SoftSynth plug-ins. If the plug-in is a synth, you must select a MIDI port from the *Options* icon menu as the source for the plug-in to generate sound.

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. The playback latency will need to be low in order to take advantage of these instruments. A setting of around 4 or less buffers at 256 size typically works well.

☞   A special enhancement allows you to toggle *Live Mode* on and off directly from the VST plug-in window by [Right-Clicking] on the blue pyramid *Options* icon.

To record the synth output, use the mixer channel that the synth is patched into as the recording source, rather than a hardware device. If the synth is patched into the *Pre-Fx Patch* location, the output can be directly recorded.

SAWStudio supports and sends VST Time Info data for tempo syncing VST effects and synth plug-ins to the timeline.

Other Plug-In Topics:
Equalizer
Echo/Delay

18 Working With SMPTE/MTC TimeCode

18.1 What Is SMPTE?

This section is a light-hearted attempt at shedding some light on the overly complex and confusing world of SMPTE synchronization as it applies to *SAWStudio.* It explains in depth, the different considerations that need to be addressed when attempting to link MIDI sequencers and audio/video decks to the *SAWStudio* environment through the use of SMPTE/MTC timecode. This section uncovers the many complications surrounding successful SMPTE operation, and is mainly intended as an educational guide to the many variables involved, and some possible solutions to the problems.

For the purpose of this discussion, SMPTE will simply be defined as an electronic reference to time that can be recorded on audio/video decks and transmitted between different pieces of equipment allowing them to keep in sync with each other.

The SMPTE code is displayed as follows: 00:00:00:00 (Hours: Mins: Secs: Frames). There are many sources of detailed technical descriptions of the actual SMPTE standard, and this chapter will not attempt to reiterate them. One of the most important things to note about SMPTE, as it applies to the **SAWStudio** environment, is the different formats that are commonly used by the different industries. There are generally four format types that we will concern ourselves with: 30 Non-Drop, 30 Drop, 25, and 24 frames per second.

- *30 Non-Drop* is often used by the music production industry, usually in conjunction with MIDI sequencers.
- *30 Drop* is often used by the video production industry in the United States.
- *25* is often used by the video production industry outside the United States.
- *24* is often used by the film production industry.

The concept starts out simple, but *hang on to your hat* because *Complicitis* (a human condition that presumes that the shortest distance between two points is around the world 10 times) sets in real fast from here. *Twenty four* and *Twenty Five* frames per second are fairly straightforward. Time is broken down into 24 or 25 fractions of a second. Each fraction is called a *Frame* and therefore defines the smallest segment of time that can be referenced. *Thirty Non-Drop works* similarly with a *Frame* being equal to 1/30 of a second. Now the confusion sets in.

Thirty Drop was created for use by the video industry in the United States because of a specific technical dilemma that resulted when color video was introduced. Each frame of color video required an extra signal for the color burst information that was encoded in between video frames. This caused a tiny amount of extra time to occur during playback between each frame of color video and as a result, the actual number of video frames no longer matched the actual running time of the full video production. In truth, the frame count actually lagged behind, loosing approximately 1.8 frames per minute. *Drop Frame was* created (although many would argue that it never should have been) and the Pandora's Box was opened. *Drop Frame* encoding is at best, a weak attempt at solving the color video timing problem. At every *Minute Boundary*, two frames are dropped from the SMPTE value, helping to keep the actual SMPTE time reference in line with the actual video frame count. Since we are dealing with a fractional timing loss however, more adjustment was necessary. To compensate for the remainder of the timing inaccuracy, at every *Ten Minute Boundary*, the SMPTE Time is not adjusted at all. Now lets look at what this means in terms of actual SMPTE code values. As we cross the first *Minute Boundary*, the SMPTE values actually look like this; 00:00:59:28… 00:00:59:29… 00:01:00:02… 00:01:00:03…etc. Notice the two frames that are skipped at the crossing. Each minute up to the *Ten Minute Boundaries* follows the same pattern. As we cross a *Ten Minute Boundary*, the SMPTE values actually look like this; 00:09:59:28… 00:09:59:29… 00:10:00:00… 00:10:00:01…etc. Notice that no frames are skipped.

As you may begin to see, hardware and software handling of SMPTE in this format has been complicated considerably. But realize, once *Complicitis* sets in, it can spread quickly. Sometime after that, the conclusion was drawn and (surprisingly) widely accepted that instead of doing all this complicated manipulating of numbers, a similarly accurate result could be created by simply slowing down the actual SMPTE stripe by a correction factor of .999%. Thus was born the 29.97 SMPTE format. The SMPTE running time now matched the video frame count.

Are you still with us? What exactly is this 29.97 SMPTE format? It is usually *30 Non-Drop* running slow. But believe it or not, it is also, in many cases, *30 Drop* running slow, which is actually a double application of the correction factor resulting in the same error in the opposite direction that *Drop Frame* attempted to correct originally.
Many of the MIDI devices on the PC platform cannot detect 29.97 timing at a hardware level, and will actually read it as *30*, therefore making it much more complex for software applications to handle it properly.

Lets feed the *Complicitis* a bit and spice up the situation with the addition of digital audio. Digital audio creates sound by sampling the continuous analog audio signal at precise timing increments called the *Sampling Rate*. Some of the most common rates used are 32000, 44100 and 48000. Recording audio

signals with a digital connection (rather than analog connection) complicates matters because the sound cards will lock to the source digital clock and not use their internal clock during the recording process. The problems arise when the source deck is a video deck locked to a House Sync master generator running at 29.97. A *Sampling Rate* of 44100 will actually be internally pulled down .999% by the deck to 44056. The sound card will happily record at this rate, but during playback, will use its internal clock and playback at the 44100 rate. The result is a serious corruption of synchronization.

We have now been introduced to some of the SMPTE complexities at the ground floor. Many more variables come into the picture as we begin interfacing to different types of equipment. Since each situation has unique parameters, let's take a look at each one individually.

Other SMPTE Topics:
MIDI Sequencers And The SAWStudio Environment
Audio Tape Decks And The SAWStudio Environment
Video Tape Decks And The SAWStudio Environment

18.2   MIDI Sequencers And The SAWStudio Environment

This is actually the easiest of combinations. In this configuration, the **SAWStudio** environment is usually setup as the master, generating the SMPTE/MTC code for the sequencer to chase as the slave.

The Windows MultiMedia specification has no real direct provision for generating SMPTE/MTC through the Windows driver mechanism. **SAWStudio** solves this dilemma using a revolutionary approach to generating software-emulated *SMPTE LTC* timecode to a standard audio device output (without the need for any for any additional SMPTE hardware), and stable software-emulated *MTC MIDI* timecode to a standard MIDI port.

Deciding Between SMPTE or MTC Sync

If your MIDI device has SMPTE input capabilities through a separate SMPTE connection, and you are using a multi-channel audio device with an extra output to spare, using SMPTE generation would possibly be the most stable synchronization method.

To set up *SMPTE LTC* sync to your sequencer, from the *Smpte/Midi* menu, under the *Smpte/Mtc Sync* option, select *Generate Smpte Sync*. Connect an audio cable from your selected audio sync device Out to the SMPTE connection on the MIDI device that the sequencer is using. Set the sequencer to get its sync from the SMPTE In port on the MIDI device. Starting playback in **SAWStudio's** *MultiTrack* should then cause the sequencer to chase and lock. You may use your selected audio sync device out channel volume to adjust the level of the *SMPTE LTC* code being generated.

This method can be used to sync a sequencer running on the same or a separate computer as **SAWStudio**.
If your MIDI device has no SMPTE input capabilities, then *MTC MIDI* generation is the other option.

To set up *MTC MIDI* sync to your sequencer, from the *Smpte/Midi* menu, under the *Smpte/Mtc Sync* option, select *Generate Mtc Sync*. You now have the choice of using a hardware or software loopback technique.

To create a hardware loopback, connect a MIDI cable from your selected MIDI device Out port and loop it back around to an available MIDI device In port. Set the sequencer to get its sync from the selected MIDI In port on the MIDI device. Starting playback in **SAWStudio's** *MultiTrack* should then cause the sequencer to chase and lock.

To create a software loopback, you must find and install a MIDI software loopback filter program, available on many shareware sites on the Internet. These programs install virtual MIDI ports into the

Windows environment which you can internally connect together, effectively replacing the physical MIDI cable connection between hardware ports. Select one of these virtual MIDI ports as your MTC Sync Device Out port, and set your sequencer to get its sync from the virtual In port internally connected in the loopback software. Starting playback in *SAWStudio's* *MultiTrack* should then cause the sequencer to chase and lock.

Choice of SMPTE/MTC Format

When working with MIDI sequencers, it is recommended that the SMPTE Format be set to 30 NonDrop to maximize the resolution of the timing signal.

Operation

Operation when *SAWStudio* is the master, is simple and straightforward. Playing back from the *MultiTrack* will automatically begin sync generation at the current *MultiTrack cursor* position. Sync will not be generated during *Soundfile View* playback.

Recording will also generate sync, starting from the *MultiTrack cursor* position when the *SRP* or *REC* button is clicked on the *Record Remote Transport*.

Other SMPTE Topics:
What Is SMPTE?
Audio Tape Decks And The SAWStudio Environment
Video Tape Decks And The SAWStudio Environment

18.3   Audio Tape Decks And The SAWStudio Environment

This combination has many parameters to consider and can get a bit complex. In this configuration, the *SAWStudio* environment can be setup as either the master or the slave.

Depending on your audio device, most newer digital tape decks, such as ADATs, DA-8s, etc., can be used as the master, with *SAWStudio* triggering and locking to the deck's master clock through the digital audio connection. Analog tape decks, on the other hand, should usually be used as the slave, due to the higher levels of varying playback speed associated with these transports. In either case, using *SAWStudio* as the master is the suggested choice.

Using SAWStudio As The Master

To use *SAWStudio* as the master, your tape deck must be capable of reading and locking its tape transport to *SMPTE LTC* or *MTC MIDI* timecode. Many decks have this capability built in, while others require an external hardware device designed to specifically provide this capability.

From the *Smpte/Midi* menu, under the *Smpte/Mtc Sync* option, select one of the generate options depending on which method your deck is capable of reading. Smpte would be the preferred choice. Connect an applicable cable from your selected sync device Out to the sync In connection on the tape deck. Set your deck to slave mode. Starting playback in *SAWStudio's* *MultiTrack* should then cause the deck to chase and lock.

Using SAWStudio As The Slave

To use *SAWStudio* as the slave involves a few additional considerations:

First, the deck must be capable of outputting timecode from either an internal reference source or by simply playing back a track containing recorded SMPTE timecode.

Second, in order for *SAWStudio* to lock to the deck, your audio device must be capable of referencing an external clock source which it must pick up either directly from the deck, or from a master house sync generator, which the deck is also locked to.

Audio devices that use ADAT Lightpipe connectors can generally derive the clock source directly from the deck through these connections. Other audio devices must rely on an external word clock source.

SAWStudio uses the timecode signal to trigger the playback start at the proper position. Without some method of hardware clock synchronization, the playback continues wild from that point, and there is no guarantee that the deck and *SAWStudio* will not drift apart.

Locking and maintaining the sync between the two devices is completely dependent on the fact that there can only be one master reference clock source. Your options are that the deck is the master source and passes the clock directly through Lightpipe or other direct digital connections, or a separate house sync master clock source generates word clock to both the deck and *SAWStudio's* audio devices at the same time, or a separate timecode converter device can be used to read a SMPTE or MTC timecode signal and generate a word clock reference source which your audio device can then use to lock.

From the *Smpte/Midi* menu, under the *Smpte/Mtc Sync* option, select one of the trigger options depending on which method your deck is capable of generating. Smpte would be the preferred choice. Connect an applicable cable from the tape deck's sync Out to your selected sync device In.

Choice of SMPTE/MTC Format

When working with Audio Tape Decks, it is recommended that the SMPTE Format be set to 30 NonDrop to maximize the resolution of the timing signal.

Operation

Operation when *SAWStudio* is the slave, can be handled in one of two ways, manual trigger or chase trigger.

Manual trigger allows you to initiate the sync operation manually. From the *Smpte/Midi* menu, under the *Smpte/Mtc Sync* option, select one of the normal trigger options. Press the [SpaceBar] or [Return] key to initiate the sync trigger operation. *SAWStudio* will read the incoming timecode and determine a suitable trigger position, based on the current timecode, the chase advance seconds, and the latency adjust settings for the chosen trigger mode, then preload the *MultiTrack,* and wait for sync at the trigger location. Start the audio deck playback, and *SAWStudio* will read the incoming timecode signal and start playback in sync when the timecode matches the trigger location.

Chase trigger allows you to leave *SAWStudio* unattended and control the operation completely from your audio deck. From the *Smpte/Midi* menu, under the *Smpte/Mtc Sync* option, select one of the chase trigger options. In this mode, *SAWStudio* is actively looking for incoming timecode and when you start your tape deck and the timecode signal arrives, the program will automatically cue forward or backward to determine a suitable trigger position, based on the current timecode, the chase advance seconds, and the latency adjust settings for the chosen trigger mode, then preload the *MultiTrack,* and wait for sync at the trigger location.

Operation when *SAWStudio* is the master, is simple and straightforward. Playing back from the *MultiTrack* will automatically begin sync generation at the current *MultiTrack cursor* position. Sync will

not be generated during *Soundfile View* playback.

Recording will also generate sync, starting from the *MultiTrack cursor* position when the *SRP* or *REC* button is clicked on the *Record Remote Transport*.

Other SMPTE Topics:
What Is SMPTE?
MIDI Sequencers And The SAWStudio Environment
Video Tape Decks And The SAWStudio Environment

18.4   Video Tape Decks And The SAWStudio Environment

This combination adds many parameters and variations of parameters to the complexity of synchronizing data with *SAWStudio*. In this configuration, the *SAWStudio* environment is usually setup as the slave (although master setups are possible), triggering to SMPTE timecode which is striped on one track of the video deck, which acts as the master. There are many factors involved here in order for accurate sync to happen.

In order for *SAWStudio* to lock to the deck, your audio device must be capable of referencing an external clock source which it must pick up either directly from the deck, or from a master house sync generator, which the deck is also locked to.

SAWStudio uses the timecode signal to trigger the playback start at the proper position. Without some method of hardware clock synchronization, the playback continues wild from that point, and there is no guarantee that the deck and *SAWStudio* will not drift apart.

Locking and maintaining the sync between the two devices is completely dependent on the fact that there can only be one master reference clock source. Your options are that the deck is the master source and generates word clock directly, or a separate house sync master clock source generates word clock to both the deck and *SAWStudio's* audio devices at the same time, or a separate timecode converter device can be used to read a SMPTE or MTC timecode signal and generate a word clock reference source which your audio device can then use to lock.

When working with the PAL video standard, things remain fairly straightforward from here. The NTSC video standard, however, can complicate matters very rapidly. The problems arise from the use of the 29.97 SMPTE timing used with all NTSC color video. Most video production houses run a master clock signal, called House Sync, to all video and audio equipment in the control room. This master clock generates a 29.97 SMPTE code signal, a *Word Clock* sync signal, and a video burst signal that all pieces of equipment reference in order to stay in perfect phase accurate sync. The SMPTE stripe placed on the video tape copy you will most likely work with, will have come from this master clock. The actual SMPTE Format encoded within the stripe, will be either 30 NonDrop or 30 Drop (even though it is really at 29.97), depending on the production house you are involved with, and in some cases will even vary from project to project within the same house. It is imperative that you properly match the format in the *SAWStudio* environment so that all trigger and position calculations will be accurate.

Transferring all audio information using analog audio device inputs and outputs can eliminate any further complications. Transferring audio using digital inputs and outputs can complicate matters further. When recording digitally, the audio devices will lock to the source digital clock and not use their internal clock. A *Sampling Rate* of 44100 will actually be internally pulled down .999% by the deck to 44056. The audio device will happily record at this rate, but during playback, will use its internal clock and playback at the 44100 rate.

This will obviously compromise the sync, and also make it impossible to work within the *SAWStudio* environment. One solution here is to use one of the newer audio devices, capable of playback at the

44056 rate. In fact, the audio device should be capable of all the video pulldown and pullup rates (44056, 44144, 47952 and 48048). These audio devices will usually also be capable of external *Word Clock* sync, making them the best choice for working with video projects.

Choice of SMPTE Format

When working with the PAL video standard, the SMPTE Format should be set to 25. When working with the NTSC color video standard, the SMPTE Format should be set to 29.97 NonDrop or 29.97 Drop to match the individual project.

Operation

Operation when **SAWStudio** is the slave, can be handled in one of two ways, manual trigger or chase trigger.
Manual trigger allows you to initiate the sync operation manually. From the *Smpte/Midi* menu, under the *Smpte/Mtc Sync* option, select one of the normal trigger options. Press the [SpaceBar] or [Return] key to initiate the sync trigger operation. **SAWStudio** will read the incoming timecode and determine a suitable trigger position, based on the current timecode, the chase advance seconds, and the latency adjust settings for the chosen trigger mode, then preload the *MultiTrack,* and wait for sync at the trigger location. Start the video deck playback, and **SAWStudio** will read the incoming timecode signal and start playback in sync when the timecode matches the trigger location.
Chase trigger allows you to leave **SAWStudio** unattended and control the operation completely from your video deck. From the *Smpte/Midi* menu, under the *Smpte/Mtc Sync* option, select one of the chase trigger options. In this mode, **SAWStudio** is actively looking for incoming timecode and when you start your video deck and the timecode signal arrives, the program will automatically cue forward or backward to determine a suitable trigger position, based on the current timecode, the chase advance seconds, and the latency adjust settings for the chosen trigger mode, then preload the *MultiTrack,* and wait for sync at the trigger location.

Operation when **SAWStudio** is the master, is simple and straightforward. Playing back from the *MultiTrack* will automatically begin sync generation at the current *MultiTrack cursor* position. Sync will not be generated during *Soundfile View* playback.

Recording will also generate sync, starting from the *MultiTrack cursor* position when the *SRP* or *REC* button is clicked on the *Record Remote Transport*.

When using analog inputs and outputs, you may select any samplerate as the *MultiTrack* default rate and recording rate.

When using digital inputs and outputs, you must determine the samplerate of the source audio signal and match the *MultiTrack* default rate and recording rate to the pulldown version of it. For instance, if the source audio is at 44100, you must select 44056 as your recording and *MultiTrack* samplerate, and of course, your audio device must be capable of this rate.

As can be seen from this information, working with SMPTE requires a little attention to the details at hand, but once configured to your specific setup, stable and consistent results can be achieved. It is highly recommended that you test and confirm the results of your specific setup on a test project, from beginning to end, prior to attempting any real projects that have a completion deadline.

Other SMPTE Topics:
What Is SMPTE?
MIDI Sequencers And The SAWStudio Environment
Audio Tape Decks And The SAWStudio Environment

19   Building The Final Mix

19.1   Building A Mix To A New SoundFile

M   When using the *Build Mix To New Soundfile(s)* option, you will be presented with the *BuildMix File Setup* window. This window shows all active output devices and the associated output filenames. The defaulting names will append _**Mix** to the current EDL name. Each device on a multiple device mix will also add _**Dev01**, _**Dev02**... etc. onto the end of the name.

If you have labeled your output tracks, those label names will be appended instead. You may change the base name which changes all device names or simply change any one or all device names independently.

⌨️🖰   BuildMix *Base* and *Device* filenames may be reset to their default settings by [Shift-Left-Clicking] on them in the BuildMix FileName Setup dialog.

🖰   [Left-Clicking] in the file type zone will change the file type for each separate device out to *Mono* or *Stereo* or *None*. Setting it to *None* cancels output for that device.

The *Samplerate*, *Resolution* and *Dither* are global for all output files.

☞   When the destination *samplerate* needs to be changed from the original session *samplerate*, you have two available methods. Changing the *MultiTrack samplerate* from the *MultiTrack* menu forces a *samplerate* conversion on each track of the *MultiTrack* where the files do not match the new *samplerate* setting. Each samplerate conversion has the potential for introducing conversion artifacts. One conversion may be unnoticeable, but 20 or 30 conversions, for example, may become objectionable.

Leaving the project *MultiTrack* samplerate unchanged, and changing the *samplerate* in the *BuildMix File Setup* window, creates only one global conversion at the end of the mix process. The original tracks are left unchanged, are processed and mixed together, then a single conversion process is applied to the final mix, resulting in the highest possible quality output.

All *File Setup* info saves with the EDL so you are ready to build mixes the next time you open the session. When you click *OK*, the mix will start and the progress bar will be displayed. You may press the [Esc] key at any time to cancel the operation, or the [Enter] key to minimize and build the mix in the background. The mix files for this operation will remain outside the program.

When the operation is complete, the first mix file will be loaded into the *SoundFile View* for auditioning.

If a *MultiTrack Marked Area* exists, the mix will begin and end at the *Marked Area* boundaries across all tracks. If there is no active *Marked Area*, the mix includes the entire length of the active tracks from beginning to end.

The BuildMix function will automatically ignore all Live Device Inputs.

Other Building The Final Mix Topics:
Building A Mix To The Current Hot Track
Building A Mix To The Current Hot Track/Layer
Building A Mix To FX Modules

19.2   Building A Mix To The Current Hot Track

M   The *Build Mix To Current Hot Track* works very similarly to the *Build Mix To New Soundfile(s)* option, and adds the resulting files as *MT Entries* to the *MultiTrack* starting on the current *Hot Track*.

The destination track label(s), if they exist, or track numbers will be appended to the base file name.

When using this option, if multiple output devices are being used, the operation will build the first device data to the current *Hot Track*, and each subsequent device data to each sequential track following.

If a *MultiTrack Marked Area* exists, the mix will begin and end at the *Marked Area* boundaries across all tracks. If there is no active *Marked Area*, the mix includes the entire length of the active tracks from beginning to end.

✋   Regarding *Building A Mix To The Current Track***:** When performing this operation, be sure that the destination track(s) are empty, because when the resulting data is added to the *MultiTrack*, it will overwrite any existing entries.

✋   The *BuildMix To Current HotTrack* function allows the *HotTrack* to be one of the tracks that carries mix source data. This option creates an undo file, since it can destroy current edl data, and will force an insert and overwrite existing data on the destination *HotTrack(s).* This allows you to replace a track's data with the new processed buildmix data in one operation. Pay attention to warnings of existing mix files. Make sure to append the data if you are performing multiple separate mix operations to the same file, or existing regions connected to the mix file may be corrupted.

Other Building The Final Mix Topics:
Building A Mix To A New SoundFile
Building A Mix To The Current Hot Track/Layer
Building A Mix To FX Modules

19.3   Building A Mix To The Current Hot Track/Layer

M   The *Build Mix To Current Hot Track/Layer* works very similarly to the *Build Mix To New Soundfile(s)* option, but prompts for a destination layer, and adds the resulting files as *MT Entries* to the *MultiTrack* starting on the current *Hot Track* and specified layer.

The destination track label(s), if they exist, or track numbers will be appended to the base file name.

When using this option, if multiple output devices are being used, the operation will build the first device data to the current *Hot Track* and specified layer, and each subsequent device data to each sequential track and specified layer following.

If a *MultiTrack Marked Area* exists, the mix will begin and end at the *Marked Area* boundaries across all tracks. If there is no active *Marked Area*, the mix includes the entire length of the active tracks from beginning to end.

✋   Regarding *Building A Mix To The Current Track***:** When performing this operation, be sure that

the destination track(s) are empty, because when the resulting data is added to the *MultiTrack*, it will overwrite any existing entries.

✋   The *BuildMix To Current HotTrack/Layer* function allows the *HotTrack* to be one of the tracks that carries mix source data. This option creates an undo file, since it can destroy current edl data, and will force an insert and overwrite existing data on the destination *HotTrack(s).* This allows you to replace a track's data with the new processed buildmix data in one operation. Pay attention to warnings of existing mix files. Make sure to append the data if you are performing multiple separate mix operations to the same file, or existing regions connected to the mix file may be corrupted.

Other Building The Final Mix Topics:
Building A Mix To A New SoundFile
Building A Mix To The Current Hot Track
Building A Mix To FX Modules

19.4   Building A Mix To FX Modules

M   The *Build Mix To FX Modules* option is similar to the other *BuildMix* options except that **SAWStudio** does not create any output files directly. It performs the mix and passes all data through the Fx modules allowing Fx modules to create their own special output data as files or as a CD burn.

Other Building The Final Mix Topics:
Building A Mix To A New SoundFile
Building A Mix To The Current Hot Track
Building A Mix To The Current Hot Track/Layer

20   Using TCP/IP Master/Slave/Remote Mode

20.1   Using the TCP/IP Options

The TCP/IP functions offer a powerful way to link multiple *SAWStudio* workstations for the purpose of sharing the CPU load, or controlling a *Master* machine from multiple remote locations. A simple Ethernet 100 base-T network running the TCP/IP protocol is all that's needed. One machine is designated as the *Host/Master* machine, and up to eight additional machines may be connected as *Slaves* or *Remotes*.

A *Slave* machine maintains its independence for all editing operations. It keeps its own separate session copies, and handles audio though its own audio device inputs and outputs. When playback is initiated on the *Master* machine, all *Slaves* will synchronize their playback start positions through the network with no external SMPTE or MTC signals required. This effectively allows you to share complex session loads across multiple machines. Each machine is playing audio independently from its own soundcard hardware, and therefore needs to be clocked from the same clock source as the Master (with Word Clock or something similar) to remain in perfect sync and not drift apart.

A *Video-Slave* machine acts as a Slave machine, but no longer cares about audio playback or sync... it is designed to take its video playback position directly from the Master machine in order to guarentee perfect sync lock of the video with the Master. Audio sync is ignored, and generally the edl on the

Video-Slave should not contain active audio tracks, although audio will play independently and can be used as background music if sync is not critical.

A *Remote* machine operates directly on the *Master* machine session, and does not keep its own session copy locally. It also does not utilize its own audio device, as the *Master* machine is the only machine generating audio output. The *Remote* machine can be used as a sophisticated remote control device, operating the *Master* machine from a separate location.

All TCP/IP options will save with the Preferences. If the Preferences are saved with one of the TCP/IP *Host, Remote or Slave* modes active, the connection will automatically be attempted when the program first starts.

Other TCP/IP Topics:

20.2   Activating TCP/IP as Host/Master

M   From the *Options* menu, select *Activate TCP/IP Host/Master Mode* to allow the program to operate as the *Host/Master* machine across a standard Ethernet 100 base-T network. Activating this option displays the *Host/Master* signature on the main window title bar and allows the program to accept up to eight *Remote* or *Slave* machine connections, in any combination. [Left-Clicking] the Host/Master zone on the titlebar will display a list of all connected Slave, Video Slave and Remote computers.

Host computers will display a popup notice when a *Remote* is waiting to answer a message dialog. The wait can be overridden by pressing [Shift-Esc] on the *Host* computer.

Other TCP/IP Topics:

20.3   Activating TCP/IP as Slave

M   From the *Options* menu, select *Activate TCP/IP Slave Mode* to allow the program to operate as a *Slave* machine that can sync to another machine running *SAWStudio* as the *Host/Master*. The *Slave* machine will link and synchronize to the *Master* machine when a connection is established.

Opening Sessions on a Slave Machine

When a link is first established or the *Master* machine activates an *Open Session* command, the *Slave* will attempt to open its own local edl using the same drive and path name from the *Master* machine. If it does not find the edl at the duplicated path, it will substitute the default session drive letter and look

there. This helps with slave machines which do not have the same drive configuration as the host machine. For example, if the host has its sessions on Drive E:, and the slave machine only has drive C: and D:, then with the default Session File Path on the slave set to a folder on D:, the files will open correctly. If both fail to find the edl, then it will simply ignore the open command.

Slave Mode can be initiated while the host is currently playing back and the slave will load the proper session, jump to a delayed sync trigger position, using the MTC Trigger Advance setting, and actively sync live into the current playback operation

Slave Playback over a Network

In *Slave* mode, each machine plays its own version of the edl through its own audio device outputs. You can mix the outputs of each machine with an external mixer, or stay completely virtual and feed the slave machine outputs back to a *Master* machine *MultiTrack* input with the channel source set to a pair of audio device inputs on the *Master* machine.

☞   You can use this mode to duplicate session playback on two machines for live theatre, one machine serving as a backup for live performances. You can also use this to spread the load across two machines, extending different instrument tracks onto the Slave machine under a common edl name. When you start playback on the *Master* machine, the *Slave* will cue and begin playback in perfect sync - all without SMPTE or MTC connections - simply an Ethernet network connection.

Clicking a solo on the Master/Host machine mutes the signals from the Slaves resulting in a clean solo across the combined mix of all the machines. This is also handled the same way when a solo is clicked on any of the Slave machines. Solos may be combined between Master and Slave machines for a mix combination of channels across the mulitiple machines.

Slave Hardware Lock

Actual hardware lock can be achieved by using wordclock between the *Master* and *Slave* machines. You may use a single master wordclock source to feed both machines, or send wordclock from the *Master* machine converters to the *Slave* machine converters. If the *Slave* has record channels active, it will enter *SRP-Record* mode when the *Master* begins playback. If there is a *Marked Area* in the *MultiTrack*, auto punch-in/out will be engaged for that area.

Saving Sessions on a Slave Machine

Editing commands remain independent between the *Master* and *Slave* machines. Any work done on a session on the *Slave* must be saved independently on the *Slave*. When the *Master* closes the session, the *Slave* will prompt, if needed, to save any session changes before closing its session.

Supported Slave Commands

OPEN_SESSION
CLOSE_SESSION
MT_AUDIO_PLAY
STOP_AUDIO
SET_MT_SAMPLE_POS
MT_AUDIO_REC_RDY
MT_AUDIO_REC
MT_AUDIO_SRP
MT_AUDIO_REC_PUNCH_IN
MT_AUDIO_REC_PUNCH_OUT

Other TCP/IP Topics:

20.4   Activating TCP/IP as Video Slave

M   From the *Options* menu, select *Activate TCP/IP Video Slave Mode* to allow the program to operate as a *Video Slave* machine that can sync to another machine running *SAWStudio* as the *Host/Master*. The *Video Slave* machine will link and synchronize to the *Master* machine when a connection is established.

Opening Sessions on a Video Slave Machine

When a link is first established or the *Master* machine activates an *Open Session* command, the *Video Slave* will attempt to open its own local edl using the same drive and path name from the *Master* machine. If it does not find the edl at the duplicated path, it will substitute the default session drive letter and look there. This helps with slave machines which do not have the same drive configuration as the host machine. For example, if the host has its sessions on Drive E:, and the slave machine only has drive C: and D:, then with the default Session File Path on the slave set to a folder on D:, the files will open correctly. If both fail to find the edl, then it will simply ignore the open command.

Video Slave Mode can be initiated while the host is currently playing back and the slave will load the proper session, jump to a delayed sync trigger position, using the MTC Trigger Advance setting, and actively sync live into the current playback operation

Video Slave Playback over a Network

The *Video Slave* mode allows you to use a slave machine specifically as a video slave only, meaning no audio is being played from its engine. The video viewer playback sync is locked to the host machine network position, not the local soundcard playback position. Therefore this machine does not require any special word clock or other clock sync connection to keep host and slave accurately synced for the video playback. Normally a slave machine plays its own soundcard outputs and handles its own internal positioning, depending on some sort of hardware clock sync between the host and slave soundcards to keep from drifting.

Slave Hardware Lock

Generally, you are not concerned with audio from a *Video Slave* machine, which may only have an internal soundcard with no method of external clock syncing, but if the soundcard is capable, actual hardware lock can be achieved by using wordclock between the *Master* and *Slave* machines. You may use a single master wordclock source to feed both machines, or send wordclock from the *Master* machine converters to the *Slave* machine converters.

Saving Sessions on a Video Slave Machine

Editing commands remain independent between the *Master* and *Video Slave* machines. Any work done on a session on the *Video Slave* must be saved independently on the *Video Slave*. When the *Master* closes the session, the *Video Slave* will prompt, if needed, to save any session changes before closing its session.

Supported Video Slave Commands

OPEN_SESSION
CLOSE_SESSION
MT_AUDIO_PLAY
STOP_AUDIO
SET_MT_SAMPLE_POS
MT_AUDIO_REC_RDY
MT_AUDIO_REC
MT_AUDIO_SRP
MT_AUDIO_REC_PUNCH_IN
MT_AUDIO_REC_PUNCH_OUT

Other TCP/IP Topics:
Using the TCP/IP Options
Activating TCP/IP as Host/Master
Activating TCP/IP as Slave
Activating TCP/IP as Remote
Selecting a TCP/IP Port
Selecting a Network Computer Name
Adjusting Latency Offset

20.5   Activating TCP/IP as Remote

M　　　From the *Options* menu, select *Activate TCP/IP Remote Mode* to allow the program to operate as a *Remote* machine that can control another machine running SAWStudio as the *Host/Master*. The *Remote* machine will link and synchronize to the *Master* machine when a connection is established.

☞　　　The main program title bar will display the *Remote* machine's connection ID number. [Left-clicking] on the ID number zone displays a popup menu with one option allowing you to refresh the *Remote* machine to re-sync it's data display to the *Master* in case unsupported session changes on the *Master* machine have occurred.

Remote computers will display a popup notice when the *Host* is waiting to answer a message dialog. The wait can be overridden by pressing [Shift-Esc] on the *Remote* computer.

Opening Sessions on a Remote Machine

When a link is first established the *Remote* will attempt to open a copy of the same edl on the *Master* machine across the network. You will then be able to operate the *Master* machine from the *Remote* machine, opening, closing and saving sessions, playing, recording, retaking, and editing the *Master* machine session.

☞　　　If the EDL contains video track data, the *Remote* machine will attempt to find a local copy of the video files in the same drive and folder location as the *Master* machine. If a copy is found, it will use these local video files instead of pulling the video data across the network. If it fails to find a local copy, you will be prompted to browse for another location or to use the *Master* machine copy across the network.

　　　You can eliminate network traffic load when using remote mode containing video files and the video viewer is closed. If no external firewire or overlay render options are active and the viewer

is closed, the remote machine will not attempt video file seeks across the network, thereby dropping the network load tremendously.

There is also an option in the Special Options menu called *TCP/IP Remote/Slave Mode – Ignore Video*. This option can be activated to completely ignore video file requests on a remote machine whenever the host machine opens sessions that contain video files. This is another way to save video network loading from a remote machine and this option can be saved with the Video Preferences.

Remote Mode can be initiated while the host is currently playing back and the remote will load the proper session, and actively sync live into the current playback operation, including the detection of Show Control mode.

Remote Playback over a Network

The *Remote* machine does not use its audio device, it does not even need one installed. During playback, the *Master* machine sends all position and meter information across the network to the *Remote*. Audio only plays on the *Master* machine. The *Remote* machine acts truly as a sophisticated remote interface. When you save the session, you are saving the *Master* session as if you were editing on the *Master* machine. Device names in the *Mixer Assign* section will display *Master* machine audio devices, not the devices on the *Remote* machine. The actual *Remote* devices are not available during a *Remote* session.

☞   FX Plug-ins are not yet supported. The *FX Choices List* will gray-out FX Plug-ins on the *Remote* machine that are not installed on the *Master* machine.

