MACKIE®

TRACKTION 2

MUSIC PRODUCTION SOFTWARE

REFERENCE GUIDE

Revision A
3/16/05

TRACKTION 2

MUSIC PRODUCTION SOFTWARE

Note: Tracktion originated in the mind of Julian Storer, an English programmer with a love of audio. Stateside Tracktioneers* will notice a distinctly British flavor to the user interface. To help you understand Tracktion better, the manual was written with a British accent (thank you to Adam Starkey). So sit back, imagine yourself overlooking an English moor (or in an English pub if you prefer), and enjoy Tracktion!

*People who use Tracktion

Don't forget to visit our website at www.mackie.com for more information about this and other Mackie products.

Part No. SW0195 Rev. A 3/05

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Chapter 1: The projects page

Hello and welcome to Tracktion! If you have not already read through the Tracktion User's Guide, may we suggest you start there. The User's Guide is specifically designed to get you up and writing music with your new Tracktion software as fast as possible.

Note: If you have not yet registered your copy of Tracktion, and you are looking for assistance on how to do so, jump to Section Three of this chapter. The description of the "about" button contains specific instructions on registering Tracktion.

Whilst there is no reason why you shouldn't read this Reference Manual from cover to cover, we are confident that you will find Tracktion so easy to learn that you will mostly want to turn to this Manual when you have specific questions. As such the Reference Manual is structured into broad sections that relate to specific areas in Tracktion. Each of these areas is detailed with explanations of the options you will find, and hints to related options or controls that you may find useful.

1.1 The project list

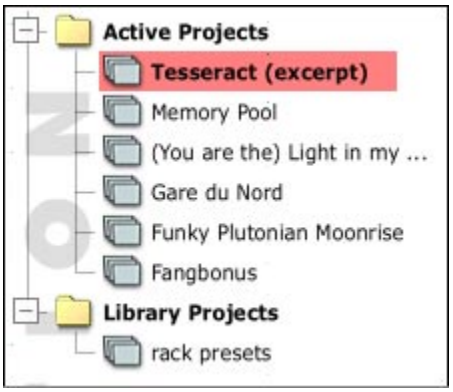

Figure 1.1.1

The project list is not, as it may at first appear, a list of all projects on your hard-drive. Instead, it shows those projects that are currently open. An open project can be thought of as a book-marked project. It isn't open in the way that a document may be open in a word processor, rather it is marked as being a work in progress. All newly created projects, or unpacked archives (archives are discussed in Chapter 10.2), are opened by default, ready for you to work on them. Projects that you have previously closed, however, need to be re-opened before they can be edited.

The project-list is comprised of two folders. The first of these folders is the "active projects" folder, and this is where all of your current projects will be shown. The second folder is the "library projects" folder, and whilst it is broadly similar to the "active projects" folder, it has a few special properties.

The order in which projects are listed can be changed by dragging projects to a new slot in the list. You could, for example, move your most commonly accessed projects to the top of the list, for easy location. Projects can be moved between the active projects and library projects folders in the same manner.

Active projects

The "active projects" folder is used to bookmark all of your current works-in-progress.

Library projects

Projects held in the “library projects” folder can be used to store material that may be shared between a number of projects.

In particular, library projects could be created to consolidate material such as sample libraries, and MIDI files, that may otherwise be spread across various directories and hard-drives on your computer.

Adding samples to library projects can also be used to keep edit archives as small as possible. The export dialogue-box contains an option labelled “include files from library projects.” When this option is disabled, any samples used in the edit that are also contained in a library project, will not be stored in the archive. Exporting edits is discussed in Chapter 10.

The right-click menus

This reference manual assumes you have a two-button mouse. For Mac users with a single-button mouse, the right-click options are available by holding down the CTRL key whilst clicking. A two-button mouse can be used with a Mac as well as a PC, and you will find Tracktion far faster to use with a two-button USB mouse. Such mice are inexpensive and can be found at most good computer or office stores.

Right-clicking on any project entry in either the active or the library project folders causes a pop-up menu (Fig. 1.1.2) to be displayed:

Figure 1.1.2

Unpack an archive into this project...: Use this option to unpack the contents of a Tracktion archive into the current project. Project archives are discussed further in Chapter 10.

Close this project: Select this option to remove the current project from the project-list. Closing projects does not lose, or delete the project; it merely clears the entry from the list allowing you to keep your work-list tidy. Closed projects can be re-opened at any time by clicking the “open project” button in the control-section.

Close all active projects: Select this option to remove all projects from the project-list. The closed projects can be re-opened at any time by clicking the “open project..” button in the control-section, at the bottom-left corner of the screen.

Right-clicking on either the library folder or the active projects folder causes a pop-up menu (Fig. 1.1.3) to be shown:

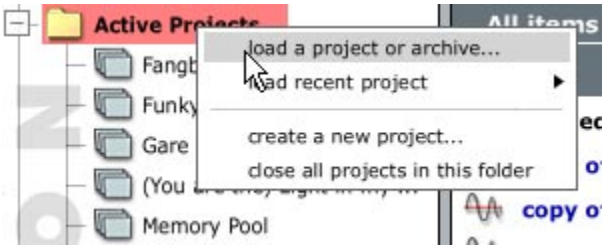

Figure 1.1.3

Load a project or archive: This option allows you to open a previously closed project, or import a Tracktion archive file. You will be prompted for the path to the project or archive file. If you import an archive, you will also be prompted for a folder in which to unpack the archive contents.

Load a recent project: This option displays a sub-menu with a list of recently closed projects. Selecting one of the entries will re-open the project.

Create a new project: Select this option to create a new project. You will be prompted for a folder to save the project in. It is a good idea to create a new empty folder for each project, since otherwise, the various audio files you record in the new project will be scattered among other, pre-existing files. If you choose to use a folder that is not empty, Tracktion will display a warning and ask if you wish to have a new folder created in the current folder.

Close all projects in this folder: Select this option to remove the current project from the project-list. Closing all projects does not lose, or delete the projects; it merely clears the entry from the list allowing you to keep your work-list tidy. Closed projects can be re-opened at any time by clicking the "open project.." button in the control-section. Section Three of this chapter discusses the control-section.

In addition to these options, when a project folder is selected, the properties-panel (Fig. 1.1.4) displays the following options:

Figure 1.1.4

Load a project or archive: Like the option available from the right-click menu, this option allows you to open a previously closed project, or import a Tracktion archive file.

Create a new project: Select this option to create a new project.

1.2 The search tool

The search tool (Fig. 1.2.1), located just below the project list, can be used to search your projects for keywords. The search is often useful for finding resources attached to projects. For example if you have a hi-hat sample in a project and you wish to use it in another, assuming the sample had "hi-hat" somewhere in its name, you could do a search for that keyword to locate it.

Figure 1.2.1

Search keywords: Enter the name, or part of the name, of the material you are searching for, in the box.

Select projects: Click this button to select which projects the search is performed. A pop-up menu (Fig. 1.2.2) appears, from which you can select your list of active and library projects.

Search: Click this button to start the search. The results are shown in the items list. Click a search result to find out more about it, including which project it is in.

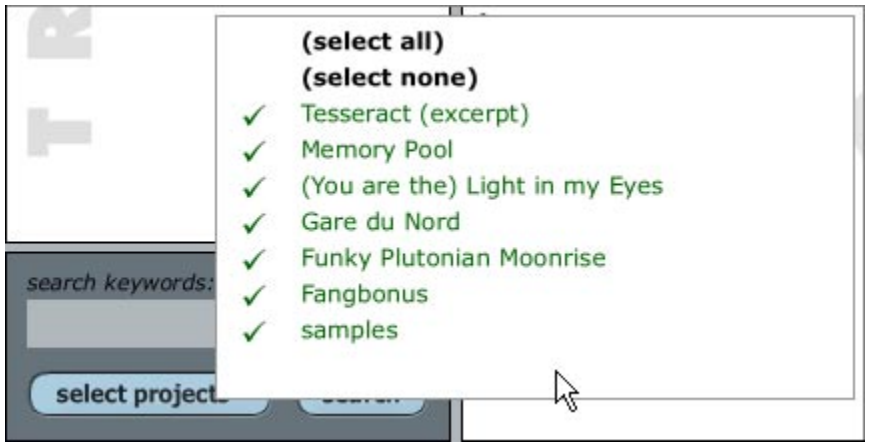

Figure 1.2.2

1.3 The control section

The control section is located below the search box (Fig. 1.3.1).

Figure 1.3.1

The following options are available:

New project..: Click this button to create a new project. You will be prompted for a folder to save the project in. It is a good idea to create a new empty folder for each project. If you choose to use a folder that is not empty, Tracktion will display a warning and ask if you wish to have a new folder created in the current folder.

Once the project has been created, Tracktion will add an entry to the project-list.

Clipboard: This button displays a pop-up menu (Fig. 1.3.2) containing various standard editing options, such as cut, copy, paste, and delete. The contents of the clipboard are shown in the clipboard panel. You can use the clipboard to copy content between projects, and also, once copied, material can be pasted into edits. This can be an efficient way of locating audio clips for use in an edit.

The following keyboard shortcuts can also be used to work with the clipboard:

- **CTRL + X** (**CMD + X** for Mac users): Cut.
- **CTRL + V** (**CMD + V** for Mac users): Paste.
- **CTRL + C** (**CMD + C** for Mac users): Copy.

Figure 1.3.2

Open project..: Click this button to open a previously closed project, or import a Tracktion archive file. You will be prompted for the path to the project or archive file. If you import an archive, you will also be prompted for a folder in which to unpack the archive contents.

Help: Click this button to the access help on using Tracktion (Fig. 1.3.3).

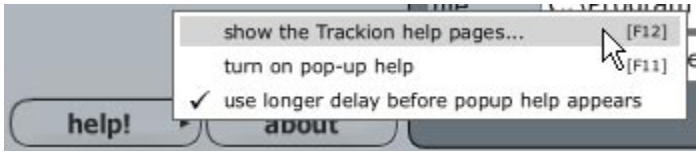

Figure 1.3.3

Show Tracktion help pages: This option displays the Tracktion User's Guide.
Keyboard shortcut: **F12**.

Turn on pop-up help: When this option is enabled, holding the mouse pointer over an option will cause Tracktion to display a pop-up window containing a description of the option. This can be handy when you are first finding your way around Tracktion.
Keyboard shortcut: **F11**.

Use longer delay before pop-up help appears: When this option is activated, Tracktion will wait a few moments before displaying the pop-up help. This setting has no effect unless the pop-up help is enabled.

About: When this button is clicked, a dialogue-box showing credits and information about Tracktion is shown. In addition this dialogue-box also shows your registration information.

If you have purchased, but not yet registered your copy of Tracktion, there are two ways you can unlock Tracktion from the 30-day demo period.

If you have an Internet connection on the computer that you are using Tracktion on:

- Click the "about" button. The "about Tracktion" dialogue-box will be displayed.
- Click the "unlock" button at the bottom of the dialogue-box. A second window will be shown.
- On the new window, click the "unlock online" button (make sure you are connected to the Internet at this point).
- You will be prompted for your email address, password, and license number. If you have never created a registration account with Mackie, simply place your email address and your choice of a password into the first two fields. If you do have an existing account with Mackie, you should just enter the email address

and password you previously chose. Enter the license number for your copy of Tracktion. You can find this number on a card that came with your Tracktion CDs. We strongly advise that you write this number in your printed Tracktion User's Guide if you have one, or keep it safely with your install CDs at all times!

- Once you have entered the required information, click the "register" button. Tracktion will then authorise itself, and if necessary, create a new Mackie registration account. You can use this account to log into the registered-users area of the Mackie web-site (http://my.mackie.com).

If you do not have an Internet connection on the computer that you are using Tracktion on:

- Click the "about" button. The "about Tracktion" dialogue-box will be displayed.
- Make a note of the Machine ID. You will need this later.
- Using a computer that does have Internet access, go to http://my.mackie.com using a web-browser such as Safari or Internet Explorer.
- If you have never created a registration account with Mackie before, follow the links to create a new account.
- When you have an account created, follow the links to log into the site.
- You will see a page with your registered products, if any. If you have already registered your copy of Tracktion, you will see it listed here. If not, follow the links to register your copy of Tracktion.
- Clicking on the Tracktion entry in the registered software list will take you to the download and keyfile page.
- Follow the links to register your machine ID, and enter the number you wrote down earlier.
- Follow the links to download the keyfile.
- You will need to transfer this keyfile to the computer onto which you installed Tracktion. Floppy disks, write-able CDs, or USB JumpDrives (memory sticks) are good ways to transfer files between computers.
- Once you have the keyfile saved on your the computer that Tracktion is installed on, you can use it to unlock Tracktion. Open Tracktion as normal, click the "about button," and click the "unlock" button at the bottom of the "about" dialogue-box. A second window will be shown.
- On the new window, click the "unlock from keyfile" button. A window will be displayed, from which you can navigate to the location to which you saved the keyfile.
- Select the keyfile and click "OK."
- Tracktion will now be registered.

If you have not yet purchased Tracktion, there is a button in the "about" dialogue box to purchase the software.

1.4 Project properties

When a project is selected, its properties are displayed in the properties-panel (Fig. 1.4.1). Various tools and options related to the project can be found on this panel.

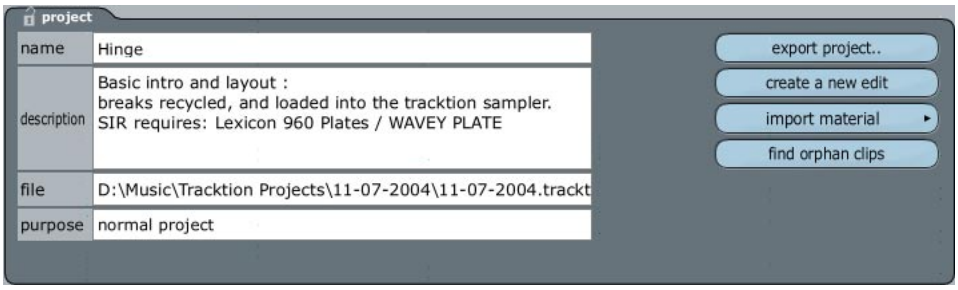

Figure 1.4.1

Name: You can view and edit the project name from this field. This is the name that Tracktion shows in the project-list. Note that changing the name here does not affect the project's actual file name.

Description: This field allows you to enter a description of the project. You can also use this field to leave yourself notes for future reference.

File: This field shows the location of the project on your hard-drive.

Export project: This option allows you to bundle the project and related materials into an archive. Use this if you want back up your work, or transfer it to another computer, for you or a collaborator to work on.

Selecting this option displays a dialogue-box where options related to the archive export can be set. You may also be interested in reading Chapter 10, where you will find more information on exporting and importing projects.

Create new edit: This option creates a new empty edit in the current project. If you wish to make a copy of an existing edit, select the edit in the item-list and click the "make a copy of this edit" button.