Supported Remote Commands

OPEN_SESSION
CLOSE_SESSION
SAVE_SESSION

OPEN_SHOWCTRL
CLOSE_SHOWCTRL

RECALL_EDL_UNDO
REDO_EDL_UNDO

MT_AUDIO_PLAY
MT_AUDIO_PLAY_MARK
MT_AUDIO_PLAY_LOOP
MT_AUDIO_PLAY_SHOWCTRL

MT_AUDIO_REC_RDY
MT_AUDIO_REC
MT_AUDIO_SRP
MT_AUDIO_REC_PUNCH_IN
MT_AUDIO_REC_PUNCH_OUT

STOP_AUDIO
STOP_SHOWCTRL

OPEN_MT_TRACK_REC_METER
CLOSE_MT_TRACK_REC_METER

MT_REC_RETAKE (Shift and Ctrl versions also)

REC_SET_INPUT
REC_SET_TRACK

SET_MT_SAMPLE_POS
SET_MT_HOT_TRACK
SET_MT_TRACK_LABEL
SET_MT_TRACK_LAYER
SET_MIXER_CONTROL (Entire Mixer)
SET_ALL_SOLOS_OFF
SET_AUTOMATION_MODE_ON
SET_AUTOMATION_MODE_OFF
SET_AUTOMATION_VFILTER_ON
SET_AUTOMATION_VFILTER_OFF
SET_AUTO_REWIND_ON
SET_AUTOREWIND_OFF

DELETE_SEQ_ENTRY_AT_POS
SPLIT_KEEP_MT_ENTRY
SPLIT_MARK_MT_ENTRY
SPLIT_REMOVE_MT_ENTRY
SPLIT_DELETE_MT_ENTRY
UPDATE_MT_ENTRY (Alt-Shift and Ctrl versions also)
CLEAR_MARKED_AUTO_ENTRIES

🖐 **Regarding using supported commands:** Be respectful of the supported commands. Using unsupported commands will result in random undesirable edl results. More commands will be added in later updates.

🖐 **Regarding *Master* machine editing:** When editing on the *Master* machine, it is recommended that all *Remote* connections be broken to avoid possible problems due to unsupported operations. Reconnect *Remote* machines only when attempting to edit remotely.

Other TCP/IP Topics:
Using the TCP/IP Options
Activating TCP/IP as Host/Master
Activating TCP/IP as Slave
Activating TCP/IP as Video Slave
Selecting a TCP/IP Port
Selecting a Network Computer Name
Adjusting Latency Offset

20.6   Selecting a TCP/IP Port

M   From the *Options* menu, select the *TCP/IP Port* option to enter the network port to be used for network communications. The *Master* and *Slave/Remote* machines must use the same port. There is a list of possible available ports in the dialog for setting this value.

Other TCP/IP Topics:
Using the TCP/IP Options
Activating TCP/IP as Host/Master
Activating TCP/IP as Slave
Activating TCP/IP as Video Slave

20.7   Selecting a Network Computer Name

M   From the *Options* menu, select the *TCP/IP Host Computer Name/Address* option to enter the
network computer name or TCP/IP address for the *Host/Master* machine. This option is only
used for the *Slave* and *Remote* machines.

Other TCP/IP Topics:

20.8   Adjusting Latency Offset

M   From the Options menu, select the *TCP/IP Slave Sync Latency Adjust* option to set a latency
plus or minus offset in samples to compensate for delays in the network transmission and
differences in sound card latency. This value is used to move the playback starting position to
an earlier or later value than actual. Network transmission delays are not exactly repeatable,
but this value can help tighten the sync to within a few dozen samples.

Other TCP/IP Topics:

21   Using MIDI Controller Devices

21.1   Using MIDI Controller Devices

Various MIDI controller devices can be used to control many of *SAWStudio's* mixing and editing
operations through the use of MIDI-Control Templates. A template contains the MIDI commands and
function hooks for different MIDI controller devices. Each device functions uniquely within the
SAWStudio environment based on its capabilities and the complexity of the template.

➔ **Setting up a MIDI Controller Device:**

1. From the *Options* menu, select *Midi Device Setup* and choose a control input and output port for your computer MIDI interface and click *OK.*
2. Connect your MIDI controller device to the selected input and output ports.
3. From the *File* menu, select *Midi-Control Template File* and click *Open.*
4. Select the applicable MIDI-Control Template from the dialog box and click *Open.*
5. From the *Smpte/Midi* menu, select *Midi-Control In Active* and *Midi-Control Out Active.*

The communication between *SAWStudio* and your MIDI device is now established. This connection can be saved with the default preferences to automatically be reestablished each time you run *SAWStudio.*

Below is a list of operational details for the currently supported devices.

Quick jump links:

Behringer BCF2000
Mackie Control Surface
Mackie Baby HUI Control Surface
CMA MotorMix Control Surface
Frontier Design TranzPort
Frontier Design AlphaTrack
Fostex VM200 Mixer
General MIDI Controller
Korg 168RC Mixer
Panasonic WR-DA7 Mixer
Sony DMX-R100 Mixer
Soundcraft Spirit 328 Mixer
Tascam TM-D1000 Mixer
Yamaha ProMix-01 Mixer
Yamaha ProMix-01V Mixer
Yamaha 03D Mixer

Behringer BCF2000 (Top)

The Behringer BCF2000 is one of the most directly functional Templates for use with *SAWStudio.* The BCF2000 template gives you control of the 8 faders, in high resolution mode, as well as mutes, solos and pans. The top 2 buttons in the bottom right corner of the unit can be used to bank switch up or down, and the bottom 2 buttons of that group can be used to jump forward or backward to console sections (I, R, O).

To use the BCF2000 Template, you must first download the sysex file of all the presets into the BCF2000 unit. You can dump this file with any midi sysex dump utility program like Midi-Ox, or something similar. Save this to a single preset in the unit. Make sure that preset is the selected preset on the unit.

Multiple BCF2000 units may be used up to 4 units for a total of 32 faders. To do this, you must download each of the respective sysex files to the 4 units and make sure you label them somehow to connect them in the proper order from 1 thru 4.

Connecting multiple units is done as follows:

Unit 1: USB-4 mode; Out A to Unit 2 In

Unit 2: Stand-Alone 4 mode; Out B to Unit 3 In; Out A back to Unit 1 In if only 2 units, otherwise Out A

to a Midi Merge box In

Unit 3: Stand-Alone 4 mode; Out B to Unit 4 In; Out A to the Midi Merge box In

Unit 4: Stand-Alone 4 mode; Out A to the Midi Merge box In

The Midi Merge box Out must be connected back to Unit 1 In.

With the use of a Midi Merge box for more than 2 units, you may experience fader glitching and odd behaviour if grabbing more than one fader at the same time across separate units. This can be caused by the merge not keeping individual NRPN data strings together from each unit. This can be solved with the use of some virtual mergers, like MidiOX - Midi Yoke, which give you the option to lock NRPN strings together, keeping the full data packet from being interrupted midstream.

If the *Mixer Views to Hardware Controller* navigation link is active, the surface will chase *SAWStudio's Hot Track* selection.

Controller Surface	SAWStudio
Faders	Control mixer channel faders. Can operate Input, Return and Output channels.
Pans	Control mixer pans.
Mutes	Control mixer mutes.
Top Buttons In Bot Right	Bank Switch up or down.
Bot Buttons In Bot Right	Jump To Next Console Section (I, R, O).

Mackie Control Surface (Top)

The Mackie Control is a very flexible controller surface. The right side of the device can utilize overlays customized for different application programs. You may obtain a SAWStudio overlay from Mackie if one was not included with your controller. You may also download the .pdf version at www.sawstudio.com/downloads.htm as a reference. The button labels referenced in this section refer to the labels on the overlay - not the default labels on the controller.

The Mackie Control LCD display is used to show parameter and channel labels in the various selection modes. Pan mode is used as the default mode to display channel numbers or labels for the current bank as well as signal level meters.

This template defines three special modifier buttons which extend the functionality of many of the controls and other buttons. They are designated as the *Shift*, *Ctrl*, and *Alt* buttons. Pressing and releasing one of these buttons engages it's mode, indicated with it's associated flashing light. Pressing the button again will disengage the mode. Any combination of modes may be simultaneously engaged. Pressing the *Cancel* button disengages all active modes.

If the *Mixer Views to Hardware Controller* navigation link is active, the surface will chase *SAWStudio's Hot Track* selection.

☞ The Mackie Control uses multiple MIDI channels and requires it's own MIDI port.

Controller Surface	SAWStudio
Faders	Control mixer channel faders. Can operate Input, Return, and Output channels based on channel and bank select switches. • *Ctrl* **mode:** Touching a fader returns it to it's default 0 dB position.
Master Fader	Controls *Output* channel 1 at all times. • *Ctrl* **mode:** Touching the master fader returns it to it's default 0 dB position.

Mute Buttons	Control mixer mutes.
Solo Buttons	Control mixer solos.
	• *Ctrl* **mode:** Turning off any *Solo* button clears all active solo buttons.
Select Buttons	Control mixer *Hot Track* selection within the active bank of eight faders.
Signal Lights	Display when active audio data is present.
Rec/Rdy Buttons	Open and close record meters for the corresponding track.
	• *Shift* **mode:** Clears the associated input device assignment when opening a meter.
	• *Ctrl* **mode:** Turning off any Rec/Rdy button clears all active Rec/Rdy buttons and creates a record template.
	Turning on any Rec/Rdy button uses the current record template information.
	• *Alt* **mode:** Turning off any Rec/Rdy button clears all active Rec/Rdy buttons without updating the current record template.
Channel Left/Right Buttons	Increment and decrement mixer *Hot Track* selection, scrolling the active bank one channel left or right.
Bank Left/Right Buttons	Increment and decrement mixer *Hot Track* selection, scrolling the active bank eight channels at a time left or right.
	• *Shift* **mode:** Pressing either *Bank* button selects *Return Track 1* as the *Hot Track*, and updates the active bank.
	• *Ctrl* **mode:** Pressing the left *Bank* button selects *Input Track 1* as the *Hot Track*, and updates the active bank.
	Pressing the right *Bank* button selects *Output Track 1* as the *Hot Track*, and updates the active bank.
Flip Button	Updates the active bank, aligning the first controller channel to match the current *SAWStudio Hot Track*.
Edit Button	Switches the active window between the *MultiTrack* and the first visible mixer view found, in the following order: Zoom mixer, Wide mixer, Full mixer.
	☞The *Edit* button light is on when the *MultiTrack* is the active window.
I/O Assignment Button	Selects I/O mode.
(I/O Mode)	(Operates on the current *Hot Track*.)
Rotary Param Knob 1 (turn)	Controls the mixer Attenuation Level.
Rotary Param Knob 1 (push)	Sets the mixer Attenuation Level to its default setting.
Rotary Param Knob 2 (push)	Controls the mixer Phase switch.
Rotary Param Knob 3 (push)	Controls the mixer L/R Swap switch.
Rotary Param Knob 4 (turn)	Controls the mixer Mono mode selection.
Rotary Param Knob 4 (push)	Sets the mixer Mono mode to its default setting.
Pan Assignment Button	Selects Pan mode.
	The LCD top row displays the channel numbers or labels. The LCD bottom row displays the Pan values.
	Pressing the button again changes the LCD bottom row to level meter displays.
(Pan Mode)	
Rotary Param Knobs 1-8	Control the associated mixer channel pan.
Sends Assignment Button	Selects Aux Send mode.
	The LCD top row displays the Param labels. The LCD bottom row displays the Param values.
	Pressing the button repeatedly cycles through the various Aux Send sub modes.
(Aux Send-1 Mode)	(Operates on the current *Hot Track*.)
Rotary Param Knob 1 (turn)	Controls the mixer Aux-1 Level.

Rotary Param Knob 1 (push)	Sets the mixer Aux-1 Level to its default setting.
Rotary Param Knob 2 (turn)	Controls the mixer Aux-1 Pan.
Rotary Param Knob 2 (push)	Sets the mixer Aux-1 Pan to its default setting.
Rotary Param Knob 3 (push)	Controls the mixer Aux-1 In switch.
Rotary Param Knob 4 (push)	Controls the mixer Aux-1 Pst-Fader switch.
Rotary Param Knob 5 (push)	Controls the mixer Aux-1 Pst-FX switch.
(Aux Send-2 Mode)	(Operates on the current *Hot Track.*)
Rotary Param Knob 1 (turn)	Controls the mixer Aux-2 Level.
Rotary Param Knob 1 (push)	Sets the mixer Aux-2 Level to its default setting.
Rotary Param Knob 2 (turn)	Controls the mixer Aux-2 Pan.
Rotary Param Knob 2 (push)	Sets the mixer Aux-2 Pan to its default setting.
Rotary Param Knob 3 (push)	Controls the mixer Aux-2 In switch.
Rotary Param Knob 4 (push)	Controls the mixer Aux-2 Pst-Fader switch.
Rotary Param Knob 5 (push)	Controls the mixer Aux-2 Pst-FX switch.
(Aux Send-3 Mode)	(Operates on the current *Hot Track.*)
Rotary Param Knob 1 (turn)	Controls the mixer Aux-3 Level.
Rotary Param Knob 1 (push)	Sets the mixer Aux-3 Level to its default setting.
Rotary Param Knob 2 (turn)	Controls the mixer Aux-3 Pan.
Rotary Param Knob 2 (push)	Sets the mixer Aux-3 Pan to its default setting.
Rotary Param Knob 3 (push)	Controls the mixer Aux-3 In switch.
Rotary Param Knob 4 (push)	Controls the mixer Aux-3 Pst-Fader switch.
Rotary Param Knob 5 (push)	Controls the mixer Aux-3 Pst-FX switch.
(Aux Send-4 Mode)	(Operates on the current *Hot Track.*)
Rotary Param Knob 1 (turn)	Controls the mixer Aux-4 Level.
Rotary Param Knob 1 (push)	Sets the mixer Aux-4 Level to its default setting.
Rotary Param Knob 2 (turn)	Controls the mixer Aux-4 Pan.
Rotary Param Knob 2 (push)	Sets the mixer Aux-4 Pan to its default setting.
Rotary Param Knob 3 (push)	Controls the mixer Aux-4 In switch.
Rotary Param Knob 4 (push)	Controls the mixer Aux-4 Pst-Fader switch.
Rotary Param Knob 5 (push)	Controls the mixer Aux-4 Pst-FX switch.
(Aux Send-5 Mode)	(Operates on the current *Hot Track.*)
Rotary Param Knob 1 (turn)	Controls the mixer Aux-5 Level.
Rotary Param Knob 1 (push)	Sets the mixer Aux-5 Level to its default setting.
Rotary Param Knob 2 (turn)	Controls the mixer Aux-5 Pan.
Rotary Param Knob 2 (push)	Sets the mixer Aux-5 Pan to its default setting.
Rotary Param Knob 3 (push)	Controls the mixer Aux-5 In switch.
Rotary Param Knob 4 (push)	Controls the mixer Aux-5 Pst-Fader switch.
Rotary Param Knob 5 (push)	Controls the mixer Aux-5 Pst-FX switch.
(Aux Send-6 Mode)	(Operates on the current *Hot Track.*)
Rotary Param Knob 1 (turn)	Controls the mixer Aux-6 Level.
Rotary Param Knob 1 (push)	Sets the mixer Aux-6 Level to its default setting.
Rotary Param Knob 2 (turn)	Controls the mixer Aux-6 Pan.
Rotary Param Knob 2 (push)	Sets the mixer Aux-6 Pan to its default setting.
Rotary Param Knob 3 (push)	Controls the mixer Aux-6 In switch.
Rotary Param Knob 4 (push)	Controls the mixer Aux-6 Pst-Fader switch.
Rotary Param Knob 5 (push)	Controls the mixer Aux-6 Pst-FX switch.
Dyn Assignment Button	Selects Dynamics mode.
	The LCD top row displays the Param labels. The LCD bottom row displays the Param values.
	Pressing the button repeatedly cycles through the various Dynamics sub modes.
(Dyn Comp Mode)	(Operates on the current *Hot Track.*)
Rotary Param Knob 1 (turn)	Controls the mixer Comp Attack.
Rotary Param Knob 1 (push)	Sets the mixer Comp Attack to its default setting.
Rotary Param Knob 2 (turn)	Controls the mixer Comp Release.
Rotary Param Knob 2 (push)	Sets the mixer Comp Release to its default setting.
Rotary Param Knob 3 (turn)	Controls the mixer Comp Ratio.

Rotary Param Knob 3 (push)	Sets the mixer Comp Ratio to its default setting.
Rotary Param Knob 4 (turn)	Controls the mixer Comp Threshold.
Rotary Param Knob 4 (push)	Sets the mixer Comp Threshold to its default setting.
Rotary Param Knob 5 (push)	Controls the mixer Comp On switch.

(Dyn Gate Mode)   (Operates on the current *Hot Track.*)

Rotary Param Knob 1 (turn)	Controls the mixer Gate Attack.
Rotary Param Knob 1 (push)	Sets the mixer Gate Attack to its default setting.
Rotary Param Knob 2 (turn)	Controls the mixer Gate Release.
Rotary Param Knob 2 (push)	Sets the mixer Gate Release to its default setting.
Rotary Param Knob 3 (turn)	Controls the mixer Gate Floor.
Rotary Param Knob 3 (push)	Sets the mixer Gate Floor to its default setting.
Rotary Param Knob 4 (turn)	Controls the mixer Gate Threshold.
Rotary Param Knob 4 (push)	Sets the mixer Gate Threshold to its default setting.
Rotary Param Knob 5 (push)	Controls the mixer Gate On switch.
Rotary Param Knob 6 (push)	Controls the mixer Gate Reverse switch.

(Dyn Key Mode)   (Operates on the current *Hot Track.*)

Rotary Param Knob 1 (turn)	Controls the mixer Dyn Key selection.
Rotary Param Knob 1 (push)	Sets the mixer Dyn Key to its default setting.
Rotary Param Knob 2 (turn)	Controls the mixer Dyn Key Low EQ.
Rotary Param Knob 2 (push)	Sets the mixer Dyn Key Low EQ to its default setting.
Rotary Param Knob 3 (turn)	Controls the mixer Dyn Key High EQ.
Rotary Param Knob 3 (push)	Sets the mixer Dyn Key High EQ to its default setting.
Rotary Param Knob 4 (push)	Controls the mixer Dyn Key Listen switch.
EQ Assignment Button	Selects EQ mode.
	The LCD top row displays the Param labels. The LCD bottom row displays the Param values.
	Pressing the button repeatedly cycles through the various EQ sub modes.

(EQ Gain Mode)   (Operates on the current *Hot Track.*)

Rotary Param Knob 1 (turn)	Controls the mixer EQ Band-1 Gain.
Rotary Param Knob 1 (push)	Sets the mixer EQ Band-1 Gain to its default setting.
Rotary Param Knob 2 (turn)	Controls the mixer EQ Band-2 Gain.
Rotary Param Knob 2 (push)	Sets the mixer EQ Band-2 Gain to its default setting.
Rotary Param Knob 3 (turn)	Controls the mixer EQ Band-3 Gain.
Rotary Param Knob 3 (push)	Sets the mixer EQ Band-3 Gain to its default setting.
Rotary Param Knob 4 (turn)	Controls the mixer EQ Band-4 Gain.
Rotary Param Knob 4 (push)	Sets the mixer EQ Band-4 Gain to its default setting.
Rotary Param Knob 5 (turn)	Controls the mixer EQ Band-5 Gain.
Rotary Param Knob 5 (push)	Sets the mixer EQ Band-5 Gain to its default setting.
Rotary Param Knob 6 (push)	Controls the mixer EQ In switch.

(EQ Frequency Mode)   (Operates on the current *Hot Track.*)

Rotary Param Knob 1 (turn)	Controls the mixer EQ Band-1 Frequency.
Rotary Param Knob 1 (push)	Sets the mixer EQ Band-1 Frequency to its default setting.
Rotary Param Knob 2 (turn)	Controls the mixer EQ Band-2 Frequency.
Rotary Param Knob 2 (push)	Sets the mixer EQ Band-2 Frequency to its default setting.
Rotary Param Knob 3 (turn)	Controls the mixer EQ Band-3 Frequency.
Rotary Param Knob 3 (push)	Sets the mixer EQ Band-3 Frequency to its default setting.
Rotary Param Knob 4 (turn)	Controls the mixer EQ Band-4 Frequency.
Rotary Param Knob 4 (push)	Sets the mixer EQ Band-4 Frequency to its default setting.
Rotary Param Knob 5 (turn)	Controls the mixer EQ Band-5 Frequency.
Rotary Param Knob 5 (push)	Sets the mixer EQ Band-5 Frequency to its default setting.

(EQ Q Mode)   (Operates on the current *Hot Track.*)

Rotary Param Knob 1 (turn)	Controls the mixer EQ Band-1 Q.
Rotary Param Knob 1 (push)	Sets the mixer EQ Band-1 Q to its default setting.
Rotary Param Knob 2 (turn)	Controls the mixer EQ Band-2 Q.
Rotary Param Knob 2 (push)	Sets the mixer EQ Band-2 Q to its default setting.
Rotary Param Knob 3 (turn)	Controls the mixer EQ Band-3 Q.
Rotary Param Knob 3 (push)	Sets the mixer EQ Band-3 Q to its default setting.
Rotary Param Knob 4 (turn)	Controls the mixer EQ Band-4 Q.

Rotary Param Knob 4 (push)	Sets the mixer EQ Band-4 Q to its default setting.
Rotary Param Knob 5 (turn)	Controls the mixer EQ Band-5 Q.
Rotary Param Knob 5 (push)	Sets the mixer EQ Band-5 Q to its default setting.
(EQ Lo/Hi Cut Mode)	(Operates on the current *Hot Track.*)
Rotary Param Knob 1 (turn)	Controls the mixer EQ Lo-Cut Frequency.
Rotary Param Knob 1 (push)	Sets the mixer EQ Lo-Cut Frequency to its default setting.
Rotary Param Knob 2 (push)	Controls the mixer EQ Lo-Cut In switch.
Rotary Param Knob 3 (turn)	Controls the mixer EQ Hi-Cut Frequency.
Rotary Param Knob 3 (push)	Sets the mixer EQ Hi-Cut Frequency to its default setting.
Rotary Param Knob 4 (push)	Controls the mixer EQ Hi-Cut In switch.

(Plug-Ins Mode) — Activates and opens (if needed) the *FX Pre* and *FX Pst* views. If the current *Hot Track* is an *Output* track, it also activates the *Final Res* patch view.
• *Ctrl* **mode:** Closes all FX patch views.

Left/Right Arrow Buttons — Emulate the *SAWStudio* Tab function, snapping the MultiTrack cursor to the previous/next *MT Entry* boundary.
• *Ctrl* **mode:** Jump to the beginning/end boundaries of a *Marked Area*.
• *Zoom* **mode:** Zoom the *MultiTrack* display out/in.
• *Menu* **mode:** Navigate left/right in any menu.

Up/Down Arrow Buttons — Increment/decrement the current *Hot Track* in the *MultiTrack View* or any mixer view.
• *Zoom* **mode:** Increment/decrement the *MultiTrack* vertical waveform magnification.
• *Menu* **mode:** Navigate up/down in any menu.

Zoom Button — Toggles *Zoom* mode On/Off.
☞ The *Zoom* button light is on when *Zoom* mode is active.

Scrub Button — Toggles *Scrub* mode On/Off. This button interacts with the scrub wheel to provide alternate functionality.
☞ The *Scrub* button light is on when *Scrub* mode is active.

Scrub Wheel
(MultiTrack View active) — Zooms the *MultiTrack* in/out.
• *Scrub* **mode:** Moves the *MultiTrack* cursor position along the timeline according to the current zoom level.
• *Menu* **mode:** Navigate up/down in any menu.

Scrub Wheel
(Zoom Mixer View active) — Scrolls up/down mixer module.

Scrub Wheel
(Control Track View active) — Navigates up/down through list box entries.

Rewind Button — Moves the *MultiTrack* cursor backwards ten seconds on the timeline.
• *Ctrl* **mode:** Snaps the *MultiTrack* cursor to the beginning of the session.

Fast Fwd Button — Moves the *MultiTrack* cursor forward ten seconds on the timeline.
• *Ctrl* **mode:** Snaps the *MultiTrack* cursor to the end of the session.

Stop Button — Stops *MultiTrack* playback and record.

Play Button — Starts *MultiTrack* playback, or *SRP* (Simultaneous Record/Playback) when record meters are active.
• *Shift* **mode:** Starts *MultiTrack Play-Mark* mode.
• *Ctrl* **mode:** Starts *MultiTrack Play-Loop* mode.

Record Button — Starts *MultiTrack* record, or punches in/out in *SRP* mode.
☞ The *Record* button light is on when *Record* mode is engaged.
• *Alt* **mode:** Activates *MultiTrack Rec/Rdy*.

Shift Button	Toggles *Shift* mode On/Off. ☞ The *Shift* button light flashes when engaged.
Ctrl Button	Toggles *Ctrl* mode On/Off. ☞ The *Ctrl* button light flashes when engaged.
Alt Button	Toggles *Alt* mode On/Off. ☞ The *Alt* button light flashes when engaged.
Sel Mode Button	Toggles *MultiTrack Select* mode On/Off. • **Shift mode:** Retains last selection when turning *Select* mode on.
Select Button	Selects the *MT Entry* under the cursor when *Select* mode is active. • **Shift mode:** De-selects the *MT Entry* under the cursor. • **Ctrl mode:** De-selects all *MT Entries.* • **Alt mode:** Selects all *MT Entries* from the last selected entry to the current selected entry across tracks if applicable.
Select Ext Button	Extends *MT Entry* selection from the last selected entry to the end of the track when *Select* mode is active. • **Shift mode:** Extends *MT Entry* selection from the last selected entry through the following butt-spliced entries. • **Ctrl mode:** Extends *MT Entry* selection from the last selected entry to the end of the current track and all following tracks. • **Alt mode:** Selects all *MT Entries* on all tracks.
Auto Mode Button	Toggles *MultiTrack Automation* mode On/Off.
Fade Button	Writes a default automation fade-in or out at the MT cursor position, or within a *Marked Area,* when *Automation* mode is active. • **Shift mode:** Forces an automation fade-in at the cursor position, or within a *Marked Area.*
View Filter Button	Toggles the *Automation View* filter On/Off.
Offset Mode Button	Toggles *MultiTrack Offset* mode On/Off. • **Shift mode:** Engages *Relative Offset Mode* when activating. • **Ctrl mode:** Cancels offset adjustments when deactivating.
Auto-Rew Mode Button	Toggles *MultiTrack Auto-Rewind* mode On/Off.
Enter Button	Emulates the *Enter* key for answering dialog boxes. Activates *MultiTrack* preload playback when either the MultiTrack or a mixer view window is active.
Cancel Button	Emulates the *Esc* (cancel) key for answering dialog boxes. Cancels *Shift*, *Ctrl*, or *Alt* mode operations.
Locate Button	Activates and displays (if not visible) the *Control Track View* window, providing access to the *Cue Location Points.* ☞ The *Locate* button light is on when the *Control Track View* is the active window. • **Shift mode:** Sets a *Cue Location Point* at the current *MultiTrack* cursor position. May also be used during *Playback* or *Record*. • **Ctrl mode:** Closes the *Control Track View* window. • **Alt mode:** Displays the *MultiTrack Locate Points* menu. Select an entry with the scrub wheel or up/down arrows and press the *Locate* button again to close the menu and jump to the selected position.
Mark Beg Button	Sets the *Mark Begin* boundary at the current MT cursor position. • **Shift mode:** Sets the *Mark Begin* boundary at the current MT cursor position and starts updating the *Marked Area* as you drag the cursor using the scrub wheel. Pressing the *Mark End* button stops the process and sets the *Marked*

Area.
☞ The *Shift* mode light will continue flashing throughout the operation.
• ***Ctrl* mode:** Marks the entire *MT Entry* under the current *MultiTrack* cursor position.

Mark End Button

Sets the *Mark End* boundary at the current MT cursor position.
• ***Ctrl* mode:** Marks the entire *MT Entry* under the current *MultiTrack* cursor position.

Clear Marks Button

Clears the *Marked Area* boundaries.

Zero Cross Button

Finds the nearest *Zero Cross* from the current MT cursor position.

Split Button

Splits the *MT Entry* under the current cursor position, and keeps both entries.
• ***Shift* mode:** Splits the *MT Entry* under the current cursor position, and marks the left entry for later use in *Select* mode.
• ***Ctrl* mode:** Extends the operation across all tracks.

Split/Rem Button

Splits the *MT Entry* under the current cursor position, and removes the left entry, leaving the following entries intact.
• ***Shift* mode:** Splits the *MT Entry* under the current cursor position, and deletes the left entry, pulling the following butt-spliced entries forward.
• ***Ctrl* mode:** Extends the operation across all tracks.

Update Button

Updates the closest boundary of the *MT Entry* under the cursor to the current position without affecting following entries.
• ***Shift* mode:** Updates the closest boundary of the *MT Entry* under the cursor to the current position, pulling following butt-spliced entries forward.
• ***Ctrl* mode:** Updates the closest boundaries of butt-spliced *MT Entries* under the cursor to the current position, adjusting both boundaries simultaneously without affecting following entries.
• ***Alt* mode:** Snaps the cursor to the nearest underlying *MT Entry* boundary, changes the cursor color to red, and initiates an update/drag operation using the scrub wheel. Pressing the *Update* button again ends the operation, updating the applicable entry boundaries. The *Shift* and *Ctrl* modes are still applicable.
☞ All mode lights will continue flashing throughout the operation.

Move Button

(Normal Mode)
• ***Shift* mode:** Grabs and highlights the *MT Entry* under the cursor and flashes the *Sel Mode* button light. Use the scrub wheel to move left and right, and the arrow keys to move up and down, to set your destination position. Press the *Move* button again to drop the entry at the current position and end the operation.
• ***Ctrl* mode:** Causes the operation to copy the entry to the destination position, leaving the original entry in place.

(Select Mode)
Moves the selected entries, aligning the begin boundary of the key entry to the current MT cursor position.
• ***Shift* mode:** Moves the selected entries, aligning the end boundary of the key entry to the current MT cursor position.
• ***Ctrl* mode:** Causes the operation to copy the entries to the destination position, leaving the original entries in place.
• ***Alt* mode:** Moves the selected entries, aligning the predetermined offset point of the key entry to the current MT cursor position.

(Automation Mode)
Moves marked automation to the current MT cursor position.
• ***Shift* mode:** Grabs marked automation and flashes the *Auto Mode* button light. Use the scrub wheel to move left and right, and the arrow keys to move up and down, to set your destination position. Press the *Move* button again to drop the automation at the current position and end the operation.

	• *Ctrl* **mode:** Causes the operation to copy the marked automation to the destination position, leaving the original automation entries in place.
	(Control Track) Moves marked *Control Track* entries to the current MT cursor position. • *Ctrl* **mode:** Causes the operation to copy the marked entries to the destination position, leaving the original entries in place.
Stretch Button	(Automation Mode) Snaps the nearest marked automation boundary to the current MT cursor position, stretching or shrinking the marked automation accordingly.
Delete Button	(Normal Mode) Deletes the *MT Entry* under the cursor, leaving following entries in place. • *Shift* **mode:** Deletes the *MT Entry* under the cursor, pulling following butt-spliced entries forward. • *Ctrl* **mode:** Deletes the *MT Entry* under the cursor, pulling all following entries forward. (Select Mode) Deletes all selected entries, leaving other entries in place. (Automation Mode) Deletes marked automation. (Control Track) Deletes marked *Control Track* entries.
Retake Button	Retakes and updates the active record file(s) to the last record start position. • *Shift* **mode:** Retakes and updates the active record file(s) to the current cursor position. • *Ctrl* **mode:** Retakes all, completely clearing the active recording file(s).
Undo/Redo Button	Undo the last operation. • *Shift* **mode:** Redo the last undo.
F-Key View Buttons (1-8)	Selects the associated workspace view. • *Shift* **mode:** Sets the associated workspace view to the current screen display. • *Alt* **mode:** Performs the operation on the alternate workspace view set, providing a total of 16 workspace views.
Snapshot Session Button	Creates an undo file of the current session state.
Save/Update Session Button	Saves and updates the current session.

Mackie Baby HUI Surface (Top)

The Mackie Baby HUI Surface gives you a wide range of control in a small box.

If the *Mixer Views to Hardware Controller* navigation link is active, the surface will chase *SAWStudio's Hot Track* selection.

Controller Surface	**SAWStudio**
Faders	Control mixer channel faders. Can operate Input, Return, and Output channels based on channel and bank select switches.
Mute Buttons	Control mixer mutes.
Solo Buttons	Control mixer solos.

Signal Lights	Display when active audio data is present.
Rotary Knobs with Shift Btn (Rec/Rdy)	Open and close record meters for the corresponding track.
Left/Right Arrow Btns (Bank)	Increment and decrement mixer *Hot Track* selection, scrolling the active bank eight channels at a time left or right.
With Shift Button (Channel)	Increment and decrement mixer *Channel* selection, scrolling the active bank one channel left or right.
Mixer Button	Updates the active bank, aligning the first controller channel to match the current *SAWStudio Hot Track*.
Edit Button	Switches the active window between the *MultiTrack* and the first visible mixer view found, in the following order: Zoom mixer, Wide mixer, Full mixer. The *Edit* button light is on when the *MultiTrack* is the active window.
Pan Assignment Button **(Pan Mode)**	Selects Pan mode.
Rotary Param Knobs 1-8	Control the associated mixer channel pan.
Send (1 thru 4) Assignment Buttons **(Aux Send 1 Mode)**	Select Aux Send mode.
Rotary Param Knobs 1-8 (turn)	Control the associated mixer channel Aux-1 Level
Rotary Param Knobs 1-8 (push)	Set the mixer Aux-1 Level to its default setting.
(Aux Send 2 Mode)	
Rotary Param Knobs 1-8 (turn)	Control the associated mixer channel Aux-2 Level
Rotary Param Knobs 1-8 (push)	Set the mixer Aux-2 Level to its default setting.
(Aux Send 3 Mode)	
Rotary Param Knobs 1-8 (turn)	Control the associated mixer channel Aux-3 Level
Rotary Param Knobs 1-8 (push)	Set the mixer Aux-3 Level to its default setting.
(Aux Send 4 Mode)	
Rotary Param Knobs 1-8 (turn)	Control the associated mixer channel Aux-4 Level
Rotary Param Knobs 1-8 (push)	Set the mixer Aux-4 Level to its default setting.
RTZ Button and End Button (with Shift Button)	Snaps the *MultiTrack* cursor to the beginning / end of the session. Emulates the *SAWStudio* Tab function, snapping the MultiTrack cursor to the previous/next *MT Entry* boundary.
Rewind Button	Moves the *MultiTrack* cursor backwards ten seconds on the timeline.
When a popup menu is active	Navigates up the menu options
Fast Fwd Button	Moves the *MultiTrack* cursor forward ten seconds on the timeline.
When a popup menu is active	Navigates down the menu options
Stop Button	Stops *MultiTrack* playback and record.
When a popup menu is active	Acts as the *Cancel* key.
Play Button	Starts *MultiTrack* playback, or *SRP* (Simultaneous Record/Playback) when record meters are active.
When a popup menu is active	Acts as the *Enter* key.
Record Button	Starts *MultiTrack* record, or punches in/out in *SRP* mode. The *Record* button light is on when *Record* mode is engaged.
Mem Loc Button	Displays the *MultiTrack Locate Points* menu. Select an entry with the scrub wheel or up/down arrows and press the *Locate* button again to close the menu and jump to the selected position.