Import material: Use this option to associate audio or MIDI files with this project, or to import tracks from an audio CD. When this option is selected, a pop-up menu (Fig. 1.4.2) appears:

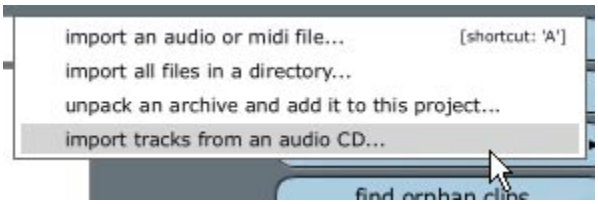

Figure 1.4.2

- *Import an audio or MIDI file...:* Use this option to add material on your hard-drive, or on a CD, to the edit. Files located on CDs are copied into the project folder, whereas files stored on a hard-drive are referenced from their source location.
  Keyboard shortcut: **A**.
- *Import all files in a directory...:* This option works much like the "import an audio or MIDI file..." option above. The difference is that this option imports all suitable files in to the selected directory (folder).
- *Unpack an archive and add it to this project...:* This option adds the items from an archive into the current project. The pop-up menu that is displayed when right-clicking on a project-list entry also provides this option.
- *Import tracks from an audio CD...:* Use this option to copy tracks from an audio CD into Tracktion. The imported tracks are saved as audio files in the project folder and added to the edit as standard audio clips. Chapter 10 discusses the import audio tracks dialogue-box.

Find orphan clips: This option allows you to find associated audio or MIDI files that are not used by any of the edits in this project. This is useful when you are trying to delete files that are no longer needed.

1.5 Edit properties

When an edit is selected, its properties are displayed in the properties-panel (Fig. 1.5.1). Various tools and options related to the edit can be found on this panel.

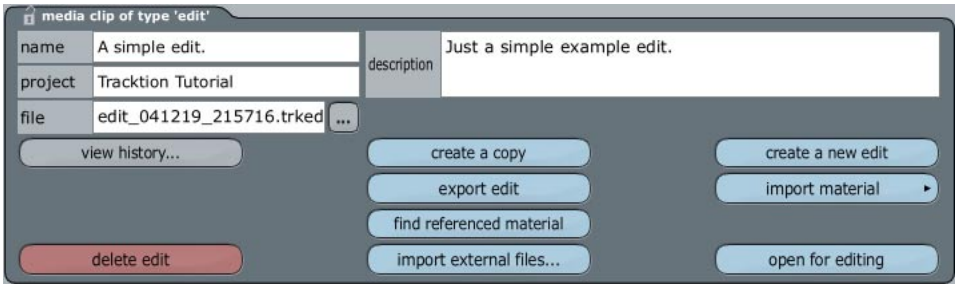

Figure 1.5.1

Name: This field shows the item name as seen in the item-list. You can also alter the name here. Renaming the edit here does not affect the file name, however.

Project: This field shows the project to which this item belongs.

Description: This field allows you to enter a description of the edit, or make notes for future reference. Bear in mind that this field is scanned by the search tool, so by inserting simple keywords into descriptions, you can make it very easy to locate material later

File: This field shows the location of the edit on your hard-drive.

Delete edit: Click this button to remove the edit from the project. This option cannot be undone.
Keyboard shortcut: **DELETE** or **BACKSPACE**.

Create a copy: Use this option to create a copy of this edit and add it to the project.

Export edit: This option allows you to bundle the edit and related materials into an archive. Use this if you want back up your work, or transfer it to another computer for you or a collaborator to work on. The project will also be archived, but other edits within the project will not.

Selecting this option displays a dialogue-box where options related to the archive export can be set. The export edit dialogue-box offers a range of options to strip unnecessary material from the archive. These options are not available when exporting projects.

You may also be interested in reading Chapter 10, where you will find more information on exporting and importing edits.

Find referenced material: This option lists all of the items that this edit requires. It is effectively the inverse of the "find orphaned clips" function for projects.

Import external files...: It is possible for material to be used in more than one project. If one of these projects does not have an entry in its item list for the shared material, Tracktion regards the other project as being the material's owner. If the project that owns the material is later closed, the current edit will no longer have access to the material.

This option creates an item-list entry for such files, thus making the current project also an owner of the material.

Create a new edit: This option creates a new empty edit in the current project.

Import material: Use this option to associate audio or MIDI files with this edit, or to import tracks from an audio CD. When this option is clicked, a pop-up menu (Fig. 1.5.2) appears:

- *Import an audio or MIDI file...:* This option to add material on your hard-drive or a CD to the edit. Files located on CDs are copied into the project folder, whereas files stored on a hard-drive are referenced from their source location.
  Keyboard shortcut: **A**.
- *Import all files in a directory...:* This option works much like the "import an audio or MIDI file..." option above. The difference is that this option imports all suitable files in the selected directory (folder).
- *Unpack an archive and add it to this project..:* This option adds the items from an archive into the current project. The pop-up menu that is displayed when right-clicking on a project-list entry also provides this option.
- *Import tracks from an audio CD...:* This option to copy tracks from an audio CD into Tracktion. The imported tracks are saved as audio files in the project folder and added to the edit as standard audio clips.

Figure 1.5.2

Open for editing: Clicking this button opens the edit, and switches to the edit page. The edit page is where your arrangements are actually created, and it is here you will do most of your work.

1.6 Audio item properties

When an audio item is selected, its properties are displayed in the properties-panel (Fig. 1.6.1). Various tools and options related to the audio file can be found on this panel.

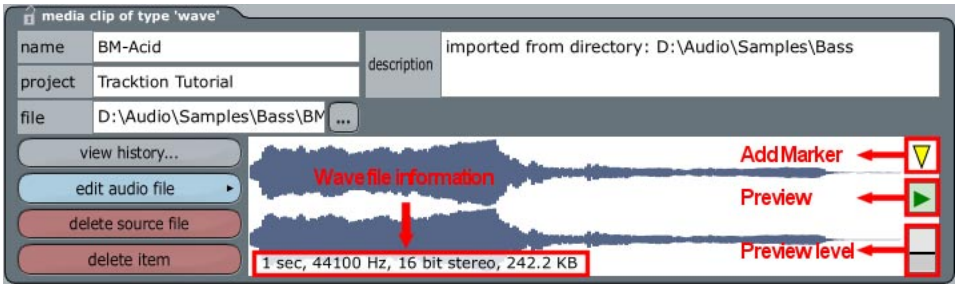

Figure 1.6.1

Name: This field shows the audio-item name as seen in the item-list. You can also edit the name here. Renaming the edit here does not affect the audio file name, however.

Project: This field shows the project to which this item belongs.

File: This field shows the location of the item on your hard-drive.

Description: This field allows you to enter a description of the audio clip, or make notes for future reference. Bear in mind that this field is scanned by the search tool. By inserting simple keywords into descriptions, you and make it very easy to locate material later.

Edit audio file: This button shows a pop-up menu (Fig. 1.6.2) with the following options:

- *Create a copy of this wave file:* This option creates a copy of the audio file, and places it in the same folder as the original.
- *Basic editing operations:* This option displays a dialogue-box that allows you to reverse the sample, change the sample rate, change the bit depth, normalise the sample, trim silence, and convert the audio to mono. The basic editing options are described a little later in this section.
- *Minimise Tracktion when external editor is launched:* This option causes Tracktion's display to minimise when an external editor is launched. This is useful when working in a single-monitor environment. If you are working with two monitors however, you may prefer to uncheck it.
- *Edit using ...:* If you have suitable audio editing software installed on your computer, you can quickly transfer audio material to the editing application using this option. If this menu-option is not available, use the "set the audio editor to use" option to choose an audio editor.
- *Set the audio editor to use..:* This option allows you to choose a default audio editor.

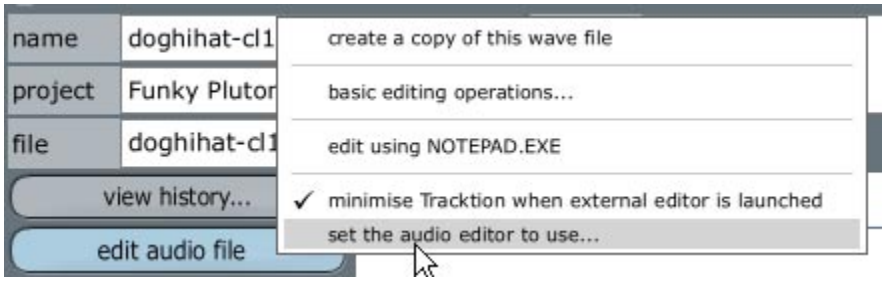

Figure 1.6.2

Delete source file: Click this to delete the item and the source audio file.

Delete item: Click this button to remove the item from the project. You will be prompted if you want to remove the source file as well.
Keyboard shortcut: **DELETE** or **BACKSPACE**.

Add marker: This option allows you to mark points of interest on audio files. Drag the arrow to point at the region to which you wish to draw attention. For example, if you feel that a vocal take needs a touch of pitch correction at a certain point, you could use this tool to highlight the problem for future correction.

Preview: Click this to preview the audio file.

Preview level: Use this option to adjust how loud previews are played.

Wave file information: This shows useful information about the resolution, and nature of an audio file.

The basic editing options

Selecting the “basic editing options” menu-item from the “edit audio file” button menu, causes a dialogue-box (Fig. 1.6.3) to be shown. From this dialogue-box, you can access a number of useful tools for working with audio files.

Note: these operations are all destructive, so be sure that you want to make permanent changes to your source audio file.

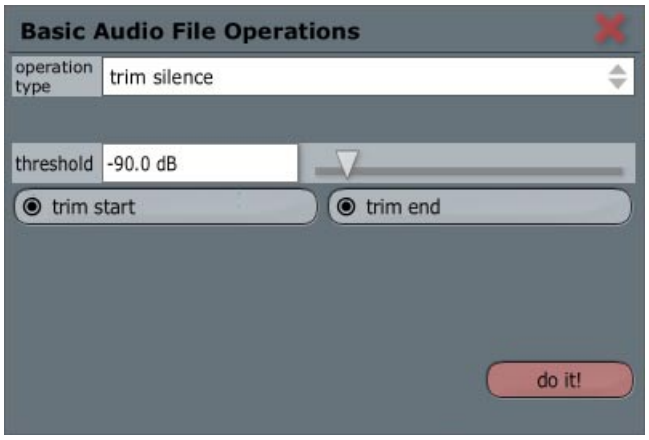

Figure 1.6.3

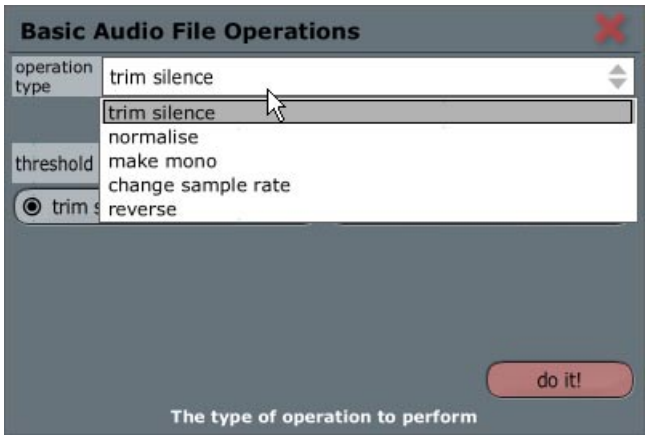

Figure 1.6.4

The “operation type” field shows a drop-down menu when selected (Fig. 1.6.4). From this menu, you can select from a number of different operations. The options available below this field will change depending on the operation selected:

Trim silence: Use this option to remove audio that is below a given threshold from either end of the audio file. When this operation type is selected, the following options are available:

- *Threshold:* Any audio below this threshold will be trimmed.
- *Trim start:* When this option is selected, audio below the threshold level at the start of the wave file will be trimmed.
- *Trim end:* When this option is selected, audio below the threshold level at the end of the wave file will be trimmed.

Normalise: Use this option to adjust the level of the audio such that the peak level of the wave file reaches the desired normalise level. Typically normalisation would be used to make an audio file as loud as possible without introducing any digital distortion, or clipping. There is only one option available for normalise, “peak level,” and it is this level to which the file will be normalised.

Make mono: Use this option to convert a stereo audio file into a mono file. You can opt to merge the two stereo channels together, or to disregard either the left or right channels. This option is not available when working with mono files.

Change sample rate: If you wish to have Tracktion convert the sample rate of an audio file to a different rate, you can use this option.

Reverse: This option can be used to reverse the audio file. Reversed sounds are literally played backwards. There are no options available for this operation.

1.7 MIDI item properties

When a MIDI item is selected, its properties are displayed in the properties-panel (Fig. 1.7.1). Various tools and options related to the MIDI item can be found on this panel.

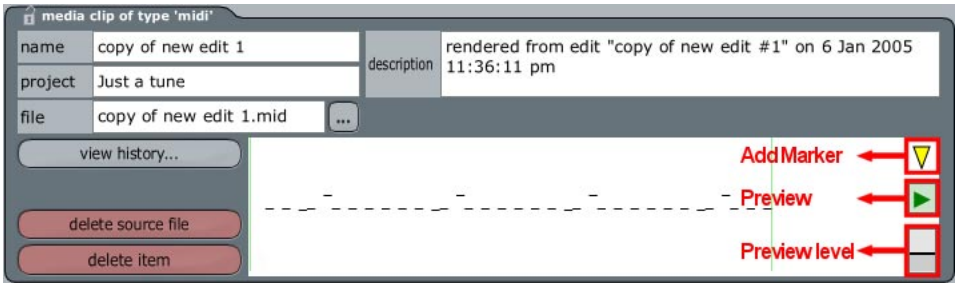

Figure 1.7.1

Name: This field shows the item name as seen in the item-list. You can also edit the name here. Renaming the edit here does not affect the MIDI file name, however.

Project: This field shows the project to which this item belongs.

File: This field shows the location of the item on your hard-drive.

Description: This field allows you to enter a description of the MIDI clip, or make notes for future reference. Bare in mind that this field is scanned by the search tool; by inserting simple keywords into descriptions, you can make it far easier to locate material later..

Delete source file: Click this to delete the item and the source MIDI file.

Delete item: Click this button to remove the item from the project. You will be prompted if you want to remove the source file as well.
Keyboard shortcut: **DELETE** or **BACKSPACE**.

Add marker: This option allows you to mark points of interest in MIDI clips. Drag the arrow to point at the region to which you wish to draw attention.

Preview: Click this to preview the MIDI file.

Preview level: Use this option to adjust how loud previews will be played.

Chapter 2: The settings page

2.1 The audio devices tab

The “settings” page is where most of Tracktion’s configuration settings can be found. Here you will find a range of options that can be used to tweak Tracktion to better suit your way of working, and to get the best out of your computer hardware.

There are five tabs contained within the settings page:

- The audio devices tab is used to configure your audio and MIDI hardware.
- The plugins tab is used to control how Tracktion locates plug-ins installed on your computer.
- The key-mappings tab offers options for personalising Tracktion’s keyboard shortcuts.
- The external-controllers tab allows you to attach control surfaces such as Mackie’s Control Universal, and Control C4 devices.
- The miscellaneous tab provides a range of general settings that you can adjust depending on your needs.