Write Button	Toggles *MultiTrack Automation* mode On/Off.
Undo Button	Undo the last operation.
LED Display	Displays the first channel number of the current bank.

CMA MotorMix Control Surface (Top)

The MotorMix LCD display is used to show parameter and channel labels in the various selection modes. Pan mode is used as the default mode to display channel numbers or labels for the current bank.

If the *Mixer Views to Hardware Controller* navigation link is active, the surface will chase *SAWStudio's Hot Track* selection.

☞ Make sure your controller is transmitting and receiving on MIDI channel 1 to ensure compatibility with this template.

Controller Surface	SAWStudio
Faders	Control mixer channel faders. Can operate Input, Return, and Output channels based on channel and bank select switches.
Mute Buttons	Control mixer mutes.
Solo Buttons	Control mixer solos.
A-H Buttons	Control mixer *Hot Track* selection within the active bank of eight faders.
View Left/Right Arrow Buttons	Increment and decrement mixer *Hot Track* selection, scrolling the active bank one channel left or right.
Bank Button	Turns bank selection on and off. When this function is active, the View Left and Right Arrow buttons scroll one bank of eight channels at a time.
F1 (Play) Button	Starts *MultiTrack* playback.
F2 (Stop) Button	Stops *MultiTrack* playback.
F3 (Fwd) Button	Moves the *MultiTrack* cursor position 10 seconds forward.
F4 (Rew) Button	Moves the *MultiTrack* cursor position 10 seconds backward.
Next Button	Jumps the Mixer View to the next console section (Inputs, Returns, Outputs).
Last Button	Jumps the Mixer View to the previous console section (Inputs, Returns, Outputs).
Enter	Starts *MultiTrack* record.
Rotary Selector Knob (Push)	Synchronizes the controller's first fader with SAWStudio's *Hot Track*.
Rotary Selector Knob (Turn)	Selects between Pan, Aux Sends, Dynamics, and EQ mode, designating which group of mixer settings will be adjusted by the parameter knobs and buttons.
(Pan Mode) Rotary Param Knobs 1-8	Control the associated mixer channel pan.
(Aux Send-1 Mode) Rotary Param Knob 1 Rotary Param Knob 2	(Operates on the current *Hot Track*.) Controls the mixer Aux-1 Level. Controls the mixer Aux-1 Pan.

1 Button	Sets the mixer Aux-1 Level to its default setting.
2 Button	Sets the mixer Aux-1 Pan to its default setting.
3 Button	Controls the mixer Aux-1 In switch.
4 Button	Controls the mixer Aux-1 Pst-Fader switch.
5 Button	Controls the mixer Aux-1 Pst-FX switch.
(Aux Send-2 Mode)	(Operates on the current *Hot Track.*)
Rotary Param Knob 1	Controls the mixer Aux-2 Level.
Rotary Param Knob 2	Controls the mixer Aux-2 Pan.
1 Button	Sets the mixer Aux-2 Level to its default setting.
2 Button	Sets the mixer Aux-2 Pan to its default setting.
3 Button	Controls the mixer Aux-2 In switch.
4 Button	Controls the mixer Aux-2 Pst-Fader switch.
5 Button	Controls the mixer Aux-2 Pst-FX switch.
(Aux Send-3 Mode)	(Operates on the current *Hot Track.*)
Rotary Param Knob 1	Controls the mixer Aux-3 Level.
Rotary Param Knob 2	Controls the mixer Aux-3 Pan.
1 Button	Sets the mixer Aux-3 Level to its default setting.
2 Button	Sets the mixer Aux-3 Pan to its default setting.
3 Button	Controls the mixer Aux-3 In switch.
4 Button	Controls the mixer Aux-3 Pst-Fader switch.
5 Button	Controls the mixer Aux-3 Pst-FX switch.
(Aux Send-4 Mode)	(Operates on the current *Hot Track.*)
Rotary Param Knob 1	Controls the mixer Aux-4 Level.
Rotary Param Knob 2	Controls the mixer Aux-4 Pan.
1 Button	Sets the mixer Aux-4 Level to its default setting.
2 Button	Sets the mixer Aux-4 Pan to its default setting.
3 Button	Controls the mixer Aux-4 In switch.
4 Button	Controls the mixer Aux-4 Pst-Fader switch.
5 Button	Controls the mixer Aux-4 Pst-FX switch.
(Aux Send-5 Mode)	(Operates on the current *Hot Track.*)
Rotary Param Knob 1	Controls the mixer Aux-5 Level.
Rotary Param Knob 2	Controls the mixer Aux-5 Pan.
1 Button	Sets the mixer Aux-5 Level to its default setting.
2 Button	Sets the mixer Aux-5 Pan to its default setting.
3 Button	Controls the mixer Aux-5 In switch.
4 Button	Controls the mixer Aux-5 Pst-Fader switch.
5 Button	Controls the mixer Aux-5 Pst-FX switch.
(Aux Send-6 Mode)	(Operates on the current *Hot Track.*)
Rotary Param Knob 1	Controls the mixer Aux-6 Level.
Rotary Param Knob 2	Controls the mixer Aux-6 Pan.
1 Button	Sets the mixer Aux-6 Level to its default setting.
2 Button	Sets the mixer Aux-6 Pan to its default setting.
3 Button	Controls the mixer Aux-6 In switch.
4 Button	Controls the mixer Aux-6 Pst-Fader switch.
5 Button	Controls the mixer Aux-6 Pst-FX switch.
(Dyn Comp Mode)	(Operates on the current *Hot Track.*)
Rotary Param Knob 1	Controls the mixer Comp Attack.
Rotary Param Knob 2	Controls the mixer Comp Release.
Rotary Param Knob 3	Controls the mixer Comp Ratio.
Rotary Param Knob 4	Controls the mixer Comp Threshold.
1 Button	Sets the mixer Comp Attack to its default setting.
2 Button	Sets the mixer Comp Release to its default setting.
3 Button	Sets the mixer Comp Ratio to its default setting.
4 Button	Sets the mixer Comp Threshold to its default setting.
5 Button	Controls the mixer Comp On switch.
(Dyn Gate Mode)	(Operates on the current *Hot Track.*)

Rotary Param Knob 1	Controls the mixer Gate Attack.
Rotary Param Knob 2	Controls the mixer Gate Release.
Rotary Param Knob 3	Controls the mixer Gate Floor.
Rotary Param Knob 4	Controls the mixer Gate Threshold.
1 Button	Sets the mixer Gate Attack to its default setting.
2 Button	Sets the mixer Gate Release to its default setting.
3 Button	Sets the mixer Gate Floor to its default setting.
4 Button	Sets the mixer Gate Threshold to its default setting.
5 Button	Controls the mixer Gate On switch
6 Button	Controls the mixer Gate Reverse switch.

(Dyn Key Mode)	(Operates on the current *Hot Track*.)
Rotary Param Knob 1	Controls the mixer Dyn Key selection.
Rotary Param Knob 2	Controls the mixer Dyn Key Low EQ.
Rotary Param Knob 3	Controls the mixer Dyn Key High EQ.
1 Button	Sets the mixer Dyn Key to its default setting.
2 Button	Sets the mixer Dyn Key Low EQ to its default setting.
3 Button	Sets the mixer Dyn Key High EQ to its default setting.
4 Button	Controls the mixer Dyn Key Listen switch.

(EQ Gain Mode)	(Operates on the current *Hot Track*.)
Rotary Param Knob 1	Controls the mixer EQ Band-1 Gain.
Rotary Param Knob 2	Controls the mixer EQ Band-2 Gain.
Rotary Param Knob 3	Controls the mixer EQ Band-3 Gain.
Rotary Param Knob 4	Controls the mixer EQ Band-4 Gain.
Rotary Param Knob 5	Controls the mixer EQ Band-5 Gain.
1 Button	Sets the mixer EQ Band-1 Gain to its default setting.
2 Button	Sets the mixer EQ Band-2 Gain to its default setting.
3 Button	Sets the mixer EQ Band-3 Gain to its default setting.
4 Button	Sets the mixer EQ Band-4 Gain to its default setting.
5 Button	Sets the mixer EQ Band-5 Gain to its default setting.
6 Button	Controls the mixer EQ In switch.

(EQ Frequency Mode)	(Operates on the current *Hot Track*.)
Rotary Param Knob 1	Controls the mixer EQ Band-1 Frequency.
Rotary Param Knob 2	Controls the mixer EQ Band-2 Frequency.
Rotary Param Knob 3	Controls the mixer EQ Band-3 Frequency.
Rotary Param Knob 4	Controls the mixer EQ Band-4 Frequency.
Rotary Param Knob 5	Controls the mixer EQ Band-5 Frequency.
1 Button	Sets the mixer EQ Band-1 Frequency to its default setting.
2 Button	Sets the mixer EQ Band-2 Frequency to its default setting.
3 Button	Sets the mixer EQ Band-3 Frequency to its default setting.
4 Button	Sets the mixer EQ Band-4 Frequency to its default setting.
5 Button	Sets the mixer EQ Band-5 Frequency to its default setting.

(EQ Q Mode)	(Operates on the current *Hot Track*.)
Rotary Param Knob 1	Controls the mixer EQ Band-1 Q.
Rotary Param Knob 2	Controls the mixer EQ Band-2 Q.
Rotary Param Knob 3	Controls the mixer EQ Band-3 Q.
Rotary Param Knob 4	Controls the mixer EQ Band-4 Q.
Rotary Param Knob 5	Controls the mixer EQ Band-5 Q.
1 Button	Sets the mixer EQ Band-1 Q to its default setting.
2 Button	Sets the mixer EQ Band-2 Q to its default setting.
3 Button	Sets the mixer EQ Band-3 Q to its default setting.
4 Button	Sets the mixer EQ Band-4 Q to its default setting.
5 Button	Sets the mixer EQ Band-5 Q to its default setting.

(EQ Lo/Hi Cut Mode)	(Operates on the current *Hot Track*.)
Rotary Param Knob 1	Controls the mixer EQ Lo-Cut Frequency.
Rotary Param Knob 3	Controls the mixer EQ Hi-Cut Frequency.
1 Button	Sets the mixer EQ Lo-Cut Frequency to its default setting.
2 Button	Controls the mixer EQ Lo-Cut In switch.
3 Button	Sets the mixer EQ Hi-Cut Frequency to its default setting.

4 Button	Controls the mixer EQ Hi-Cut In switch.
LCD Display	Displays all mode control labels and settings.

Frontier Design TranzPort   (Top)

The Frontier Design TranzPort is a wireless remote controller with a lot of power packed into a very small box.

If the *Mixer Views to Hardware Controller* navigation link is active, the surface will chase *SAWStudio's Hot Track* selection.

☞ Make sure your controller is set to Native Mode (TaskBar Icon) to ensure compatibility with this template.

Controller Surface	SAWStudio
Track / Channel Buttons	Increments and decrements the track/channel. • *Shift* **mode:** Increments and decrements by eight tracks/channels.
Rec Button	Toggles the record meter open/close for the current track. • *Shift* **mode:** Operates the record meters as a record template, allowing multiple channels to be armed or disarmed at once.
Mute Button	Toggles Mute on and off for the current channel.
Solo Button	Toggles Solo on and off for the current channel. • *Shift* **mode:** Toggles all active solos off.
Undo Button	• *Record* **mode:** Retakes to the last record position. • *Record-Shift* **mode:** Retakes to the current cursor position.
In Button	Marks the begin position. When any marked area is active, the LCD displays a small mark after the time readout display. • *Shift* **mode:** Jumps to the Mark Begin position.
Out Button	Marks the end position. When any marked area is active, the LCD displays a small mark after the time readout display. • *Shift* **mode:** Jumps to the Mark End position.
Punch Button	Used as a special function button. When active, it causes the scrubwheel to act as a function selector, scanning through different control types. The current selectable control types are: Layers; Fader; Pan; Aux 1 In; Aux 1 Pst Fdr; Aux 1 Lvl; Aux 1 Pan; Aux 2 In; Aux 2 Pst Fdr; Aux 2 Lvl; Aux 2 Pan; Aux 3 In; Aux 3 Pst Fdr; Aux 3 Lvl; Aux 3 Pan; Aux 4 In; Aux 4 Pst Fdr; Aux 4 Lvl; Aux 4 Pan; Aux 5 In; Aux 5 Pst Fdr; Aux 5 Lvl; Aux 5 Pan; Aux 6 In; Aux 6 Pst Fdr; Aux 6 Lvl; Aux 6 Pan; Comp In; Comp Gn; Comp Thr; Comp Ratio; Comp Rel; Comp Att; Gate In; Gate Rvs; Gate Thr; Gate Flr; Gate Rel; Gate Att; Dyn Key Listen; Dyn Eq Lo; Dyn Eq Hi; Dyn Key; Eq In; Eq LoCut In; Eq LoCut Frq; Eq HiCut In; Eq HiCut Frq; Eq Gn 1; Eq Frq 1; Eq Q 1; Eq Gn 2; Eq Frq 2; Eq Q 2; Eq Gn 3; Eq Frq 3; Eq Q 3; Eq Gn 4; Eq Frq 4; Eq Q 4; Eq Gn 5; Eq Frq 5; Eq Q 5; Mono; Swap LR; Phase Rvs; Attenuator. The LCD dislays the currently selected type and value. • *Shift* **mode:** Resets the current selected control type to its default value.
Loop Button	Toggles AutoRewind on and off. When active, regular MT playback will jump back to the starting point when playback is stopped. If there is an active marked area, MultiTrack playback will continue to loop the marked area. • *Record* **mode:** Toggles AutoRecord Loop Mode on and off. SRP recordings will continue to create new takes of the marked area, looping back to the cursor position pre-roll starting point.

	• *Record-Shift* **mode:** Toggles AutoRecord Layer Loop Mode on and off, which fills layers with new takes.
Shift Button	Used as a momentary modifier key in conjunction with other buttons.
Markers (Prev) Button	Jumps to the previous Cue marker.
Markers (Next) Button	Jumps to the next Cue marker. • *Shift* **mode:** Toggles Live Input Mode on and off. Live Input Mode is displayed on the LCD as a small single character level meter to the right of the time readout display.
Markers (Add) Button	Adds a new Cue Location marker at the current cursor position. • *Shift* **mode:** Deletes any Cue Location markers at the current cursor position.
Scrubwheel	When the special function (Punch button) mode is not active, the scrubwheel adjusts the MultiTrack cursor position forward and backward on the timeline. The LCD displays the current time position in all timeline display modes. • *Special Function* **(Punch Button) mode:** Selects various control types. • *Shift* **mode:** Adjusts the current control type.
Transport Rewind Button	Moves the current cursor position back 10 seconds on the timeline. This function will auto-locate the playback if active. • *Shift* **mode:** Jumps to the session home position.
Transport Fast Forward Button	Moves the current cursor position forward 10 seconds on the timeline. This function will auto-locate the playback if active. • *Shift* **mode:** Jumps to the session end position.
Transport Stop Button	Stops playback, record and live input operations. • *Shift* **mode:** Saves and updates the session edl. • *Msg / Dialog* **mode:** When a message dialog box is active, acts as a cancel or "no" response. The LCD will display many important messages directly.
Transport Play Button	Starts MultiTrack play or SRP play operations. The footswitch jack emulates this button. • *Shift* **mode:** Starts a multitrack play preload operation. • *Msg / Dialog* **mode:** Acts an Okay, Yes, or Enter response.
Transport Record Button	Starts a multitrack record operation or punches in during SRP play mode. • *Shift* **mode:** Starts a RecRdy operation.

Frontier Design AlphaTrack (Top)

The Frontier Design AlphaTrack is a usb connected remote controller with a full sized fader in a small box.

The LCD display is used to show parameter and channel labels in the various selection modes.

If the *Mixer Views to Hardware Controller* navigation link is active, the surface will chase *SAWStudio's Hot Track* selection.

☞ Make sure your controller is set to Native Mode (TaskBar Icon) to ensure compatibility with this template.

☞ Using the **Shift Mode** does not require you to hold down the **Shift** Button. Just press it once and it will engage and light up to show that **Shift Mode** is active. You can cancel **Shift Mode** by pressing the button again. Most commands that use *Shift Mode* will automatically disengage it after the

command is executed.

Controller Surface	**SAWStudio**
Fader	Control mixer channel faders. Can operate Input, Return, and Output channels based on track / channel select switches. Touching and adjusting the fader will automatically switch the LCD to **Fader Mode** and display the fader data.
Shift Button	Toggles **Shift Mode** on / off. Using the **Shift Mode** does not require you to hold down the Shift Button. Just press it once and it will engage and light up to show that **Shift Mode** is active. You can cancel **Shift Mode** by pressing the button again. Most commands that use **Shift Mode** will automatically disengage it aftter the command is executed
Rec Button	Toggles the record meter open/close for the current track. • **Shift Mode:** Operates the record meters as a record template, allowing multiple channels to be armed or disarmed at once.
Solo Button	Toggles Solo on and off for the current channel. • **Shift Mode:** Toggles all active solos off.
Mute Button	Toggles Mute on and off for the current channel.
Left or Right Parameter Knob	Either of these knobs act as a function selector, scanning through different control types. Use the left or right knob, depending on whether you are left or right handed so you do not cover up the display as you turn the knob. The current selectable control types are: Layer; Fader; Pan; Aux 1 In; Aux 1 Pst Fdr; Aux 1 Lvl; Aux 1 Pan; Aux 2 In; Aux 2 Pst Fdr; Aux 2 Lvl; Aux 2 Pan; Aux 3 In; Aux 3 Pst Fdr; Aux 3 Lvl; Aux 3 Pan; Aux 4 In; Aux 4 Pst Fdr; Aux 4 Lvl; Aux 4 Pan; Aux 5 In; Aux 5 Pst Fdr; Aux 5 Lvl; Aux 5 Pan; Aux 6 In; Aux 6 Pst Fdr; Aux 6 Lvl; Aux 6 Pan; Comp In; Comp Gn; Comp Thr; Comp Ratio; Comp Rel; Comp Att; Gate In; Gate Rvs; Gate Thr; Gate Flr; Gate Rel; Gate Att; Dyn Key Listen; Dyn Eq Lo; Dyn Eq Hi; Dyn Key; Eq In; Eq LoCut In; Eq LoCut Frq; Eq HiCut In; Eq HiCut Frq; Eq Gn 1; Eq Frq 1; Eq Q 1; Eq Gn 2; Eq Frq 2; Eq Q 2; Eq Gn 3; Eq Frq 3; Eq Q 3; Eq Gn 4; Eq Frq 4; Eq Q 4; Eq Gn 5; Eq Frq 5; Eq Q 5; Mono; Swap LR; Phase Rvs; Attenuator; MultiTrack Position The LCD dislays the currently selected type and value.
Center Parameter Knob	This knob adjusts the value for the currently selected control type. If the current type is the MultiTrack Position display, this knob has no effect and the position is adjusted by the various transport controls and touch strip. Pressing the knob as a switch sets the control to the default value. • **Shift Mode:** For **Aux_Lvl** control types sets the control to -inf.
Pan Button	Switches the Control Type to **Pan** for the current channel. The Pan LED lights when in **Pan Mode**.
Send Button	Switches the Control Type to **Aux_Lvl_1** for the current channel. Repeated pressings switch to **Aux_Lvl_2**, **Aux_Lvl_3**, **Aux_Lvl_4**, **Aux_Lvl_5**, **Aux_Lvl_6**, and then back around to the beginning. The Send LED lights when in **Aux Mode**.
EQ Button	Switches the Control Type to **Eq_In** for the current channel. Repeated pressings switch to **Eq_Lo_In**, **Eq_Hi_In**, **Eq_Gain_1**, **Eq_Gain_2**, **Eq_Gain_3**, **Eq_Gain_4**, **Eq_Gain_5**, and then back around to the beginning. The EQ LED Lights when in **Eq Mode**.
Plug In Button	Activates and opens (if needed) the *FX_Pre* and *FX_Pst* views. If the current *Hot Track* is an *Output* track, it also activates the *Final Res* patch view.

• **Shift Mode:** Closes all FX patch views.

F1 Button	Jumps to Locate Point 1. • **Shift Mode:** Sets Locate Point 1.
F2 Button	Jumps to Locate Point 2. • **Shift Mode:** Sets Locate Point 2.
F3 Button	Jumps to Locate Point 3. • **Shift Mode:** Sets Locate Point 3.
F4 Button	Jumps to Locate Point 4. • **Shift Mode:** Sets Locate Point 4.
Track < Button	Decrements the Track / Channel. • **Shift Mode:** Marks the begin position. When any marked area is active, the LCD displays a small mark in the top right corner. • **Ctrl Mode:** Set by pushing the left or right parameter knob. Lights both track button LEDs and jumps down one section from Output to Return to Input channels.
Track > Button	Increments the Track / Channel. • **Shift Mode:** Marks the end position. When any marked area is active, the LCD displays a small mark in the top right corner. • **Ctrl Mode:** Set by pushing the left or right parameter knob. Lights both track button LEDs and jumps up one section from Input to Return to Output channels.
Loop Button	Toggles AutoRewind on and off. When active, regular MT playback will jump back to the starting point when playback is stopped. If there is an active marked area, MultiTrack playback will continue to loop the marked area. • **Record Mode:** Toggles AutoRecord Loop Mode on and off. SRP recordings will continue to create new takes of the marked area, looping back to the cursor position pre-roll starting point. • **Record-Shift Mode:** Toggles AutoRecord Layer Loop Mode on and off, which fills layers with new takes.
Flip Button	Switches the Control Type to **MultiTrack Position**. The LCD now displays Timeline position information in the current Timeline display mode. Pressing the button again switches the Control Type back to the previous type selection.
Transport Rewind Button	Moves the current cursor position back 10 seconds on the timeline. This function will auto-locate the playback if active. • **Shift Mode:** Jumps to the session home position.
Transport Fast Forward Button	Moves the current cursor position forward 10 seconds on the timeline. This function will auto-locate the playback if active. • **Shift Mode:** Jumps to the session end position.
Transport Stop Button	Stops playback, record and live input operations. • **Shift Mode:** Saves and updates the session edl. • **Msg / Dialog Mode:** When a message dialog box is active, acts as a cancel or "no" response. The LCD will display many important messages directly.
Transport Play Button	Starts MultiTrack play or SRP play operations. • **Shift Mode:** Activates Live Mode. • **Msg / Dialog Mode:** Acts an Okay, Yes, or Enter response.
Transport Record Button	Starts a multitrack record operation or punches in during SRP play mode. • **Shift Mode:** Starts a RecRdy operation.

Touch Strip	Acts as a position shuttle which adjusts the MultiTrack cursor position. When first touched, the Flip button is activated and the LCD will display the cursor position.
FootSwitch Jack	Toggles Playback on and off. • **Record Mode:** Toggles Punch-In and Punch-Out during an SRP operation. Does a Punch-In on a straight Record operation.

Fostex VM200 Mixer (Top)

Since a mixer manipulates the audio connected to it's inputs on its own, using a mixer as a controller requires special consideration. Since the mixer controls will now control SAWStudio's virtual mixer, and SAWStudio will be manipulating the audio, the audio signals should not be run through the same channels that are being used as the controller. In most cases, the audio should be kept completely out of the mixer.

If the *Mixer Views to Hardware Controller* navigation link is active, the surface will chase *SAWStudio's Hot Track* selection.

☞ Make sure your controller is transmitting and receiving on MIDI channel 1 to ensure compatibility with this template.

Controller Surface	**SAWStudio**
Faders	Control mixer channel faders. Can operate Input channels only.
Master Fader	Controls the mixer Output-1 fader.
Pans	Control mixer pans.
Mutes	Control mixer mutes.

General MIDI Controller (Top)

The General MIDI Template requires the use of a separate MIDI channel for each control channel. The basic General MIDI Template controls sixteen channels, and the 8-Wide General MIDI Template controls eight channels.

If the *Mixer Views to Hardware Controller* navigation link is active, the surface will chase *SAWStudio's Hot Track* selection.

Controller Surface	**SAWStudio**
Faders	Control mixer channel faders. Can operate Input channels only.
Pans	Control mixer pans.
Mutes	Control mixer mutes.

Korg 168RC Mixer (Top)

Since a mixer manipulates the audio connected to it's inputs on its own, using a mixer as a controller requires special consideration. Since the mixer controls will now control SAWStudio's virtual mixer, and SAWStudio will be manipulating the audio, the audio signals should not be run through the same channels that are being used as the controller. In most cases, the audio should be kept completely out of the mixer.

If the *Mixer Views to Hardware Controller* navigation link is active, the surface will chase *SAWStudio's*

Hot Track selection.

☞ Make sure your controller is transmitting and receiving on MIDI channel 1 to ensure compatibility with this template.

Controller Surface	SAWStudio
Faders	Control mixer channel faders. Can operate Input channels only.
Pans	Control mixer pans.
Mutes	Control mixer mutes.
Solos	Control mixer solos.

Panasonic WR-DA7 Mixer (Top)

Since a mixer manipulates the audio connected to it's inputs on its own, using a mixer as a controller requires special consideration. Since the mixer controls will now control SAWStudio's virtual mixer, and SAWStudio will be manipulating the audio, the audio signals should not be run through the same channels that are being used as the controller. In most cases, the audio should be kept completely out of the mixer.

If the *Mixer Views to Hardware Controller* navigation link is active, the surface will chase *SAWStudio's Hot Track* selection.

☞ Make sure your controller is transmitting and receiving on MIDI channel 1 to ensure compatibility with this template.

Controller Surface	SAWStudio
Faders	Control mixer channel faders. Can operate Input channels only.
Master Fader	Controls the mixer Output-1 fader.
Pans	Control mixer pans.
Mutes	Control mixer mutes.

Sony DMX-R100 Mixer (Top)

Since a mixer manipulates the audio connected to it's inputs on its own, using a mixer as a controller requires special consideration. Since the mixer controls will now control SAWStudio's virtual mixer, and SAWStudio will be manipulating the audio, the audio signals should not be run through the same channels that are being used as the controller. In most cases, the audio should be kept completely out of the mixer.

If the *Mixer Views to Hardware Controller* navigation link is active, the surface will chase *SAWStudio's Hot Track* selection.

☞ Make sure your controller is transmitting and receiving on MIDI channel 1 to ensure compatibility with this template.

Controller Surface	SAWStudio
Faders	Control mixer channel faders. Can operate Input channels only.
Pans	Control mixer pans.

Mutes   Control mixer mutes.

Soundcraft Spirit 328 Mixer (Top)

Since a mixer manipulates the audio connected to it's inputs on its own, using a mixer as a controller requires special consideration. Since the mixer controls will now control SAWStudio's virtual mixer, and SAWStudio will be manipulating the audio, the audio signals should not be run through the same channels that are being used as the controller. In most cases, the audio should be kept completely out of the mixer.

If the *Mixer Views to Hardware Controller* navigation link is active, the surface will chase *SAWStudio's Hot Track* selection.

☞ Make sure your controller is transmitting and receiving on MIDI channel 1 to ensure compatibility with this template.

Controller Surface	**SAWStudio**
Faders	Control mixer channel faders. Can operate Input channels only.
Pans	Control mixer pans.
Mutes	Control mixer mutes.
Solos	Control mixer solos.

Tascam TM-D1000 Mixer (Top)

Since a mixer manipulates the audio connected to it's inputs on its own, using a mixer as a controller requires special consideration. Since the mixer controls will now control SAWStudio's virtual mixer, and SAWStudio will be manipulating the audio, the audio signals should not be run through the same channels that are being used as the controller. In most cases, the audio should be kept completely out of the mixer.

If the *Mixer Views to Hardware Controller* navigation link is active, the surface will chase *SAWStudio's Hot Track* selection.

☞ This template requires the use of a separate MIDI channel for each control channel.

Controller Surface	**SAWStudio**
Faders	Control mixer channel faders. Can operate Input channels only.
Pans	Control mixer pans.
Mutes	Control mixer mutes.

Yamaha ProMix-01 Mixer (Top)

Since a mixer manipulates the audio connected to it's inputs on its own, using a mixer as a controller requires special consideration. Since the mixer controls will now control SAWStudio's virtual mixer, and SAWStudio will be manipulating the audio, the audio signals should not be run through the same channels that are being used as the controller. In most cases, the audio should be kept completely out of the mixer.

If the *Mixer Views to Hardware Controller* navigation link is active, the surface will chase *SAWStudio's Hot Track* selection.

☞ Make sure your controller is transmitting and receiving on MIDI channel 1 to ensure compatibility with this template.

Controller Surface	SAWStudio
Faders	Control mixer channel faders. Can operate Input channels only.
Master Fader	Controls the mixer Output-1 fader.
Mutes	Control mixer mutes.

Yamaha ProMix-01V Mixer (Top)

Since a mixer manipulates the audio connected to it's inputs on its own, using a mixer as a controller requires special consideration. Since the mixer controls will now control SAWStudio's virtual mixer, and SAWStudio will be manipulating the audio, the audio signals should not be run through the same channels that are being used as the controller. In most cases, the audio should be kept completely out of the mixer.

If the *Mixer Views to Hardware Controller* navigation link is active, the surface will chase *SAWStudio's Hot Track* selection.

☞ Make sure your controller is transmitting and receiving on MIDI channel 1 to ensure compatibility with this template.

Controller Surface	SAWStudio
Faders	Control mixer channel faders. Can operate Input channels only.
Pans	Control mixer pans.
Mutes	Control mixer mutes.

Yamaha 03D Mixer (Top)

Since a mixer manipulates the audio connected to it's inputs on its own, using a mixer as a controller requires special consideration. Since the mixer controls will now control SAWStudio's virtual mixer, and SAWStudio will be manipulating the audio, the audio signals should not be run through the same channels that are being used as the controller. In most cases, the audio should be kept completely out of the mixer.

If the *Mixer Views to Hardware Controller* navigation link is active, the surface will chase *SAWStudio's Hot Track* selection.

☞ Make sure your controller is transmitting and receiving on MIDI channel 1 to ensure compatibility with this template.

Controller Surface	SAWStudio
Faders	Control mixer channel faders. Can operate Input channels only.
Pans	Control mixer pans.
Mutes	Control mixer mutes.

22   Using the SAC Links

22.1   Using The SAC Links

SAWStudio includes internal links directly to SAC. The SAC Link option is activated from within SAWStudio and once a connection link between SAWStudio and SAC has been established, you can now pass data in both directions for recording and playback with SAWStudio using internal shared memory buffers that completely bypass the Windows soundcard drivers. SAWStudio will automatically disconnect from the drivers and use the internal shared buffers to communicate with the outside world through the SAC engine. Soundfile View recording will be disabled when the SAC Link is active, but Soundfile View playback is possible.

The SAC-Link setting can be saved with the preferences so it can automatically activate when starting SAWStudio if SAC is already running.

The SAC-Link will pass Play, Record and Stop commands to SAWStudio from some of the SAC midi controller templates that contain transport controls.

The menu options are selected from within SAWStudio and show up as follows:

The **Activate SAC Link** option on the SAWStudio Options menu will establish the internal connection between the two programs. SAC and SAWStudio must both be running at the time, and when the connection is established, the *SAC<–>LINK* menu item will activate in the top left corner of the SAWStudio main menu. [Left-Clicking] this menu item will switch to SAC, or you may press the [Alt] key and then the [L] key to do the same.

The **SAC Link Options** option expands out to include these following choices:

The **Export Mix Data To SAC** option allows you to instantly transfer the main MT track and channel mix data directly to the SAC FOH console. Only Tracks that contain Region data will transfer. This will also automatically preset each SAC console channel input source to point to the associated SAWStudio MT track. This option allows you to playback the SAWStudio MT tracks in a 1 to 1 configuration through the SAC console. You can then use the SAC Monitor mixers to setup separate performer mixes. SAWStudio will not play audio through its own driver devices while the *SAC Link* is active. You do not have to make any preference changes in SAWStudio… the buffer settings will be internally set to relax the SAWStudio cpu load and rely on SAC to handle the low latency performance. The internal link will adjust for SAWStudio playback buffer size changing and latency causing plugins and deliver a fixed data stream to SAC with no changes needed to your edl session in SAWStudio.

The **Import Mix Data From SAC Input Chans (Active/Selected)** option allows you to instantly transfer the SAC FOH console setup directly into SAWStudio, including automatically creating a record template with all channel input assignments preset, ready for a live recording of the current SAC session. This function includes only active (input source assigned and not disabled) input chans and properly handles re-ordered SAC chans when creating the new Record Template. If SAC chans are selected, then only those chans are included in the import. All that is needed after this option is activated is to *Ctrl-Click* the first track's record button in the SAWStudio MT to open all record meters for all active SAC channels, already pre-assigned. You may also [Alt-Click] any track's record button to automatically open the record template on the proper first imported track. Once again, SAWStudio completely bypasses the soundcard drivers and gathers its audio data directly from the SAC engine. This allows SAWStudio to perform the MT record operation with very little added cpu load on the system, and also relaxes the buffer settings to essentially coast along quietly in the background while SAC handles the low latency monitoring load.

The **Import Mix Data From SAC Input Chans To Cur Track (Active/Selected)** option imports mix data from selected active SAC input chans and offsets the first one to the current MultiTrack HotTrack.

The following chans stack in order without altering the MT layout. This option allows specific SAC chans to be offset in the MT for overdubbing to any track, while still importing the SAC chan settings. The Track order in the MT is not altered. The Record template is properly setup as well.

The **Arm Last Imported Record Template** option opens the record template and assures that the record arming begins on the proper imported start track so that all record input assignments will correctly follow the imported SAC channels. You may also [Alt-Click] any track's record button to automatically open the record template on the proper first imported track.

The **Input Chan Play Tap At SRC** option selects the SAWStudio tap for sending its track data to SAC. This option sends the data from the SRC position at the top of the chan module just after the Mono section. Using this option means you are essentially sending the playback data directly from the wav files on each track with no added processing from the SAWStudio virtual console.

The **Input Chan Play Tap At PRE-PATCH** option selects the SAWStudio tap for sending its track data to SAC. This option sends the data from just after the PRE-PATCH position within the chan module. This option would allow VST Synths data to be passed onto SAC and the Pre-Patch position routing options within SAWStudio will still apply, so some signal processing from SAWStudio may be part of the signal chain before the data reaches SAC.

The **Input Chan Play Tap At PST-FDR** option selects the SAWStudio tap for sending its track data to SAC. This option sends the data from the bottom of the chan module, which includes all chan processing and automation. Very useful for show playback of pre-recorded tracks.

Once the *SAC Link* is initiated, the SAC input source options will expand to allow individual SAWStudio Mixer Chan selections instead of just the hardware device selections. You will see all SAWStudio label references for each channel in the list. You may select any Input Chan from SAWStudio or any Output Chan. Selecting an Output Chan allows you to maintain a complete mix in the SAWStudio environment and only use one stereo input chan in SAC to playback the entire 120 tracks from SAWStudio. Any Input Chan selection is subject to the above mentioned Tap points set in SAWStudio. Playback from the SoundFile View will appear in SAC as the SS-Out Chan corresponding to the SoundFile View Out Device setting.

Likewise in SAWStudio, the record meter Input Zone will display the SAC channel list with the SAC labels. You may record from any SAC channel which will automatically adjust the record meter to mono or stereo based on the SAC source assignment. SAWStudio will allow up to 120 simultaneous record meters. If using SAC version 4.0 or higher, you will also have the option to choose any of the 8 SAC Output Record Buses.

By using the various playback tap points and SAWStudio Mixer Channel source selections, you can set SAC to play SAWStudio tracks one on one with processing coming from SAWStudio and SAC set flat, or with SAWStudio set flat and SAC handling the processing. You can also use Output Channel sources to playback complex sessions as a single stereo mix or with multiple sub assignments and have SAC handle the playback as stems from the original session, thereby taking less SAC channels but still giving you hands on live control of various sub groups from the original session.

Recording a live session from the SAC FOH setup is a breeze with SAWStudio running in the background in a relaxed state accepting signals direct from SAC's input assignments on a channel by channel basis. And the SAC mix setup and input assignments can be easily passed to SAWStudio with a single menu option so SAWStudio is ready to record in seconds.

23   Menu Reference Guide

23.1   [SAC - Link]

This option allows a quick link to switch to SAC when the SAWStudio-SAC Link is active. It will restore and switch to the SAC program when that program is running and linked with the *SAC/SAWStudio Link* option.

23.2   File Menu

Open Session

This option opens an existing session EDL file.

☞   When first opening an EDL which has been moved or is referencing a network drive, if a linked file is not found at the original stored path, a warning dialog box will be displayed, notifying you of the missing file name and path, and giving you the following options:

- Click OK To Automatically Re-Path To The EDL Drive

- Press {Ctrl} And Click OK To Skip All Similar Warnings

- Press {Shift} And Click OK To Browse For File

  [Left-Clicking] *OK* attempts to automatically re-path to the drive that the EDL is residing on. If your session and EDL are stored together on that drive, this will find the file it needs and continue loading the session.

  [Ctrl-Left-Clicking] *OK* skips this and all future warning prompts for other missing files referenced by the EDL.

  [Shift-Left-Clicking] *OK* displays a browse dialog box allowing you to locate the missing file(s) manually at an alternate drive and path location.

  All following files will automatically look to this new alternate path before prompting you again. You may create up to ten alternate paths along the way which will each be added to the search list before prompting you again. The original EDL is not modified, but you may now update or save the EDL as a new one with the modified paths.

  If this or any other file can not be found after this prompt has been answered, a new dialog box is displayed for each missing file with the following options:

- Press {Ctrl} And Click OK To Skip All Similar Warnings

- Press {Shift} And Click OK To Browse For File

  [Ctrl-Left-Clicking] *OK* skips all future warning prompts for other missing files referenced by the EDL.

  [Shift-Left-Clicking] *OK* displays a browse dialog box allowing you to locate the missing file(s) manually at an alternate drive and path location.

Blend Session

This option allows you to blend an existing session with the current session in two different ways.

1. If you offset the *MultiTrack* cursor to a section of blank tracks underneath the current session tracks, you can blend the existing session information in sync with the current session information. The session being blended will offset each element to the new track and cursor position. Global data for each track being blended will be applied as long as the underlying track was empty at the time of the blend.

2. If you offset the cursor position to the end of the current session, new data being blended will be offset in position, but global data for the track will not be applied since there are already global settings for tracks that already have data in front of the newly blended data. In this case, the new global mixer default data will be written in as automation entries at the start of the blended data.

Automation data will be blended into its new proper location.

☞ *FX Plug-in* data will not be blended.

☞ *Control Track* and *Video Track* data will be blended and inserted at the new proper location.

Close Session

This option closes the current session EDL and clears the *MultiTrack* and Mixer to default settings.

Recent Session FileList

This option displays a list of the last 30 accessed session files and complete paths, which can be used to quickly re-open commonly accessed session files. The list is ordered with the most recent session file on top.

⌨🖰 Pressing the [Shift] key when selecting an entry will remove that entry from the list.

Save And Update Session (Ctrl-S)

This updates and overwrites the current session EDL File with no further prompting. The [Ctrl-S] Save Session keyboard shortcut can be used to save a session during MultiTrack Play, PlayMark, and PlayLoop modes, as well as Live and Rec/Rdy modes

Save Session As…

This options saves the current session to an EDL file with a new name and makes that the current session.

Save Session Copy As…

This option saves the current session to an EDL file with a new name, but does not switch sessions to the new one.

Save And Trim Session

This option is completely automatic allowing you to save the current session to the same or a different folder and trim out all areas of the soundfiles that are not used in the session. All unused regions are removed also. *Region Handles* save extra data on each side of the region boundaries allowing for later editing and extending of the boundaries. The *Region Handle* extra data settings are available as the following sub-menu choices:

➢ **No Region Handles**
➢ **500 ms Region Handles**
➢ **1 sec Region Handles**
➢ **2 sec Region Handles**
➢ **4 sec Region Handles**
➢ **10 sec Region Handles**
➢ **20 sec Region Handles**
➢ **30 sec Region Handles**

✋ Using long handles (10, 20, or 30 seconds) could add length to the overall trimmed session, depending on the session layout.

All *SoftEdge* data extensions are also automatically calculated into the trim. When activating this option, a *Save And Trim Session* dialog box prompts for the destination directory, and suggests the destination EDL name (the current project name with '_**Trim**' appended to it). You can change to a new folder and/or change the EDL name. The original files are named the same with the '_**Trim**' appended. The process is completely automatic with no further prompting. You will see the progress as the *Region's* list highlights each *Region*, one at a time, working its way down from top to the bottom of the list.

You may cancel this operation at anytime by pressing the [Esc] key. This will delete the newly created .edl file and all newly created .wav and .wpd files.

☞ Your original session is untouched during this process and remains completely intact.

☞ If a *Save and Trim Session* operation is repeated to the same destination folder, all pre-existing trim files will be cleared and rebuilt to prevent files from containing redundant information.

Save And Re-Path Session To New Drive/Folder

This option allows you to browse for a new drive/folder and save a new edl, forcing all edl and video files to re-path to this location. This option will close the current session when complete.

Extract Session

This option will extract all components of a session from the *Mark Begin* to the *Mark End* position (or the entire session if there is no *Marked Area*) into a new session folder and edl file. You will be prompted to include all layers or not, and also asked to move the session to the zero position on the TimeLine or not. All active file sections for each track will be re-written into new track files, and labeled with the new session name and track label. *Regions* within the *Marked Area* will remain intact. All remaining sequence entries outside the *Marked Area* or included layers will be removed and the new session will be opened at completion. Depending on how you answered the zero position prompt, the sequence entries may be left in their original timeline positions, in case there might be SMPTE references that need to be retained. You can simply mark the data and use the *Slip Track* function for all tracks to snap the data to the front of the timeline if desired in the new edl. This is designed with the original intent of extracting separate and named song edls from a single long live recording session which was forced to be placed into one giant session because there was no time to break and create separate edls for each song during the live performance.

It is recommended that you do the session extractions before you begin editing and automating the original session, which will then start each new edl out with a single region and file for each track, properly labeled with the session name and track label. You may wish to setup a basic starting mix with eq and compression and reverb plug-ins and so forth, before the extractions, which will then carry this starting setup into each new edl as a starting point. This feature also has the added benefit that it can help clean up the intense amount of disk fragmentation that can occur when recording 24 or more live files at once, due to the fact that the files are all being written in small non-contiguous blocks. The new

files are written one file at a time and can end up being much less fragmented, which improves playback as you start building dense mixes with lots of processing.

Region Handle extra data settings are available as the following sub-menu choices:

➢ **No Region Handles**
➢ **500 ms Region Handles**
➢ **1 sec Region Handles**
➢ **2 sec Region Handles**
➢ **4 sec Region Handles**
➢ **10 sec Region Handles**
➢ **20 sec Region Handles**
➢ **30 sec Region Handles**

All *SoftEdge* data extensions are also automatically calculated into the extraction. When activating this option, an *Extract Session* dialog box prompts for the destination directory, and suggests the destination edl name (the current project name with '_**Extract**' appended to it). You can change to a new folder and/or change the edl name. The process is completely automatic with no further prompting. You will see the progress as the *MultiTrack Hot Track* works it's way down through the tracks. At the completion of the process, the new edl will be opened. Your original session will be left intact.

✋ You may cancel this operation at anytime by pressing the [Esc] key, however this will leave the current and the newly created .edl file incomplete. Make sure you DO NOT save and update the current edl at this point. Simply re-opening the current session will restore it back to it's original condition.

Import EditList File (SAWPlus32 Family, SAWPro)

This option imports an edl file from earlier 32-bit versions of SAW. *Region*, *MT Entry*, and mix data is translated.

Add SoundFile To MT

This option creates a *Region* in the *Regions List*, and adds the *Region* directly to the *MultiTrack* cursor position on the current *Hot Track* without opening the file into the *SoundFile View*.

☞ SAWStudio currently accepts 16, 20, and 24-bit PCM mono or stereo .wav files, 32-bit floating point mono or stereo .wav files, and 16, 20, and 24-bit mono and stereo .aif and .aiff files. All other file types should be externally converted to a basic .wav format before opening them in SAWStudio.

Add SoundFile As Region

This option adds the entire file as a *Region* to the *Regions List* without opening the file into the *SoundFile View*.

☞ SAWStudio currently accepts 16, 20, and 24-bit PCM mono or stereo .wav files, 32-bit floating point mono or stereo .wav files, and 16, 20, and 24-bit mono and stereo .aif and .aiff files. All other file types should be externally converted to a basic .wav format before opening them in SAWStudio.

Open SoundFile

This option opens a *SoundFile* direct to the *SoundFile View* window for editing.

☞ SAWStudio currently accepts 16, 20, and 24-bit PCM mono or stereo .wav files, 32-bit floating point mono or stereo .wav files, and 16, 20, and 24-bit mono and stereo .aif and .aiff files. All other file

types should be externally converted to a basic .wav format before opening them in SAWStudio.

Open SoundFile And Add To MT

This option opens a *SoundFile,* automatically marks the entire file, creates a *Region* in the *Regions List*, and adds the *Region* directly to the *MultiTrack* cursor position on the current *Hot Track.*

☞ SAWStudio currently accepts 16, 20, and 24-bit PCM mono or stereo .wav files, 32-bit floating point mono or stereo .wav files, and 16, 20, and 24-bit mono and stereo .aif and .aiff files. All other file types should be externally converted to a basic .wav format before opening them in SAWStudio.

Open SoundFile And Create Region

This option opens a *SoundFile* and adds the entire file as a *Region* to the *Regions List*.

☞ SAWStudio currently accepts 16, 20, and 24-bit PCM mono or stereo .wav files, 32-bit floating point mono or stereo .wav files, and 16, 20, and 24-bit mono and stereo .aif and .aiff files. All other file types should be externally converted to a basic .wav format before opening them in SAWStudio.

Open SoundFile And Refresh

This option opens a *SoundFile* direct to the *SoundFile View* window and forces a re-scan of the audio data to refresh the associated PeakData file information which is used for waveform display.

☞ SAWStudio currently accepts 16, 20, and 24-bit PCM mono or stereo .wav files, 32-bit floating point mono or stereo .wav files, and 16, 20, and 24-bit mono and stereo .aif and .aiff files. All other file types should be externally converted to a basic .wav format before opening them in SAWStudio.

Open SoundFile And Fix Header

This option can be used to fix a corrupted wav file header that was caused by a crash during a recording which then never had a chance to finish updating the header data when the recording was finished. This generally results in a wav file with a zero data length value in the header which will not open correctly later. This option will calculate the data length based on the file length and the header length and write in the corrected values. A new peak data file will then be created.

Close SoundFile

This option closes the currently open *SoundFile* and clears the *SoundFile View* window.

Recent SoundFile FileList

This option displays a list of the last 30 accessed soundfiles and complete paths, which can be used to quickly re-open commonly accessed soundfiles. The list is ordered with the most recent soundfile on top.

⌨☞ Pressing the [Shift] key when selecting an entry will remove that entry from the list.

Mix Template File

Mix template files can be overlaid on the current session at any time. These files store all console settings, all FX patch information, *MultiTrack* label and *MT Entry* texture information, and the current active record template assignments.

The following sub-menu choices are available Mix Template options:

➢ **Open**

This option opens an existing *Mix Template* file which controls the entire mixing console layout, assignments and settings, including channel names and *MultiTrack* texture information. These files can be overlaid on the current session without disturbing *Regions* or *MT Entries*. If certain mix channels are selected in any mixer view, only those channels will be affected with the new *Mix Template* data.

➢ **Open Without Labels**

This option opens an existing *Mix Template* file which controls the entire mixing console layout, assignments and settings, and *MultiTrack* texture information. Track labels will not be disturbed. These files can be overlaid on the current session without disturbing *Regions* or *MT Entries.*

➢ **Save**

This option saves the current mix template information to a .MXT file.

➢ **Save Default**

This option saves the current mixing console setup as the default setup. This setup will be used each time the program is started or a session is closed to start a new one.

➢ **Clear Default**

This option clears the current default *Mix Template* file and **SAWStudio** will revert back to using its internal mixing console defaults for new sessions.

Record Template File

The following sub-menu choices are available Record Template File options:

➢ **Open**

This option allows you to open a preset *Record Template* which can then be utilized by pressing the [Ctrl] key and any *MultiTrack* record button.

➢ **Save**

This option allows you to save the current last *Record Template* created by previously [Ctrl-Left-Clicking] the *Close* button on the *Record Window* containing a configuration of meter assignments.

☞ Record Templates retain track offset information. If record tracks are not sequential, the track offset information will be applied starting from the current track where the record template is opened. For instance, if the record template is saved with tracks 1, 3, 5 and 6 in record mode, and then the template is recalled starting at track 11, tracks 11, 13, 15 and 16 will be placed into record.

Midi-Control Template

☞ For specific MIDI controller device details, see the chapter titled *Using MIDI Controller Devices.*

The following sub-menu choices are available Midi-Control Template File options:

➢ **Open**

This option loads a template containing the MIDI commands and function hooks for different MIDI Controller devices. A dialog box will be displayed showing the currently available MIDI control templates.

☞ New templates will be added as the different controller data becomes available.

The active template can be saved with your preferences.

➢ **Save**

This option saves the current MIDI commands and function hooks to a .MCT file.

➢ **Clear**
This option clears the currently open MIDI controller template.

☞ If preferences have been saved with an open MIDI controller template, the program will always load with that template active. Using this option to clear the open template, and then saving the preferences, will allow the program to load without an active template.

F-Key File

The following sub-menu choices are available F-Key File options:

➢ **Open**
This option opens a *Function-Key* template file that contains a complete set of workspace views, and makes this the active set of function keys.

☞ When you exit the program and restart the program, the current workspace views will be return to the default *F-Key Template*. To save the current set of workspaces as the default function keys, use the *Save Default F-Key File* option from the *File* menu.

➢ **Save**
This option saves the current *Function-Key* workspace views to a .FKY file. This can be handy for creating different workspace environments for different project types or screen resolutions.

➢ **Open Alternate**
This option opens a *Function-Key* template file that contains a complete set of alternate workspace views, and makes this the active set of alternate function keys.

➢ **Save Alternate**
This option saves the current alternate *Function-Key* workspace views to a .FKY file.

➢ **Save Default**
This option saves the current *Function-Key* setup as the default for when the program starts.

➢ **Clear Default**
This option clears the default *Function-Key* file and **SAWStudio** will revert back to its internal F-Key defaults.

Preferences File

The following sub-menu choices are available Preferences File options:

➢ **Open**
This option opens an existing *Preferences* configuration file and re-initializes the program to those settings.

➢ **Save**
This option saves the current program setup as a .PRF file. This is handy for saving different configurations or sound card setups for different project types.

➢ **Save Default**
This option saves the current setup as the default *Preferences* for when the program starts.

☞ Use this option each time you change a global setting or option that you wish to retain each time you start the program.

➤ **Clear Default**
This clears the default *Preferences* file and **SAWStudio** will revert back to its internal defaults.

Shades

This option allows you to load different graphic libraries called *Shades* (available as free downloads at www.SAWStudio.com), which completely control how the **SAWStudio** interface looks. The following sub-menu choices are available *Shades* options:

➤ **Open**
This option displays the *Open Shades File* dialog box to the *Shades* program folder where you may choose from available .shd graphics files listed. This menu option also displays the name of any shades file currently in use within curly brackets.

➤ **Reset To Original Vintage**
This option allows you to switch back to the original **SAWStudio** interface graphics. The active graphic library can be saved with the *Preferences* as the default.

Exit

This option exits the program.

Other Menus:
Edit Menu
Regions Menu
MultiTrack Menu
Mixer Menu
Process/MixDown Menu
Automation Menu
View Menu
TimeLine Menu
Smpte/Midi Menu
Options Menu
Info Menu

23.3   Edit Menu

Undo EDL (Ctrl-<)

This option allows you to *Undo* the last EDL manipulation (i.e. functions affecting *MT Entries, Regions,* mix changes, etc.). **SAWStudio** has the ability to maintain up to 99 levels of multiple EDL undos. Each time this option is used, **SAWStudio** steps backward one more level in the undo history. When the oldest undo level is recalled, this option will be grayed and unavailable.

Redo EDL (Ctrl->)

This option allows you to *Redo* the last *undo* operation. **SAWStudio** has the ability to maintain up to 99 levels of multiple EDL undos. Each time this option is used, **SAWStudio** steps forward one more level in the undo history. When the newest undo level is recalled, this option will be grayed and unavailable.

Recover EDL Last Undo

This option opens a file dialog displaying the **U00** undo data information files for your different sessions. Pick the session of interest and the last stored undo file will attempt to be opened. In most cases this will recover you from unsaved or crashed data circumstances to the last, or close to the last,

editing operation performed when the session was last open.

☞ If your session crashed or was closed without saving, exercise this option to open the session for the best chance of recovering potentially lost data. If this option fails to recover your session, try the *Display EDL Undo History* option to access all of the undo history files available for this session.

Recover EDL Undo

This option allows you to see all undo files (.u01 - .u99) for each session in a folder. You may select any one of them to attempt to recover a session that was somehow lost or corrupted. If there is an active session, only the undo files for that session name will be displayed. If there is no active session, all undo files for all sessions will be displayed.

Display EDL Undo History

This option displays an *Undo History* listbox, with undo history listed from the most recent change to the oldest change, going back as many levels as you have setup in the *Set EDL Undo Levels* configuration. Each entry will have a date and time stamp and a text message describing the event. [Double-Clicking] any of the items will safely open that undo file allowing you to freely look around the entire history. This does not damage the list or main file in any way. The top of the list is the most recent operation saved. Sometimes one more level of redo is available to reach the final status of the session.

☞ EDL undo history is saved as separate EDL files, and can be accessed at anytime - even weeks or months after the session was last open.

☞ It is suggested that you set up a destination "EDL Undo" folder and file path within **SAWStudio**, for ease of use in organizing, storing and locating undo history files. Simply create a separate folder in Windows Explorer called "EDL_Undo". We suggest locating this folder inside of your active Audio folder. Next choose the *File Path Setup* option under the *Options* menu, and change the *EDL Undo Path* file path to the location of your new Undo folder.

Clear EDL Undo History

This option clears the undo files and the history of the open session or a session of your choice if there is no active session open.

If the current session has not been named, selecting this option opens the *File* dialog box, displaying all .u00 files for all sessions. Select the session history file you wish to clear, and click *OK*. All associated .uxx history files for that EDL will be deleted.

If the current session is named, a confirmation prompt is displayed. Click *OK* to delete the history files for the current EDL, or *Cancel* to cancel the operation.

Set EDL Undo Levels

This option allows you to select the number of undo levels that will be saved during EDL manipulations.

When selecting this option, a dialog box is displayed allowing you to enter a number from 1 to 99.

This setting can be saved with your preferences.

✋ Regarding setting undo levels: It is recommended that undo levels be set to a reasonable number like 10 or 20 to avoid creating large numbers of history files for each of your EDLs and using up

valuable hard drive space unnecessarily. In most cases, the EDL condition has changed significantly after 10-20 manipulations, most likely making it meaningless to recover an EDL beyond that level.

Special Snapshot Function

Pressing the [*] key on the keyboard numpad will force a snapshot (undo) of your current session. This can later be recovered as an undo item. Use this before performing automation or recording so you can revert back to before the numerous changes were made if you change your mind.

Other Menus:
File Menu
Regions Menu
MultiTrack Menu
Mixer Menu
Process/MixDown Menu
Automation Menu
View Menu
TimeLine Menu
Smpte/Midi Menu
Options Menu
Info Menu

23.4   Regions Menu

Create New Region (SoundFile View) (N)

This option will create a new *Region* from a *Marked Area* in the *SoundFile View*. The *Create New Region* dialog box is displayed with a generic default *Region* name. Enter a new name and press [Enter] to add the *Region* to the *Regions List*. Press the [Esc] key or [Left-Click] outside the dialog box to cancel the operation. You may also use the [N] key while the *SoundFile View* window is active to perform the same function.

Import New Region (SoundFile View) (I)

This option takes its information from the currently open soundfile in the *SoundFile View* and imports the *Marked Area* to a new import destination file, then creates a new region in the session, linked to the new import destination file.

Update Region (SoundFile View) (U)

This option updates the *Region* currently selected in the *Regions View* listbox based on the current *SoundFile View* data. You may also use the [U] key while the *SoundFile View* window is active to perform the same function. An *Update Region Name* dialog box is displayed with the current *Region* name. You may keep the current name or enter a new name. Press [Enter] to accept your changes. Press the [Esc] key or [Left-Click] outside the update dialog box to cancel the operation. This option allows you to update region boundaries, zoom levels, and the region name, and will also follow the *Auto ZeroCross* setting in the *Options* menu.

Create Blank Region

This option creates a blank region which links to an included blank mono wav file. This region can be inserted and manipulated like any other region. Blank regions can be used to extend the end of a track

to allow for decaying effects trails like reverb or echo.

Re-Name Region(s)

This option will re-name the currently selected *Regions* in the *Regions Listbox*. If a single *Region* is selected, the new name will be directly applied. If multiple *Regions* are selected, the new name will be used as a base name with an increasing number count applied down the list.

Sequential Append Format " {001}"

This option controls the sequential appended number format. Automatically appended numbers in a sequential renaming operation will take on this format.

Sequential Append Format " - 001"

This option controls the sequential appended number format. Automatically appended numbers in a sequential renaming operation will take on this format.

Clear Unused Regions

This option removes all regions not being used in the *MultiTrack* session on any track. Referenced soundfiles are also cleared from the session EDL file list if none of the remaining regions are linked to the same file.

Export Region(s) To SoundFile(s)

This option allows you to export multiple selected *Regions* in the *Regions View* to individual soundfiles. You will be prompted for a destination folder, then a dialog box is displayed asking whether or not to create SAWStudio peak data files also. The files created will be named the same as the *Region* names. (Illegal filename characters will be substituted with an underscore character.) If any destination file already exists, you will be prompted to overwrite or cancel the operation. Pressing [Ctrl] and clicking *Ok* will skip all subsequent warnings.

Other Menus:
File Menu
Edit Menu
MultiTrack Menu
Mixer Menu
Process/MixDown Menu
Automation Menu
View Menu
TimeLine Menu
Smpte/Midi Menu
Options Menu
Info Menu

23.5 MultiTrack Menu

SampleRate

This option displays a list of *SampleRate* choices for the entire session. This determines the destination session *SampleRate*. All audio data used in the *MultiTrack* that does not match this rate will

be samplerate converted during playback live, in real-time. The following sub-menu choices are available:

- ➢ **11025**
- ➢ **22050**
- ➢ **32000**
- ➢ **44056 PullDn**
- ➢ **44100**
- ➢ **44144 PullUp**
- ➢ **47952 PullDn**
- ➢ **48000**
- ➢ **48048 PullUp**
- ➢ **8200**
- ➢ **96000**
- ➢ **176400**
- ➢ **192000**
- ➢ **Custom** (Select any rate between 3000 and 400000)

This setting can be saved with your preferences.

Resolution

This option displays a list of resolution settings for the entire session. This determines the destination resolution of the session and the audio device hardware must be capable of playback at this setting. The *MultiTrack* internally keeps all data at the 24 bit level and dithers or truncates on the final output only, according to the chosen settings. The following sub-menu choices are available:

- ➢ **16 Bits**
- ➢ **20 Bits**
- ➢ **24 Bits**

This setting can be saved with your preferences.

☞ This setting determines the output channel *FX F-Res* patch point data resolution.

Dither

This option controls dither options for final resolutions below the 24 bit option. Dither is the process of adding a random noise pattern to the lowest bits when reducing bit resolution. This process is claimed to psycho-acoustically retain some of the original audio content that is being thrown away during the bit reduction process. The following sub-menu choices are available:

- ➢ **OFF**
Adds no noise pattern.

- ➢ **On - Type 1**
Adds the smallest amount of noise pattern with a generally flat frequency response.

- ➢ **On - Type 2 (More Hi Freq Data)**
Adds a slightly more robust pattern with a shift towards more high-frequency energy.

- ➢ **On - Type 3 (Most Hi Freq Data)**
Adds a more intensive noise pattern with increased high-frequency energy.

- ➢ **NonCorrelated L/R**
Causes different noise patterns of the selected type to be applied to the left and right channels. Many

suggest that this can help keep the stereo field more intact in the final mix when using dither and bit reduction. This option is global and saves with the preferences - not with individual EDLs.

➢ **Random**
Randomizes the noise pattern of the selected type with every buffer process so that repetition of the applied noise pattern is much less frequent. This option is global and saves with the preferences - not with individual EDLs.

☞ Due to the subjective nature of the dither process, experiment with the various options and rely on your ears to decide which you like best for each individual project.

Entry Name Position

This option controls the *MT Entry* name display in the *MultiTrack* window. The following sub-menu choices are available:

➢ **OFF**
No names displayed in entries.

➢ **Center**
Names are centered in all entries.

➢ **Top**
Names are displayed at the top of all entries.

➢ **Bottom**
Names are displayed at the bottom of all entries.

➢ **Auto Stereo Center**
Mono files follow the selected position setting, but stereo files override the setting and force names to display in the center.

This setting can be saved with your preferences.

Split / Keep MT Entry At Cursor (K)

Selecting this option will split the *MT Entry* at the cursor position and keep both entries on the current *Hot Track*. Pressing [Ctrl] when selecting this option extends the operation across all tracks..

Split / Remove Left Side Of MT Entry At Cursor (R)

Selecting this option will split the *MT Entry* at the cursor position and remove the new entry to the left of the cursor position on the current *Hot Track* without affecting following entries. Pressing [Ctrl] when selecting this option extends the operation across all tracks.

Split / Remove Right Side Of MT Entry At Cursor (Alt-R)

Selecting this option will split the *MT Entry* at the cursor position and remove the new entry to the right of the cursor position on the current *Hot Track* without affecting following entries. Pressing [Ctrl] when selecting this option extends the operation across all tracks.

Split / Delete Left Side Of MT Entry At Cursor (D)

Selecting this option will split the *MT Entry* at the cursor position and delete the new entry to the left of the cursor position on the current *Hot Track* pulling following butt-spliced entries forward. Pressing [Ctrl] when selecting this option extends the operation across all tracks.

Split / Delete Right Side Of MT Entry At Cursor (Alt-D)

Selecting this option will split the *MT Entry* at the cursor position and delete the new entry to the right of the cursor position on the current *Hot Track* pulling following butt-spliced entries forward. Pressing [Ctrl] when selecting this option extends the operation across all tracks.

Split / Mark Left Side Of MT Entry At Cursor (M)

Selecting this option will split the *MT Entry* at the cursor position and mark the new entry on the left of the cursor position on the current *Hot Track* for *Select Mode.* Pressing [Ctrl] when selecting this option extends the operation across all tracks. (When entering *Select Mode* after a series of these operations, use [Shift-S] to retain the marked entries.)

Update MT Entry Nearest Boundary To Cursor (U)

Selecting this option will update the nearest boundary of the *MT Entry* under the cursor to the current cursor position.
If near the end boundary of a butt-spliced *MT Entry,* pressing [Shift] when selecting this option will update the end boundary to the current cursor position and automatically adjust all following butt-spliced entries to remain attached. This operation does not alter edit points of the following entries. Pressing [Ctrl] when selecting this option on a butt-spliced *MT Entry* extends or shrinks both entries, keeping them attached and keeping the overall time sync unaffected.

Replace MT Entry At Cursor With Selected Region (Shft R)

Selecting this option will replace the *MT Entry* at the cursor position with the currently selected *Region Listbox* region.

MultiTrack Soft-Clipping

In the interest of speed and performance, the final output of the *MultiTrack* normally makes no attempt to adjust for clipping that may occur if the overall mix is too loud. This can cause large audible spikes in the final mix that wrap around from positive to negative polarity or vise versa. These spikes are a very noticeable indication that clipping has occurred, and simply adjusting the individual or output channel mix levels can correct the problem.

When *MultiTrack Soft-Clipping* is active, the output summing routines will check each sample for clipping and adjust its value to correct for wrap-around error. This can effectively remove the otherwise loud spikes that would occur at the clipping positions. However, if the mix is consistently too loud, the waveform will take on a squashed or flattened characteristic at the clipped areas resulting in a more common form of harmonic distortion.

☞ The use of this option adds extra CPU overhead to the mixing process. Another consideration is that clipped areas could possibly slip by unnoticed during the final mixdown process, only to be discovered at a later time. In many cases, the wrap-around audio spikes can more easily warn you of a clipping problem so that it can be addressed immediately before the completion of the project.

This setting can be saved with your preferences.

SoftEdge Display

This option activates the display of *SoftEdge* information over the *MT Entries* displayed in the *MultiTrack.* The display is a line ramped up or down at the *MT Entry* boundaries, showing the exact sample reference of the *SoftEdge* extra data that is being applied beyond the splice point.

This setting can be saved with your preferences.

Record-Mark Display

When this option is active, and *MultiTrack* Record is engaged, each record track will display a growing red *Marked Area* designating the actual record region area. These areas will be replaced by the recorded regions when Record is disengaged.

This setting can be saved with your preferences.

Dbl-Clk Transfer To SoundFile View

This option toggles the use of double-clicking to load and display the associated *Region*, at its saved zoom levels, to the *SoundFile View*.

This option is active by default. The [T] key on the keyboard can be used to perform the same function, even when the menu option is turned off.

This setting can be saved with your preferences.

L-Btn Edge Vertical Scroll

This option controls the edge detection for *MultiTrack* vertical scroll with the left mouse button. Normal *SAWStudio* behavior has this option activated. You can still do MT vertical scrolling with the [Right-Hold]mouse functions, even when this option is not active.

Shift MT Center To Quarter Position

This option will shift all automatic centering operations within the multitrack to the left first quarter position instead. This offers more editing room to the right of the newly positioned cursor when using the zoom and other functions that would normally automatically center the multitrack cursor position. This option saves with the preferences.

Disable Right-Mouse-Btn Engine Toggle

This option can be used to lockout the mouse engine toggle commands so that during critical recording or Live Mode sessions, you cannot accidentally toggle the engine to stop by pressing the right mouse button. You will be forced to use the play and stop buttons on the *MultiTrack* or use the SRP, REC or Stop buttons on the Record Remote panel. This option may be saved with preferences, but if this option is left active, you will loose some editing playback capabilities in certain views like the *Regions*, *Library*, *Show Control*, etc.

Disable SpaceBar/Return Engine Toggle

This option can be used to lockout the spacebar or return key engine toggle commands so that during critical recording or Live Mode sessions, you cannot accidentally toggle the engine to stop by pressing either of these keys. You will be forced to use the play and stop buttons on the *MultiTrack* or use the SRP, REC or Stop buttons on the Record Remote panel. This option may be saved with preferences, but if this option is left active, you will loose some editing playback capabilities in certain views like the *Regions*, *Library*, *Show Control*, etc.

Disable Retake-All Function

This option will allow you to disable the use of the Retake-All function helping you from damaging a session by its accidental use. When this option is active, the Retake-All command will be blocked. You must toggle this option OFF in order to re-use the Retake-All function. This option saves with the preferences.

MouseWheel

This option controls the behavior of the MouseWheel in the *MultiTrack* view. The following sub-menu choices are available:

➢ **HotTrack Inc/Dec -** The MouseWheel will scroll the view up and down.

➢ **Zoom In/Out -** The MouseWheel will zoom the waveform display in and out.

[Shift-MouseWheel] will always control the *Hot Track* in a page increment / decrement mode.

This setting can be saved with your preferences.

RealTime SampleRate Conversion / Vari-Pitch Quality

This option controls the samplerate conversion / vari-pitch algorithm used for realtime playback in the *MultiTrack*. The following sub-menu choices are available:

Lowest [Fastest] - This option is the fastest (very realtime) but can introduce artifacts on certain steady state signals like high frequency sine waves. These artifacts do not occur as easily in real music complex waveforms and therefore can still sound perfectly fine to the human ear. This option allows realtime conversion of multiple tracks in the *MultiTrack* on most any machine that can run ***SAWStudio***.

Low [Fast] - This option introduces some up-sampling and filtering to help remove artifacts, but starts to load the cpu due to the increased number of calculations involved. This option cleans up the artifacts up to about 15k and should still allow realtime playback of a good number of tracks, dependent on your machine power.

Medium [Medium] - This option increases the up-sampling and filter configuration to increase the output quality (clean to 18k) at the expense of higher cpu load. Realtime playback of multiple tracks will require a very fast machine.

High [Slow] - This option increases the up-sampling and filter configuration more to increase the output quality (clean to beyond 20k) at the expense of higher cpu load. Realtime playback of multiple tracks will become more difficult.

Highest [Slowest] - This option increases the up-sampling and filter configuration to deliver the highest output quality (clean to beyond 80k) at the expense of a very high cpu load. Realtime playback of multiple tracks will require an intensely well tuned machine.

☞ Another option on the *Process/MixDown* menu allows separate quality choices for samplerate conversion being done during a *BuildMix* process. The higher quality settings should most likely be reserved for this setting where realtime performance is not an issue. However, all vari-pitch operations use the settings of the *MultiTrack* realtime option.

This setting can be saved with your preferences.

Other Menus:
File Menu
Edit Menu
Regions Menu
Mixer Menu
Process/MixDown Menu
Automation Menu
View Menu
TimeLine Menu
Smpte/Midi Menu

23.6   Mixer Menu

Clear Mixer To Default

This option clears the mixing console to the internal default or default mix template settings.

Clear All Mixer Labels

This option clears all the mixer and track labels.

Clear Selected Mixer Labels

This option clears only selected mixer and track labels.

Clear Current Channel

This option clears the current mixer channel settings to default. If the current channel is part of a selected mixer group, all of the group channels are affected.

Snapshot Chan Settings to MT Automation

This option allows you to snapshot all basic mixer channel settings and write them as *MultiTrack* automation data at the current cursor position. This function responds to and will write data for all selected mixer channels simultaneously. You do not need to be in *Automation Mode* to use this function. This function will not write non-automatable items such as solos and device assignments, or FX patches.

Meter Active

This option activates the built-in meter displays on the *Full Mixer View* and *Zoom Mixer View*. The meters do add CPU overhead to the playback and can therefore be de-activated if needed. The following sub-menu choices are available:

➢   **Full Mixer View**
Controls meter displays for the *Full Mixer View*.

➢   **Exploded/Zoom/Wide Mixer View**
Controls meter displays for the *Exploded, Zoom,* and *Wide Mixer Views*.
These settings can be saved with your preferences.

Meter PeakHold

This option controls how the peak information is displayed on the meters. The following sub-menu choices are available:

➢   **Off**
PeakHold information is not displayed.

➢   **Infinite**
PeakHold information is displayed forever. Higher peaks keep pushing the display to a higher notch on the meters.

> **Slow**

PeakHold information is retained on the meter for a reasonable length of time and then starts to decay. Higher peaks will push the display higher again.