To configure your audio and MIDI devices:

- Click on the settings tab at the top of the Tracktion interface. This will display the settings page.
- Select the “audio devices” tab to view and configure the audio devices available on your computer.

The top-most part of this page is the wave device region (Fig. 2.1.1).

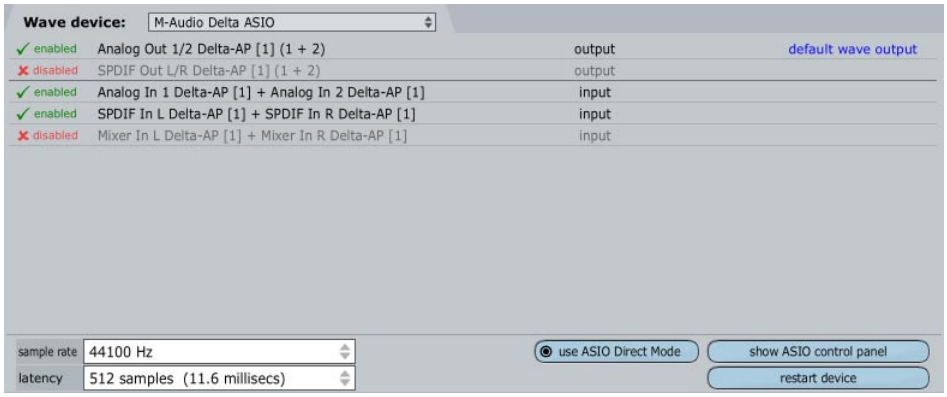

Figure 2.1.1

At the top of this display there is a drop-down list. This is where you choose your wave device. In Tracktion, the term “device” is used to refer to all input and output hardware, such as sound-cards and MIDI interfaces. Tracktion will normally select a suitable ASIO or CoreAudio driver by default. If you have more than one sound-card installed, or Tracktion chooses a DirectSound driver instead of an ASIO one, you may need to change this.

The entries in the wave device list refer to the available audio drivers installed on your computer. There may be a number of entries in this list depending on the type(s) of sound-card(s) you have installed, but generally speaking, you will only be interested in the ASIO/CoreAudio options, as these offer the best performance within Tracktion.

Sample rate: This control sets the sample rate that Tracktion uses for playback and mixing. For audio intended for CD you will typically want to set this to 44100. Opinion is split on whether working at higher rates is

worthwhile, but if you like to work at higher sample rates then it is a good idea to increase this value in fixed multiples of your desired final sample rate (e.g., 88200 Hz for CD audio). Be aware that higher sample rates require correspondingly more processing power, so doubling the sample rate will likely halve the amount of effects, VSTis, and tracks, your computer can process.

Latency: This control sets the size of the audio buffer. The buffer is required to provide an uninterrupted audio stream. Setting this value lower than your computer's processor can properly handle may cause audio problems during playback and record and can increase the demands placed on your processor.

Restart device: Clicking this button causes Tracktion to re-initialise the drivers for your audio hardware. This can sometimes help if the audio driver crashes. In addition, if you have made changes to your hardware settings through the ASIO control panel, then you may need to restart the audio device before Tracktion will recognise the changes.

PC and ASIO drivers

There are a few extra ASIO related options available for PC users. These options are not available for Mac users.

Use ASIO direct mode: This option may improve performance with some ASIO drivers. Typically it is benign at worst, and many USB devices will benefit from it, so it is probably worth leaving it enabled. If you are having problems with sound in Tracktion, you should try toggling this setting.

Show ASIO control panel: This button displays the control panel for the currently selected ASIO device. Please note, the screen you see here will be specific to your hardware, so refer to the documentation that came with your audio hardware for further information.

Use real-time priority mode: This option can help with compatibility for some ASIO sound cards. Note, this option should only be enabled when absolutely necessary, as it can conflict with some VST plug-ins, causing Tracktion to freeze.

PC users note: Some ASIO drivers do not allow settings such as sample rate and latency to be adjusted by external applications. If your ASIO driver is one of these cases, then Tracktion's sample rate and latency options will have only the current values as choices. In this case you will need to set these values from the ASIO driver's own interface by clicking the "show ASIO control panel" button. Be sure to click the "restart device" button when you are done.

Mac and CoreAudio drivers

If you are using a Mac and some of your CoreAudio devices are not listed, this may be because they are not currently connected to the Mac. Close Tracktion, check the connections, and try again.

A good way to check if a CoreAudio device is properly connected to your computer, is to launch the "Audio-Midi Setup" Utility and make sure that the device in question is available as a hardware choice.

The audio input and output devices

With a suitable wave device chosen, select which audio inputs and outputs you will be using. Be aware that all active inputs and outputs consume computing power, so disable any I/O channels that you do not need. For example, if you are using only virtual instruments, and therefore only need a single stereo output, you can disable any other outputs you may have. Equally, if you use a particular input or output only occasionally, it probably makes sense to leave it disabled. You can always enable it when needed.

At the bottom of the "audio devices" tab there is an option labelled "only show enabled devices" (Fig. 2.1.2). Enabling this option can be convenient if your audio interface has a large number of inputs and/or outputs, some of which you rarely use. You will need to uncheck this setting temporarily if you wish to enable devices that are currently disabled, however.

To enable or disable an audio device, just click on the enable/disable label to the left of the entry.

You can also nominate one audio output to be the “default audio device.” The default output will become the master output for Tracktion’s mixed stereo output from the master fader in the lower right hand corner of the edit screen. To make a different output the default, just click on the “make this the default” label.

The MIDI input and output devices

MIDI input and output devices can be enabled or disabled in the MIDI device section (Fig. 2.1.2) of the audio devices tab. Whilst MIDI devices consume much less computing power than audio devices, it is still good practise to disable any I/O channels that you do not need.

At the bottom of the “audio devices” tab there is an option labelled “only show enabled devices” (Fig. 2.1.2). Enabling this option can be convenient if your MIDI interface has a large number of inputs and/or outputs, some of which you rarely use. You will need to uncheck this setting temporarily if you wish to enable devices that are currently disabled, however.

To enable or disable a MIDI device, just click on the enable/disable label to the left of the entry.

You can also nominate one MIDI output to be the “default MIDI device.” The default output will be used by the click-track (see Chapter 4.4). To make a different output the default, just click on the “make this the default” label.

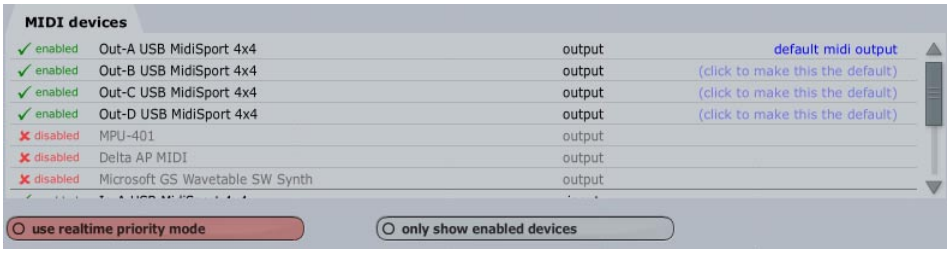

Figure 2.1.2

2.2 The audio output device properties

When an audio output device is selected, its various configuration options will be displayed in the properties-panel (Fig. 2.2.1).

Figure 2.2.1

Treat as stereo channel pair: You can opt to have Tracktion combine two mono audio outputs into a single stereo pair (the default state). When disabled, the two channels appear as two mono devices; when enabled, they appear as one stereo device. The files created when recording through mono input devices will correspondingly be mono. Audio recorded to a stereo input will likewise produce stereo files.

Dithering enabled: Dithering can subjectively improve quality when reducing the sample resolution from Tracktion's internal 64/32 bit format, to the 24/16 bit format used by most audio devices.

Left/right reversed: When selected, the left and right channels are swapped. You can use this option to correct for audio devices with incorrect stereo configuration, or patching mistakes in your studio.

2.3 The audio input device options

When an audio input device is selected, its various configuration options will be displayed in the properties-panel (Fig. 2.3.1).

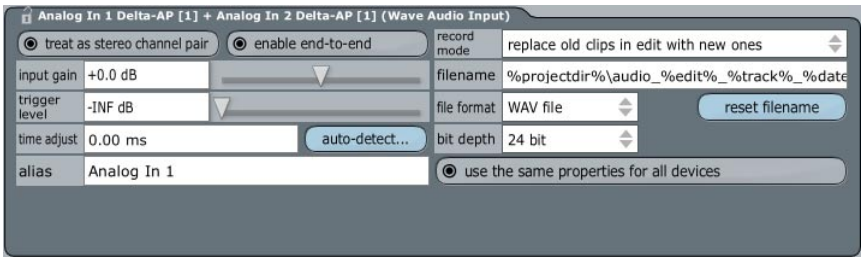

Figure 2.3.1

Treat as stereo channel pair: You can opt to have Tracktion combine two mono audio inputs into a single stereo pair (the default state). When disabled, the two channels appear as two mono devices; when enabled, they appear as one stereo device.

Enable end-to-end: When end-to-end is active on an input, audio is received during playback and not just when recording. If an input is actively receiving an input signal, it will be using some of your computer's processing power. However, enabling this option allows you to use Tracktion as an effects processor for a live external audio source, such as a guitar or vocals. Generally, you want to leave this option enabled since you can silence inputs within the edit page at any time.

Note: In addition to this end-to-end option, there is a global end-to-end option in the transport-section (see Chapter 3.6). This global end-to-end option allows Tracktion to receive and transmit audio and MIDI data even when playback is stopped. If you are intending to use Tracktion to apply effects to a live guitar, vocal, or synthesiser performance, you should enable this end-to-end option also.

Input gain: This option allows you to boost or cut the level of the incoming audio.

Note: ***This option should be used with caution.*** This is done digitally after the signal has been converted from analog. So changing this gain will not help with proper gain staging. It is simply a convenience for a situation where you know you will need to increase the gain of the recorded audio files. Normally it is much better to change the gain non-destructively using the channel fader or the clip level properties, as well as to make sure the level of audio received by this input is loud enough.

Trigger level: Recording from this device will only begin when the trigger level has been reached. It is good practise to leave this setting at "–INF dB" when not needed, as it may save you a few frustrating minutes trying to work out why your recordings are being lost.

You can use the trigger level as an alternative to punched recording:

- In the edit page, select the audio input though which you wish to make recording.
- The properties-panel will show the audio-input-device options with an extra input meter.
- Use this input meter to see the audio level of any background noise reaching the input.
- Set the trigger level at a few dBs above the noise-floor level.
- Start recording. If you have set the threshold correctly, Tracktion will begin recording from this device when the vocalist or instrumentalist attached to this input begins their performance.

Time adjust: If you find that your recorded audio is a little early or late in relation to everything else, try adjusting this value to compensate. The "auto detect" button can be used to have Tracktion automatically compensate for timing errors caused by audio hardware.

Auto-detect: The auto-detect option will determine the time taken for audio to pass through the converters of your audio hardware, and configure the "time adjust" field to compensate for any delay. To perform the delay detection, Tracktion sends a series of pulses from an audio output device, and records the time taken for them to reach the audio input device. Before starting the test, you will need to connect a cable from one of your audio outputs to the input you wish to test.

It is a good idea to use the "auto-detect" option after installing/re-installing Tracktion, or adding new audio hardware to your computer.

Alias: If you have a number of input devices it can sometimes be hard to keep track of them all. You may, therefore, find it helpful to enter a descriptive name in the alias box.

Record mode: This option controls how the recorded material is added to the edit. There are three modes (Fig. 2.3.2):

- *Overlay newly recorded clips onto edit:* When this option is selected, recorded audio clips will be placed on top of the existing clips. Note that in loop-record mode, this option is ignored.
- *Replace old clips in edit with new ones:* When this option is selected, new clips will delete existing clips. The existing audio material will not be lost, however, and this operation is entirely non-destructive. Note that in loop-record mode, this option is ignored.
- *Don't make recordings from this device:* Select this option if you need end-to-end capability for this input but do not wish to record from it, i.e., if you are recording from one or more inputs, and wish to monitor signal on another input, but don't want recordings to be made from it at the current time, you can use this option.

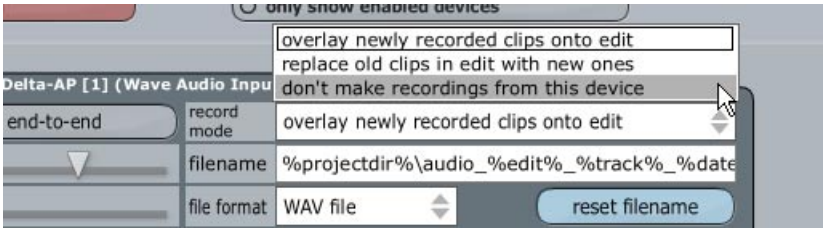

Figure 2.3.2

Filename: You can create custom file-name patterns for recorded audio.

File format: You can select whether Tracktion stores recorded audio as a broadcast WAV, or AIFF, format file. If you choose to store the audio as a WAV file, Tracktion will insert an industry standard BWAV time-stamp. This allows audio to be quickly aligned to its original position, without affecting compatibility with any other software that you will use your recorded WAV files with.

Bit depth: You can select the bit depth to use for the saved audio. Note, this does not set the recording resolution for the audio input. The bit-depth that the signal is recorded at is determined by the audio drivers for the device. This setting only affects the format of the audio file that is stored to disc. If your input device can only record at 16-bit, setting the bit-depth to anything higher than 16-bit will not produce any benefits.

Reset filename: If you have changed the contents of the "filename" field, you can use this button to restore the default setting.

Use the same properties for all devices: When this option is selected, all audio input devices will share the same settings. Changing a setting on one device will apply that setting to all devices. Clicking this button displays a pop-up menu (Fig. 2.3.3) that offers the following options:

- *Copy this device's settings to other devices:* When this option is selected, the properties for the current device are applied to all other audio input devices.
- *Leave other devices settings unchanged:* When this option is selected, the properties of other devices are not altered. This option allows you to change an option globally, without affecting other options.

It typically makes sense to enable this setting, especially if you have an audio device with many inputs, but if you need to set different settings for each device, then you can disable it.

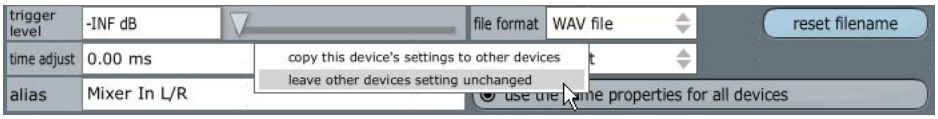

Figure 2.3.3

2.4 The MIDI output options

When a MIDI output device is selected, its various configuration options will be displayed in the properties-panel (Fig. 2.4.1).