> **Fast**

PeakHold information is retained on the meter for a short time and then starts to decay. Higher peaks will push the display higher again.
These settings can be saved with your preferences.

Meter Response

This option controls the response time of the meters to transient information. The following sub-menu choices are available:

> **Slow**

Meters have a long decay period essentially smoothing out the overall response and absorbing fast transient material.

> **Med**

Meters have a good average decay period allowing for a smooth visual display but still catching and displaying fast transient material.

> **Fast**

Meters have a short decay period effectively display all very fast transient material. Overall appearance can become jerky.
These settings can be saved with your preferences.

Chan Fader Taper

This option allows you to select from different fader control tapers that affect how the fader reacts in its dB to movement ratio, effectively allowing you to control the 'sweet spot' of the fader in five separate zones.

> **Standard Log**

This is the default option, and is a true log taper reacting very much like a long throw physical console fader in its movement to dB ratio. There is a comfortable working range in the center of the fader to make finer adjustments to dB level changes.

> **Expanded Log**

This option expands the sweet spot around the zero dB position to allow for smaller increments in dB changes with longer movements of the fader in both directions.

> **Condensed Log**

This option condenses the sweet spot toward a more even or linear reaction near the zero dB position.

> **Linear**

This option creates an even scaling of motion to dB changes across the entire range of the fader.

> **Custom**

This is a special option that allows you to alter the way the fader reacts in five actual scaling zones. When selecting this option, an exploded view of Channel 1 is displayed and the main fader shows three nodes along the right side of the fader zone. These three nodes control the +6dB, -12dB and -36dB points starting from the top down. The +6dB node controls the plus section of the fader above the zero dB position, providing two separate scaling areas above and below the node. The other two nodes control the reaction of the fader below the zero dB position, providing three more scaling zones.
By [Left-Dragging] these nodes, you can control the actual stretching or shrinking of the various zones and determine how the main sweet spot center area of the fader reacts to movement. You may also

select one of the preset tapers while this special edit mode is active which will allow you to start with that as a basis for building your own taper. The custom taper is updated when you close this special exploded view window.

Selecting any one of these options and then saving your default preferences will save your selected fader taper and use that as the default each time you open the program.

Navigation Links

This option controls how the various views link together during navigation. The following sub-menu choices are available:

➢ **Full Mixer View To MultiTrack**
When activated, changing channels in the *Full Mixer* window will cause the *MultiTrack* to chase along.

➢ **Zoom Mixer View To MultiTrack**
When activated, changing channels in the *Zoom Mixer* window will cause the *MultiTrack* to chase along.

➢ **Full Mixer View To Zoom Mixer View**
When activated, changing channels in either mixer window will cause the other view to chase along.

➢ **Full And Zoom Mixer Views To Wide Mixer View**
When activated, changing channels in either the *Full* or *Zoom Mixer* window will cause the *Wide Mixer* view to chase along.

➢ **Mixer Channel Order To MultiTrack Track Order**
When activated, the mixer views will align their channel order to match the *MultiTrack* track order.

➢ **Mixer Views To Hardware Controller**
When activated, the *Hot Channel* is linked to a hardware controller. Every time the *Hot Channel* is changed, the controller will follow along aligning the first fader to the *Hot Channel*.

These settings can be saved with your preferences.

☞ [Right-Clicking] on the *Close* button of the *Full*, *Zoom* or *Wide* mixer view, you can lock or unlock that view. Moving around in any of the other views will not cause the current locked view to chase along. You may still change chans in the locked view itself, but it will no longer be linked to affect other views. The Close button will change to display a small padlock when the view is locked.

Full Mixer Label Position

This option allows you to place the *Full Mixer* vertical labels at the top, center or bottom position within the label area. The following sub-menu choices are available:

➢ **Top**
➢ **Center**
➢ **Bottom**

This setting can be saved with your preferences.

Link Mixer V-Offset to F-Keys

When this option is ON, the *Exploded Mixer* and *Zoom Mixer* response to F-Keys remains as it has always defaulted in past versions of *SAWStudio*. The vertical offset position along the module is linked and restored with the F-Keys. When this option is OFF, the vertical offset is ignored when F-Keys are restored and the modules will remain in their current section position. For example, if you are scrolled

to the EQ section, jumping to other F-Key views will leave the *Zoom* and *Exploded Mixers* still at the EQ section. The vertical offset position will always be saved with new F-Keys, but ignored during the restore when this option is OFF.

Mixer Hot Channel Color

This option allows you to set the *Mixer Hot Chan* display color by designating an RGB color value. Use your favorite Windows graphics program color picker chart and find the RGB values for your color choice. Enter these three values, separated by commas, into this option dialog to change the color of the highlight bars that display the *Mixer Hot Channel*. This value saves with the preferences. An example of an RGB color value for Red would be 255,0,0. An example for Green would be 0,255,0.

Pre-Fx Patch Signal Flow

This option allows the *Pre-Fx Patch* insert point to be moved in front of the *Eq* and *Dynamics* sections of the channel modules on a channel by channel basis. Selecting this option displays a popup channel menu. [Left-Click] any channel to toggle the option on and off. You may also [Ctrl-Left-Click] any channel to toggle all channels at the same time.

☞ Moving the *Pre-Fx Patch* insert point to the front can be very useful when using VST Synth plug-ins. This allows you to use the *Eq* and *Dynamics* section of the channel to directly process the synth output signals. These settings save with the *Mixer Templates* and also with each session edl file. These settings clear when sessions are closed. If you use a default Mixer Template, you can arrange the default console signal routing any way you like and those settings will be used each time the console is reset.

Eq / Dyn Signal Flow

This option allows the *Dynamics* section to be moved in front of the *Eq* section of the channel modules on a channel by channel basis. Selecting this option displays a popup channel menu. [Left-Click] any channel to toggle the option on and off. You may also [Ctrl-Left-Click] any channel to toggle all channels at the same time.

☞ These settings save with the *Mixer Templates* and also with each session edl file. These settings clear when sessions are closed. If you use a default Mixer Template, you can arrange the default console signal routing any way you like and those settings will be used each time the console is reset.

Mixer Chan Record-Tap Routed Before Eq / Dyn

This option allows you to force the Mixer Chan Record tapoff point in front of the Eq/Dyn section without re-routing the Pre-Patch point. The normal default behavior when recording from a Mixer Chan source is to tap the record signal after the Pre-Fx-Patch point, which is normally after the Eq/Dyn section. You can re-route the Pre-Fx-Patch point before the Eq/Dyn section and the record tap will follow along, however, so will the Pre-Aux Send point. When using the virtual console as a PA mixer, this would force all Pre-Aux monitor sends to remain flat without the benefit of any Eq or Dynamics. Many times this is not the desired method of sending monitor mixes to stage performers, so this new option allows you to break the link between the record tap point and the Pre-Fx-Patch point, allowing you to record flat signals while still processing front of house and monitor mix signals.

☞ This setting saves with the *Mixer Templates* and also with each session edl file. This setting clears when sessions are closed. If you use a default Mixer Template, you can arrange the default console signal routing any way you like and those settings will be used each time the console is reset.

Solo Mode

These options select the way in which the solo switches operate.

➢ **The Solo In Place (Mutes Other Channels)**

This mode is the standard default *SAWStudio* mode. This mode internally mutes channels that are not soloed, giving a true exact *In Place Solo* for critical mix decision making. This allows full use of the engine buffer size changing and auto-latency *VST* compensation capabilities with no problems. This mode is not the preferred mode for recording and monitoring sessions, because using solo switches may affect *Aux Send* headphone mixes in odd ways.

➢ **The Solo Bus – Pre Fader**

This mode functions as a true console *PFL Solo*. This mode leaves all other channels alone and feeds the pre-fader signal of soloed channels into a separate mix bus which can be assigned with the *Solo Bus Out Device* option. If this device is your main mix bus, the solo signal will interrupt the main mix output, but not disturb any other channel signals, leaving *Aux Send* headphone feeds intact on other devices. This option also allows you to monitor the output of different devices on any other device, so it makes it possible to send multiple headphone mixes to different hardware outputs and still be able to solo each mix into the main control room device, without the use of external switchers or mixers. The solo level may also be adjusted with the *Solo Bus Level* option. It is generally recommended that certain latency producing plugins, like time compressors, not be used with this option. Strange behavior may result when combining signals from different routing paths that each run in a different time frame.

➢ **The Solo Bus – Post Fader**

This mode functions as a true console bus solo. This mode leaves all other channels alone and feeds the post-fader signal of soloed channels into a separate mix bus which can be assigned with the *Solo Bus Out Device* option. If this device is your main mix bus, the solo signal will interrupt the main mix output, but not disturb any other channel signals, leaving *Aux Send* headphone feeds intact on other devices. This option also allows you to monitor the output of different devices on any other device, so it makes it possible to send multiple headphone mixes to different hardware outputs and still be able to solo each mix into the main control room device, without the use of external switchers or mixers. The solo level may also be adjusted with the *Solo Bus Level* option. It is generally recommended that certain latency producing plugins, like time compressors, not be used with this option. Strange behavior may result when combining signals from different routing paths that each run in a different time frame.

☞ There is a special link between the solo bus and the *Aux Master Sends*. If an *Aux Master* is assigned to a device out, to be used for a headphone mix, for instance, and the corresponding *Output* track is assigned to itself as a device out, then the *Output* track solo button also acts as the *Aux Master* solo and blends the *Aux Master* data into the solo bus. This allows you to solo and hear the aux mix in the main output device or whichever device is assigned to the solo bus output.

➢ **The Solo Bus Out Device**

This option can be used to route the solo signal to a separate device output to monitors or headphones, leaving the main mix bus intact when using *SAWStudio's* virtual console as a *Live Mode Front Of House* replacement.No other active signal routing is needed on the device... the engine will send blank buffers to this device when no solo switches are active.

➢ **The Solo Bus Level**

This option can be used to adjust the solo level feeding the *Solo Device*. This can also be set by [Right-Clicking] the *MultiTrack Solo* light when the solo mode is set to one of the bus modes.

Live Input Mode (L)

This mode places the entire virtual console into *Live Input* operation. You may also toggle this mode by [Right-Clicking] the *Play* button in the *MultiTrack Top Client Area*, or by [Right-Clicking] the *Options* icon in any VST Synth plug-in window, or in any mixer view by pressing the [L] key. When this mode is active, the cursor shape changes to give visual feedback when in any of the mixer views or the *MultiTrack* view, and all input channels that have been assigned to active input audio devices or have VST Synths patched in will go live. All FX patches are active for all plug-ins to operate. The entire console routing is available to truly turn the virtual console into a live PA Sound Reinforcement console. The latency is completely controlled by the audio device in and out buffer settings. This mode can be very realtime when buffer settings of 4 at 128 or lower are achieved. Settings of 2 at 128 are suggested for realtime operation.

Multiple input channels may be assigned to the same source input device for internally duplicated signal creation. This can be useful when assigning two channels to the same device and setting one channel's Mono selection to *Left* and the other to *Right*. This allows complete separation of input devices as mono signals for use with the *Live Input Mode*. Multiple return channels may also be assigned this way.

⌨☞ You may exit this mode with the [L] key or clicking the [Stop] button on the *MultiTrack* transport in the *Top Client Area*.

☞ Live Input Mode will automatically be restored when *Play* and *Record* modes are stopped if *Live Input Mode* was active at the time the other modes were started.

☞ Many functions remain active while *Live Input Mode* mode is engaged. This makes it much easier to keep this mode active during a recording session with live monitoring and still manipulate the *MultiTrack*. The functions active in *Live Input Mode m*ode are:

Cursor positioning with mouse
Position display
Marking MT areas
Changing MT layers
The RTZ zone
The Home-Key
The End-Key
The Tab-Key
The D-Key
The G-Key
The K-Key
The M-Key
The R-Key
The S-Key
The U-Key
The *-Key
The Select Mode button
The Grid zone
Locate Points
Disabling MT tracks
Clearing all track entries
Entering track labels
Moving MT-Entries
Alt-Grab adjustment of MT-Entries
Changing record tracks with the record meter Track zone
Undo files are created the same as when the engine is stopped

☞ Automation changes In *Live Input Mode* are processed if you jump the cursor down the timeline. This allows *Cue Location Markers* to be used for live mixer automation within songs.

🖐 Note that when using live inputs, plug-ins that withhold buffers or change buffer sizes (such as time compressors and pitch shifters) may cause glitches or even stop the engine due to the extra demands for more data out of realtime.

Other Menus:
File Menu
Edit Menu
Regions Menu
MultiTrack Menu
Process/MixDown Menu
Automation Menu
View Menu
TimeLine Menu
Smpte/Midi Menu
Options Menu
Info Menu

23.7   Process/MixDown Menu

Build Mix To New SoundFile(s)

When using the Build Mix To New Soundfile(s) option, you will be presented with the *BuildMix File Setup* window. This window shows all active output devices and the associated output filenames. The defaulting names will append **_Mix** to the current EDL name. Each device on a multiple device mix will also add **_Dev01**, **_Dev02**... etc onto the end of the name.

If you have labeled your output tracks, those label names will be appended instead. You may change the base name which changes all device names or simply change any one or all device names independently. You may also change *Mono* or *Stereo* file types for each separate device out. The *Samplerate*, *Resolution* and *Dither* are global for all output files.

All File Setup info saves with the EDL so you are ready to build mixes the next time you open the session. When you click *OK*, the mix will start and the progress bar will be displayed. You may press the [Esc] key at any time to cancel the operation, or the [Enter] key to minimize and build the mix in the background. The mix files for this operation will remain outside the program.

When the operation is complete, the first mix file will be loaded into the SoundFile View for auditioning.

The BuildMix function will automatically ignore all Live Device Inputs.

Build Mix To Current Hot Track

The *Build Mix To Current Hot Track* works very similarly to the *Build Mix To New Soundfile(s)* option, and adds the resulting files as *MT Entries* to the *MultiTrack* starting on the current *Hot Track*.

The destination track label(s), if they exist, or track numbers will be appended to the base file name.

When using this option, if multiple output devices are being used, the operation will build the first device data to the current *Hot Track*, and each subsequent device data to each sequential track following.

🖐 Regarding Building A Mix To The Current Track**:** When performing this operation, be sure that the

destination track(s) are empty, because when the resulting data is added to the *MultiTrack*, it will overwrite any existing entries.

The BuildMix function will automatically ignore all Live Device Inputs.

Build Mix To FX Modules

This option is similar to the other *BuildMix* options except that **SAWStudio** does not create any output files directly. It performs the mix and passes all data through the Fx modules allowing Fx modules to create their own special output data as files or as a CD burn.

BuildMix SampleRate Conversion Quality

This option controls the samplerate conversion algorithm used for BuildMix operations. The following sub-menu choices are available:

Lowest [Fastest] - This option is the fastest (very realtime) but can introduce artifacts on certain steady state signals like high frequency sine waves. These artifacts do not occur as easily in real music complex waveforms and therefore can still sound perfectly fine to the human ear.

Low [Fast] - This option introduces some up-sampling and filtering to help remove artifacts, but starts to load the cpu due to the increased number of calculations involved. This option cleans up the artifacts up to about 15k.

Medium [Medium] - This option increases the up-sampling and filter configuration to increase the output quality (clean to 18k) at the expense of higher cpu load.

High [Slow] - This option increases the up-sampling and filter configuration more to increase the output quality (clean to beyond 20k) at the expense of higher cpu load.

Highest [Slowest] - This option increases the up-sampling and filter configuration to deliver the highest output quality (clean to beyond 80k) at the expense of a very high cpu load.

☞ Another option on the *MultiTrack* menu allows separate quality choices for samplerate conversion and vari-pitch being used for realtime playback in the *MultiTrack*.

This setting can be saved with your preferences.

The BuildMix function will automatically ignore all Live Device Inputs.

Export Track(s) to SoundFile(s) - [No Mixer Processing]

This option makes it simple to export solid track wav files from *SAWStudio* to be easily used in any other DAW system. Selecting this option bypasses all mixer channel processing and automation and outputs the source file region data, neatly assembled into a solid wav file. All edits and *SoftEdges* are processed for smooth transitions. This option will translate the source files to the current *MT SampleRate* and *Resolution* settings.

If there are selected tracks, this option process all selected tracks only, otherwise all tracks are processed.

You are given a choice to process all layers or only the top layer. You are also asked to select a location for the exported files as well as a base filename. The base name (usually the edl name) will be appended with the track label and layer number if layers are chosen. It is recommended you create a

folder called *Export* in the project folder to separate all exported files for easy transfer to another system. A separate folder also helps to eliminate problems due to filenames matching existing source files in the current project folder. Duplicate filenames in the same folder will be overwritten.

Export Track(s) to SoundFile(s) - [With Mixer Processing]

This option makes it simple to export solid track wav files from *SAWStudio* to be easily used in any other DAW system. Selecting this option processes the data through the mixer channel controls, patched plugins and automation. This option will also translate the source files to the current *MT SampleRate* and *Resolution* settings.

If there are selected tracks, this option process all selected tracks only, otherwise all tracks are processed.

You are given a choice to process all layers or only the top layer. You are also asked to select a location for the exported files as well as a base filename. The base name (usually the edl name) will be appended with the track label and layer number if layers are chosen. It is recommended you create a folder called *Export* in the project folder to separate all exported files for easy transfer to another system. A separate folder also helps to eliminate problems due to filenames matching existing source files in the current project folder. Duplicate filenames in the same folder will be overwritten.

Other Menus:

23.8   Automation Menu

Clear All Entries On Track(s)

This option clears the track *Automation Buffers* on the current track and reclaims the memory. If the current track is one of a group of selected tracks, then all selected tracks will be affected. Pressing the [Ctrl] key when activating this option will clear automation on all tracks.

Fade Dn/Up to Next Automation Change (F)

This option allows you to add a preset fade when *Automation Mode* is active. Marking an area and choosing this option will build a fade from the starting volume to the ending volume. This fade will ramp up or down according to the relative boundary volumes. If there is no starting volume, it uses Zero dB as a default. If there is no ending volume it uses mute as a default and ramps down. All automation entries will be written with the default slope value.

Fade Up to Next Automation Change (Shft-F)

This option allows you to add a preset fade when *Automation Mode* is active. This option always forces

a fade up regardless of the start and end volumes. If no area is marked, the fades will start at the current cursor position and ramp to the next volume change. If no starting volume is found, it uses mute as a default. If no ending volume is found, it will default to a 2-second ramp, using the default volume values. All automation entries will be written with the default slope value.

Set Default Mute Slope

This option sets the default slope value for mute switches in milliseconds. This controls how fast the switch ramps the level up or down.
This setting can be saved with your preferences.

Set Default Fader Slope

This option sets the default slope value for channel faders in milliseconds. This controls how fast the fader ramps the level up or down.
This setting can be saved with your preferences.

Set Default Pan Slope

This option sets the default slope value for channel pans in milliseconds. This controls how fast the pan ramps to the new level.
This setting can be saved with your preferences.

Change Marked Automation Slope (/)

This option changes the slope value for all entries within the *MT Marked Area* in milliseconds. If the current track is one of a group of selected tracks, then all selected tracks will be affected. Pressing the [Ctrl] key when activating this option will affect all tracks. Pressing the forward slash [/] key on the keyboard number pad will activate this option for the current track or selected tracks and bypass the *Ok/Cancel* prompts. Pressing [Ctrl-/] will activate this option for all tracks and bypass the *Ok/Cancel* prompts.

Pressing the [Shift] key when activating this option will cause the slope to be calculated automatically between each entry within the range, adjusting itself for a smooth transition that just fits the gap between entries. This always guarantees a smooth transition, however it does not guarantee a zipperless transition on sustained low frequency waveforms. In those cases, a fixed slope of 200ms or more is needed to remove the zipper noise.

Disable Automation

This option allows you to disable all automation and reset all channel controls back to the starting default condition. This can be used live during playback for comparison purposes also. You can also activate this option by pressing [Shift-A] or by [Shift-Left-Clicking] the *Aut* button. When this option is active, a red X will be drawn over the *Aut* button.

Other Menus:
File Menu
Edit Menu
Regions Menu
MultiTrack Menu
Mixer Menu
Process/MixDown Menu
View Menu
TimeLine Menu
Smpte/Midi Menu
Options Menu

Info Menu

23.9   View Menu

Full Mixer

Displays the *Full Mixer View* and brings it to the top.

Zoom Mixer

Displays the *Zoom Mixer View* and brings it to the top.

Wide Mixer

Displays the *Wide Mixer View* and brings it to the top.

MultiTrack

Displays the *MultiTrack View* and brings it to the top.

Regions

Displays the *Regions View* and brings it to the top.

SoundFile

Displays the *SoundFile View* and brings it to the top.

Library

Displays the *Library View* window sub-menu and brings the selected window to the top. The following sub-menu choices are available:

- ➢ **1**
- ➢ **2**
- ➢ **3**
- ➢ **4**
- ➢ **5**
- ➢ **6**

File

Displays the *File View* and brings it to the top. While the *File View* is open, other operations are locked out until *File View* is closed.

FX Views

Displays the *FX* sub-menu and brings the selected window to the top. The following sub-menu choices are available:

- ➢ **FX Choices**
  Displays the *FX Choices* list and brings it to the top.

➢ **FX Pre Patches**
Displays the *FX Pre Patches* list and brings it to the top.

➢ **FX Post Patches**
Displays the *FX Post Patches* list and brings it to the top.

➢ **FX F-Res Patches**
Displays the *F-Res Patches* list and brings it to the top.

Automation Gallery

Displays the *Automation Gallery* view and brings it to the top.

Control Track

Displays the *Control Track* view and brings it to the top, and selects the *Control Track* as the active *Hot Track* in the *MultiTrack*.

Video Track

Displays the *Video Viewer* and brings it to the top, and selects the *Video Track* as the active *Hot Track* in the *MultiTrack*.

Midi WorkShop

If the Midi WorkShop add-on has been installed, this option will be active and will display the Midi WorkShop and bring it to the top. Otherwise this option will be grayed out.

Other Menus:
File Menu
Edit Menu
Regions Menu
MultiTrack Menu
Mixer Menu
Process/MixDown Menu
Automation Menu
TimeLine Menu
Smpte/Midi Menu
Options Menu
Info Menu

23.10 TimeLine Menu

Time Mode

Sets the position readout display information to standard time.

Smpte/Mtc Mode

Sets the position display information to SMPTE / MTC time.

Tempo Mode

Sets the position display information to measures, bars and beats.

Sample Mode

Sets the position display information to Sample count.

Set Zero Locate Point (Shift-Home)

Sets the current cursor position to be the new zero reference point. All position displays will read zero until this point is passed. Functions that return to the zero position will return to this point instead of actual zero on the *MultiTrack*.

Clear Zero Locate Point (Ctrl-Home)

Resets the zero reference point back to absolute zero on the *MultiTrack*.

Tempo Settings

This option controls the settings which define the tempo display. The following sub-menu choices are available:

➢ **Set Tempo**
Allows you to set the default session tempo from 20.000 to 350.000 beats per minute.

➢ **Set Tempo To Marked Measures**
Allows you to calculate a reference default session tempo based on a *Marked Area* which defines a preset number of measures according to waveform display data. When activating this option, you will be prompted for the number of measures your *Marked Area* defines.

➢ **Set Time Signature**
Allows you to set the default session time signature such as 4/4, 3/4/, 7/8, etc. The numerator may range from 1 to 16, and the denominator may be 2, 4, 8, or 16.

➢ **Set Tick Resolution**
Allows you to set the default session tick resolution from 48 to 999 ticks per quarter note.

TempoMap Settings

This option opens a sub menu allowing you to change tempo parameter values at specific positions along the timeline, thus creating a TempoMap. This TempoMap saves with the edl session files. When not in *Select Mode*, you may use the [Shift-Right-Arrow] or [Shift-Left-Arrow] key to jump to the next or previous TempoMap entry. The following sub-menu choices are available:

➢ **Set Tempo At Position**
Allows you to set a new tempo from this position forward to the end of the timeline or the next TempoMap entry. This entry is allowed only on beat boundaries.

➢ **Set Tempo To Marked Measures At Position**
Allows you to set a new tempo calculated from a marked area from this position forward to the end of the timeline or the next TempoMap entry. This entry is allowed only on beat boundaries.

➢ **Set Time Signature At Position**
Allows you to set a new time signature from this position forward to the end of the timeline or the next TempoMap entry. This entry is allowed only on measure boundaries.

➢ **Set New Measure Count At Position**
Allows you to set a new measure count from this position forward to the end of the timeline or the next

TempoMap entry. This entry is allowed only on measure boundaries. You may use this to restart the measure count at any value from 1 up to the current measure count. To clear a previously changed measure count, simply enter the original sequential measure count value, which is the default value displayed in the dialog.

➢ **Clear TempoMap At Position**
Allows you to clear the current TempoMap entry. This entry is allowed only on an exact TempoMap entry boundary.

➢ **Clear Entire TempoMap**
Allows you to clear the entire TempoMap.

Snap-To-Grid (G)

This option toggles the snap-to-grid on and off. Pressing the [G] key operates this option also. When this option is on, two vertical bars will surround the current time mode display text under the time display area, and the cursor will snap to invisible grid points based on the grid size set for each timeline mode. Moving entries will also snap along the grid points forcing the entries to start on an exact grid point. This option saves with the preferences.

[Right-Clicking] in the *Grid Zone* will toggle the *Grid Mode* on and off. [Left-Clicking] the *Grid Zone* will popup the grid settings and toggle the *Grid Mode* on if it is currently off.
The [Ctrl-Insert] option of the *Regions* view (which adds the selected Region repeatedly along a marked area) will also respond to the *Snap-To-Grid* mode making it easy to build a click track from a small *Region* of data.

☞ When using the *Snap-To-Grid* feature while [Ctrl-Inserting] a region in a *Marked Area*, the length of the region is automatically truncated to the grid length forcing all entries to add properly on the next grid point regardless of whether the region length is too long to fit. This operation tracks tempo map changes. This makes building a click track to tempo an extremely simple procedure.

Auto Snap-To-Grid In Select Mode

When this option is active, the snap-to-grid will be turned on every time *Select Mode* is entered, and turned off when *Select Mode* is exited. If the grid was active prior to entering *Select Mode*, it will be left undisturbed. This option saves with the preferences.

Auto Snap-To-Grid When Shifting Entries

When this option is active, the snap-to-grid will be turned automatically when grabbing and shifting *MT Entries*, and turned off when the entry is released. If the grid was active prior to entering *Select Mode*, it will be left undisturbed. This mode leaves the cursor free to move without constraints, but forces all *MT Entry* moves to snap to the grid. This option saves with the preferences.

Grid Settings

This option opens a sub menu allowing you to set grid sizes for each of the *TimeLine Modes*. These sizes save with the preferences. [Left-Clicking] in the current time mode display area (when *Snap-To-Grid* is active and the two vertical bars are displayed) links directly to the associated *TimeLine Grid Settings* option, without the need to go through the menus. The following sub-menu choices are available:

➢ **Set Time Grid**
➢ **Set Smpte Grid**
➢ **Set Tempo Grid**
➢ **Set Samples Grid**

Other Menus:

23.11 Smpte/Midi Menu

Smpte/Mtc Format

This option allows you to choose a *Smpte/MTC Format* for your project. This setting saves with the EDL. The following sub-menu choices are available:

➢ **60 Non-Drop**
➢ **59.94 Non-Drop**
➢ **30 Non-Drop**
➢ **30 Drop**
➢ **29.97 Non-Drop**
➢ **29.97 Drop**
➢ **25**
➢ **24**
➢ **23.976 Non-Drop**

Smpte/Mtc Sync

This option allows you to select a method to synchronize **SAWStudio** to other software applications or hardware devices.

If any of the SMPTE options are active, the *MultiTrack* start position will be adjusted to fall on the next exact frame boundary when playback or a *BuildMix* operation is started. If any of the MTC options are active, the *MultiTrack* start position will be adjusted to fall on the next exact *even* frame boundary.

These settings save with individual EDL files.

The following sub-menu choices are available:

➢ **Generate Smpte Sync**
Causes **SAWStudio** to generate *Smpte LTC* timecode as the master to any selected stereo audio device out, with no additional SMPTE hardware required. The device is selected in the *Sync Device Setup* option under the *Options* menu. The software generated timecode is extremely precise and maintains exact sync with the audio device clock. The *Output Chan* controls for the specific device out allow you to route and adjust the timecode data level. The *Output Chan* will be automatically labeled and assigned as a direct device out. This option will also output a SMPTE stripe file as part of the *BuildMix* operation.

➢ **Generate Mtc Sync**
Causes **SAWStudio** to generate *MTC MIDI* timecode as the master through any selected MIDI out

port. The port is selected in the *Sync Device Setup* option under the *Options* menu. The software generated MTC code can then be routed back to a MIDI In port on the same computer or to another computer or hardware sequencer to lock MIDI sequencer playback to the *MultiTrack* playback.

➢ **Generate Smpte And Mtc Sync**
Causes SAWStudio to generate both *SMPTE LTC* and *MTC MIDI* timecode to their respective output devices.

➢ **Trigger From Smpte Sync**
Not yet active.

➢ **Trigger From Mtc Sync**
This option sets the system ready to read incoming timecode for triggered *MultiTrack* playback, or recording if any record meters are active. This mode only looks for external sync when you first press the [SpaceBar] or [Return] key. The *Sync Light* flashes yellow notifying you that the system is waiting for external timecode to start the *MultiTrack* operation. You may press the [SpaceBar] or [Return] key again to cancel the waiting mode. You may also override the waiting by [Right-Clicking] or pressing any play or record buttons to immediately begin the operation.

The system reads the incoming timecode, skipping the *Delay Frame Count* number of frames, then immediately jumps the *MultiTrack* position to the proper cue point, and adjusts the position by the *Trigger Advance* and *Latency Adjust* values, pre-loads the data and starts synchronized playback or record when the timecode reaches the cue position.
This is a one time operation. When the *MultiTrack* is stopped, you are free to edit and play without the external sync until you initiate the waiting sequence again with the [SpaceBar] or [Return] key.

When record meters are open, the system automatically activates a record operation and punches in at the cue point. Depending on the *Sync Trigger Record = SRP* option, SRP mode is engaged. If you have a marked area, SRP is always engaged and an auto punch-in and out will occur in that section.

You may also [Left-Click] on the *Sync Light* to temporarily toggle the *Trigger Mode* on and off. The system remembers the mode it was in when it toggles off and resets the same mode when it toggles on.

➢ **Chase Trigger From Smpte Sync**
This option functions exactly like the *Trigger From Mtc Sync* operation, but allows for more unattended operation. The *Waiting For Sync* mode is started automatically, with no intervention from the user, and when the *MultiTrack* is stopped, the *Waiting For Sync* mode is automatically activated again. You are still free to edit and play without the external sync even while the system is waiting by using any of the manual override play and record operations.

➢ **Mtc Trigger Sync Advance**
Determines how many seconds of preload time is added when determining the trigger point. On fast systems with smaller session loads, you can set this value to 2 or 3 seconds. On dense sessions which take a few seconds to pre-load before playback, you should set this value to 4-6 seconds. If this value is set too low, the session will miss the trigger point and simply drop out of lock and stop the operation. This value saves with the preferences.

➢ **Mtc Trigger Sync Delay Frame Count**
Determines how many frames are thrown away when the first sync signals arrive. This allows you to adjust for skewing problems as a tape deck with sync code comes up to speed or a sync generator that creates initial noise or spikes when first started, before settling down to a steady code output. This value saves with the preferences.

➢ **Mtc Trigger Sync Latency Adjust**
Allows you to compensate for MIDI latency by offsetting the trigger point by a certain number of sub-frames. This allows you to adjust for inherent system delays and gain a more accurate sync. This value

saves with the preferences.

➢ **Sync Trigger Auto Format Detect**
Activates a format auto detection function when sync is first received. If this option is on, whenever a new format is detected in the incoming timecode, the format is changed to match and the *MultiTrack* is re-cued. If this option is off, you may preset the format and it will not be changed even when timecode is received in a different format. This can be useful for receiving 29.97 MTC code for instance, because there is no provision in the MTC protocol to define this format. This value saves with the preferences.

➢ **Sync Trigger Auto Stop Detect**
Activates the auto stop detection function. If this option is on, whenever incoming sync trigger timecode is lost for any reason, the program disengages any active *MultiTrack* operation. This value saves with the preferences.

➢ **Sync Trigger Record = SRP**
This option initiates an SRP record operation whenever active record meters are present and a trigger sync function is engaged. This value saves with the preferences.

Smpte/Mtc Start Offset

This option allows you to set the *SMPTE/MTC Start Offset* time for the *MultiTrack* session. When a start offset is set, the entire *MultiTrack* timeline will be shifted so that the home position is then equal to the start offset value, and all lesser values are no longer visible. When selecting this option, the *Enter Smpte* dialog box is displayed. Set the desired time and click *OK*.

☞ While in Smpte Mode you may [Left-Click] in the *Position Readout* in the *MultiTrack Top Client* area to display the *Input Smpte Dialog Box*. Entering a Smpte position will jump the *MultiTrack* cursor to that position when the dialog box is closed without canceling.

☞ For more information on using the *Enter Smpte* dialog box, see the *Working with Smpte/Mtc TimeCode* helpfile section.

Midi-Control In Active

This option activates the *MIDI-Control* input functions. This allows external hardware MIDI controller devices to send commands to **SAWStudio** controlling many mix and transport operations. This option requires a MIDI device to be setup in the *Midi Device Setup* option under the *Options* menu.
This setting can be saved with your preferences.

Midi-Control In Filter

This option filters incoming signals from MIDI controllers or mixers. The commands that are filtered are ignored. The following sub-menu options are available:

➢ **Faders Off**
➢ **Mutes Off**
➢ **Solos Off**

This setting can be saved with your preferences.

Midi-Control Out Active

This option activates the *MIDI-Control* output functions. This allows **SAWStudio** to send MIDI controller commands to external Midi devices for control and feedback of many mix and transport operations. This option requires a MIDI device to be setup in the *Midi Device Setup* option under the

Options menu.

This setting can be saved with your preferences.

Midi-Control Out Filter

This option filters outgoing signals to MIDI controllers or mixers. The commands that are filtered are not sent to the controllers. The following sub-menu options are available:

➢ **Faders Off**
➢ **Mutes Off**
➢ **Solos Off**

This setting can be saved with your preferences.

Other Menus:
File Menu
Edit Menu
Regions Menu
MultiTrack Menu
Mixer Menu
Process/MixDown Menu
Automation Menu
View Menu
TimeLine Menu
Options Menu
Info Menu

23.12 Options Menu

Audio Device Setup

This option opens a dialog of options to setup your audio device hardware and settings which control audio playback and real-time latency. The following settings are available in the *Audio Device Setup* dialog box.

Up/Dn Arrow Zone
Switches the display of *Wave Devices* between the first 12 and the second 12.

Out/In
Switches the display of *Wave Devices* between *Output* devices and *Input* devices.

Reset
Resets all *Wave Devices* of the displayed type to *None*.

Cancel
Cancels all changes and exits the dialog box.

Ok
Accepts changes and exits the dialog box.

Wave Devices
Assigns a audio device driver to a specific *Wave Device* in **SAWStudio**. These *Wave Devices* correspond directly to *Output Channels* on the mixing console.

Out PreLoad Buffers
This setting controls how many buffers of data are preloaded to the audio device before playback begins. This affects the response time of live controls such as mutes, solos, faders, etc. If this setting is too low for your system, audio stuttering or glitching during playback may occur, especially when minimizing or sizing windows, etc. on a complex session. This setting combines with the *Out Buffer Size* setting to determine the final latency.

Use the *Out PreLoad Buffers* listbox to choose a setting between 1 and 10. Lower values will give you faster response times.

Out Buffer Size
Use the *Out Buffer Size* listbox to choose from eight different settings ranging from 64 to 4096 samples.

The combination of the *Out Buffer Size* and the *Out PreLoad Buffer* value control the latency of the real-time engine. Lower latency values give live, instantaneous response and the feel of a real physical console when adjusting controls and switches. Try different combinations to obtain the lowest comfortable working range while still not overloading your CPU. Good starting combinations are 4 to 6 buffers at 1024 size. If your system can handle it, 3 or 4 buffers at 512 size feels just like physical hardware.

☞ Some combinations that result in the same low latency value will cause the system to glitch while other combinations will perform comfortably. For instance, 2 buffers at 1024 size might cause static or glitching on certain audio device, but the same latency value can be obtained by using 4 buffers at 512 size, and the audio device may play back perfectly.

In PreLoad Buffers
This setting is available when the *Audio Device Setup* window is toggled to the *In Device* selections.

This setting controls how many blank buffers are preloaded to the audio device before recording begins. This gives the system some breathing room while other events are stealing CPU time, to keep the recording from glitching. If this setting is too low for your system, audio stuttering or glitching during recording may occur. This setting combines with the *In Buffer Size* setting to determine the final latency.

Use the *In PreLoad Buffers* listbox to choose a setting between 1 and 10. Higher values decrease the chance of glitched recordings.

In Buffer Size
This setting is available when the *Audio Device Setup* window is toggled to the *In Device* selections.

Use the *In Buffer Size* listbox to choose from eight different settings ranging from 64 to 4096 samples.

This setting controls the response time of the recording meters. Lower values create a more real-time display. If using values equal to or below 1024, a suggested setting for the *In PreLoad Buffer* value would be between 6 and 10. The higher buffer values do not affect the visible response of the meter.

☞ If the buffer size is set too low, audio static and/or glitching might occur, especially during heavy CPU loads such as SRP Recording. A good starting combination might 8 buffers at 1024 size.

These settings can be saved with the preferences.

Midi Device Setup

This option opens a dialog of options to setup your Midi devices for hardware controller devices. The following settings are available in the *Midi Device Setup* dialog box.

Reset
Resets all *Midi Devices* to *None.*

Cancel
Cancels all changes and exits the dialog box.

Ok
Accepts changes and exits the dialog box.

Midi In/Out Devices
Assigns a driver to a *Midi In* and *Out* device for receiving and sending Midi controller information to external hardware controller devices.
These settings can be saved with the preferences.

Sync Device Setup

This option opens a dialog of options to setup your Sync devices for SMPTE or MIDI MTC synchronization. The following settings are available in the *Sync Device Setup* dialog box.

Reset
Resets all *Sync Devices* to *None.*

Cancel
Cancels all changes and exits the dialog box.

Ok
Accepts changes and exits the dialog box.

MTC In/Out Devices
Assigns a driver to an *MTC In* and *Out* device for receiving and sending MIDI MTC synchronization code.

SMPTE In/Out Devices
Assigns a driver to a *SMPTE In* and *Out* device for receiving and sending SMPTE synchronization code. The *SMPTE Out* device that you select must be one of the *Audio Out* devices set up in the *Audio Device Setup*. For example, if you have a 16-channel sound card, your *Audio Device Setup* would list devices 1-8 (stereo devices - 2 channels per device.) Selecting *Device 8* for the *SMPTE Out* device would send SMPTE out channels 15 and 16 of your sound card.

These settings can be saved with the preferences.

File Path Setup

This option sets up various default paths for session, configuration, data and other files used within the *SAWStudio* environment. The following settings are available in the *File Path Setup* dialog box.

Click in the desired path you wish to change and type the new path, or click the *Browse* or *Current Path* zones to select a new path.

Browse
Opens a browse dialog for navigating to the folder of your choice.

Current Path
Inserts the path currently being used for the specified choice*.*

Reset
Resets all paths to internal defaults.

Cancel
Cancels all changes and exits the dialog box.

Ok
Accepts changes and exits the dialog box.

Session EDL Path
Sets the default path used for *Session EDL* files.

SoundFile Playback Path
Sets the default path used for playback *SoundFiles*.

SoundFile Record Path
Sets the default path used for recording new *SoundFiles*.

☞ Leaving this path blank allows the automatic record path assignment to match your current project path assignment, thereby keeping all project files together in one location. This method is recommended for project management and organization.

Mix Template Path
Sets the default path used for *Mix Template* files.

Alternate PeakData Path
Sets an alternate path for PeakData files when they cannot be written to the source *SoundFile's* path, for instance when the source *SoundFile* resides on a CD-ROM.

EDL Undo Path
Sets the default path for EDL undo files.

☞ Leaving this path blank allows the automatic undo path assignment to match your current project path assignment, thereby keeping all project files together in one location. This method is recommended for project management and organization.

☞ Another option is to enter a sub-folder of the EDL project folder by starting the folder name with a backslash character. For example, entering \Undo will force all undo files for each session to be saved in a sub-folder named Undo under the session folder. This helps keep the session folder better organized and easier to maintain. If you decide to use this feature, you must manually create the same folder under existing session folders and copy all existing undo files for current sessions into this folder in order for them to be automatically available. New sessions will automatically create this folder when the first undo file is created.

SoundFile Undo Path
Sets the default path for *SoundFile* undo files.

These settings can be saved with the preferences.

Audio Driver Model

This option displays a choice of driver models. The following sub-menu options are available:

➢ **Standard MultiMedia**
This choice is the common Windows MultiMedia driver mode.

➢ **Hi Performance MultiMedia**
This choice eliminates certain redundant driver function calls during playback/record operations for slightly higher performance possibilities. Not all sound cards support this mode.

➢ **24 Bit WDM Compatible MultiMedia**

This choice allows full 24 bit operation for newer sound cards which use only the WDM driver model. Previous Multimedia compatibility would only work in 16 bit mode.

➢ **DWave Protocol**

The *DWave Protocol* is SAWStudio original driver model offering much more direct communication between the sound card and the application for very high performance possibilities. This mode is currently still under development.

➢ **Asio Protocol**

Asio Protocol should allow low buffer latencies to be attainable on most machines if your audio card has ASIO drivers. When this mode is engaged, all input and output devices supported by the ASIO driver are setup as default in the *Audio Device Setup* section. If you're not using all inputs and outputs, you might obtain slightly better performance by clearing unused devices from the *Audio Device Setup* section. The ASIO driver dictates the buffer size to the host application. Therefore, when the ASIO protocol is engaged, the buffer size option in the *Audio Device Setup* section reflects the size set by the driver, but is not adjustable in this location. If the ASIO driver requests a buffer size that is not an even power of 2 (i.e. 64, 128, 256, 512, etc.) performance may be slightly impaired. In this situation, try using the *ASIO Driver Setup* option, and see if the driver allows you to adjust the buffer size in the driver control panel to an even power of two for best performance.

Whenever the *Asio Protocol* mode is selected, the ASIO Data Format Type will be displayed on the *Asio Protocol* menu option line. This information will display the Integer or Floating Point data format type that the driver uses.

➢ **Asio Driver Setup**

This option allows access to the ASIO Driver Control Panel settings if the driver supports that option. If any driver settings are adjusted, *SAWStudio* will automatically reinitialize the driver link and reset all applicable data buffer settings. If settings are changed, some ASIO drivers will only issue a reset request once playback is started. In this case, *SAWStudio* will handle the re-initialization at that time and there will be slight delay before playback begins.

➢ **Asio Skip First Buffer PreLoad**

This option can be used with certain ASIO drivers that send an extra callback at the time of engine start which would normally cause the first playback buffer to be thrown away. This option saves with the preferences.

☞ You can determine whether you need this option with the following test: Create a track of audio on track 1 containing a few metronome clicks or kick drum accents. The first accent should be at the exact beginning of the track. Set the cursor at zero and start playback. If your driver requires this option, you will notice the attack of the first accent is missing and you will only hear the trailing decay. You can enhance this test by setting the ASIO driver latency size to 1024 or more samples. If the attack is missing, activate this option and try again. This should fix the problem. The Echo Layla driver requires this option active. The current Soundscape Mixtreme ASIO driver also needs this option. If you update drivers in the future, redo this test in case the driver code has been altered in this regard.

➢ **Record LoopBack Latency Adjust**

This option can be used to compensate for latency values resulting from a loopback recording through your soundcard and converter chain. You can test and set this option by playing back a single track of transient audio material, like a drum track, and looping the playback signal around and back to the soundcard inputs and recording the same signal on the adjacent track. In an ideal situation, the two signals should line up perfectly when looked at in a zoomed-in display. In reality you will probably see the recorded signal is late by a certain number of samples. You can zoom in and mark the difference between two identical transients, set the timeline to *Sample Mode* and notice the value in the *Marked Area* readout display. Set this value into this *Latency Adjust* option and then try the test again. Adjust this value so that the resulting recordings are perfectly lined up. You should then be able to change

buffer sizes and not affect the accuracy of the recordings. If you change external converters or soundcards or even driver models, you should reset this value, or set it back to zero. If set incorrectly, you could actually cause the resulting recordings to be placed in front of the original source material and upset recording sync. It is arguable whether this test is an accurate representation of real recording sync for live overdubbing, but the option is here if you are so inclined to use it. If not interested in using it, make sure to set the value to zero.

TCP/IP Options

This option displays a choice of TCP/IP options. The following sub-menu options are available:

➤ **Activate TCP/IP Host/Master Mode**
This option allows the program to operate as the *Host/Master* machine across a standard Ethernet 100 base-T network. Activating this option displays the *Host/Master* signature on the main window title bar and allows the program to accept up to 8 *Remote* or *Slave* machine connections, in any combination.

➤ **Activate TCP/IP Slave Mode**
This option allows the program to operate as a *Slave* machine that can sync to another machine running *SAWStudio* as the *Host/Master*. The *Slave* machine will link and synchronize to the *Master* machine when a connection is established.

➤ **Activate TCP/IP Video Slave Mode**
This option allows the program to operate as a *Video Slave* machine that can sync to another machine running *SAWStudio* as the *Host/Master*. The *Video Slave* machine will link and synchronize to the *Master* machine when a connection is established and force the video viewer position to directly sync and chase with the Host Machine playback position, ignoring the local soundcard playback position.

➤ **Activate TCP/IP Remote Mode**
This option allows the program to operate as a *Remote* machine that can control another machine running *SAWStudio* as the *Host/Master*. The *Remote* machine will link and synchronize to the *Master* machine when a connection is established.

➤ **TCP/IP Port**
This option allows you to enter the network port to be used for network communications. The *Master* and *Slave/Remote* machines must use the same port. There is a list of possible available ports in the dialog for setting this value.

➤ **TCP/IP Host Computer Name/Address**
This option allows you to enter the network computer name or TCP/IP address for the *Host/Master* machine. This option is only used for the *Slave* and *Remote* machines.

➤ **TCP/IP Slave Sync Latency Adjust**
This option sets a latency plus or minus offset in samples to compensate for delays in the network transmission and differences in sound card latency. This value is used to move the playback starting position to an earlier or later value than actual. Network transmission delays are not exactly repeatable, but this value can help tighten the sync to within a few dozen samples.

➤ **TCP/IP Slave To Host Disable Warning Messages**
This option blocks any warning message dialogs from being sent from TCP/IP Slaves to the Host when active. This then allows a single Slave machine to have trouble loading a session without stopping the Host and other Slaves from continuing on in a Show Control setup while waiting for a message dialog reply. This option saves with the preferences.

➤ **TCP/IP Host-Remote Receive HotTrack Link**
This option toggles the reception of the hottrack link between the Host and Remote machines. If the option is active on the host, the host chases any hottrack changing happening on the remote machines. If the option is active on a remote, the remote chases any hottrack changing happening on

the host machine. This can be useful for a visual reference of changes being made from the connected machines. If you are using the console as a PA mixer and are controlling from the host and remote machines at the same time, you may find it nice to leave this option off so that the individual machines are not jumping around from actions taken on the connected machines.

Control-Track Midi Output to Comm1

When activated, this option allow the Control-Track Midi commands to be routed to Comm (serial) port 1 along with or instead of the Midi Ports. This allows control of RS232 type theatre equipment direct from SAWStudio. The Comm Port settings can be adjusted with the Comm Port Setup option.

Control-Track Midi Output to Comm2

When activated, this option allow the Control-Track Midi commands to be routed to Comm (serial) port 2 along with or instead of the Midi Ports. This allows control of RS232 type theatre equipment direct from SAWStudio. The Comm Port settings can be adjusted with the Comm Port Setup option.

Comm Port Setup

This option displays the Comm port settings popup menu. You may change any combination of settings, then click anywhere outside the menu to close it.

Use Region PeakData Memory Caching

When activated, this option caches all used *Region PeakData* info to RAM. This greatly improves *MultiTrack Waveform* drawing speed. This option defaults to *On*.
This setting can be saved with your preferences.

Use Region Memory Caching

When activated, this option attempts to load all *Regions* used in the *MultiTrack* into RAM in the background while you work. During playback, this data no longer needs to come from the disk drive, thereby delivering potentially higher performance. The data is still assembled live from RAM during playback, thereby still maintaining its live, non-destructive editing status. It is not pre-mixed or pre-processed. This does require and use massive amounts of RAM if activated.

This setting can be saved with your preferences.

✋ **Regarding Using Region Memory Caching:** Using this option with less than 768 Mb of RAM is not recommended, as this could cause Windows to excessively swap needed multitrack and display buffers to the virtual memory swap file actually causing a major reduction in performance. You may experiment with this setting on smaller sessions. In Windows NT/2000/XP, open the Task Manager and observe the MEM Usage in the Performance tab. If the usage is greater than 50-75% of your total available physical RAM, then performance may suffer.

Auto EDL Undo

This option toggles automatic undo file creation on and off. When this option is on, undo files are created in the background allowing for session undo manipulation. When this option is off, no undo files are being created, thereby making undo functions ineffective.

☞ You may wish to turn *Auto EDL Undo* off if you are needing more efficiency on a slower machine, as creating undo files uses CPU resources.

Auto Zero Cross

When this mode is active, marking and splitting functions will perform an automatic zero cross detection. This will snap the cursor to the nearest zero cross point before performing the operation. This option saves with the preferences.

Auto Record SoftEdge

This option allows you to set a *SoftEdge* value to be applied automatically to every record region entry dropped onto the *MultiTrack*. If the recording drops into the middle of existing regions, both the in and out splices will receive the auto *SoftEdge*. Setting this value to 0 ms deactivates this feature. This option saves with the preferences.

Auto Record / Srp Latch
When this option is activated, clicking the SRP button will also latch and engage the Rec button. Pressing the [Shift-Key] when engaging the SRP button will override this option. When this option is not engaged, the SRP button works independently UNLESS the [Shift-Key] is also pressed. This option saves with the preferences.

Auto Audio-Monitor Switching Protocol

This option allows support for various proprietary monitor switching protocols to be selected, and allows **SAWStudio** to control automatic punch-in monitor switching for various sound cards that have implemented a proprietary method of such control. The following sub-menu options are available:

➢ **Off**
➢ **RME ZLM Protocol**

This choice is for use with RME sound cards. This option saves with the preferences file.

➢ **Tape Style - Playback / Input Switching**
➢ **Tape Style - Input Always On**

These features allow full live input monitoring direct from device inputs during recording. This does require low latency operation capabilities from your system. Buffer settings of 3 x 128 or less are generally very good.

The *Tape Style – Playback / Input Switching* option will switch between the *Stereo* or *Mono Device* input and the *MultiTrack* playback automatically when you punch-in record. In *Rec/Rdy* or *Rec* mode, the device input will be routed through the record channel console module. When *SRP* is engaged, the *MultiTrack* playback will be the monitor source and when the *Rec* button is engaged to punch-in, the monitor source will switch to the device input, exactly like most professional multitrack tape decks.

The *Tape Style – Input Always On* option works similarly. In *Rec/Rdy* or *Rec* mode, the device input will be routed through the record channel console module. When *SRP* is engaged, the *MultiTrack* playback will be mixed with the device input allowing you to monitor both sources together. When the *Rec* button is engaged to punch-in, the monitor source will switch to the device input only, muting the *MultiTrack* playback signal.

These exciting engine features make recording and monitoring possible completely in the virtual environment. It's now very easy to setup headphone mixes using the pre-aux sends and even blend reverb into the phones mixes without the need for any external mixing hardware.

These features do not require you to use *Live Mode* console inputs, and therefore keep the recording process much easier to setup and manipulate. Each console input source is kept as *MultiTrack* and the monitoring now comes direct from the device inputs selected in the record meter input source zone.

You can also use this type of monitoring when using *Live Input* mode console inputs if desired. In this case, all live input channel assignments will automatically switch to *MultiTrack* playback for all tracks

that have region data on them. Those tracks with live input assignments which are armed for record will mute the playback when record is punched in. If the *Tape Style – Input Always On* option is active, the live input channels will stay active and blend with the *MultiTrack* track playback until record is punched in.

The *Pre Patch Signal Flow* routing will be handled correctly in that, if the recording point is post *Eq* and *Dynamics*, the monitor playback will be post of the processing also, so the playback data will not be double processed. If the recording point is pre *Eq* and *Dynamics*, the monitor playback will route pre processing so it sounds the same as when monitoring the input source.

SoundFile Fixed Position Scroll Mode

When this mode is active, *SoundFile View* playback will center the playback position and live scroll the entire waveform display past this fixed play position. When zooming in below zoom level 8, the display will resemble a real-time oscilloscope.

Force Single CPU

This option allows you to force the MultiTrack engine back to one CPU, if desired, for testing and comparing, or to allow other applications full use of the second processor. This option will be grayed out and unavailable on single CPU machines.

Force High Priority Class

This option allows for safely increasing the process priority internally to High priority. You may force the priority of the program to be raised above normal for a possibly more robust performance level. Be careful with this, however, because you will force SAWStudio above other system processes and if the program locks for some reason, you may not be able to escape, even from the Task manager. This can be useful, however, for stopping interference from other background services and processes and may allow smooth audio operation at very low latency settings.

Force RealTime Priority Class

This option allows for safely increasing the process priority internally to RealTime priority. You may force the priority of the program to be raised above normal for a possibly more robust performance level. Be careful with this, however, because you will force SAWStudio above other system processes and if the program locks for some reason, you may not be able to escape, even from the Task manager. This can be useful, however, for stopping interference from other background services and processes and may allow smooth audio operation at very low latency settings.

Message/Dialog Box Position

This option allows control over message and dialog box placement on dual screen monitors. The following sub-menu options are available:

➢ **Top Left**
➢ **Top Center**
➢ **Top Right**
➢ **Center Left**
➢ **Center**
➢ **Center Right**
➢ **Bottom Left**
➢ **Bottom Center**
➢ **Bottom Right**
➢ **Follow Mouse**

This option saves with the preferences.

Monitor Configuration

This option allows the program to keep popup messages and dialogs that follow mouse positions from splitting across the gap between monitors. The following sub-menu options are available:

➢ **Single**
➢ **Dual Left To Right**
➢ **Dual Top To Bottom**

This option saves with the preferences.

Max Screen Resolution Override

The program attempts to determine the full virtual screen resolution across all monitors. This will not work on all systems or video card drivers, so the reported resolution can be overridden if needed, and new values can be manually entered and saved with the preferences. This option allows you to set a new max screen resolution which will control the limits of all window positions.

Other Menus:
File Menu
Edit Menu
Regions Menu
MultiTrack Menu
Mixer Menu
Process/MixDown Menu
Automation Menu
View Menu
TimeLine Menu
Smpte/Midi Menu
Info Menu

23.13 Info Menu

Help Contents

This option opens the *SAWStudio HelpFile*.

Latest Release Notes

This option opens the *Latest Release Notes* file. All update enhancements and bug-fixes will be listed here. Check this file every time you receive a new version update.

About

This option displays the latest version information about the program.

Other Menus:
File Menu

24   Quick Reference Guide

24.1   Quick Reference Guide

For a full-size copy of this Quick Reference Guide, open the SAWStudio.pdf manual included on the original program disk, or download the manual from our website at www.sawstudio.com.

For mouse techniques, the following conventions will be used:

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 clicking the right mouse button quickly once.

Quick jump links:
Navigation
Global
MultiTrack View Functions
SoundFile View Functions
Regions View Functions
Library View Functions
Effects View Functions
Automation Gallery View Functions
Control Track View Functions

Navigation Techniques

CONSOLE CONTROLS (top)

➔ **Adjust level of knob or fader**
  ⏣   Left-Drag control

➔ **Reset knob or fader to default setting**
  ⏣   Left-Right Click control

➔ **Adjust knob or fader one value at a time**
  ⏣   Left-Click arrows beside control (if applicable)

➔ **Toggle switches on and off**
  ⏣   Left-Click desired switch

➔ **Adjust display/control combo box one value at a time**
  ⏣   Left-Click direction arrows on the control

➔ **Scroll display/control combo box values**
  ⏣   Left-Hold, push up or down

➔ **Reset display/control combo box value to default setting**
  ⏣   Left-Right Click control

➔ **Open value selection pop-up menu**
  ⏣   Left-Click small triangle in upper left corner of display window (if applicable)

➔ **To select value from pop-up list**
  ⏣   Left-Click desired value

➔ **Control how various views link together during navigation**
  M   Mixer | Navigation Links

FULL VIEW MIXER WINDOW (top)

➔ **Activate fader, mute or solo switches**
  ⏣   Left-Click switch

➔ **Select Hot Channel**
  ⏣   Left-Click any non-control area

➔ **Link to exploded view of channel**
  ⏣   Double-Click colored link button or non-control area of desired channel

➔ **Close exploded view**
  ⏣   Left-Click outside of exploded view Or
      Right-Click inside of exploded view

➔**Link to wide mixer view**
　🖰　Shift-Right-Click on desired channel

➔**Horizontal smooth scroll**
　🖰　Left-Drag to left or right

➔**Horizontal single channel scroll**
　🖰　Left-Click near left or right edge of window, or inside of the mixer label area
　⌨　Left/Right Arrow keys

➔**Horizontal page scroll**
　⌨　Shift-Left/Right Arrow keys

➔**Jump to first channel**
　⌨　Ctrl-Left Arrow key Or Home key

➔**Jump to last channel**
　⌨　Ctrl-Right Arrow key Or End key

➔**Scroll the view to the next or previous console section (Inputs, Returns, Outputs)**
　⌨　Shift-Ctrl-Right Arrow key Or Left Arrow key

➔**Vertical scroll**
　🖰　Right-Hold, push mouse up or down
　⌨　Up/Down Arrow keys

➔**Fast vertical scroll**
　⌨　Shift-Up/Down Arrow keys

➔**Jump to top of module**
　⌨　Ctrl-Up Arrow key

➔**Jump to bottom of module**
　⌨　Ctrl-Down Arrow key

➔**Navigate the MuAltiTrack entries while keeping the current mixer view window active.**
　⌨　Tab key

➔**Popup channel listing**
　🖰　Right-Hold, push mouse left or right

➔**Select channel from channel listing**
　🖰　Left-Click desired channel

➔**Mark a single channel**
　🖰　Left-Click channel label area

➔**Mark contiguous channels**
　🖰　Left-Drag channel area

➔**Mark non-contiguous channels**
　🖰　Left-Click channel label area for all desired channels

➔**Mark a range of channels**
　🖰　Alt-Left-Click marks from last toggled channel to current channel

➔**Unmark single channel**

🖰   Left-Click marked channel label area

➔**Unmark all channels**
🖰   Right-click in any channel label area

➔**Toggle MultiTrack playback On/Off**
🖰   Right-Click in the view
⌨   Spacebar

➔**Initiate playback preload**
⌨   Enter Key (to preload)
⌨   Enter key (to begin playback) OR
🖰   Left-Click OK in dialog box

➔**Initiate record (while record meters are active)**
⌨   Enter key

➔**Stop recording (while record meters are active)**
⌨   Spacebar

➔**Initiate SRP recording (while record meters are active)**
⌨   Spacebar

➔**Punch in during SRP recording (while SRP record is active)**
⌨   Enter key

➔**Store and Recall Channel Settings**
⌨🖰   Alt-Right-Click on any mixer view

ZOOM VIEW MIXER WINDOW (top)

➔**Adjust knobs and switches**
🖰   Left-Click desired control

➔**Select Hot Channel**
🖰   Left-Click any non-control area

➔**Switch to wide mixer view**
🖰   Shift-Right-Click on desired channel

➔**Horizontal smooth scroll**
🖰   Left-Drag to left or right

➔**Horizontal single channel scroll**
🖰   Left-Click near left or right edge of window, or inside of the mixer label area
⌨   Left/Right Arrow keys

➔**Horizontal page scroll**
⌨   Shift-Left/Right Arrow keys

➔**Jump to first channel**
⌨   Ctrl-Left Arrow key Or Home key

➔**Jump to last channel**
⌨   Ctrl-Right Arrow key Or End key

➔**Scroll the view to the next or previous console section (Inputs, Returns, Outputs)**
⌨   Shift-Ctrl-Right Arrow key Or Left Arrow key

➔**Vertical scroll**
- Right-Hold, push mouse up or down
- Up/Down Arrow keys

➔**Fast vertical scroll**
- Shift-Up/Down Arrow keys

➔**Jump to top of module**
- Ctrl-Up Arrow key

➔**Jump to bottom of module**
- Ctrl-Down Arrow key

➔**Navigate the MultiTrack entries while keeping the current mixer view window active.**
- Tab key

➔**Popup channel listing**
- Right-Hold, push mouse left or right

➔**Select channel from channel listing**
- Right-Hold, push mouse left or right, Left-Click desired channel

➔**Mark a single channel**
- Left-Click channel label area

➔**Mark contiguous channels**
- Left-Drag channel area

➔**Mark non-contiguous channels**
- Left-Click channel label area for all desired channels

➔**Mark a range of channels**
- Alt-Left-Click marks from last toggled channel to current channel

➔**Unmark single channel**
- Left-Click marked channel label area

➔**Unmark all channels**
- Right-Click in any channel label area

➔**Toggle MultiTrack playback on/off**
- Right-Click in the view
- Spacebar

➔**Initiate playback preload**
- Enter Key (to preload)
- Enter key (to begin playback) OR
- Left-Click OK in dialog box

➔**Initiate record (while record meters are active)**
- Enter key

➔**Stop recording (while record meters are active)**
- Spacebar

➔**Initiate SRP recording (while record meters are active)**
- Spacebar

➔**Punch in during SRP recording (while SRP record is active)**

⌨   Enter key

➔**Store and Recall Channel Settings**
⌨🖱   Alt-Right-Click on any mixer view

EXPLODED VIEW MIXER WINDOW (top)

➔**Open Exploded View**
🖱   Double-Click on link or non-control area of Full View window Or
     Double-Click on left-client edge of MultiTrack View channel control tool bar area

➔**Close Exploded View**
🖱   Left-Click outside of exploded view Or
     Right-Click inside of exploded view

➔**Adjust knobs and switches**
🖱   Left-Click desired control

➔**Vertical scroll**
🖱   Right-Hold, push mouse up or down
⌨   Up/Down Arrow keys

➔**Fast vertical scroll**
⌨   Shift-Up/Down Arrow keys

➔**Jump to top of module**
⌨   Ctrl-Up Arrow key

➔**Jump to bottom of module**
⌨   Ctrl-Down Arrow key

➔**Scroll to next console section**
⌨   Page-Up key

➔**Scroll to previous console section**
⌨   Page-Down key

➔**Toggle MultiTrack playback On/Off**
🖱   Right-Click in the view
⌨   Spacebar

➔**Initiate playback preload**
⌨   Enter Key (to preload)
⌨   Enter key (to begin playback) OR 🖱   Left-Click OK in dialog box

➔**Initiate record (while record meters are active)**
⌨   Enter key

➔**Stop recording (while record meters are active)**
⌨   Spacebar

➔**Initiate SRP recording (while record meters are active)**
⌨   Spacebar

➔**Punch in during SRP recording (while SRP record is active)**
⌨   Enter key

➜ **Store and Recall Channel Settings**
⌨🖱 Alt-Right-Click on any mixer view

WIDE VIEW MIXER WINDOW (top)

➜ **Open Wide View**
🖱 Shift-Right-Click in any area of Full View window Or Zoom View window
Shift-Right-Click on left-client edge of MultiTrack View within the channel control tool bar area

➜ **Jump to previous or next track**
⌨ Left/Right Arrow keys

➜ **Jump to first channel**
⌨ Ctrl-Left Arrow key Or Home key

➜ **Jump to last channel**
⌨ Ctrl-Right Arrow key Or End key

➜ **Scroll the view to the next or previous console section (Inputs, Returns, Outputs)**
⌨ Shift-Ctrl-Right Arrow key Or Left Arrow key

➜ **Jump to previous or next track**
⌨ Left/Right Arrow keys

➜ **Jump to specified track**
🖱 Right-Hold anywhere in Wide View, then Left-Click on desired track from channel menu

➜ **Navigate the MultiTrack entries while keeping the current mixer view window active.**
⌨ Tab key

➜ **Jump to first channel**
⌨ Home key

➜ **Jump to last channel**
⌨ End key

➜ **Toggle MultiTrack playback on/off**
🖱 Right-Click in the view
⌨ Spacebar

➜ **Initiate playback preload**
⌨ Enter Key (to preload)
⌨ Enter key (to begin playback) OR
🖱 Left-Click OK in dialog box

➜ **Initiate record (while record meters are active)**
⌨ Enter key

➜ **Stop recording (while record meters are active)**
⌨ Spacebar

➜ **Initiate SRP recording (while record meters are active)**
⌨ Spacebar

➜ **Punch in during SRP recording (while SRP record is active)**
⌨ Enter key

➔**Store and Recall Channel Settings**
⌨🖱 Alt-Right-Click on any mixer view

MULTITRACK VIEW WINDOW (top)

➔**Activate playback transport controls**
🖱 Left-Click desired control

➔**Toggle mode selection buttons**
🖱 Left-Click desired control

➔**Jump to specified track**
🖱 Left-Click track locator zone, then Left-Click on desired track

➔**Jump to specified module section in open Exploded Mixer View**
🖱 Left-Click desired control zone in left-client area

➔**Select Hot Track**
🖱 Left-Click desired track
⌨ Up/Down arrow keys Or   Shift-Up/Down arrow keys to page up or down

➔**Select first track as hot track**
⌨ Ctrl-Up arrow key

➔**Select last track as hot track**
⌨ Ctrl-Down arrow key

➔**Select first track of next section as hot track**
⌨ Shift-Ctrl-Down arrow key

➔**Select first track of previous section as hot track**
⌨ Shift-Ctrl-Up arrow key

➔**Jump cursor to zero locate position**
⌨ Home key

➔**Jump cursor to session end position**
⌨ End key

➔**Jump cursor to next MT Entry boundary**
⌨ Tab key

➔**Jump cursor to previous MT Entry boundary**
⌨ Shift-Tab key

➔**Jump cursor to mark begin position of marked area**
⌨ Ctrl-Left Arrow key

➔**Jump cursor to mark end position of marked area**
⌨ Ctrl-Right Arrow key

➔**Jump cursor to the next MT Entry SoftEdge boundary**
⌨ Alt-Left Arrow key

➔**Jump cursor to the previous MT Entry SoftEdge boundary**
⌨ Alt-Right Arrow key

➔**Position play cursor**
- ⌁ Left-Click Or Left-Drag in current hot track
- ⌨ Left/Right arrow keys

➔**Center Cursor**
- ⌁ Double-Click TimeLine display
- ⌨ Equal(=) key

➔**Scroll**
- ⌁ Left-Drag to edge of display area up/down or left/right
- ⌁ Right-Hold, push up/down or left/right

➔**Snap to next automation change on current hot track (Automation Mode)**
- ⌨ Ctrl-Tab

➔**Snap to previous automation change on current hot track (Automation Mode)**
- ⌨ Ctrl-Shift-Tab

SOUNDFILE VIEW WINDOW (top)

➔**Smooth scroll**
- ⌁ Left-Drag to edge of display area left/right

➔**Position play cursor**
- ⌁ Left-Click Or Left-Drag in waveform display area

➔**Position waveform under cursor**
- ⌨ Left/Right arrow keys

➔**Center Cursor**
- ⌁ Double-Click waveform display
- ⌨ Equal(=) key

➔**Jump to beginning of soundfile**
- ⌨ Home key

➔**Jump to end of soundfile**
- ⌨ End key

➔**Move cursor to beginning or end of marked area**
- ⌨ Ctrl-Left/Right arrow keys

REGIONS VIEW WINDOW (top)

➔**Scroll regions list**
- ⌁ Left-Click scrollbox controls
- ⌨ Up/Down arrow keys

➔**Jump to top of regions list**
- ⌨ Home key

➔**Jump to bottom of regions list**
- ⌨ End key

Global Functions

➜**Save a workspace view**
⌨   Shift-F1 (thru F12)

➜**Save an alternate workspace view**
⌨🖱 Alt-Shift-F1 (thru F12)

➜**Recall a workspace view**
⌨   F1 (thru F12)

➜**Recall an alternate workspace view**
⌨🖱 Alt-F1 (thru F12)

➜**Open a Function Key template file**
M   File | F-Key File | Open

➜**Save current function key workspace views to a .FKY file**
M   File | F-Key File | Save

➜**Open a Function Key template file**
M   File | F-Key File | Open Alternate

➜**Save current function key workspace views to a .FKY file**
M   File | F-Key File | Save Alternate

➜**Save current Function-Key setup as the default**
M   File | F-Key File | Save Default

➜**Clear default F-Key file and revert to internal F-Key defaults**
M   File | F-Key File | Clear Default

➜**Load different Shades graphics library**
M   File | Shades | Open

➜**Reset graphics library to original default**
M   File | Shades | Reset To Original Vintage

➜**Open an existing preference configuration file and reinitialize the program to those settings**
M   File | Preferences File | Open

➜**Save current program setup as a .PRF file**
M   File | Preferences File | Save

➜**Save current setup as the default preferences**
M   File | Preferences File | Save Default

➜**Clear default preferences file and revert to internal defaults**
M   File | Preferences File | Clear Default

➔**Label single track or channel**
🖱 Left-Click in label display zone of desired track or
⌨🖱 Shift-Left-Click in label display zone of desired mixer channel

➔**Label multiple tracks or channels in sequential order**
⌨🖱 Ctrl-Left-Click in label display zone of first desired track or channel (not applicable to Exploded View)

➔**Setup sound card hardware and settings**
M   Options | Audio Device Setup

➔**Setup MIDI devices for hardware controller devices**
M   Options | Midi Device Setup

➔**Setup sync in and out devices for SMPTE or MIDI MTC synchronization**
M   Options | Sync Device Setup

➔**Setup default paths for session, configuration, data and other files**
M   Options | File Path Setup

➔**Select the common Windows MultiMedia driver mode**
M   Options | Audio Driver Model | Standard MultiMedia

➔**Select the high-performance driver mode to eliminate certain redundant driver function calls during playback/record (sound card dependent)**
M   Options | Audio Driver Model | Hi Performance MultiMedia

➔**Use SAWStudio DWave protocol (sound card dependent)**
M   Options | Audio Driver Model | DWave Protocol