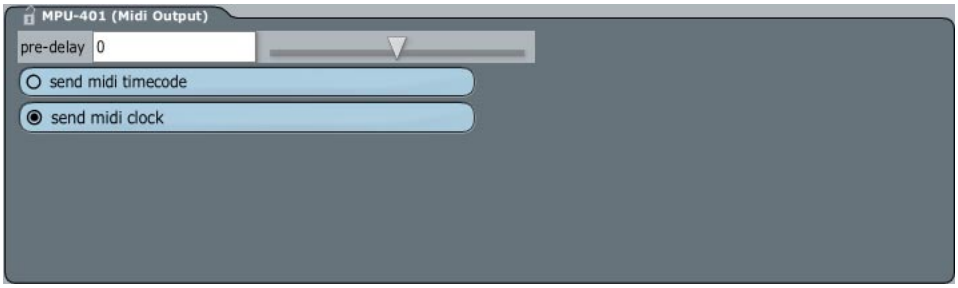

Figure 2.4.1

Pre-delay: If you find that your external MIDI tends to trigger its sound a little early, or late, in relation to everything else, try adjusting this value to compensate. The pre-delay value is given in milliseconds.

Send midi timecode: When this option is selected, this MIDI output will send MIDI timecode to any attached devices.

MIDI timecode is a very powerful synchronisation tool that shares much in common with SMPTE. MIDI timecode carries time-of-day information that allows for a degree of error recovery if timing messages are lost, making a very robust method by which to synchronise two or more MIDI devices.

MIDI timecode is sent at the frame rate of the edit. This is set from the timecode menu on the edit screen. See Chapter 4.2.

Send midi clock: When this option is selected, this MIDI output will send a MIDI clock signal to any attached devices. MIDI clock is the most simple form of synchronisation between two MIDI devices. Unlike MIDI time-code, it carries no time information, just a pulse that effectively stamps out a metronome. Other MIDI devices can then use the pulse to keep time with the master device.

2.5 The MIDI input options

When a MIDI output device is selected, its various configuration options will be displayed in the properties-panel (Fig. 2.5.1).

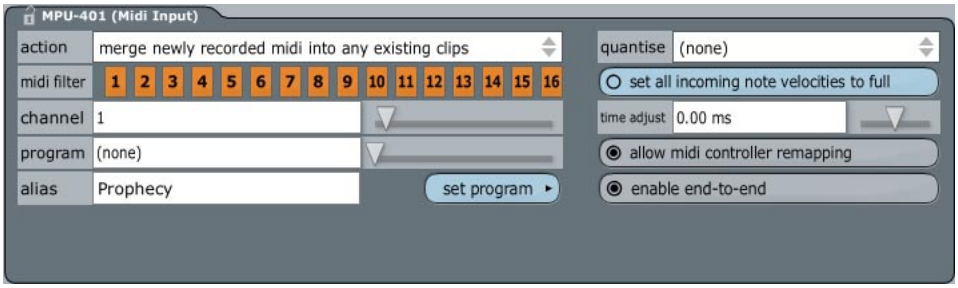

Figure 2.5.1

Action: This option controls how the recorded MIDI material is added to the edit. There are four modes (Fig. 2.5.2):

- *Merge newly recorded midi into any existing clips:* When this option is selected, MIDI data will be added to existing clips. New clips will only be created if no clip is already present.
- *Overlay new clips containing newly recorded midi:* When this option is selected, new clips will be created and placed on top of existing clips in the edit.
- *Replace existing clips with newly recorded clips:* When this option is selected, any existing clips will be deleted by newly recorded clips.
- *End-to-end from this device, but don't actually record:* Select this option if you do not wish to record from this device but wish it to be active whilst recording is in progress, i.e., if you are recording from one or more inputs and wish to monitor signal on another input, but don't want recordings to be made from it at the current time, you can use this option.

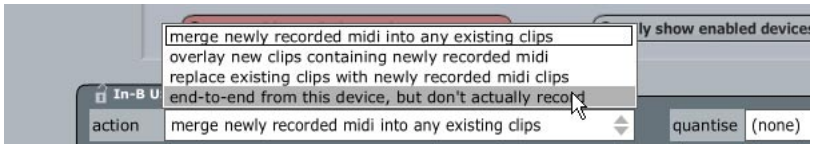

Figure 2.5.2

Midi filter: MIDI data will be passed from the input (and recorded) for all enabled MIDI channels. Disabling any of the 16 channel buttons will filter out those channels. MIDI data transmitted on these disabled channels will be ignored by Tracktion, and will not be played or recorded.

Channel: Here you can assign a default MIDI channel for any MIDI recorded through this input.

Program: If you wish to assign a default program to recorded MIDI, you can choose the program here (uses General MIDI program names).

Alias: If you have a number of input devices, it can sometimes be hard to keep track of them all. You may therefore find it helpful to enter a descriptive name in the alias box.

Set program: This option provides a pop-up menu to set the "program" value.

Quantise: Destructively quantises the incoming notes to the note size selected from the list. Note: MIDI clips have a non-destructive quantise tool that you may wish to use instead of this.

Set all incoming note velocities to full: Select this option to force all Incoming note velocities to full (velocity value 127).

Time adjust: If you find that your recorded MIDI is a little early or late in relation to everything else, try adjusting this value to compensate.

Allow midi controller remapping: Controller remapping allows MIDI controllers, such as a modulation wheel, to control parameters of VST plug-ins. When this option is disabled, no remapping will occur for this input. For more information on control-remapping, see Chapter 7.2.

Enable end-to-end: When end-to-end is active on an input, MIDI will be received during playback, and not just when recording. Generally you will want to leave this option enabled, since you can silence inputs within the edit page at any time.

2.6 The plug-ins tab

The top-most part of the plug-ins tab shows the list of directories that Tracktion searches for VST plug-ins (Fig. 2.6.1). The directories listed in this box, and all of their sub-directories, are searched for VST plug-ins.

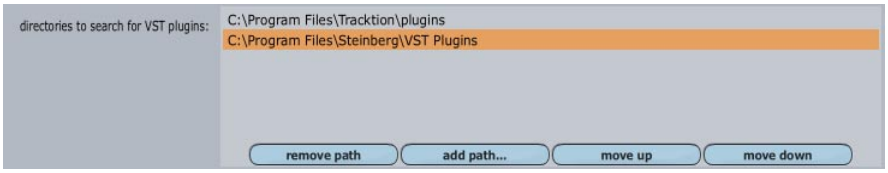

Figure 2.6.1

Remove path: Click this button to remove a path entry from the search list.

Add path..: Many 3rd party plug-ins will not give you a chance to alter the installation directory. If the installation is to a path that Tracktion does not know to search, the plug-in will not be available for use. This option allows you to add a new path to the search list, and as such you can add the directory that your new plug-in installed to. When this button is clicked, Tracktion will display a dialogue-box. Navigate to your plug-in directory, and click "OK."

Move up / down: These buttons allow you to adjust the order in which directories are searched. Directories at the top of the list are searched first.

Figure 2.6.2

The next box (Fig. 2.6.2) shows a list of plug-ins that Tracktion has chosen to ignore. If a plug-in file cannot be opened as a VST plug-in, Tracktion will add it to this list. Plug-ins may fail to open properly if they do not correctly adhere to the VST standard.

Sometimes plug-ins are incorrectly added to the list because they failed to initialise correctly at some point. If you believe a plug-in should work, but it has been added to this list, try removing it and rescanning the plug-in directories.

Rescan plug-in directories: This button cause Tracktion to look for new or changed plug-ins.

Always check for new plugins at start-up: This option sets whether Tracktion should look for new plug-ins when starting up. When disabled, you will need to initiate a manual rescan after installing new plug-ins. Tracktion may open faster when this option is disabled, however.

Enable Rewire: Selecting this option activates support for ReWire applications, if any are installed.

Add low-level noise to avoid denormalisation: Denormalisation happens when processors are required to process numbers that are two small to work with in an optimal manner. Typically numbers need to be extremely small to cause a processor to denormalise. Different processors have different thresholds though, and certain Pentium 4 processors have a much higher than usual threshold. Often these low numbers will be caused by reverbs, and delays. If you notice that your CPU usage tends to spike unexpectedly at certain points in an edit, even if there seems to be little going on at that point, this is probably denormalisation. The best approach if you experience denormalisation is to contact the plug-in developer, but when enabled, this option can sometimes help.

2.7 The key-mappings tab

Tracktion has a comprehensive range of keyboard shortcuts. Learning the shortcuts, and configuring them to your taste can greatly improve your workflow.

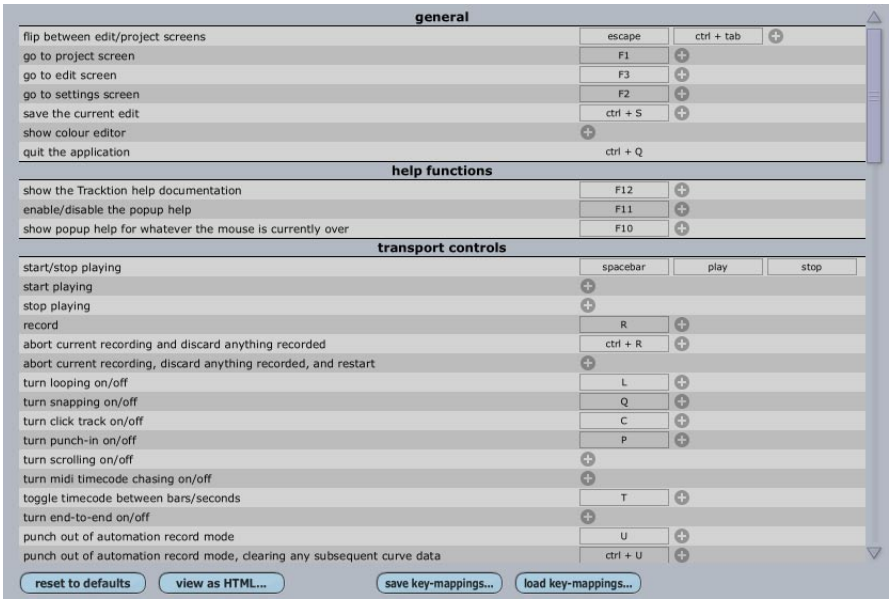

Figure 2.7.1

Each line in the editor corresponds to a Tracktion function. The function description forms the left-hand column, and the assigned shortcut (if any) is shown to the right.

If you click on an existing shortcut, you are presented with a menu from which you can change or remove the shortcut. Clicking on the plus ("+") symbol allows you to set, or add, a shortcut for the function. Up to three shortcuts can be created for each command.

If you choose to add a shortcut, you will be prompted to press the keys you wish to be mapped to the current function. If you choose a key-stroke that is already assigned to another function, Tracktion asks if you wish to clear the existing shortcut or cancel the current operation.

Reset to defaults: This button sets the key-mappings back to the factory default.

View as HTML...: This button opens a web-browser and displays the current key-map. You can use this to obtain a printout of the key-mappings.

Save/load key-mappings...: These buttons allow you to save and recall key-maps. In addition, Tracktion ships with key-maps that match those used by other sequencers, so if you are familiar with a set of keyboard shortcuts, you may find one of these key-maps more comfortable to work with. Clicking either of these buttons will display a standard file-requestor dialogue-box.

2.8 Installing external controllers

Tracktion can support external control surfaces such as the Mackie Control Universal and Control C4 devices. Many people find devices such as these faster to work with than a mouse, as they provide many of the most commonly accessed features right at your finger-tips and provide a familiar tactile environment for mixing and editing.

The list on the left (Fig. 2.8.1) shows the control surfaces supported by your version of Tracktion. If you own one or more of these devices, simply select it from the list, and select the MIDI input and output devices to which your control surface is connected.

An external controller requires a MIDI input and output pair to itself, and MIDI cables should be connected directly from your MIDI device to the external controller.

Once the input and output devices have been chosen, the controller will update to work with the current edit the moment you switch to the edit page.

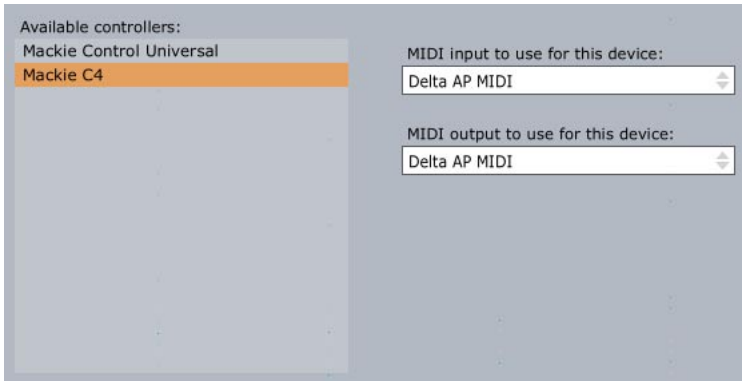

Figure 2.8.1

The Mackie Control Universal and Control C4 devices are described in detail in Chapters 7.3 and 7.4.

2.9 The miscellaneous settings tab

The miscellaneous tab (Fig. 2.9.1) contains various settings for customising Tracktion's behaviour. These options are common across all edits (global settings). The "options" button in the control-section of the edit page contains further options available for adjusting Tracktion's behaviour, but unlike the miscellaneous tab options, those options are saved with an edit, and are local to that edit (session dependent). The "options" button is discussed in Chapter 3.5.

Username: Set the name of the current Tracktion user.

Import user-settings / export user-settings: You can use these buttons to save and recall configuration settings. This allows you to backup your configuration settings, and also to create custom configurations for different projects, or types of project.

Temp directory: This is where Tracktion stores temporary files. The temporary directory will be emptied when Tracktion is closed, so be sure to create a dedicated folder. If you have a fast, dedicated audio hard-drive, you should place the temporary directory on that drive.

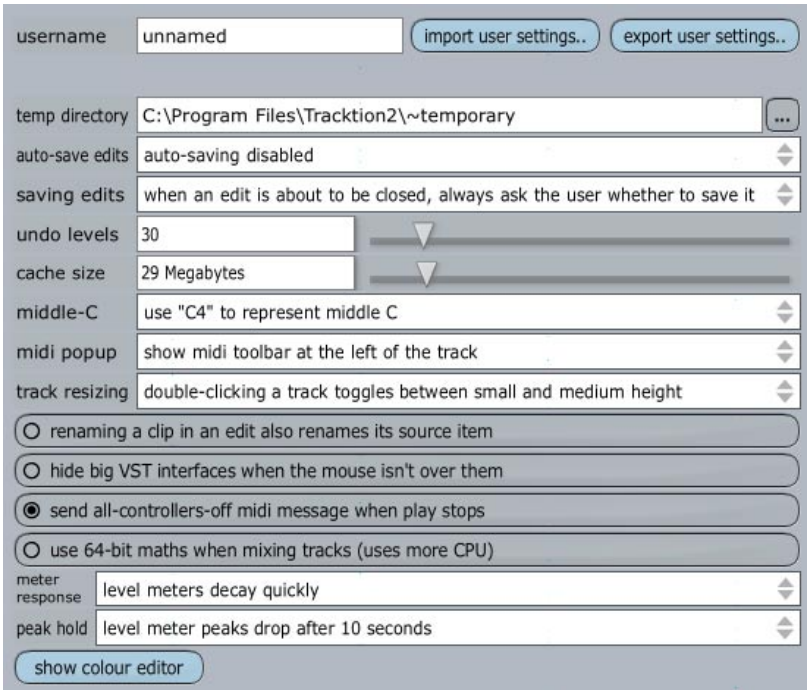

Figure 2.9.1

Auto-save edits: Use this option to set the frequency at which Tracktion automatically saves your work.