➔**Activate remote network and internet hosting capability**
M   Options | Activate TCP/IP Rcv Mode (Host)

➔**Activate remote network and internet hosting capability**
M   Options | TCP/IP Port

➔**Perform automatic zero cross detection**
M   Options | Auto Zero Cross

➔**Allow SAWStudio to control automatic punch-in monitor switching for various sound cards.**
M   Options | Auto Monitor Switching |

➔**Cache all used region peakdata info to RAM to improve MultiTrack Waveform drawing speed**
M   Options | Use Region PeakData Memory Caching

➔**Attempt to load all regions used in the MultiTrack into RAM in the background while you work**
M   Options | Use Region Memory Caching

➔**Toggle background undo creation On/Off**
M   Options | Auto EDL Undo

➔**Force MT engine on dual CPU back to One CPU**
M   Options | Force Single CPU

VIEW WINDOW OPTIONS (top)

➔**Display Full Mixer View**
   M   View | Full Mixer

➔**Display Zoom Mixer View**
   M   View | Zoom Mixer

➔**Display Wide Mixer View**
   M   View | Wide Mixer

➔**Display MultiTrack View**
   M   View | MultiTrack

➔**Display SoundFile View**
   M   View | SoundFile

➔**Display Regions View**
   M   View | Regions

➔**Display Library View windows**
   M   View | Library | (1-6)

➔**Display FX Choices list**
   M   View | FX | FX Choices

➔**Display FX Pre Patches list**
   M   View | FX | FX Pre Patches

➔**Display FX Post Patches list**
   M   View | FX | FX Post Patches

➔**Display FX F-Res Patches list**
   M   View | FX | FX F-Res Patches

➔**Display Automation Gallery View**
   M   View | Automation Gallery

➔**Display Control Track View**
   M   View | Control Track
   🖑   Left-Click in Control Track label area

➔**Display Video Track / Viewer**
   M   View | Video Track
   🖑   Left-Click in Video Track label area

TEMPO / TIMELINE OPTIONS (top)

➔**Set position readout display to standard time**
   M   TimeLine | Time Mode

➔**Set position readout display to SMPTE time**
   M   TimeLine | Smpte Mode

➔**Set position readout display to measures, bars and beats**

   M   TimeLine | Tempo Mode

➔**Set position display information to sample count**
   M   TimeLine | Sample Mode

➔**Set a default session tempo**
   M   TimeLine | Tempo Settings | Set Tempo

➔**Mark any numbers of measures from the waveform display and automatically calculate a reference default session tempo from the length of the marked area**
   M   TimeLine | Tempo Settings | Set Tempo To Marked Area

➔**Set a default session time signature**
   M   TimeLine | Tempo Settings | Set Time Signature

➔**Set a default session tick beat resolution**
   M   TimeLine | Tempo Settings | Set Tick Resolution

➔**Set the current cursor position to be the new zero reference point on the MultiTrack**
   ⌨   Shift-Home key
   M   TimeLine | Set Zero Locate Point

➔**Reset the zero reference point back to absolute zero on the MultiTrack**
   ⌨   Ctrl-Home key
   M   TimeLine | Clear Zero Locate Point

➔**Toggle between current and last selected time display mode**
   🖱   Right-Click in Position Readout area
   ⌨   Ctrl-T key

UNDO OPTIONS (top)

➔**Undo the last EDL manipulation**
   M   Edit | Undo EDL
   ⌨   Ctrl < key

➔**Redo the last EDL manipulation**
   M   Edit | Redo EDL
   ⌨   Ctrl > key

➔**Restore the last stored Undo file of desired session**
   M   Edit | Recover EDL Last Undo

➔**See all undo files for each session in a folder and select any one to recover a session**
   M   Edit | Recover EDL Undo

➔**Display time-stamped list of EDL Undo history for the current session**
   M   Edit | Display EDL Undo History

➔**Clear the Undo history files for the open session or session of your choice if no active session is open**
   M   Edit | Clear EDL Undo History

➔**Select the number of undo levels that will be saved during EDL manipulations**
   M   Edit | Set EDL Undo Levels

➔**Force a snapshot (undo) of the current session**
 ⌨ * key (asterisk on numpad)

HELP / INFORMATION OPTIONS (top)

➔**Access the built-in SAWStudio Helpfile**
 M Info | Help Contents

➔**View latest update additions, enhancements, and fixes**
 M Info | Latest Release Notes

➔**View program and version information**
 M Info | About

MultiTrack View Functions

WORKSPACE OPTIONS (top)

➔**Adjust track height**
 ⌨ Page-Up/Page Down keys

➔**Adjust track height to minimum/maximum**
 ⌨ Ctrl-Page-Up/Page Down keys

➔**Adjust waveform scaling factor**
 ⌨ Shift-Page-Up/Page Down keys

➔**Adjust waveform scaling factor to minimum/maximum**
 ⌨ Shift-Ctrl-Page-Up/Page Down keys

➔**Adjust waveform scaling factor to presets**
 ⌨ Ctrl-Numpad keys Ctrl-Numpad 1 resets to minimum (0 dB)

➔**Toggle the waveform display On/Off**
 ⌨ W key

➔**Increase the zoom level of the MultiTrack display**
 🖰 Left-Click Zoom-In button
 ⌨ Plus (+) key

➔**Increase the zoom level of the MultiTrack display to its maximum value**
 ⌨ Ctrl-Plus (+) key

➔**Decrease the zoom level of the MultiTrack display**
 🖰 Left-Click Zoom-Out button
 ⌨ Minus (-) key

➔**Decrease the zoom level of the MultiTrack display to its minimum value**
 ⌨ Ctrl-Minus (-) key

➔**Set current cursor position as the new zero locate position**
 ⌨ Shift-Home key
 M TimeLine | Set Zero Locate Point

➔**Reset the zero locate position to zero**
- ⌨ Ctrl-Home key
- **M** TimeLine | Clear Zero Locate Point

➔**Control position of MT Entry names**
- **M** MultiTrack | Entry Name Position

PLAYBACK / RECORD OPTIONS (top)

➔**Toggle playback On/Off**
- 🖰 Right-Click
- ⌨ Spacebar

➔**Initiate playback preload**
- ⌨ Enter key (to preload)
- ⌨ Enter key (to begin playback) OR
- 🖰 Left-Click OK in dialog box

➔**Transfer cursor to stopped playback position when zoomed past 256 samples per pixel level**
- ⌨ Shift-T

➔**Initiate record**
- 🖰 Left-Click Rec button
- ⌨ Enter key

➔**Stop recording**
- 🖰 Left-Click Stop button
- ⌨ Spacebar

➔**Initiate SRP recording**
- 🖰 Left-Click SRP button
- ⌨ Spacebar

➔**Punch in during SRP recording**
- 🖰 Left-Click Rec button (while SRP is active)
- ⌨ Enter key

➔**Retake the last recorded region**
- 🖰 Left-Click Retake button | Retake To Last Record Position
- ⌨ Backspace key

➔**Retake to current cursor position**
- 🖰 Left-Click Retake button | Retake To Current MT Cursor Position
- ⌨ Shift-Backspace

➔**Retake all**
- 🖰 Left-Click Retake button | Retake All
- ⌨ Ctrl-Backspace

➔**Save record template**
- **M** File | Save Record Template File

➔**Open a preset record template**
- **M** File | Open Record Template File

➔**Create a temporary record template**

⌨🖑 Ctrl-Left-Click close button on record window

➔**Use a temporary or preset record template**
   ⌨🖑 Ctrl-Left-Click MT record button

➔**Clear previously saved track record input assignments**
   ⌨🖑 Shift-Left-Click MT record button

SELECT MODE (top)

➔**Activate Select Mode clearing all previous entry selections**
   🖑　Left-Click Select Mode button
   ⌨　S key

➔**Activate Select Mode pre-selecting the last group of selected entries**
   ⌨🖑 Shift-Left-Click Select Mode button
   ⌨　Shift-S key

➔**Start/Stop Playback**
   🖑　Right-Click in the timeline
   ⌨　Spacebar

➔**Position Play Cursor**
   🖑　Left-Click Or Left-Drag in the timeline
   🖑　Shift-Ctrl-Left-Click in the MultiTrack

➔**Select a single entry**
   🖑　Left-Click desired entry

➔**Select multiple entries across multiple tracks**
   🖑　Left-Drag across desired entries

➔**Select all entries**
   ⌨　Ctrl-A key

➔**Select all entries between the last selected entry and the current entry across multiple tracks**
   ⌨🖑 Alt-Left-Click

➔**Select all entries to the end of the current track starting with last selected entry**
   ⌨　End key

➔**Selects all entries on the current Hot Track if no entries are selected.**
   ⌨　End key

➔**Select all entries to the end of the current track and down across all following tracks starting with last selected entry**
   ⌨　Ctrl-End key

➔**Select all entries from the last selected entry to the end of the set of butt-spliced entries on current track**
   ⌨　Shift-End key

➔**Select all entries to the beginning of the current track starting with last selected entry**
   ⌨　Home key

➔**Select all entries to the beginning of the current track and down across all following tracks starting with last selected entry**

⌨   Ctrl-Home key

➔**Select all entries from the last selected entry to the beginning of the set of butt-spliced entries on current track**
⌨   Shift-Home key

➔**Deselect current entry**
🖰   Shift-Right-Click desired entry

➔**Deselect All**
🖰   Right-Click in waveform area
⌨   C key

➔**Access Select Mode properties menu**
🖰   Right-Click on Select Mode button

AUTOMATION MODE (top)

➔**Toggle automation mode On/Off**
🖰   Left-Click Aut button
⌨   A key

➔**Fade up or down to the next automation change or create a fade stretched within a marked area**
⌨   F key
M   Automation | Fade Dn/Up To Next Automation Change

➔**Reverse fade defaults and force a ramp up**
⌨   Shift-F key
M   Automation | Fade Up To Next Automation Change

➔**Move automation entries within a marked area to a new position on the same track**
⌨🖰 Shift-Left-Drag

➔**Move automation entries within a marked area to a new track without altering the position**
⌨🖰 Ctrl-Left-Drag

➔**Copy automation entries within a marked area to a new track leaving originals in tact**
⌨🖰 Initiate a move with Shift-Left-Drag or Ctrl-Left-Drag, then tap the right mouse while holding the left to copy at new location

➔**Copy automation entries within a marked area to a new layer leaving originals in tact**
⌨🖰 Right-Click on Label Display Area, Left-Click Copy Marked Automation To option

➔**Stretch or shrink automation within a marked area**
⌨🖰 Alt-Left-Drag to grab nearest boundary

➔**Snap marked automation entries to the current cursor position**
⌨   Backspace key

➔**Clear all automation on current hot track or selected tracks**
M   Process/MixDown | Clear All Entries On Track(s)

➔**Clear all automation on all tracks**
⌨ **M** Process/MixDown | Ctrl-Clear All Entries On Track(s)

➔**Clear all automation in an MT Marked Area on current hot track or selected tracks**
- ⌨ Delete key

➔**Clear all automation in an MT Marked Area on all tracks**
- ⌨ Ctrl-Delete key

➔**Toggle View Filter On/Off**
- ⌨ V Key

➔**Select automation filter type**
- 🖱 Left-Drag within group of applicable entries
- ⌨ Ctrl-Tab to applicable entry type

➔**Set the default slope value for mute switches in milliseconds**
- **M** Automation | Set Default Mute Slope

➔**Set the default slope value for channel faders in milliseconds**
- **M** Automation | Set Default Fader Slope

➔**Set the default slope value for channel pans in milliseconds**
- **M** Automation | Set Default Pan Slope

➔**Change the slope value for all entries within a marked range on the current hot track or selected tracks in milliseconds**
- **M** Automation | Change Marked Automation
- ⌨ **/** key (forward slash on numpad) - bypasses confirmation prompt

➔**Change the slope value for all entries within a marked range on all tracks in milliseconds**
- ⌨ **M** Automation | Ctrl-Change Marked Automation Slope
- ⌨ Ctrl-**/** key (forward slash on numpad) - bypasses confirmation prompt

➔**Increment the Hot Track fader .25 db**
- ⌨ > Key (without Shift Key)

➔**Decrement the Hot Track fader .25 db**
- ⌨ < Key (without Shift Key)

OFFSET MODE (top)

➔**Activate Offset Mode**
- 🖱 Left-Click Ofst button
- ⌨ O key

➔**Exit Offset Mode and apply offsets to all affected automation entries**
- 🖱 Left-Click Ofst button
- ⌨ O key

➔**Exit Offset Mode and canceling all changes and leaving all automation in original state**
- 🖱 Right-Click Ofst button
- ⌨ Ctrl-O key

➔**Enter relative offset mode**
- 🖱 Shift-Left-Click Ofst button
- ⌨ Shift-O key

USING OFFSET FEATURES (top)

➔ **Set an internal offset reference for the current entry**
⌨/🖱 Alt-Right-Click or Left-Right-Click on an MT Entry, select Set Offset To MT Mark-Beg Position

➔ **Jump the cursor to the current offset position**
⌨/🖱 Alt-Right-Click or Left-Right-Click on an MT Entry, select Jump To Offset Position

➔ **Clear the current offset**
⌨/🖱 Alt-Right-Click or Left-Right-Click on an MT Entry, select Clear Offset Position

➔ **Cause the current entry offset position to be the reference for the destination cursor position.**
⌨🖱 Alt-Backspace during Select Mode move and copy operations

WORKING WITH MARKED AREAS (top)

➔ **Create a marked area**
🖱   Left-Drag in timeline
⌨   B key to mark begin, E key to mark end

➔ **Mark from current cursor position to end of session**
⌨   Shift-End key

➔ **Mark entire track from beginning to end of session**
⌨   Alt-End key

➔ **Mark an MT Entry as a marked area**
⌨🖱 Ctrl-Left-Drag in timeline
⌨   Ctrl-B key Or Ctrl-E key

➔ **Mark an MT Entry including softedges as a marked area**
⌨   Alt-B key Or Alt-E key

➔ **Jump cursor to mark begin position of marked area**
⌨   Ctrl-Left Arrow key

➔ **Jump cursor to mark end position of marked area**
⌨   Ctrl-Right Arrow key

➔ **Clear a marked area**
🖱   Right-Click in timeline
⌨   C key

SPLITTING, KEEPING, AND REMOVING ENTRIES (top)

➔ **Locate the nearest ZeroCross position**
⌨   Z key

➔ **Split & remove all entries in a marked area without affecting following entries**
⌨   Delete key

➔ **Split & remove all entries in a marked area pulling butt-spliced entries forward**
⌨   Shift-Delete key

➔ **Split & remove all entries in a marked area pulling all following entries forward**
⌨   Ctrl-Delete key

➔ **Delete an individual MT Entry without affecting following entries**
⌨   Delete key

➔ **Delete an MT Entry pulling butt-spliced entries forward**
⌨   Shift-Delete key

➔ **Delete an MT Entry pulling all following entries forward**
⌨   Ctrl-Delete key

➔ **Split an MT Entry and delete the new entry to the left of the cursor position on the current hot track pulling following butt-spliced entries forward**
⌨   D key

➔ **Split an MT Entry and delete the new entry to the left of the cursor position on all tracks pulling following butt-spliced entries forward**
⌨   Ctrl-D key

➔ **Split an MT Entry and delete the new entry to the right of the cursor position on the current hot track pulling following butt-spliced entries forward**
⌨   Alt-D key

➔ **Split an MT Entry and delete the new entry to the right of the cursor position on all tracks pulling following butt-spliced entries forward**
⌨   Ctrl-Alt-D key

➔ **Split an MT Entry and keep both new entries at the cursor position on the current hot track**
⌨   K key

➔ **Split an MT Entry and keep both new entries at the cursor position on all tracks**
⌨   Ctrl-K key

➔ **Split An MT Entry and mark new entry on the left of the cursor position on current hot track for Select Mode**
⌨   M key

➔ **Split An MT Entry and mark new entry on the left of the cursor position for Select Mode on all tracks**
⌨   Ctrl-M key

➔ **Split an MT Entry and remove the new entry to the left of the cursor position on the current hot track without affecting following entries**
⌨   R key

➔ **Split an MT Entry and remove the new entry to the left of the cursor position on all tracks without affecting following entries**
⌨   Ctrl-R key

➔ **Split an MT Entry and remove the new entry to the right of the cursor position on the current hot track without affecting following entries**
⌨   Alt-R key

➔ **Split an MT Entry and remove the new entry to the right of the cursor position on all tracks without affecting following entries**
⌨   Ctrl-Alt-R key

ADDING REGIONS TO THE MULTITRACK (top)

➔**Add a Marked Area of an MT Entry as a separate entry on the MultiTrack** *(See also SoundFile View Functions, Region View Functions, and Library View Functions.)
⌨🖰 Alt-Left-Click inside of Marked Area, click on empty area of MultiTrack to place

MOVING & COPYING MT ENTRIES (top)

➔**Move an MT Entry left or right on same track**
⌨🖰 Shift-Left-Drag desired entry

➔**Move an MT Entry up or down to a new track without altering sync position**
⌨🖰 Ctrl-Left-Drag desired entry

➔**Move an MT Entry in any direction**
⌨🖰 Initiate a move with Shift-Left-Drag or Ctrl-Left-Drag, then release keyboard (but not the mouse) to free vertical and horizontal restraints Or
⌨🖰 Ctrl-Shift-Left-Drag

➔**Copy an MT Entry**
⌨🖰 Initiate a move with Shift-Left-Drag or Ctrl-Left-Drag, then tap the right mouse while holding the left to copy at new location

➔**Snap selected entries to the current cursor position using the front of the key entry as the location reference (Select Mode only)**
⌨   Backspace key

➔**Snap selected entries to the current cursor position using the back of the key entry as the location reference (Select Mode only)**
⌨   Shift-Backspace key

➔**Snap and nudge all selected entries, aligning the front of the key entry to the current cursor position on the current hot track**
⌨   Left/Right-Arrow Keys

➔**Snap and nudge all selected entries, aligning the back of the key entry to the current cursor position on the current hot track**
⌨   Shift-Left/Right-Arrow Keys

➔**Copy selected entries and snap new copies to the current cursor position using the front of the key entry as the location reference (Select Mode only)**
⌨   Ctrl-Backspace key

➔**Copy selected entries and snap new copies to the current cursor position using the back of the key entry as the location reference (Select Mode only)**
⌨   Ctrl-Shift-Backspace key

➔**Insert selected entries at the current cursor position using the front of the key entry as the location reference, splitting and overwriting any existing entries that conflict (Select Mode only)**
⌨   Insert key

➔**Insert selected entries at the current cursor position using the back of the key entry as the location reference, splitting and overwriting any existing entries that conflict (Select Mode only)**
⌨   Shift-Insert key

➔**Copy selected entries and insert the new copies at the current cursor position using the front of the key entry as the location reference, splitting and overwriting any existing entries that conflict (Select Mode only)**
⌨ Ctrl-Insert key

➔**Copy selected entries and insert the new copies at the current cursor position using the back of the key entry as the location reference, splitting and overwriting any existing entries that conflict (Select Mode only)**
⌨ Ctrl-Shift-Insert key

USING SOFTEDGE IN NORMAL MODE (top)

➔**Set SoftEdge value on the start, end, or both boundaries of desired MT Entry**
⌨/🖱Alt-Right-Click Or Left-Right-Click on top of desired MT Entry, select desired option from Set SoftEdge menu

➔**Set SoftEdge value on the start or end MT Entry boundary in a marked area**
⌨/🖱Alt-Right-Click Or Left-Right-Click on top of marked area, select To Marked Area from Set SoftEdge menu

➔**Clear SoftEdge value on the start, end, or both boundaries of desired MT Entry**
⌨/🖱Alt-Right-Click Or Left-Right-Click on top of desired MT Entry, select desired option from Clear SoftEdge menu

➔**Clear all SoftEdge values on the current layer, or a marked area on the current layer**
🖱 Right-Click in label display zone, Left-Click Clear All (Or Marked) SoftEdges On Current Layer

➔**Clear all SoftEdge values on all layers, or a marked area on all layers**
🖱 Right-Click in label display zone, Left-Click Clear All (Or Marked) SoftEdges On All Layers

➔**Clear SoftEdge value on the start, end, or both boundaries of a marked area**
⌨/🖱Alt-Right-Click Or Left-Right-Click on top of desired MT Entry, select desired option from Clear SoftEdge menu

➔**Create an automatic crossfade in a marked area across two butt-spliced entries**
⌨/🖱Alt-Right-Click Or Left-Right-Click on top of marked area, select To Marked Area from Set SoftEdge menu
⌨ X key

USING SOFTEDGE IN SELECT MODE (top)

➔**Set SoftEdge value on the start, end, or both boundaries of selected entries**
⌨/🖱Alt-Right-Click or Left-Right-Click on an MT Entry, select desired option from Set SoftEdge menu

➔**Clear SoftEdge value on the start, end, or both boundaries of selected entries**
⌨/🖱Alt-Right-Click or Left-Right-Click on an MT Entry, select desired option from Clear SoftEdge menu

➔**Clear all SoftEdge values on the current layer**
🖱 Right-Click in label display zone, Left-Click Clear All (Or Marked) SoftEdges On Current Layer

➔**Clear all SoftEdge values on all layers**
🖱 Right-Click in label display zone, Left-Click Clear All (Or Marked) SoftEdges On All Layers

➔**Clear SoftEdge value on the start, end, or both boundaries of selected entries**
⌨/🖱Alt-Right-Click Or Left-Right-Click in waveform display area, select desired option from Clear SoftEdge menu

USING VARI-SPEED / PITCH (top)

➔**Set Vari-Speed factor in hundredths of a percent**
🖱 Alt-Right-Click or Left-Right-Click on an MT Entry, select Set Vari-speed, type in value

➔**Cause a smooth sweep of the Vari-Speed factor**
🖱 Alt-Right-Click or Left-Right-Click on an MT Entry, select Sweep Vari-Speed to Destination Value

➔**Set Vari-Pitch factor in hundredths of a semitone**
🖱 Alt-Right-Click or Left-Right-Click on an MT Entry, select Set Vari-Pitch, type in value

➔**Cause a smooth sweep of the Vari-Pitch factor**
🖱 Alt-Right-Click or Left-Right-Click on an MT Entry, select Sweep Vari-Pitch to Destination Value

➔**Set Vari-Speed/Pitch factor to mark end position of marked area**
🖱 Alt-Right-Click or Left-Right-Click on an MT Entry, select Set Vari-speed/Pitch To MT Mark End Position

➔**Clear Vari-Speed/Pitch factor for desired MT Entry**
🖱 Alt-Right-Click or Left-Right-Click on an MT Entry, select Clear Vari-Speed/Pitch

ADJUSTING MT ENTRY BOUNDARIES (top)

➔**Extend or shrink nearest MT Entry boundary**
⌨🖱 Alt-Left-Drag

➔**Update nearest MT Entry boundary to current cursor position**
⌨ U key

➔**Extend or shrink nearest MT Entry boundary and adjust following butt-spliced positions to remain attached**
⌨🖱 Alt-Shift-Left-Drag

➔**With the cursor positioned near the end boundary of the left entry of a butt-spliced pair, this will U̲pdate the end boundary to the current cursor position and adjust following butt-spliced positions to remain attached**
⌨ Shift-U key

➔**Extend or shrink connecting boundaries of a butt-splice, keeping overall time sync unaffected**
⌨🖱 Alt-Ctrl-Left-Drag

➔**Update nearest MT Entry boundary to current cursor position, adjusting butt-spliced boundaries to keep overall time sync unaffected**
⌨ Ctrl-U key

➔**Adjust MT Entry special properties**
   Alt-Right-Click on desired MT Entry

REGION GROUPING FUNCTIONS (top)

➔**Add currently selected entries to any group**
   Right-Click on Select Mode button, Left-Click Add Selected To option

➔**Remove currently selected entries from any group**
   Right-Click on Select Mode button, Left-Click Remove Selected From option

➔**Clear all entries from any group**
   Right-Click on Select Mode button, Left-Click Clear All From option

➔**Name or rename any group**
   Right-Click on Select Mode button, Left-Click Rename option

➔**Clear all current selections and select all entries within a group**
   Right-Click on Select Mode button, Left-Click desired group

➔**Merge all entry selections within a group with the currently selected entries**
   Right-Click on Select Mode button, Shift-Left-Click desired group

SPECIAL TRACK FUNCTIONS (top)

➔**Toggle track marking on and off for single or multiple tracks**
   Left-Click Or Left-Drag in track number zone area

➔**Toggle track marking from the last toggled track to the current track**
   Alt-Left-Click in track number zone area

➔**Toggle all marked tracks off**
   Right-Click in track number zone area

➔**Drag a track to a new location**
   Shift-Left-drag in track number zone area of desired track

➔**Re-Order all tracks back to a default sequential order**
   Ctrl-Left-Click in track number zone area

➔**Label single track**
   Left-Click in label display zone of desired track

➔**Label multiple tracks in sequential order**
   Ctrl-Left-Click in label display zone of first desired track

➔**Access special track properties menu**
   Right-Click in label display zone

➔**Select colored texture for entries on current track**
   Right-Click in label display zone, Left-Click desired choice from Set MT Entry Texture option

➔**Select colored texture for entries on all layers of current track**
   Right-Click in label display zone, Shift-Left-Click desired choice from Set MT Entry Texture

option

➔**Select colored texture for entries on all tracks on current layer**
⌨🖱 Right-Click in label display zone, Ctrl-Left-Click desired choice from Set MT Entry Texture option

➔**Select colored texture for entries on all tracks on all layers**
⌨🖱 Right-Click in label display zone, Ctrl-Shift-Left-Click desired choice from Set MT Entry Texture option

➔**Copy a marked area of a track to another layer**
🖱 Right-Click in label display zone, Left-Click Copy Marked To option

➔**Copy a marked area of a track to another layer for all tracks**
⌨🖱 Right-Click in label display zone, Ctrl-Left-Click Copy Marked To option

➔**Copy automation from a marked area of a track to another layer**
🖱 Right-Click in label display zone, Left-Click Copy Marked Automation To option

➔**Copy selected entries from one track or a selected track group to another layer**
🖱 Right-Click in label display zone, Left-Click Copy Selected To option

➔**Copy selected entries from all tracks to another layer**
🖱 Right-Click in label display zone, Ctrl-Left-Click Copy Selected To option

➔**Copy texture from current track to another layer**
🖱 Right-Click in label display zone, Left-Click Copy Texture To option

➔**Copy textures from all tracks to another layer**
⌨🖱 Right-Click in label display zone, Ctrl-Left-Click Copy Texture To option

➔**Clear all Entries on the current layer for the current hot track**
🖱 Right-Click in label display zone, Left-Click Clear All Entries On Current Layer option

➔**Clear all Entries on all background layers for the current hot track**
🖱 Right-Click in label display zone, Left-Click Clear All Entries On All Background Layers option

➔**Clear all Entries on all layers for the current hot track**
🖱 Right-Click in label display zone, Left-Click Clear All Entries On All Layers option

➔**Clear all Entries on all layers for all tracks**
⌨🖱 Right-Click in label display zone, Ctrl-Left-Click Clear All Entries On All Layers option (or Clear All Entries On All Background Layers, or Clear All Entries On Current Layer option)

➔**Clear all SoftEdge values on the current layer, or a marked area on the current layer**
🖱 Right-Click in label display zone, Left-Click Clear All (Or Marked) SoftEdges On Current Layer

➔**Clear all SoftEdge values on all layers, or a marked area on all layers**
🖱 Right-Click in label display zone, Left-Click Clear All (Or Marked) SoftEdges On All Layers

➔**Slip a marked area of track forward or backward to the MT cursor position on the current layer**
🖱 Right-Click in label display zone, Left-Click Slip Track To Cursor Position On Current Layer (Marked Area)

➔**Slip a marked area of track forward or backward to the MT cursor position on the current**

layer for all tracks
- 🖰 Right-Click in label display zone, Ctrl-Left-Click Slip Track To Cursor Position On Current Layer (Marked Area)

➔**Slip a marked area of track forward or backward to the MT cursor position on all layers**
- 🖰 Right-Click in label display zone, Left-Click Slip Track To Cursor Position On All Layers (Marked Area)

➔**Slip a marked area of track forward or backward to the MT cursor position on all layers for all tracks**
- 🖰 Right-Click in label display zone, Ctrl-Left-Click Slip Track To Cursor Position On All Layers (Marked Area)

➔**Strip silent sections of audio from solid tracks of data automatically**
- 🖰 Right-Click in label display zone, Left-Click Remove Silence From Track (Or Marked Area) - Automatic

➔**Strip silent sections of audio from solid tracks of data splitting and marking data first and allowing the user to press the delete key to remove marked areas**
- 🖰 Right-Click in label display zone, Left-Click Remove Silence From Track (Or Marked Area) - Split/Mark

➔**Change the default Attack, Release and Threshold settings to the adjusted values**
- 🖰 Right-Click in label display zone, Ctrl-Left-Click Set Defaults From HotChan Gate

➔**Select another layer for the current track**
- 🖰 Right-Click in label display zone, Left-Click desired layer
- ⌨ Press desired number 1-8 at the top of the keyboard

➔**Select another layer for all tracks**
- 🖰 Right-Click in label display zone, Ctrl-Left-Click desired layer
- ⌨ Ctrl and the desired number 1-8 at the top of the keyboard

➔**Disable an Input track and remove it from the MultiTrack load**
- 🖰 Right-Click in label display zone, Left-Click Disable Track

SoundFile View Functions

WAVEFORM DISPLAY OPTIONS (top)

➔**Zoom in to next level**
- 🖰 Left-Click +Zm zone
- ⌨ Plus (+) key

➔**Zoom out to next level**
- 🖰 Left-Click -Zm zone
- ⌨ Minus (-)key

➔**Zoom to maximum zoomed in view**
- 🖰 Left-Click +Zm Full zone
- ⌨ Ctrl-Plus (+) keys

➔**Zoom to maximum zoomed out view**
- 🖰 Left-Click -Zm Full zone
- ⌨ Ctrl-Minus (-) keys

➔**Go directly to any specific zoom level referenced as Samples per Pixel.**
  ⤶ Right-Click -Zm or +Zm zone

➔**Zoom freely**
  ⤶ MouseWheel

➔**Increase height of waveform display to next level**
  ⤶ Left-Click Up zone

➔**Decrease height of waveform display to next level**
  ⤶ Left-Click Dn zone

➔**Increase waveform display to max height**
  ⌨⤶ Ctrl-Left-Click Up zone

➔**Decrease waveform display to min height**
  ⌨⤶ Ctrl-Left-Click Dn zone

➔**Open soundfile and refresh peakdata file**
  M File | Open SoundFile And Refresh

➔**Refresh peakdata information for currently open soundfile**
  ⌨ R key

WORKING WITH MARKED AREAS (top)

➔**Create a marked area**
  ⤶ Left-Drag in timeline
  ⤶ Left-Click Mrk Beg zone to mark begin and Mrk End zone to mark end
  ⌨ B key to mark begin, E key to mark end

➔**Mark entire soundfile as a marked area**
  ⌨⤶ Ctrl-Click Mrk Beg/Mrk End zones
  ⌨⤶ Ctrl-Left-Drag in timeline
  ⌨ Ctrl-B key Or Ctrl-E key

➔**Mark an area during playback**
  ⤶ Left-Click Mrk Beg zone to mark begin and Mrk End zone to mark end
  ⌨ B key to mark begin, E key to mark end

➔**Clear a marked area**
  ⤶ Right-Click in timeline
  ⌨ C key

CREATING REGIONS (top)

➔**Create a new region from a marked area**
  ⌨ N key

➔**Locate the nearest ZeroCross position**
  ⌨ Z key

UPDATING REGIONS (top)

➜**Update currently selected region based on soundfile data**
⌨   U key

ADDING MT ENTRIES TO THE MULTITRACK (top)

➜**Add a Marked Area as an MT Entry to The MultiTrack**
⌨☜ Alt-Left-Click in waveform display, click on empty area of MultiTrack to place

METER OPTIONS (top)

➜**Display Sample Info View window**
☜   Left-Click anywhere in left-client area of SoundFile view

SAMPLE EDIT ZOOM OPTIONS (top)

➜**Activate Sample Edit Zoom Mode**
☜   Left-Click Zm+ Full, Left-Click Zm+ past zoom in full position
⌨   +/- keys past zoom in full position

➜**Shift display center up or down**
⌨   Up-Arrow/Down-Arrow keys

➜**Reset display center to center position**
⌨   Ctrl-Up-Arrow/Down-Arrow keys

➜**Adjust any sample up or down**
⌨☜ Shift-Left-Click on desired sample

➜**Use Drawing Mode to adjust group of samples**
⌨☜ Shift-Left-Drag over desired samples

PLAYBACK / RECORD OPTIONS (top)

➜**Initiate playback**
☜   Right-Click
⌨   Spacebar

➜**Initiate playback of marked area**
⌨☜ Shift-Right-Click
⌨   Shift-Spacebar

➜**Initiate playback and loop of marked area**
⌨☜ Ctrl-Right-Click
⌨   Ctrl-Spacebar

➜**Center playback position and live scroll the waveform display past the fixed play position**
M   Options | SoundFile Fixed Position Scroll Mode

➔**Direct soundfile view playback to audio device**
- ⏏ Left-Click Out button

➔**Initiate record**
- ⏏ Left-Click Rec button
- ⌨ Enter key

➔**Stop recording**
- ⏏ Left-Click Stop button
- ⌨ Spacebar

➔**Retake the last recorded region**
- ⏏ Left-Click Retake button | Retake To Last Record Position
- ⌨ Backspace

➔**Retake to current cursor position**
- ⏏ Left-Click Retake button | Retake To Current SF Cursor Position
- ⌨ Shift-Backspace

➔**Retake all**
- ⏏ Left-Click Retake button | Retake All
- ⌨ Ctrl-Backspace

Regions View Functions

SELECTING REGIONS (top)

➔**Select Regions**
- ⏏ Left-Click desired region
- ⌨ Up/Down Arrow keys

➔**Select range of regions between current region and last selected region**
- ⏏ Shift-Left-Click desired regions

➔**Select non-contiguous regions**
- ⏏ Ctrl-Left-Click desired regions

➔**Select contiguous group of regions**
- ⏏ Left-Drag through regions list
- ⌨ Shift-Up/Down Arrow keys

➔**Select first region in list**
- ⌨ Home key

➔**Select last region in list**
- ⌨ End key

CREATING REGIONS (top)

➔**Create a new region from a marked area in the soundfile view**
- **M** Regions | Create New Region

VIEWING REGIONS   (top)

➔ **Open associated soundfile in SoundFile view**
  🖰   Double-Click desired region

AUDITIONING REGIONS   (top)

➔ **Audition selected region in the soundfile view**
  🖰   Right-Click desired region
  ⌨   Enter key to restart without interruption
  ⌨   Spacebar to toggle playback on and off

RENAMING REGIONS   (top)

➔ **Rename selected regions**
  M   Regions | Re-Name Region(s)

UPDATING REGIONS   (top)

➔ **Update selected regions**
  M   Regions | Update Region

ADDING REGIONS TO THE MULTITRACK   (top)

➔ **Add selected regions to the MultiTrack at current cursor position on the current hot track**
  🖰   Left-Click Insert To MT button
  ⌨   Insert key

➔ **Insert selected regions to the current Hot Track back to back one behind the other**
  🖰   Ctrl-Left-Click Insert To MT button
  ⌨   Ctrl-Insert key