Saving edits: You can set how Tracktion reacts if you attempt to exit the application without first saving an open edit.

Undo levels: This controls how many stages of undo/redo are available for the edit page. Increasing this value will allow you to backtrack through more edits, but uses correspondingly more of your computer's memory to store the edit history. The default size is generally a good compromise.

Cache size: You can adjust how much of your computer's main memory (RAM) is used to cache audio files. Caching helps audio tracks play back without glitches or drop-outs, but reduces the amount of memory available to applications and plug-ins. Making this value too large will also be counter-productive because computers become much less efficient once main memory is depleted. The default setting of 64 MB is usually fine, but you may want to increase it if you have lots of RAM installed on your computer.

Middle-C: The correct octave to use as middle C is not standardised. As such, many different devices and MIDI applications use differing octaves to represent middle C. You can set your personal preference for the middle C octave here.

MIDI popup: When editing MIDI, a piano display is visible to the left of the clip. This option allows you to select whether the piano is positioned at the side of the clip, or in the input area. The MIDI editor is described in Chapter 6.1.

Track resizing: This controls how tracks and clips vertically resize when double-clicked.

- *Double-clicking a track toggles between small and medium height:* A double-click on a clip or a track causes the track to resize to a size roughly six times the default track height. This height is large enough for the MIDI editor tools to become available. A subsequent double-click reduces the track to the default size.
- *Double-clicking a track toggles between small and large height:* A double-click on a clip or a track causes the track to resize to nearly the height of the arrange area. A subsequent double-click reduces the track to the default size.
- *Double-clicking a track toggles between small, medium, and large heights:* Each double-click cycles the track height between the three default stages.

Renaming a clip in an edit also renames its source item: When enabled, renaming clips in the edit page will cause the corresponding entry in the item-list of the project page to be renamed.

Hide big VST interfaces when the mouse isn't over them: When enabled, Tracktion automatically hides 3rd party plug-in interfaces when the mouse is moved out of their window. This option can be useful for laptop users with small screens.

Send all-controllers-off midi message when play stops: Enable this option to have Tracktion send an all-controllers-off message to MIDI devices, and plug-ins, when play-back stops. Some devices need this message to correctly react to play-back changes, but other devices may dislike this setting.

If you are experiencing stuck notes, you may find that this setting helps as well. Generally it is better on than off, but if your MIDI gear is doing strange things when you stop playback, try disabling this option.

Use 64-bit math when mixing tracks: Enabling this option will improve audio fidelity when mixing lots of tracks. Be aware that this option comes with a performance cost, and may not be suitable for lower power computers.

Meter response: This setting controls how quickly level meters decay. You can choose between slowly, quickly, and instantly.

Peak hold: Here you can set for how long the peak level indicator is held.

- *Level meter peaks drop after two seconds:* When this option is selected, level meters will show the highest level attained within the last two seconds.
- *Level meter peaks drop after ten seconds:* When this option is selected, level meters will show the highest level attained within the last two seconds.
- *Level meter peaks never drop:* When this option is selected, the peak level will be shown until playback is restarted.

Show colour editor: This option displays the colour editor for configuring the appearance of Tracktion. The editor is described in the next section of this chapter.

2.10 The colour editor

The colour editor (Fig. 2.10.1) allows you to adjust the appearance of Tracktion to your taste. The colour editor is highly versatile, allowing nearly every aspect of Tracktion's user interface to be altered.

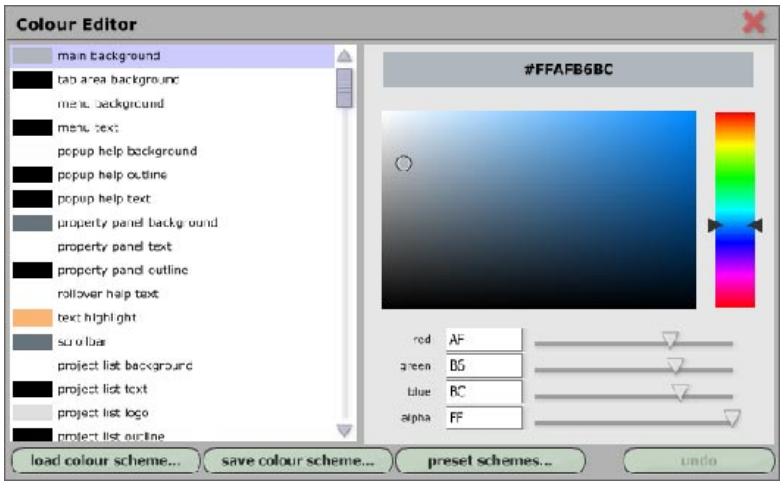

Figure 2.10.1

The list on the left-hand side of the window contains all of the modifiable UI elements. When an item is selected, its colour can be adjusted via the colour controls on the right-hand side of the editor.

Colour changes generally affect the user interface in real-time, so you can see the impact your changes are having, as you work. If you find user interface elements that do not update in real-time, switching back and forth between pages will show the changes.

Tracktion also ships with some preset colour schemes. You can access these from the "preset schemes" button. In addition to providing some great alternatives to the default Tracktion look, you may find it useful to look through these to get a feel for how the editor can be used to customise Tracktion.

Tip: To make real-time changes to elements on the edit page, use the **SHIFT + CTRL + G** (**SHIFT + ALT + C** for Mac users) keyboard shortcut to display the colour editor, without having to switch page tabs.

Load colour scheme...: Load a previously saved colour scheme. When this button is clicked, a standard file-requestor dialogue-box appears. From this box you can navigate to a previously saved colour-scheme file on your hard-drive.

Save colour scheme ...: Save the current colour scheme. When this button is clicked, a standard file-requestor dialogue-box appears. from this box you can select a file-name and a path under which to save your colour scheme.

Preset schemes...: Click this button to access a collection of preset colour schemes.

Undo: If you edit an element's colour, but are unhappy with the result, you can use the undo button to return the element back to the pre-edit colour.

The colour box: The top-tight hand side of the colour editor shows the current colour, and the hexadecimal value for it.

The saturation/lightness selector box: The large square region allows you to adjust the colour shade of the selected element. Click on the region that matches your desired shade to select it.

The hue selector: The vertical hue selector strip is used to pick a base colour. If, for example, you wanted a light yellow colour, click on the yellow region of the hue selector bar and use the saturation/lightness box to create the specific shade of yellow you have in mind.

Red: You can use this control to adjust the red content in the colour. In addition, you can enter a red value as a hexadecimal number.

Green: You can use this control to adjust the green content in the colour. In addition, you can enter a green value as a hexadecimal number.

Blue: You can use this control to adjust the blue content in the colour. In addition, you can enter a blue value as a hexadecimal number.

Alpha: The alpha value controls how "opaque," or transparent, the colour is. An alpha value of zero effectively makes the selected element invisible. Correspondingly, setting the alpha slider to the far right (value "FF") produces a solid colour that completely hides elements beneath it. To see some of the selected element's background "through" the element, choose an alpha value somewhere between these two extremes.

Note: Changes made to the colour editor are remembered between sessions, but it is still a good idea to save your scheme.

Chapter 3: The edit page

The edit page is where you compose, edit, and mix your songs. Almost all of the tools you will use for writing and mixing your music are contained on this page.

3.1 The input section

There are two different ways of working with the input section: the per-track view, and the icon view.

To switch between them:

- Click the "options" button in the control section.
- Select the "Use a 'per-track view' for input devices" option from the pop-up menu.

Icon view

If you are using the icon view, you will see all of your input devices as icons arranged in the filter section. Drag your chosen audio input device to the track on which you wish to record. To arm the input, drag it to the right. When it is close enough to the track, an arrow pointing to the track appears (Fig. 3.1.1). You can unarm the input by dragging it to the left until the arrow disappears.

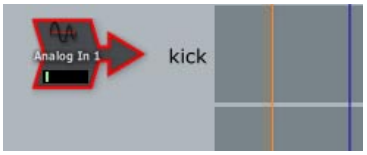

Figure 3.1.1

Per-track view

To select an audio input device, click and drag slightly on the shaded input region to the left of the track name. This displays a pop-up menu from which you can select your desired input (Fig. 3.1.2).

Input devices in the per-track view can be enabled or disabled by clicking the large red "R" icon. If the icon is solid red, then the input is armed. Otherwise, if the icon is non-solid with a bar across it, the input is unarmed.

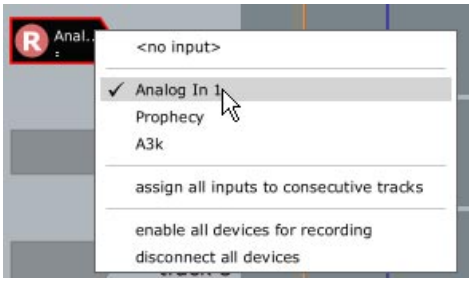

Figure 3.1.2

In addition to the available input devices, the per-track view pop-up menu also offers the following options for quickly managing multi-track recording:

Assign all inputs to consecutive tracks: When this option is selected, available audio input devices will be automatically assigned to the current track, and the tracks below it. This option does not apply to MIDI inputs.

Note: Any previously assigned audio inputs will be replaced when this option is selected.

Enable/Disable all devices for recording: Use this option to toggle all assigned inputs between armed and unarmed state. This option applies to both audio and MIDI input devices.
Keyboard shortcut: **ALT + R** (**CTRL + R** for Mac users).

The track names

In addition to the input devices, the input section also contains the track name section. The extra tools available for working with tracks from within the input section are described later in Section 3 of this chapter.

3.2 The arrange area

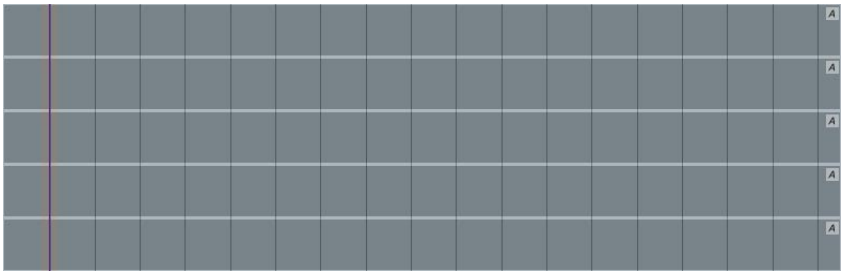

Figure 3.2.1

Zooming in and out horizontally

You can zoom in and out of edits in a number of ways:

- Using the mouse-wheel. (See note below).
- Dragging the mouse left or right whilst holding down the right-mouse button.
- Using the **CURSOR UP** and **CURSOR DOWN** keys.
- Using the **F4** key to zoom in to the edit such that only the selected clips are shown.
- Using the **F5** key to zoom out of the edit such that the entire edit can be displayed on screen.
- Using the **F6** key to zoom in to the edit such that a few seconds on either side of the play-head cursor are visible.
- Using the **F7** key to zoom in to the edit such that only the region between the loop-start and loop-end markers is shown.

Scrolling through an edit

The following tools and shortcuts are available to help you quickly navigate through your edits:

- Using the mouse-wheel whilst the **SHIFT** key is held down. (See note below).
- Dragging the mouse left or right whilst holding down the left-mouse button.
- Using the **CURSOR LEFT** and **CURSOR RIGHT** keys to move the play-head cursor.
- Using the **HOME** and **END** keys to move to the start/end of the selected clips, or the edit.
- Using the marker tools to set song markers. Markers are discussed in Chapter Four.

Note: The behaviour of the mouse-wheel can be switched between zoom and scroll. Depending which function is assigned to your mouse-wheel, the alternate functionality can be achieved by holding down the **SHIFT** key.

To change the default behaviour, click the “options” button in the control-section. Select the “mouse wheel action” option, and choose your preferred behaviour from the sub-menu.

Zooming in and out vertically

You can grow or shrink tracks vertically by:

- Positioning the mouse pointer in the input section, holding down the **CTRL** key (**CMD** for Mac users), and using the mouse-wheel.
- Using the **SHIFT + CTRL + CURSOR UP / DOWN** keys (**SHIFT + CMD + CURSOR UP / DOWN** for Mac users).
- Using the **F8** key to resize tracks such that they are all visible on screen.
- Using the **F9** key to resize tracks such that they are all set to the default height.

Zooming into individual tracks

You can expand and shrink tracks individually by either:

- Using the **Z** key to expand any selected clip(s). The behaviour of this shortcut can be modified in the miscellaneous settings (see Chapter 2.9).
- Holding the mouse pointer between two tracks (Fig. 3.2.2). The dividing line between the tracks will be highlighted. Click and drag vertically on the divider line to resize the track.
- Double-clicking on the track name, or on a clip contained in the track above the divider.

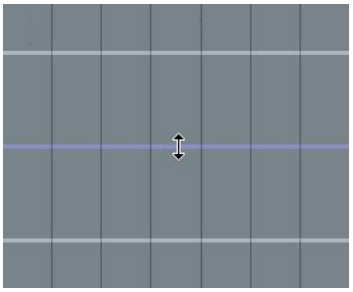

Figure 3.2.2

Scrolling through the tracks

You can scroll though the tracks vertically by:

- Using the mouse-wheel whilst the mouse pointer is over the input section.
- Using the **SHIFT + CURSOR UP** and **SHIFT + CURSOR DOWN** keys.
- Using the **CTRL + HOME** keys (**CMD + HOME** for Mac users) to scroll to the top-most track.
- Using the **CTRL + HOME** keys (**CMD + HOME** for Mac users) to scroll to the bottom-most track.

Selecting clips

You can select a group of clips by:

- Holding down **CTRL** (**CMD** for Mac users) whilst clicking on the target clips.
- Holding down **ALT** (**CTRL** for Mac users) whilst left-click dragging a rectangle (lasso) around the desired clips.
- Selecting a clip and using the **CTRL + A** keys (**CMD + A** for Mac users) to select all clips on the track.
- Pressing the **CTRL + A** keys (**CMD + A** for Mac users) twice to select all clips in the edit.

3.3 The track options

The input section, and track names

Renaming tracks quickly:

- Click the name of the track to be renamed. This selects the track, and displays its properties.
- Press the **TAB** key on your keyboard. This automatically moves focus to the track name field in the track properties. (The track properties are described in greater detail later in this section.)
- Type a new name for the track.

Moving tracks:

- Click and drag the name of the track you wish to move.

Tip: Resizing tracks is discussed in the previous section.

If you see a yellow exclamation mark after the track name (Fig.3.3.1), this means that there are audio or MIDI clips on the track that are likely to be inaudible. This will happen if audio clips are placed on a track that outputs to a MIDI device, or MIDI clips are placed on a track that does not contain a VSTi or output to a MIDI device. Setting the track output is described a little later in this chapter.

Figure 3.3.1

The right-click menu

Right-clicking on the track name area causes a pop-up menu (Fig. 3.3.2) to appear. Some options in this menu operate on all selected tracks; others operate only on the track that received the right-click. The options available are:

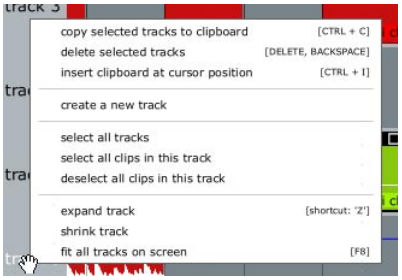

Figure 3.3.2

Copy selected tracks to clipboard: Use this option to copy all selected tracks, and their filter sections, to the clipboard.
Keyboard shortcut: **CTRL + C** (**CMD + C** for Mac users).

Delete selected tracks: Use this function to delete any currently selected tracks from the edit.
Keyboard shortcut: **DELETE** or **BACKSPACE**.

Insert clipboard at cursor position: When this option is selected, the contents of the clipboard are inserted into the target track. Space is inserted into the track's existing contents to accommodate the pasted material.
Keyboard shortcut: **CTRL + I** (**CMD + I** for Mac users).

Create a new track: A new track will be added to the edit. The track will be inserted directly beneath the selected track.
Keyboard shortcut: **CTRL + T** (**CMD + T** for Mac users).

Select all tracks: When this option is chosen, all tracks will be selected.
Keyboard shortcut: **CTRL + A** (**CMD + A** for Mac users).

Select all clips in this track: Choose this option to quickly select all clips on the target track.

Deselect all clips in this track: This option returns all clips on the track to an unselected state.

Expand track: Use this option to increase the vertical size of the target track to a level suitable for MIDI editing, etc.
Keyboard shortcut: **Z**.

Shrink track: Choose this to reduce back to normal the size of a previously expanded track.
Keyboard shortcut: **Z**.

Fit all tracks on screen: This option vertically resizes all tracks such that they all fit on the screen.
Keyboard shortcut: **F8.**

The "tracks" button

Clicking on the "tracks" button displays a pop-up menu (Fig. 3.3.3) with the following options:

Figure 3.3.3

Create a new track: Select this option to have Tracktion insert a new track into the edit. The new track will be placed below the currently selected track. If no track is selected, the new track will be created below the last existing track.
Keyboard shortcut: **CTRL + T** (**CMD + T** for Mac users).

Create several new tracks: This option allows you to create a number of new tracks in one operation. A sub-menu appears from which you can select any number between two and sixteen tracks to add.

Fit all tracks on screen: When this option is selected, Tracktion will resize the height of all tracks such that they can all fit on screen.
Keyboard shortcut: **F8**.

Set all tracks to default height: When this option is selected, Tracktion resizes all tracks to the default track height.
Keyboard shortcut: **F9**.

The track properties

Clicking on a track's name in the input section displays the properties for that track (Fig. 3.3.4). As with most things in Tracktion, a number of tracks can be selected at once by holding down the CTRL key (CMD for Mac users). When multiple tracks are selected however, a few of the options described below are not available.

Figure 3.3.4

Name: This field allows you to view or set the name of the track(s) as shown in the filter section.

Mute/solo: These options allow the track(s) to be muted or soloed. These controls are duplicates of the mute/solo controls in the track's filter section.

Delete track: This button removes the track(s) from the edit.
Keyboard shortcut: **DELETE** or **BACKSPACE**.

Freeze track: This option "freezes" the track(s). Freezing is discussed in Chapter 8.1.

Render track: When this button is clicked, a pop-up menu appears. From this menu, you can export the track as an audio or MIDI file. Rendering is described further in Chapter 8.2.

- *Render into the project directory:* Select this option to have Tracktion place the rendered file in the current project folder.
- *Render to a specific file...:* This option allows you to control the name and destination of the output file.

Insert new tracks: This option adds new tracks to the edit. From this menu you can choose to add a number of tracks at once from a set of preset menus. You can also add a single track by pressing **CTRL + T** (**CMD + T** for Mac users). New tracks will be inserted between the current track and the next track.

Insert a new clip: When this button is clicked, a pop-up menu is shown from which you can choose the type of clip to add. The new clip will be placed on the current track. If there is a loop region set, and the "make new clips the size of the marked region" option is selected in the "options" menu, then the new clip will fill that region. Otherwise a new clip of arbitrary length will be created at the cursor point. For information on the "options" button pop-up menu, see Chapter 3.5.

- *Insert new MIDI clip:* Adds a new MIDI clip to the edit.
  Keyboard shortcut: **G**.
- *Insert new audio clip:* Adds a new audio clip to the edit. The audio clip will not reference any audio files, so you will need to set the referenced file after inserting the clip. If you are working with an existing audio file, it is usually faster to copy it to the clipboard and paste it as a new clip in the edit. You can also use the "import audio or MIDI file" option from the "import" button located in the control-section (see Chapter 10.1).

Move track up/down: These options allow you to move the track up or down in the track-list order. You can also reposition a track in the list by dragging on the track's name.

Select all clips in track: This option highlights all clips in this track.
Keyboard shortcut (with clip selected): **CTRL + A** (**CMD + A** for Mac users).

Shrink / grow: These options reduce, or increase, the vertical size of the track through four preset sizes: squashed, normal, large, and extra-large. The largest two sizes are especially useful for MIDI clips, as these sizes are large enough to allow for MIDI editing in the piano-roll editor.

Mute / unmute all filters: These buttons cyclically set all filters on the track to muted (disabled) or unmuted (enabled).

Auto-advance: This option sets whether Tracktion chooses an optimum value for the "advance" field, or whether you are instead providing a manual setting. Unless you have a very good reason to adjust this setting for a track, it is a good idea to always leave it enabled.

Advance: Sometimes in order for a track to play in synchronisation with the edit, it is necessary to introduce a timing offset to the track. Although this may seem counter-intuitive, there are lots of good reasons why this may be. For example, if external MIDI hardware tends to respond a little late to MIDI messages, you can compensate by adjusting the advance value so that this track plays a little early in relation to the rest of the edit. The "advance" value is also used to correct for plug-ins that introduce a delay to the signal passing through them (commonly referred to as "plug-in delay compensation" or PDC).

If the auto-advance option is enabled, Tracktion will compensate for delays caused by plug-ins automatically.

Insert into tracks: Clicking this button displays a pop-up menu (Fig. 3.3.5) with options for inserting material into the track.

- *Insert space in the marked region:* This option creates an empty region between the loop markers on the current track(s). All clips and automation points at, or subsequent to, the loop-start marker are moved to the right by an amount equal to the current loop size. If there is marked region, this option will appear greyed-out. If all tracks are a selected, you can use this option to insert space into the entire edit, for example, to make room for an extended intro.

- *Insert clipboard contents at cursor position:* This option places the contents of the clipboard at the current cursor position. All subsequent clips and automation points on the track will be moved accordingly. If there is no content stored in the clipboard, this option will appear greyed-out.
  Keyboard shortcut: **CTRL + I** (**CMD + I** for Mac users).

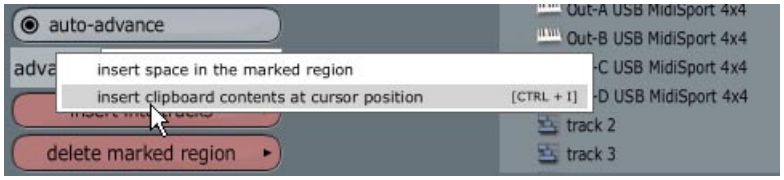

Figure 3.3.5

Delete marked region: Clicking this button displays a pop-up menu (Fig. 3.3.6) with options for removing material from the track.

- *Clear marked region of selected tracks:* This option deletes any clips contained within the loop markers on the selected track(s). Subsequent clips are not affected by this action.
- *Clear marked region of all tracks:* This option deletes any clips contained within the loop markers on all tracks. Subsequent clips are not affected by this action.
- *Delete marked region of selected tracks and close the gaps:* This option deletes any clips contained within the loop markers on the selected track(s). Subsequent clips and automation points are moved to the left by an amount equal to the current loop size.
- *Delete marked region of all tracks and close the gaps:* This option deletes any clips contained within the loop markers on all tracks. Subsequent clips and automation points are moved to the left by an amount equal to the current loop size.

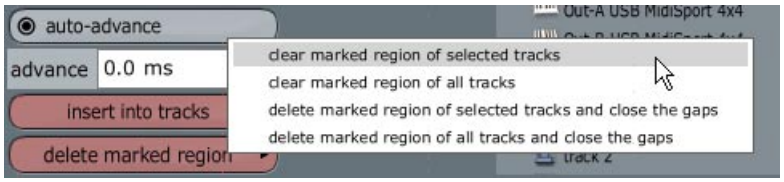

Figure 3.3.6

Destination output for this track: By default all tracks send their output to the default audio device. If you wish to have audio sent to an alternate audio device, or have the MIDI data from a track sent to external MIDI gear, just select the desired output. You can also send the output of a track, or even a number of tracks, to another track.

3.4 The filter section

A fundamental part of bringing a song to life is the process of setting the volume of all instruments, vocals, and percussive sounds, such that the listener's attention is drawn to the sounds you wish to emphasise, while keeping other sounds clearly audible. Effects processes, such as reverb, may be used to give sounds a sense of position and space. Treatments, such as compression, may be used to give sounds punch or weight without making them too loud. You may even use a little EQ to boost the bass of a kick drum, or maybe roll a little of the treble off an overly bright piano. Tracktion allows you to do all of these things, and much more. Fundamentally, mixing is all about levels, and Tracktion makes this very easy.

Note: When we refer to filters, we are describing any effect or instrument that can be inserted, or 'plugged' into, the filter section. The terms filter and plug-in within this context are synonymous.

When a track is first created, it contains a volume/pan filter and a level meter. These are the filters you will use for setting levels. In this way, the filter section of each new track represents the functionality of a classic mixing console. Figure 3.4.1 shows the default filter configuration.

Figure 3.4.1

Adding filters to a track

If you want to add other filters to your tracks, simply drag the icon labelled "new filter..." that is located just above the filter section and drop it where you want the new filter to be placed. Figure 3.4.2 shows a filter being added to track one. Notice that the area in front of the volume/pan filter is glowing red; this is how you can tell where the filter will be placed. If there is no illumination, then you are not currently over a valid target area.

Figure 3.4.2

Once the "new filter" icon has been dropped, a list of available filters appears. Choose the filter you wish to add to the track from this list.

Copying, moving, and deleting filters

A filter can be easily removed from a track by selecting it, and pressing either the **DELETE** or **BACKSPACE** key.

You can alter the order of the filter list, or even move a filter to a different track, by a simple drag operation.

Holding down the **CTRL** key (**CMD** for Mac users) whilst dragging a filter creates a copy of it. The copy is created with identical settings.

The right-click options

If you right-click on a filter, you are presented with a pop-up menu (Fig. 3.4.3) with the following options:

Disable: Use this option to toggle whether this filter is active. Disabling a filter stops it from processing the incoming signal. In addition, disabled filters typically do not use CPU resources. This option is useful for making A/B comparisons.
Keyboard shortcut: **F**.

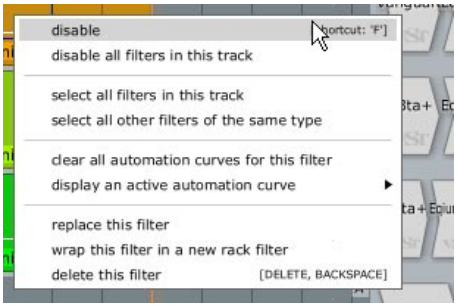

Figure 3.4.3

Disable all filters in this track: Use this option to quickly disable all filters on the current track. This option is only available when right-clicking on filters that are situated in the filter section.

Select all filters in this track: Use this option to quickly select all filters on the current track. This option is only available when right-clicking on filters that are situated in the filter section.

Select all other filters of the same type: Use this option to select all filters in the edit that are of the same type as the current filter. It is useful to note that when an aux-send filter is selected, only other aux-sends that share the same bus number will be selected. In this way you can select only your reverb or chorus sends for example, leaving other sends unselected.

Clear all automation curves for this filter: This option allows you to remove all automation data for this filter. If no automation data exists for this filter, this option will be greyed out.

Display an active automation curve: If you select this option you will be show a list of active automation curves for the current filter. Select a curve from the list to have it shown on the track view. If no automation data exists for this filter, this option will be greyed out.

Replace this filter: This option allows you to select a filter with which to replace the current filter.

Wrap this filter in a new rack filter: This option will replace the current filter with a new rack filter. The current filter will be placed inside the rack, with all connections made automatically. This can be a handy way of creating racks for multiple-output VSTis. Place the VSTi on a track that you will be using it on, select this option, and then copy the new rack to other tracks as required. Rack filters are described in detail in Chapter 9.

Delete this filter: This option removes the filter from the track, or audio clip it is located on.
Keyboard shortcut: **DELETE** or **BACKSPACE**.

The mute/solo buttons

Each track has a mute/solo switch, located at the far right-hand side of the filter section. These controls can be used to temporarily silence a track, or hear it in isolation.

Clicking the "**M**" mute control temporarily silences a track. When a track is muted, the mute button will be highlighted. Mute can be used to hear a mix without a given instrument. It can be very handy when trying to locate sounds that do not complement each other. Clicking the mute button again, un-mutes the track.

Clicking the "**S**" solo control temporarily silences all tracks but the current one. This is often useful when making changes to EQ, or compression on a track, as subtle changes may not be easy to hear when the full mix is playing. When a track has been soloed, the "**S**" button will be highlighted, and all non-soloed tracks will have a large cross shown on their mute/solo control. Clicking the solo button again, un-solos the track.

Tip: It is useful to note that when tracks are muted, any filters contained on the track will cease to use its processing power.

If you attempt to solo a track when another track is already soloed, Tracktion simply transfers solo status to the current track. If you want to have two or more tracks soloed, hold down the **CTRL** or **ALT** keys (**CMD** or **CTRL** for Mac users) whilst soloing another track.

When working with tracks that feed into other tracks, be aware that:

- Muting the destination track will effectively mute the source (sub-mix) tracks.
- Soloing the destination track will mute all source tracks. You can use the multiple-solo key modifier described above to bring your sub-mix tracks into play if required.
- Soloing a track that feeds into another track will solo both the source and destination tracks.

Right-clicking on a mute/solo control displays a pop-up menu option to clear all mute/solo buttons back to the default state.

The volume/pan filter

This filter allows you to set the volume level and panning of a track.

Clicking on this filter displays the volume and pan settings for the track in the properties-panel (Fig. 3.4.4).