➔ **Insert selected regions in a repeated loop inside of a Marked Area**
  🖰   Ctrl-Left-Click Insert To MT button (with Marked Area)
  ⌨   Ctrl-Insert key (with Marked Area)

➔ **Insert and overwrite a selected region to the MultiTrack at its original stamped cursor position on the current hot track**
  🖰   Shift-Left-Click Insert To MT button
  ⌨   Shift-Insert key

➔ **Insert and overwrite a selected region to the MultiTrack at the current cursor position on the current hot track**
  🖰   Alt-Left-Click Insert To MT button
  ⌨   Alt-Insert key

➔ **Add a region to the MultiTrack using drag-and-drop**
  ⌨🖰 Alt-Left-Click desired region, click on empty area of MultiTrack to place

LOCATING REGIONS IN THE MULTITRACK (top)

➔ **Link to and locate all instances of a region in the MultiTrack**
⌨ Tab key

➔ **Reset region usage count to the first entry usage**
⌨ Shift-Tab key

DELETING REGIONS (top)

➔ **Remove selected regions and all associated MT Entries without affecting following entries on the timeline**
⌨ Delete key

➔ **Remove selected regions and all associated MT Entries pulling all following butt-spliced entries forward on the timeline**
⌨ Shift-Delete key

➔ **Remove selected regions and all associated MT Entries pulling all following entries forward on the timeline**
⌨ Ctrl-Delete key

➔ **Clear all regions from Regions View not being used in the MultiTrack**
M Regions | Clear Unused Regions

GROUPING REGIONS (top)

➔ **Access the Group menu**
🖰 Left-Click the Group button

➔ **Add currently selected regions to any group**
🖰 Left-Click the Group button, Left-Click the Add Selected To option

➔ **Remove currently selected regions from any group**
🖰 Left-Click the Group button, Left-Click the Remove Selected From option

➔ **Clear all regions from any group**
🖰 Left-Click the Group button, Left-Click the Clear All From option

➔ **Name or rename any group**
🖰 Left-Click the Group button, Left-Click the Rename option

➔ **Clear listbox and display only regions belonging to selected group**
🖰 Left-Click the Group button, Left-Click desired group

EXPORTING REGIONS (top)

➔ **Export multiple selected regions to individual soundfiles**
M Regions | Export Region(s) To SoundFile(s)

Library View Functions

ACCESSING REGIONS / .WAV FILES (top)

➔**Open EDL regions list**
- ⍾ Left-Click File button | Open Library EDL

➔**Open .wav file directory**
- ⍾ Left-Click File button | Open Directory Of .Wav Files

SELECTING ENTRIES (top)

➔**Select Entries**
- ⍾ Left-Click desired Entry
- ⌨ Up/Down Arrow keys

➔**Select range of entries between current entry and last selected entry**
- ⍾ Shift-Left-Click desired entries

➔**Select non-contiguous entries**
- ⍾ Ctrl-Left-Click desired entries

➔**Select contiguous group of entries**
- ⍾ Left-Drag through library list
- ⌨ Shift-Up/Down Arrow keys

➔**Select first entry in list**
- ⌨ Home key

➔**Select last entry in list**
- ⌨ End key

CLEARING THE LIBRARY VIEW WINDOWS (top)

➔**Clear all open entries in applicable library window**
- ⍾ Left-Click File button | Clear Library Window

VIEWING ENTRIES   (top)

➔**Open associated soundfile in SoundFile View**
- ⍾ Double-Click desired entry

AUDITIONING ENTRIES (top)

➔**Audition selected entry in the SoundFile View**
- ⍾ Right-Click desired entry
- ⌨ Enter key to restart without interruption
- ⌨ Spacebar to toggle playback on and off
- ⍾ Right-Click top-client area of library window to stop playback without restarting

ADDING ENTRIES TO THE CURRENT SESSION (top)

➔**Add selected entries to the MultiTrack at the cursor position starting from the current Hot Track and continuing downward**
- Left-Click File button | Add Selected To MultiTrack
- Insert key

➔**Add selected library entries to the current Hot Track back to back**
- Left-Click File button | Add Selected To MultiTrack HotTrack
- Ctrl-Insert key

➔**Link selected entries to the Regions View window**
- Left-Click Link button

➔**Link selected entry to the MultiTrack using drag-and-drop**
- Alt-Left-Click desired entry, click on empty area of MultiTrack to place

➔**Importing selected entries to the current session**
- Left-Click Import button

ACCESSING EDL REGION GROUPS (top)

➔**Access region group information**
- Left-Click the Group button

Effects View Functions

PATCHING IN EFFECTS (top)

➔**Patch in selected effect from FX Choices windows**
- Left-Click the Add button on desired FX Patch window

➔**Toggle between Bypass and Normal FX mode**
- Left-Click yellow FX icon on mixer

➔**Clear Pre, Pst and F-Res patches on current hot track or group of tracks**
- Left-Click the Rem button on applicable Pre, Pst, or F-Res patch window

➔**Clear Pre, Pst and F-Res patches on all tracks**
- Ctrl-Left-Click the Rem button on applicable Pre, Pst, or F-Res patch window

➔**Display the FX Choices window**
- Left-Click the FX button in any Pre, Pst, or F-Res patch window
- **M** View | FX Choices

➔**Groups selected effects in FX Choices window**
- Left-Click the Group button in the FX Choices window

Automation Gallery View Functions

VIEWING, ADDING, CREATING AUTOMATION FILES (top)

➔**Select folder containing (.aut) automation files**
⤶ Left-Click the File button and select Open Directory Of Automation Files

➔**Insert automation to MultiTrack**
⤶ Left-Double-Click Gallery entry
⤶ Left-Click Insert To MT button
⌨ Insert key

➔**Save marked area of automation**
⤶ Left-Click the File button and select Save Automation File

➔**Clear Gallery listbox and thumbnail display**
⤶ Left-Click the File button and select Clear Gallery Window

Control Track View Functions

USING CONTROL ENTRIES AND MIDI COMMANDS (top)

➔**Select built-in command type**
⤶ Left-Click the Built-In Cmds zone

➔**Add control at MT cursor position**
⌨⤶ Select command type, make desired changes in dialog box, click OK.

➔**Toggle playback on and off**
⌨ Spacebar
⤶ Right-Click

➔**PreLoad playback or stop**
⌨ Enter key

➔**Jump and continue playback for instant live cueing operations in the Control Track listbox**
⌨⤶ Select Cue Locations in the Control Track View Listbox using the mouse or keyboard during playback

➔**Jump the MultiTrack view directly to the Control Track**
⤶ Left-Click the Jump To Control Track zone (Capital letter C)

➔**Drop a Cue Location command at the current MultiTrack cursor position**
⌨ Q key

➔**Drop a Cue Location / PreLoad command at the current MultiTrack cursor position**
⌨ Shift-Q

➔**Drop a Cue Location / Play command at the current MultiTrack cursor position**
⌨ Ctrl-Q

➔**Find the marked time between entries**
⌨⤶ Left-Click the first entry of interest, then Alt-Left-Click the next entry (further down the timeline)

Video Track View Functions

USING VIDEO CLIP ENTRIES (top)

Open Video Viewer
M View | Video Viewer
🖑 Left-Click Video Track label area

Display the Video Viewer menu
🖑 Left-Click the blue pyramid icon

Open files in the viewer
🖑 Left-Click blue pyramid icon, select Open Video File or Open Image File from the File menu option

Open files in the viewer and add a clip at the current cursor position on the Video Track moving conflicting entries
🖑 Left-Click blue pyramid icon, select Open Video File And Add To MT or Open Image File And Add To MT from the File menu option

Open files in the viewer and insert a clip at the current cursor position on the Video Track overwriting conflicting entries
🖑 Left-Click blue pyramid icon, select Open Video File And Insert To MT or Open Image File And Insert To MT from the File menu option

Zoom Video
🖑 Left-Click blue pyramid icon, select desired Zoom option

Get File Properties
🖑 Right-Click on video image display

Close file
🖑 Left-Click blue pyramid icon, select Close Video/Image File

Toggle Edit Mode on and off
🖑 Left-Click Edit Light

EDIT MODE (top)

Toggle Video playback on and off
🖑 Left-Click Play and Stop buttons on viewer

Scrub Video
🖑 Left-Click or Left-Drag in Scrub Zone

Step Video
🖑 Left-Click Step Forward and Step Backward buttons

Set In/Out Point
🖑 Use Scrub/Step tools then click In button or Out button

Add a clip to the MultiTrack moving conflicting entries
🖑 Left-Click blue pyramid icon, select Create New Clip And Add To MT

Insert a clip to the MultiTrack Overwriting conflicting entries
🖑 Left-Click blue pyramid icon, select Create New Clip And Insert To MT

Rename a clip
🖱   Left-Click blue pyramid icon, select Re-Name Clip

Delete a clip
🖱   Left-Click blue pyramid icon, select Delete Clip

Delete unused clips
🖱   Left-Click blue pyramid icon, select Delete All Unused Clips

Delete all clips
🖱   Left-Click blue pyramid icon, select Delete All Clips

Convert Video
🖱   Left-Click blue pyramid icon, select Conversion option from Convert/Extract menu

Extract Audio
🖱   Left-Click blue pyramid icon, select Extract Audio from Convert/Extract menu

TIMELINE MODE (top)

Scrub Video
🖱   Left-Click or Left-Drag in the MultiTrack
🖱   Left-Click or Left-Drag in the Scrub Zone

Step Video
🖱   Left-Click Step Forward and Step Backward buttons

Toggle Video playback on and off
🖱   Left-Click Play and Stop buttons on viewer
🖱   Right-Click in MultiTrack

Update In and Out points
🖱   Adjust clip entry boundaries in MultiTrack

Move and copy clips
⌨🖱 Shift-Left-Drag to move. Tap right-mouse button during move operation to copy

Split clip and keep both entries
⌨   K key

Split clip and remove left entry without affecting following entries
⌨   R key

Split clip and delete left entry pulling following butt-spliced entries forward
⌨   D key

Extracting audio the MultiTrack
🖱   Left-Click blue pyramid icon, select Extract Audio to MT from Convert/Extract menu

RENDERING / CAPTURING OPTIONS (top)

Render to FireWire in real-time
🖱   Left-Click blue pyramid icon, select Render RealTime To FireWire

Render Final Output to DV
    🖰   Left-Click blue pyramid icon, select Render to DV option

Capture to DV Video
    🖰   Left-Click blue pyramid icon, select Capture From FireWire

SPECIAL OPTIONS (top)

Measure how many milliseconds per frame it takes to seek independent frames one by one
    🖰   Left-Click blue pyramid icon, select Test Static Seek Time

Measure how many milliseconds per frame it takes to seek successive frames that may be built upon information contained in the previous frame
    🖰   Left-Click blue pyramid icon, select Test Running Seek Time

Session Functions

OPEN AND SETUP OPTIONS (top)

➔**Open an existing EDL**
    M   File | Open Session

➔**Close the current EDL and clear the MultiTrack and Mixer to default settings**
    M   File | Close Session

➔**Save current EDL with a new name and make that the current session**
    M   File | Save Session As…

➔**Save current EDL with a new name but not switch sessions to the new one**
    M   File | Save Session Copy As…

➔**Save current EDL with new filename trimming out all areas of associated soundfiles that are not used**
    M   File | Save And Trim Session

➔**Update and overwrite the current EDL with no further prompting**
    M   File | Update Session
    ⌨   Ctrl-S

➔**Display a list of the most recently used session files**
    M   File | Recent Session FileList

➔**Import an EDL file from earlier 32-bit SAW program**
    M   File | Import EditList File

➔**Add an existing soundfile directly to the MultiTrack cursor position on the current hot track without opening the soundfile**
    M   File | Add SoundFile To MT

➔**Add an existing soundfile and add entire file as a region to the regions list without opening the soundfile**
    M   File | Add SoundFile As Region

➔**Open an existing soundfile to SoundFile View**
   M   File | Open SoundFile

➔**Open an existing soundfile directly to the MultiTrack cursor position on the current hot track**
   M   File | Open SoundFile And Add to MT

➔**Open an existing soundfile and add entire file as a region to the regions list**
   M   File | Open SoundFile And Create Region

➔**Open and existing soundfile direct to the SoundFile View window and refresh peak data file information**
   M   File | Open SoundFile And Refresh

➔**Close current soundfile and clear SoundFile View window**
   M   File | Close SoundFile

➔**Display a list of the most recently used soundfiles**
   M   File | Recent SoundFile FileList

➔**Open an existing Mix Template**
   M   File | Mix Template File | Open

➔**Save current mixing console layout, assignments and settings to a .MXT file**
   M   File | Mix Template File | Save

➔**Save current mixing console setup as the default setup**
   M   File | Mix Template File | Save Default

➔**Clear the current default Mix Template file and revert to internal mixing console defaults**
   M   File | Mix Template File | Clear Default

➔**Choose session samplerate**
   M   MultiTrack | SampleRate

➔**Choose resolution**
   M   MultiTrack | Resolution

➔**Choose dither option**
   M   MultiTrack | Dither

➔**Activate MultiTrack Soft-Clipping**
   M   MultiTrack | MultiTrack Soft-Clipping

➔**Display SoftEdge information over the MT Entries displayed in the MultiTrack**
   M   MultiTrack | SoftEdge Display

➔**Clear the mixing console to the internal default or default mix template settings**
   M   Mixer | Clear Mixer To Default

➔**Clear mixer and track labels**
   M   Mixer | Clear Mixer Labels

➔**Activate the built-in meter displays on the Full Mixer and/or Exploded Mixer views**
   M   Mixer | Meter Active

➔**Control how peak information is displayed on the meters**
   M   Mixer | Meter PeakHold

➔**Control response time of the meters**
M   Mixer | Meter Response

➔**Control position of Full Mixer labels**
M   Mixer | Full Mixer Label Position

Smpte/Midi Functions

SMPTE / MIDI SETUP OPTIONS (top)

➔**Choose a SMPTE/MTC format**
M   Smpte/Midi | Smpte/Mtc Format

➔**Set Smpte/Mtc start offset from dialog box**
M   Smpte/Midi | Set Smpte/Mtc Start Offset

➔**Activate Midi-Control input functions**
M   Smpte/Midi | Midi-Control In Active

➔**Activate Midi-Control output functions**
M   Smpte/Midi | Midi-Control Out Active

➔**Load a template containing the Midi commands and function hooks for different midi controller devices**
M   File | Midi-Control Template | Open

➔**Save current Midi commands and function hooks to a .MCT file**
M   File | Midi-Control Template | Save

➔**Clear currently open Midi controller template**
M   File | Midi-Control Template | Clear

Final Mix Functions

BUILD MIX OPTIONS (top)

➔**Build a mix to a new soundfile**
M   Process/MixDown | Build Mix To New SoundFile(s)

➔**Build a mix to the current hot track**
M   Process/MixDown | Build Mix To Current Hot Track

➔**Build a mix passing all data through the FX modules to create their own special output data**
M   Process/MixDown | Build Mix To FX Modules

24.2   Quick Key Reference

Key: **A**
Operation: Toggles Automation Mode On/Off

Window: MultiTrack (Normal/Select Mode) | All Mixer Views

Key: **Ctrl-A**
Operation: Select all entries
Window: MultiTrack (Select Mode only)

Key: **B**
Operation: Mark begin of marked area
Window: MultiTrack (Normal Mode) | SoundFile View

Key: **Shift-B**
Operation: Move the beginning of an existing marked area to the current cursor position and automatically shift the end position to maintain the same marked area size.
Window: MultiTrack (Normal Mode) | SoundFile View

Key: **Ctrl-B**
Operation: Mark an MT Entry as a marked area
Window: MultiTrack (Normal Mode)

Key: **Alt-B**
Operation: Mark an MT Entry including softedges as a marked area
Window: MultiTrack (Normal Mode)

Key: **Ctrl-B**
Operation: Mark the entire soundfile as a marked area
Window: SoundFile View

Key: **C**
Operation: Clear Marked Area
Window: MultiTrack (Normal Mode) | SoundFile View

Key: **C**
Operation: Clear Selection
Window: MultiTrack (Select Mode)

Key: **Ctrl-C**
Operation: Copy Marked Area data to new region and select ready for a paste operation with [Insert] or [Shift-Insert].
Window: MultiTrack (Normal Mode)

Key: **D**
Operation: Split an MT Entry and delete the new entry to the left of the cursor position on the current hot track pulling following butt-spliced entries forward
Window: MultiTrack (Normal Mode)

Key: **Ctrl-D**
Operation: Split an MT Entry and delete the new entry to the left of the cursor position on all tracks pulling following butt-spliced entries forward
Window: MultiTrack (Normal Mode)

Key: **Alt-D**
Operation: Split an MT Entry and delete the new entry to the right of the cursor position on the current hot track pulling following butt-spliced entries forward
Window: MultiTrack (Normal Mode)

Key: **Ctrl-Alt-D**
Operation: Split an MT Entry and delete the new entry to the right of the cursor position on all tracks

pulling following butt-spliced entries forward
Window: MultiTrack (Normal Mode)

Key: **E**
Operation: Mark end of marked area
Window: MultiTrack (Normal Mode) | SoundFile View

Key: **Shift-E**
Operation: Move the ending of an existing marked area to the current cursor position and automatically shift the begin position to maintain the same marked area size.
Window: MultiTrack (Normal Mode) | SoundFile View

Key: **Ctrl-E**
Operation: Mark an MT Entry as a marked area
Window: MultiTrack (Normal Mode)

Key: **Alt-E**
Operation: Mark an MT Entry including softedges as a marked area
Window: MultiTrack (Normal Mode)

Key: **Ctrl-E**
Operation: Mark the entire soundfile as a marked area
Window: SoundFile View

Key: **F**
Operation: Fade up or down to the next automation change or create a fade stretched within a marked area
Window: MultiTrack (Automation Mode)

Key: **Shift-F**
Operation: Reverse fade defaults and force a ramp up
Window: MultiTrack (Automation Mode)

Key: **K**
Operation: Split an MT Entry and keep both new entries at the cursor position on the current hot track
Window: MultiTrack (Normal Mode)

Key: **Ctrl-K**
Operation: Split an MT Entry and keep both new entries at the cursor position on all tracks
Window: MultiTrack (Normal Mode)

Key: **L**
Operation: Toggle Live Mode on and off
Window: MultiTrack (All Modes) | All Mixer Views

Key: **M**
Operation: Split An MT Entry and mark new entry on the left of the cursor position on current hot track for Select Mode
Window: MultiTrack (Normal Mode)

Key: **Ctrl-M**
Operation: Split An MT Entry and mark new entry on the left of the cursor position for Select Mode on all tracks
Window: MultiTrack (Normal Mode)

Key: **N**

Operation: Create a <u>n</u>ew region from a marked area
Window: SoundFile View

Key: **O**
Operation: Activate <u>Offset</u> Mode
Window: MultiTrack (Normal/Select Mode) | All Mixer Views

Key: **O**
Operation: Exit <u>Offset</u> Mode and apply offsets to all affected automation entries
Window: MultiTrack (Offset Mode) | All Mixer Views

Key: **Ctrl-O**
Operation: Exit <u>Offset</u> Mode and cancelling all changes and leaving all automation in original state
Window: MultiTrack (Offset Mode) | All Mixer Views

Key: **Shift-O**
Operation: Enter Relative <u>Offset</u> Mode
Window: MultiTrack (Normal/Select Mode) | All Mixer Views

Key: **Q**
Operation: Activate a Cue Location command at the current cursor position
Window: MultiTrack (All Modes)

Key: **Shift-Q**
Operation: Activate a Cue Location / PreLoad command at the current cursor position
Window: MultiTrack (All Modes)

Key: **Ctrl-Q**
Operation: Activate a Cue Location / Play command at the current cursor position
Window: MultiTrack (All Modes)

Key: **R**
Operation: Split an MT Entry and <u>r</u>emove the new entry to the left of the cursor position on the current hot track without affecting following entries
Window: MultiTrack (Normal Mode)

Key: **Ctrl-R**
Operation: Split an MT Entry and <u>r</u>emove the new entry to the left of the cursor position on all tracks without affecting following entries
Window: MultiTrack (Normal Mode)

Key: **Alt-R**
Operation: Split an MT Entry and <u>r</u>emove the new entry to the right of the cursor position on the current hot track without affecting following entries
Window: MultiTrack (Normal Mode)

Key: **Ctrl-Alt-R**
Operation: Split an MT Entry and <u>r</u>emove the new entry to the right of the cursor position on all tracks without affecting following entries
Window: MultiTrack (Normal Mode)

Key: **R**
Operation: Refresh peakdata information for currently open soundfile
Window: SoundFile View

Key: **S**

Operation: Activate Select Mode clearing all previous entry selections
Window: MultiTrack (Normal Mode)

Key: **S**
Operation: Toggle Select Mode Off
Window: MultiTrack (Select Mode)

Key: **Ctrl-S**
Operation: Save the current session
Window: Global

Key: **Shift-S**
Operation: Activate Select Mode pre-selecting the last group of selected entries
Window: MultiTrack (Normal Mode)

Key: **T**
Operation: Transfer MT region to SoundFile View Setting SF Device Out to match the assignment routing of the entry's track
Window: MultiTrack (All Modes)

Key: **Ctrl-T**
Operation: Toggle between current and last selected time display mode
Window: MultiTrack (All Modes)

Key: **Shift-T**
Operation: Transfer cursor to stopped playback position when zoomed past 256 samples per pixel level
Window: MultiTrack (All Modes) | SoundFile View

Key: **U**
Operation: Update nearest MT Entry boundary to current cursor position
Window: MultiTrack (Normal Mode)

Key: **U**
Operation: Update currently selected region based on soundfile data
Window: SoundFile View

Key: **Shift-U**
Operation: With the cursor positioned near the end boundary of the left entry of a butt-spliced pair, this will Update the end boundary to the current cursor position and adjust following butt-spliced positions to remain attached
Window: MultiTrack (Normal Mode)

Key: **Ctrl-U**
Operation: Update nearest MT Entry boundary to current cursor position, adjusting butt-spliced boundaries to keep overall time sync unaffected
Window: MultiTrack (Normal Mode)

Key: **V**
Operation: Toggle View Filter On/Off
Window: MultiTrack (Automation Mode)

Key: **W**
Operation: Toggle the waveform display On/Off
Window: MultiTrack (Normal/Select Mode)

Key: **X**
Operation: Create an automatic crossfade in a marked area across two butt-spliced entries

Window: MultiTrack (Normal Mode)

Key: **Z**
Operation: Locate the nearest ZeroCross position
Window: MultiTrack (All Modes) | SoundFile View

Key: **>**
Operation: Increment the Hot Track fader .25 db
Window: MultiTrack (All Modes)

Key: **Ctrl >**
Operation: Go forward one Redo level
Window: Global

Key: **<**
Operation: Decrement the Hot Track fader .25 db
Window: MultiTrack (All Modes)

Key: **Ctrl <**
Operation: Go back one Undo level
Window: Global

*The Greater Than/Less Than (< >) symbols are used as a visual reference. Do not use the Shift key modifier with these keys.

Key: **=**
Operation: Center the cursor in the MultiTrack And SoundFile views
Window: MultiTrack (All Modes) | SoundFile View

Key: **/ (Numpad)**
Operation: Change the slope value for all entries within a marked range on the current hot track or selected tracks in milliseconds
Window: MultiTrack (Automation Mode)

Key: *** (Numpad)**
Operation: Create a forced snapshot (undo) of current session
Window: MultiTrack

Key: **Backspace**
Operation: Snap selected entries to the current cursor position using the front of the key entry as the location reference
Window: MultiTrack (Select Mode)

Key: **Backspace**
Operation: Activate ReTake to Last Record Position option
Window: Record Remote Transport

Key: **Backspace**
Operation: Snap marked automation entries or marked Control Track entries to the current cursor position
Window: MultiTrack (Automation/Normal Mode)

Key: **Shift-Backspace**
Operation: Snap selected entries to the current cursor position using the back of the key entry as the location reference
Window: MultiTrack (Select Mode)

Key: **Shift-Backspace**
Operation: Activate ReTake to Current Cursor Position option

Window: Record Remote Transport

Key: **Ctrl-Backspace**
Operation: Copy selected entries and snap new copies to the current cursor position using the front of the key entry as the location reference
Window: MultiTrack (Select Mode)

Key: **Ctrl-Backspace**
Operation: Activate ReTake All option
Window: Record Remote Transport

Key: **Ctrl-Shift-Backspace**
Operation: Copy selected entries and snap new copies to the current cursor position using the back of the key entry as the location reference
Window: MultiTrack (Select Mode)

Key: **Delete**
Operation: Split & remove all entries in a marked area without affecting following entries
Window: MultiTrack (Normal Mode) - Marked Area

Key: **Delete**
Operation: Delete an individual MT Entry without affecting following entries
Window: MultiTrack (Normal Mode)

Key: **Delete**
Operation: Remove selected regions and all associated MT Entries without affecting following entries on the timeline
Window: MultiTrack (Select Mode) | Regions View

Key: **Delete**
Operation: Clear all automation in an MT Marked Area on current hot track or selected tracks
Window: MultiTrack (Automation Mode)

Key: **Shift-Delete**
Operation: Split & remove all entries in a marked area pulling butt-spliced entries forward
Window: MultiTrack (Normal Mode) - Marked Area

Key: **Shift-Delete**
Operation: Delete an MT Entry pulling butt-spliced entries forward
Window: MultiTrack (Normal Mode)

Key: **Shift-Delete**
Operation: Remove selected regions and all associated MT Entries pulling all following butt-spliced entries forward on the timeline
Window: MultiTrack (Select Mode) | Regions View

Key: **Ctrl-Delete**
Operation: Split & remove all entries in a marked area pulling all following entries forward
Window: MultiTrack (Normal Mode) - Marked Area

Key: **Ctrl-Delete**
Operation: Delete an MT Entry pulling all following entries forward
Window: MultiTrack (Normal Mode)

Key: **Ctrl-Delete**
Operation: Remove selected regions and all associated MT Entries pulling all following entries forward on the timeline

Window:	MultiTrack (Select Mode) ⎮ Regions View
Key:	**Ctrl-Delete**
Operation:	Clear all automation in an MT Marked Area on all tracks
Window:	MultiTrack (Automation Mode)
Key:	**End**
Operation:	Jump to last channel
Window:	Full View Mixer Window | Zoom Mixer Window | Wide Mixer Window
Key:	**End**
Operation:	Jump cursor to session end position
Window:	MultiTrack (Normal Mode)
Key:	**End**
Operation:	Select all entries to the end of the current track starting with last selected entry
Window:	MultiTrack (Select Mode)
Key:	**End**
Operation:	Selects all entries on the current Hot Track if no entries are selected.
Window:	MultiTrack (Select Mode)
Key:	**End**
Operation:	Jump to end of soundfile
Window:	Soundfile View
Key:	**End**
Operation:	Select last region in list
Window:	Regions View
Key:	**End**
Operation:	Select last entry in list
Window:	Library View
Key:	**Ctrl-End**
Operation:	Select all entries to the end of the current track and down across all following tracks starting with last selected entry
Window:	MultiTrack (Select Mode)
Key:	**Shift-End**
Operation:	Select all entries from the last selected entry to the end of the set of butt-spliced entries on current track
Window:	MultiTrack (Select Mode)
Key:	**Enter**
Operation:	Initiate normal record when record meters are active
Window:	MultiTrack (All Modes) | SoundFile View | All Mixer Views
Key:	**Enter**
Operation:	Initiate playback preload when record meters are not active
Window:	MultiTrack (All Modes) | All Mixer Views
Key:	**Enter**
Operation:	Punch-in and out during SRP
Window:	MultiTrack (All Modes) | All Mixer Views
Key:	**Enter**

Operation: PreLoad playback or stop
Window: Control Track View

Key: **Home**
Operation: Jump to first channel
Window: Full View Mixer Window | Zoom Mixer Window | Wide Mixer Window

Key: **Home**
Operation: Jump cursor to zero locate position
Window: MultiTrack (Normal Mode)

Key: **Home**
Operation: Select all entries to the beginning of the current track starting with last selected entry
Window: MultiTrack (Select Mode)

Key: **Home**
Operation: Jump to beginning of soundfile
Window: SoundFile View

Key: **Home**
Operation: Select first region in list
Window: Regions View

Key: **Home**
Operation: Select first entry in list
Window: Library View

Key: **Shift-Home**
Operation: Set current cursor position as the new zero locate position
Window: MultiTrack (Normal Mode)

Key: **Shift-Home**
Operation: Select all entries from the last selected entry to the beginning of the set of butt-spliced entries on current track
Window: MultiTrack (Select Mode)

Key: **Ctrl-Home**
Operation: Reset the zero locate position to zero
Window: MultiTrack (Normal Mode)

Key: **Ctrl-Home**
Operation: Select all entries to the beginning of the current track and down across all following tracks starting with last selected entry
Window: MultiTrack (Select Mode)

Key: **Insert**
Operation: Add selected regions to the MultiTrack at the current cursor position down sequential tracks
Window: Regions View Window • Library View Windows

Key: **Insert**
Operation: Insert selection automation into the MultiTrack at the cursor position
Window: Automation Gallery View Window (Automation Mode in MT)

Key: **Insert**
Operation: Insert selected entries at the current cursor position using the front of the key entry as the location reference, splitting and overwriting any existing entries that conflict
Window: MultiTrack (Select Mode)

Key: **Shift-Insert**
Operation: Insert selected regions to the MultiTrack at their original time-stamped cursor positions down sequential tracks, and overwrite any underlying entries.
Window: Regions View Window

Key: **Shift-Insert**
Operation: Insert selected regions to the MultiTrack at the current cursor position down sequential tracks, and overwrite any underlying entries.
Window: Library View Window

Key: **Shift-Insert**
Operation: Insert selected entries at the current cursor position using the back of the key entry as the location reference, splitting and overwriting any existing entries that conflict
Window: MultiTrack (Select Mode)

Key: **Ctrl-Insert**
Operation: Add selected library entries to the current Hot Track back to back
Window: Library View Window

Key: **Ctrl-Insert**
Operation: Copy selected entries and insert the new copies at the current cursor position using the front of the key entry as the location reference, splitting and overwriting any existing entries that conflict
Window: MultiTrack (Select Mode)

Key: **Ctrl-Shift-Insert**
Operation: Copy selected entries and insert the new copies at the current cursor position using the back of the key entry as the location reference, splitting and overwriting any existing entries that conflict
Window: MultiTrack (Select Mode)

Key: **Alt-Insert**
Operation: Insert selected regions to the MultiTrack at the current cursor positions down sequential tracks, and overwrite any underlying entries.
Window: Regions View Window

Key: **Page Down**
Operation: Scroll to previous console section
Window: Zoom Mixer View | Exploded View Mixer Window

Key: **Page Up**
Operation: Scroll to next console section
Window: Zoom Mixer View | Exploded View Mixer Window

Key: **Page Down**
Operation: Decrease Track Height
Window: MultiTrack View

Key: **Page Up**
Operation: Increase Track Height
Window: MultiTrack View

Key: **Shift-Page Down**
Operation: Decrease waveform scaling factor
Window: MultiTrack View | SoundFile View

Key: **Shift-Page Up**
Operation: Increase waveform scaling factor
Window: MultiTrack View | SoundFile View

Key:	**Ctrl-Shift-Page Down**
Operation:	Decrease waveform scaling factor to minimum
Window:	MultiTrack View	SoundFile View

Key:	**Ctrl-Shift-Page Up**
Operation:	Increase waveform scaling factor to maximum
Window:	MultiTrack View	SoundFile View

Key:	**Spacebar**
Operation:	Toggle playback On/Off
Window:	MultiTrack (All Modes)	SoundFile View	Regions View	Library View	Control Track View	All Mixer Views

Key:	**Spacebar**
Operation:	Initiate SRP when record meters are active
Window:	MultiTrack (All Modes)	All Mixer Views

Key:	**Spacebar**
Operation:	Stop normal record when record meters are active
Window:	MultiTrack (All Modes)	SoundFile View	All Mixer Views

Key:	**Shift-Spacebar**
Operation:	Initiate playback of marked area
Window:	SoundFile View

Key:	**Ctrl-Spacebar**
Operation:	Initiate playback and loop of marked area
Window:	SoundFile View

Key:	**Tab**
Operation:	Navigate the MultiTrack entries while keeping the current mixer view window active.
Window:	Full View Mixer Window	Zoom Mixer Window	Wide Mixer Window

Key:	**Tab**
Operation:	Jump cursor to next MT Entry boundary
Window:	MultiTrack (Normal Mode)

Key:	**Tab**
Operation:	Link selected region to all MT Entries that reference it
Window:	Regions View Window

Key:	**Shift-Tab**
Operation:	Jump cursor to previous MT Entry boundary
Window:	MultiTrack (Normal Mode)

Key:	**Shift-Tab**
Operation:	Reset the usage count to the first entry usage
Window:	Regions View Window

Key:	**Ctrl-Tab**
Operation:	Snap to next automation change on current hot track
Window:	MultiTrack (Automation Mode)

Key:	**Ctrl-Shift-Tab**
Operation:	Snap to previous automation change on current hot track
Window:	MultiTrack (Automation Mode)

Key: **F1-F12**
Operation: Recall workspace view
Window: Global

Key: **Shift F1-F12**
Operation: Save workspace view
Window: Global

Key: **Alt-Shift F1-F12**
Operation: Save alternate workspace view
Window: Global

Key: **1-8 (Number keys at top of keyboard)**
Operation: Switch layers on the current Hot Track or selected tracks
Window: MultiTrack (All Modes)

Key: **Ctrl 1-8 (Number keys at top of keyboard)**
Operation: Switch all tracks to that layer
Window: MultiTrack (All Modes)

Key: **1 (Numpad)**
Operation: Zoom into 1 sample per pixel
Window: MultiTrack (All Modes) | SoundFile View

Key: **2 (Numpad)**
Operation: Zoom into 4 samples per pixel
Window: MultiTrack (All Modes) | SoundFile View

Key: **3 (Numpad)**
Operation: Zoom into 16 samples per pixel
Window: MultiTrack (All Modes) | SoundFile View

Key: **4 (Numpad)**
Operation: Zoom into 64 samples per pixel
Window: MultiTrack (All Modes) | SoundFile View

Key: **5 (Numpad)**
Operation: Zoom into 256 samples per pixel
Window: MultiTrack (All Modes) | SoundFile View

Key: **6 (Numpad)**
Operation: Zoom into 1024 samples per pixel
Window: MultiTrack (All Modes) | SoundFile View

Key: **7 (Numpad)**
Operation: Zoom into 4096 samples per pixel
Window: MultiTrack (All Modes) | SoundFile View

Key: **8 (Numpad)**
Operation: Zoom into 16384 samples per pixel
Window: MultiTrack (All Modes) | SoundFile View

Key: **9 (Numpad)**
Operation: Zoom into 65536 samples per pixel
Window: MultiTrack (All Modes) | SoundFile View

Key:	**Ctrl-1 thru 9 (Numpad)**
Operation:	Adjust waveform scaling factor
Window:	MultiTrack (All Modes) | SoundFile View

Key:	**Alt-0 thru 9 (Numpad)**
Operation:	Jump to Locate Points 1-10 (0=10)
Window:	MultiTrack (All Modes)

Index

- + -

- 0 -

- A -

- B -

- C -

- D -

- K -

- L -

- M -

- T -

- U -

- - -

- Z -