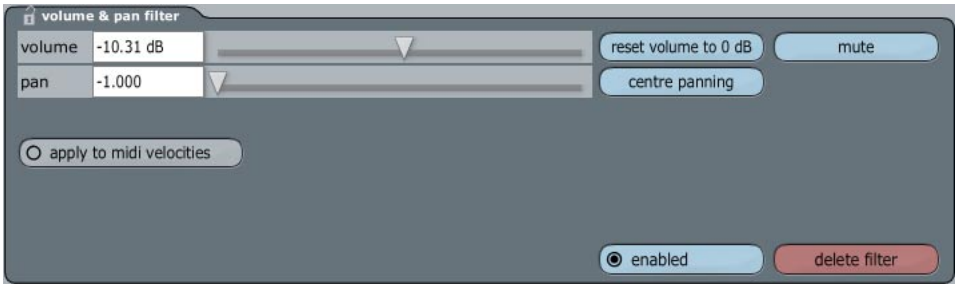

Figure 3.4.4

Notice how the volume/pan filter icon changes to reflect your pan and volume adjustments. The dark horizontal line shows the level, and the diamond shows the pan. Even more handily, the pan and level settings can be adjusted directly from the surface of the filter icon. To change the pan, for example, just click on the diamond and move it left and right. Figure 3.4.5 shows the volume/pan filter when the mouse is moved over the filter surface.

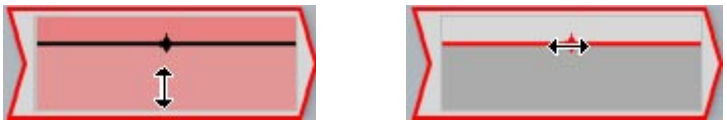

Figure 3.4.5

Notice how the surface changes colour and the mouse-pointer becomes an up/down arrow in the first image. This shows that the volume/pan filter is in level editing mode. Click and drag the mouse vertically to adjust the volume.

In the second image, the dark horizontal level bar is highlighted when the mouse is positioned over it. In addition, the mouse-pointer has become a left/right arrow. This shows that the volume/pan filter is in pan editing mode. Click and drag the mouse horizontally to adjust the pan position.

Tip: Holding down a modifier key, such as **CTRL** whilst the mouse is positioned over a volume/pan filter switches the mouse-pointer to a four-way arrow. In this state, you can edit the pan and volume simultaneously.

Volume: Use this field to view or edit the current volume fader level.

Pan: Use this field to view or edit the current pan position.

Apply to midi velocities: When this option is enabled, the volume control can be used to scale MIDI velocities.

Reset volume to 0 dB: Use this button to quickly reset the volume to the default level.

Centre panning: Use this button to quickly reset the pan control to centre.

Mute: This button temporarily sets the volume to "–inf." Clicking this button again restores the volume to its previous level. This option is complementary to the main mute/solo controls in the filter section, as it is possible to automate this control if desired, whereas the main mute/solo controls cannot be automated.

Enabled: Use this option to toggle whether this filter is active. Disabling a filter stops it from processing the incoming signal. In addition, disabled filters typically do not use CPU resources. This option is useful for making A/B comparisons.
Keyboard shortcut: **F**.

Delete filter: Click this to remove the filter from the track.
Keyboard shortcut: **DELETE** or **BACKSPACE**.

Tip: You can place as many volume/pan filters on a track as you need. This can be useful for reducing levels fed into filters (some VST plugins can distort easily). You may also find it helpful if implementing level fades. Automate the first volume/pan between –inf and 0 dB to create the fade and use the second as a standard track level.

The level meter.

This filter shows the level of signal passing through it. When selected, the properties-panel shows a large form of the level meter.

Level meters also show MIDI velocities on MIDI tracks.

When a level meter clips, red bars remain on the meter to alert you. Clicking on the meter clears the clip warning and resets the meter.

If you right-click on a level meter, in addition to the normal right-click options for filters, you will also see the following options:

Use peak mode: Select this option if you want the current meter to display levels in peak mode. In peak mode the meter simply shows the highest level attained by the incoming signal. Peak is particularly helpful for spotting clipping, or sudden spikes.

Use RMS mode: Select this option if you want the current meter to display levels in RMS mode. RMS mode shows the average level of a signal. Clipping may be missed when in RMS mode, but it provides a much better idea of the actual acoustic energy of a track.

Use sum + difference mode: Select this option if you want the current meter to display levels in sum + difference mode. This mode shows two levels, one is the shared stereo level, and the other is the difference between the two stereo levels.

Reset all overloaded indicators: This option clears the clip warning on all meters.
Keyboard shortcut: \.

The properties-panel for selected level meters contains the following option:

Delete filter: Click this to remove the filter from the track.
Keyboard shortcut: **DELETE** or **BACKSPACE**.

The 4-band equaliser

When selected, this filter shows a parametric equaliser interface in the properties-panel (Fig. 3.4.6).

Whilst you cannot edit the EQ for this filter directly from the filter surface, changes made to the EQ slope through the editor are shown on the filter icon. This makes it easy to see at a glance what equalisation is being applied to a given track.

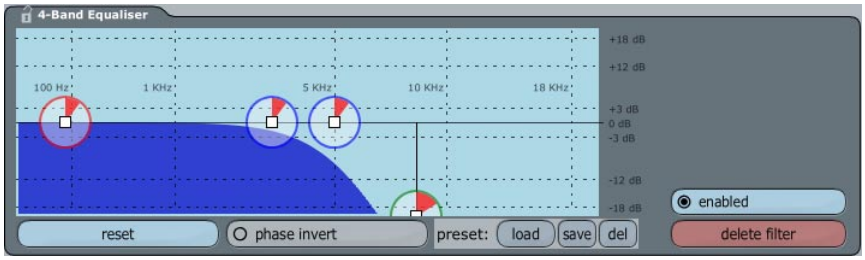

Figure 3.4.6

The large circles control the frequency, gain, and slope (Q) of the four EQ bands. Dragging the centre square left and right changes the frequency, whereas dragging the square up and down alters the gain.

The slope is depicted by the shaded segment of the circle. The larger the segment, the steeper the slope.

Reset: This button can be used to quickly reset the EQ back to the default (flat) state.

Phase invert: When this option is selected, the phase of the audio passing through the filter is inverted.

Preset: Use these buttons to load, save, and delete EQ presets.

Enabled: Use this option to toggle whether this filter is active. Disabling a filter stops it from processing the incoming signal. In addition, disabled filters typically do not use CPU resources. This option is useful for making A/B comparisons.
Keyboard shortcut: **F**.

Delete filter: Click this to remove the filter from the track.
Keyboard shortcut: **DELETE** or **BACKSPACE**.

The ReWire filter

ReWire is a methodology by which complete audio applications, such as sequencers, can easily be slaved to other such programs running on the same computer. Tracktion is capable of acting as a ReWire master, which means that any software that can be set to run as a ReWire slave can be used as an instrument inside Tracktion (for example Propellerhead Software's Reason and ReBirth applications.)

To use ReWire you need to enable the ReWire option in the Tracktion settings. See Chapter 2.6 for details on enabling ReWire devices.

ReWire devices are added to tracks in just the same way as any other filter. Once a ReWire device has been added to a track, it is necessary to perform a few simple steps to use a ReWire slaved application:

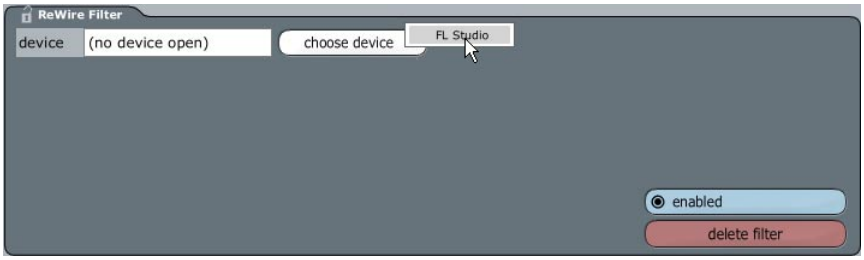

Figure 3.4.7

- Click the ReWire filter in the filter section. The properties are shown in the properties-panel (Fig. 3.4.7).
- Click on the "choose device" button. A pop-up menu appears that lists all available ReWire slave applications installed on your computer. If this list is empty, you either have no ReWire applications installed or they are not installed correctly.
- Select the ReWire application you wish to use from the pop-up menu. The properties-panel will update to show the connection options for the ReWire device (Fig. 3.4.8).

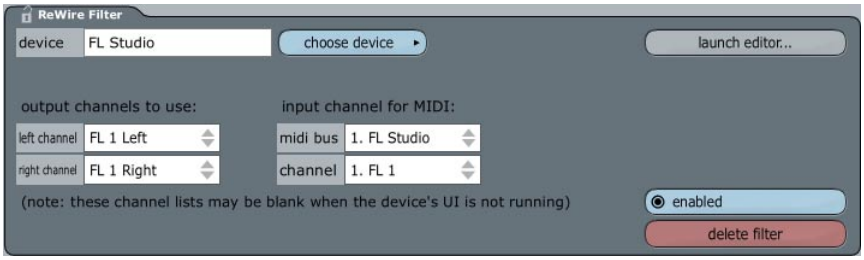

Figure 3.4.8

Output channels to use: Many ReWire applications offer multiple output channels, allowing you to have drums or instruments processed and mixed separately in Tracktion. You can select which channels will be received by the current track from the left/right output channel boxes. If you wish to use more than one set of stereo outputs for the slaved program, you can simply add copies of this ReWire filter to other tracks and alter these two output channel boxes accordingly.

Input channel for MIDI: You can also send MIDI data from Tracktion to your ReWire application. A ReWire application will have one or more "MIDI bus" entries available. Clicking the "MIDI bus" drop-down box shows the available buses (many ReWire applications only offer one choice). You can think of the MIDI bus as being broadly similar to a MIDI output device.

In addition to the MIDI bus, each ReWire filter can be assigned a MIDI channel. The MIDI channel is chosen from the "channel" drop-down box.

Launch editor: When this button is clicked, the ReWire application will be launched. This allows you to make edits to the material played by the ReWire device. Closing the application returns you to the Tracktion interface.

The aux send/return filters

Effects Loops in Tracktion are created using two complementary filters, the "aux send" filter and the "aux return" filter.

The send filter replicates the send rotary control of a mixing console, and the return filter is used to create a target for any sent audio. How this works in practise is that a track is designated as a "return" track. This track contains any effects to be applied to each track containing an auxiliary send.

Tracktion's send implementation is extremely powerful. Because you can place send filters anywhere in the filter list, you can create pre-fade or post-fade send buses by simply placing the send filter before or after the volume/pan filter for a track. Equally sends can be placed before or after any insert effects.

To set up a auxiliary return:

- Select an empty track to use as the return track. Click on its name field to select it, and rename the track with a meaningful label such as "reverb return."
- Place any effects filters that you wish to apply to this send bus before the volume/pan filter on this track.
- Place an "aux return" filter at the start of the filter chain.
- Select the "aux return" filter and in the properties (Fig. 3.4.9) select a bus for this send. There are eight buses available. You use these buses to match send filters with their corresponding returns.
- Also in the return properties, edit the "bus name" field to describe the purpose of this bus (for example "reverb bus"), as this will make it easier to keep track of things.

Figure 3.4.9

Now the return track is ready to receive audio from your send tracks. To complete the picture, you simply need to add send filters to any tracks that you wish to add effects.

- Place an "aux send" filter between the level meter filter and the mute/solo control on any tracks that you wish to process with this effects bus. The send needs to be after the volume/pan filter otherwise the level of the wet effect would not stay in step with the level of the track. This is called a post-fade send.
- Select your aux send filters, and in the properties-panel (Fig. 3.4.10) set the "bus" field to the bus you chose above.
- To control how much of the send effect is added to your source tracks, adjust the "send" values for each "aux send" filter.

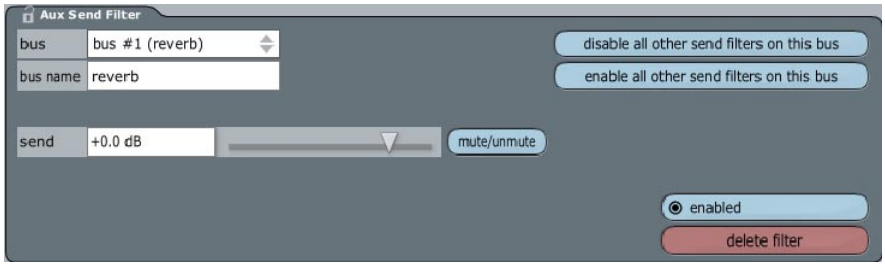

Figure 3.4.10

Enable/Disable all other send/return filters on this bus: Both the send and return filters have buttons to globally enable or disable other send/return filters that are assigned to the same bus as the current one.

The Tracktion sampler

Tracktion has a built-in, light-weight sampler filter that, thanks to an efficient user-interface, is extremely quick to use for simple tasks and uses very little of your computer's resources.

The sampler supports key-ranges, so different sounds can be assigned to each note, but it does not support velocity layering. If you want to create highly realistic sounding instruments that change timbre depending on how hard the key is struck (velocity), you may want to use a more fully featured sampler plug-in.

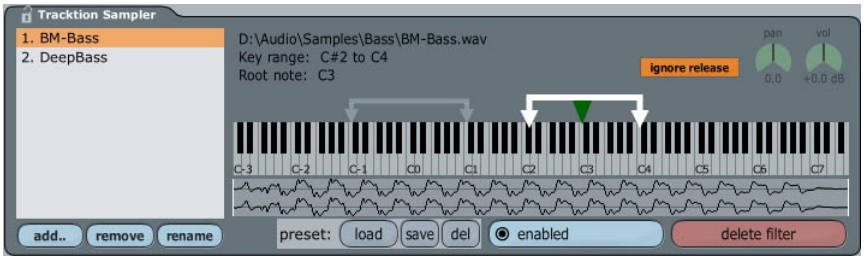

Figure 3.4.11

Adding and removing samples

Samples can be imported into the sampler either by clicking the "add" button and navigating to the file on your hard-drive, or by dragging them into the file list box. If a sample is added to the list twice, only one copy of it is actually kept in memory.

Removing samples from the list is as simple as selecting them in the list and clicking the "remove" button. Keyboard shortcut: **DELETE** or **BACKSPACE.**

Setting up a key-range

Sometimes it is desirable to define the range of keys over which a sample plays. This range is called a key-range, or key-map. To set the key-range for a sample, select the sample from the list of loaded samples. Once selected you will see three arrows pointing down towards the piano keyboard. Two of the arrows are joined, and it is these arrows that define the key-range. Simply drag them to point to the lowest and highest keys you wish this sample to play.

If both key-range arrows are set to the same key, the sample will only be heard when that key is struck, which is useful when setting up percussive sample sets.

The third arrow, which should be shown in a different colour, controls the root-note. The root-note of a sample is the note at which the sample should play at its native pitch. Dragging this arrow down an octave will therefore have the effect of transposing the sample up an octave.

Multiple key-ranges

Figure 3.4.11 shows two samples loaded, with each set to play across different two-octave ranges. In this case, the first sample has a key-range spread from C2 to C4, and by setting the root-note to C3, the sample will play one octave either side of its natural pitch. The second sample has a key-range spread from C-1 to C1, and by dragging the root-note to C0, this sample too will play an octave either side of its natural pitch.

A drum map could therefore be created by setting:

- a kick-drum sample to have a root-note and upper/lower key-range arrow all pointing at C1.
- a snare sample to have a root-note and upper/lower key-range arrow all pointing at D1.
- a hi-hat sample to have a root-note and upper/lower key-range arrow all pointing at E1.

Ignore release: When this option is activated, the currently selected sample will not respond to note-off events. If for example you had a collection of vocal phrases assigned to various keys, could trigger them by simply playing the corresponding key on your MIDI keyboard. If this option was disabled, when you release the key, the vocal would abruptly stop. Enabling this option would allow the vocal to play through the entire sampled phrase without you needing to hold down the trigger key. "Ignore release" is commonly used with percussive sounds.

The "ignore release" option is local to a single sample.

The waveform display: The waveform display shows the current sample as a visual waveform. You can trim the start and end of the sample by dragging the sample contents. If you click somewhere on the left-hand side of the waveform-display and drag the mouse to the left or right, you can adjust the start point of the sample. Following the same procedure in the right-hand side of the display allows you to adjust the end point.

Pan: Each sample can be panned individually by selecting it in the list on the left, and adjusting the pan control as required.

Vol: The volume that each sample is played at can be set by selecting the sample from the list on the left, and adjusting the "vol" control as required.

3.5 The control section

When the edit page is showing, the control section provides a number of tools and configuration options related to working with edits (Fig 3.5.1).

Figure 3.5.1

The configuration options available from these buttons differ from those on the settings page (global settings) in that these options are saved with each edit (session dependent). This means that when you next open an edit you have been working on, it appears exactly as you left it.

Undo/redo: Tracktion supports multiple level undo/redo operations, which means you can step back or forwards through a number of previous actions. Keyboard shortcut: **CTRL + Z**, and **CTRL + Y** respectively (**CMD + Z** and **CMD + Y** for Mac users).

Save: This button displays a pop-up menu with the following options.

- *Save edit:* This option saves the edit.
  Keyboard shortcut: CTRL + S (CMD + S for Mac users).
- *Save edit as:* Select this option if you wish to save the current edit under a new name.
- *Revert to saved state:* When this option is selected, Tracktion re-opens the last saved version of this edit, losing any subsequent changes.
- *Open the directory containing edit:* This option opens a Windows Explorer or Mac Finder window focused on the folder containing the edit.

Clipboard: This button displays a pop-up menu with options for working with Tracktion's clipboard. Note that some of these options are only available when a clip is selected.

- *Cut:* Select this to perform a standard "cut" operation. The selected clip(s) will be removed and added to the clipboard.
  Keyboard shortcut: **CTRL + X** (**CMD + X** for Mac users).
- *Copy:* Select this to perform a standard "copy" operation. The selected clip(s) will be added to the clipboard.
  Keyboard shortcut: **CTRL + C** (**CMD + C** for Mac users).
- *Copy marked section:* Select this to copy any part(s) of the selected clip(s) that is located between the loop-begin and loop-end markers.

- *Paste:* Select this to perform a standard "paste" operation. The contents of the clipboard will be pasted after the current clip. If this option is performed a number of times, each new paste will be placed after the one preceding it.
  Keyboard shortcut: **CTRL + V** (**CMD + V** for Mac users).
- *Paste after selected:* Select this option to paste the contents of the clipboard at the end of the selected clip.
- *Paste* (inserting at cursor position): Select this option to paste the contents of the clipboard at the play-head cursor position. If the cursor is located over this, or another clip on this track, the clip will be split to make room for the pasted material.
  Keyboard shortcut: **CTRL + I** (**CMD + I** for Mac users).
- *Delete:* Select this to remove the clip from the edit.
  Keyboard shortcut: **DELETE** or **BACKSPACE**.
- *Delete* (+ delete source files): When this option is selected, the clip and its source material are deleted. Using this function will affect any other clips that reference the source file, so use this with caution.
  Keyboard shortcut: **CTRL + M** (**CMD + M** for Mac users).
- *Bring obscured clips to front:* If this clip is placed over another clip, you can use this option to bring the hidden clip forward.
  Keyboard shortcut: **B**.
- *Show clipboard contents:* This option displays the contents of the clipboard in the properties-panel.
  Keyboard shortcut: **CTRL + ALT + C** (**CMD + CTRL + C** for Mac users).

Import: This option allows you to add new material to an edit. Importing material into edits is described in Chapter Ten.

Export: This option allows you to export content from your edit, or export the edit as an archive. The export options are described in Chapter Ten.

Timecode: This button displays options related to tempo, MIDI, and video synchronisation. This menu is also available by right-clicking the time-line. The tempo and time-line functions are detailed in Chapter Four.

Click track: This button displays a pop-up menu with options relating to Tracktion's click-track. The click-track options are detailed in Chapter Four.

Snapping: This button displays a pop-up menu with options relating to snapping and quantising. The snapping options are detailed in Chapter Four, and Chapter Six.

Tracks: This button displays a pop-up menu with options relating to tracks. Tracks are discussed elsewhere in this chapter.

Options: When this button is clicked, a pop-up menu is displayed. This pop-up menu has the following options.

- *Scroll smoothly:* By default the edit will only scroll when the play-head cursor reaches the edge of the arrange area. When this option is selected, the play-head cursor is fixed at the centre of the arrange area and the edit scrolls continuously. This makes it easier to follow the edit visually during playback, but places extra load on computer resources.
- *Show waveforms:* Use this option to enable or disable whether audio clips show waveforms, and MIDI clips show MIDI data when in shrunken state.
- *Audible trimming:* When this option is enabled, trimming operations on audio clips will be audible.
- *Return cursor to start position when play stops:* When this option is selected, the play-head cursor reacts to playback stopping by returning to the point at which playback began.
- *Default midi editor vertical scale:* Use this option to select how many octaves are spanned when in MIDI editor mode. If you do a lot of MIDI editing by hand, you may find two or perhaps four octaves to be the best choice. Otherwise you may prefer to have a fuller range by default.
- *Make new clips the size of the marked region:* When this option is selected, new clips will be the size of the marked region.

- *Stop all playback when application is minimised:* When working across more than one application, for example using a wave editor alongside Tracktion, it is sometimes useful to have the minimise button automatically stop playback.
- *Warn about lost midi notes on midi inputs:* When this option is enabled, Tracktion displays a warning message if MIDI notes are received by a MIDI input device that is not connected to a track.
- *Use a 'per-track' view for input devices:* This option toggles whether Tracktion uses draggable input icons, or the "per-track" view in the input-section. For users with many input devices, the per-track view is generally the best choice.
- *Show big input level meters:* When this option is selected, large level meters are shown horizontally across tracks that have inputs attached. This makes it easier to see the input levels at a distance from the screen. Keyboard shortcut: **CTRL + ALT + M** (**CMD + CTRL + M** for Mac users).
- *Mouse wheel action:* This option controls whether the mouse wheel is used to zoom or scroll in the arrange area. Note, whichever option is chosen, holding down the **SHIFT** key provides the alternate functionality.
- *Use incoming velocities for midi step entry:* When this option is enabled, the MIDI editor's fixed velocity will be ignored in step editor mode. Instead, the velocity of the incoming note will be used.
- *Show QuickTime movie window:* This option toggles whether the QuickTime window is visible. Chapter 4.5 describes the video window in detail.
  Keyboard shortcut: **ALT + M** (**CTRL + M** for Mac users).
- *Set QuickTime movie file...:* Select this option to choose a video file to display.
- *Change video start time offset:* Use this option to set the time at which the video playback should begin.
- *Preview volume:* When importing samples into the Tracktion sampler, or into audio clips, audio files can be quickly auditioned by simply clicking on the filename. This option allows you to set a volume level to be used when Tracktion previews audio files.

Automation: This button displays a pop-up menu with options relating to automation. See Chapter Seven for specifics on automation.

Help: Click this button to the access help on using Tracktion.

- *Show Tracktion help pages:* This option displays the Tracktion User's Guide.
  Keyboard shortcut: **F12**.
- *Turn on pop-up help:* When this option is enabled, hovering the mouse pointer over a control will cause Tracktion to display a pop-up help balloon describing the control. This can be handy when you are first finding your way around Tracktion.
  Keyboard shortcut: **F11**.
- *Use longer delay before pop-up help appears:* When this option is activated, Tracktion will wait a few moments before displaying the pop-up help. This setting has no effect unless the pop-up help is enabled.

3.6 The transport section

The top-left-hand corner of the transport section (Fig. 3.6.1) shows the current tempo and time signature. Clicking on this value displays the tempo properties in the properties-panel. From there you can adjust the tempo/time signature. The padlock icon activates time code chasing (see Chapter Four).

To the right of the tempo is the current play-head position. This value can be edited to snap the play-head cursor to an exact point.

The two "**A**" buttons below the tempo toggle automation read mode and automation record mode.

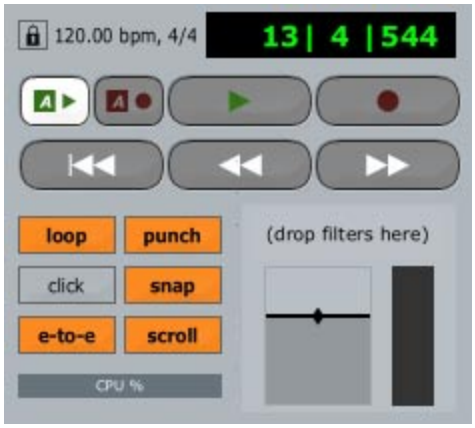

Figure 3.6.1

Automation read: When this button is active, Tracktion will play automation curves, otherwise they will be ignored.
Keyboard shortcut: **H**.

Automation record: When this button is active, any changes made to automatable parameters whilst playback is active will be recorded.
Keyboard shortcut: **Y**.

The next five buttons provide standard tape-deck style play, record, rewind, backward, and forward functions.

Play: This buttons toggles whether playback is active.
Keyboard shortcut: **SPACE**.

Record: This button starts recording from all active input devices.
Keyboard shortcut: **R**.

Rewind to zero: This button moves the play-cursor back to the start of the selected clip, or the start of the edit (whichever comes first).
Keyboard shortcut: **HOME**.

Rewind/fast-forward: These two buttons move the play-head cursor backwards or forwards through the edit. A single click moves the play-head to the next snapping location. Holding either of these buttons down causes Tracktion to scroll through the edit until the button is released.

The next series of button controls various aspects related to playback and record:

Loop: When this option is active, playback will cycle through the region set by the loop markers.
Keyboard shortcut: **L**.

Punch: When in punch mode, recording is only active during the time that the play-head cursor is between the loop-start and loop-end markers. Note, punch mode cannot be used at the same time as loop mode. Performing punched recordings is described in detail in the User's Guide.
Keyboard shortcut: **P**.

Click: This option toggles whether the click-track is active. Working with the click-track is described in detail in the User's Guide.
Keyboard shortcut: **C**.

Snap: This option toggles whether snap-to-grid is active. Snapping is detailed throughout Chapter 4.
Keyboard shortcut: **Q**.

E-to-E: This option toggles whether end-to-end mode is enabled. When enabled, Tracktion will send data to the output devices even if playback is stopped. It is usually a good idea to leave e-to-e enabled.
Keyboard shortcut: **SHIFT + E**.

Scroll: This option toggles whether the edit will scroll when the play-head cursor reaches the edge of the visible area. Disabling this option can be useful when editing MIDI parts whilst playback is active.
Keyboard shortcut: **SHIFT + S**.

At the bottom of the transport section there is a CPU usage meter. Use this to monitor how much of your available computing power is being used by the current edit. As CPU usage increases, audio stability can be compromised, and pops and clicks may occur in recordings, and during playback. In addition, the user-interface may become sluggish and graphics updates may be noticeably slower.

In addition to the usage meter, you may sometimes see a small exclamation mark ("**!**") appear on the usage bar. This notifies you that an edit required more data to be read from your hard-drive than could physically be achieved.

The final part of the transport section is called the master filter section, and it is here that you can see and edit the overall level of your edit. You can also add filters here to create a master insert section, useful for mastering plug-ins such as the FinalMix plug-in that ships with Tracktion.

When you click inside the master filter section, you will see a set of options in the properties-panel (Fig. 3.6.2).

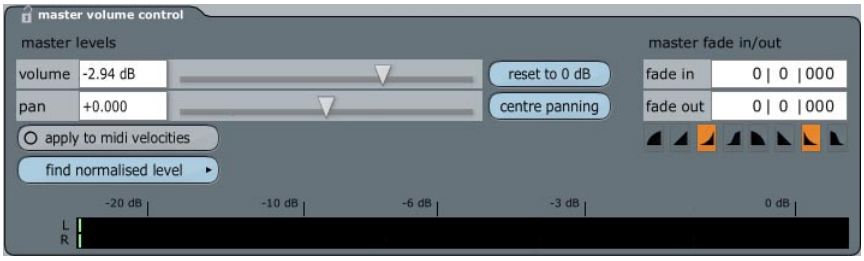

Figure 3.6.2

Volume: Use this field to view or edit the current volume fader level.

Pan: Use this field to view or edit the current pan position.

Apply to midi velocities: When this option is enabled, the volume control can be used to scale MIDI velocities.

Find normalised level: This option allows you to have Tracktion select the optimum master level for the edit. A pop-up menu appears with the following options:

- *Based on the max level of the whole edit:* Choose this option to have Tracktion find the peak level of the edit and set the volume accordingly.
- *Based on the RMS level of the whole edit:* Choose this option to have Tracktion find the RMS level of the edit and set the volume accordingly.
- *Based on the max level of the marked region:* Choose this option to have Tracktion find the peak level within the marked region and set the volume accordingly.
- *Based on the RMS level of the marked region:* Choose this option to have Tracktion find the RMS level within the marked region and set the volume accordingly.

Reset volume to 0 dB: Use this button to quickly reset the volume to the default level.

Centre panning: Use this button to quickly reset the pan control to centred.

Fade in/out: View or edit the fade envelope breakpoints for the edit. These breakpoints define the length of the fades from the start and end of the edit. For example, entering the value two in the first column of both fade fields would cause the edit to fade in over two bars, and begin to fade out two bars from the end of the edit. If fade in/out values have been given, the time-line bar will show fade curves to help you visualise the fades you have set-up. Figure 3.6.3 shows the fade curves at either side of the time-line.

You can of course automate the master volume control to implement a fade, but that requires you to know in advance the final mix levels, and as such, this approach is generally far more elegant.

Fade slope: Choose the slope type for the fade in/out envelopes from these icons.

Figure 3.6.3

In addition, right-clicking on the level meter displays options for setting the metering response:

Use peak mode: Select this option if you want the current meter to display levels in peak mode. In peak mode the meter simply shows the highest level attained by the incoming signal. Peak is particularly helpful for spotting clipping, or sudden spikes.

Use RMS mode: Select this option if you want the current meter to display levels in RMS mode. RMS mode shows the average level of a signal. Clipping may be missed when in RMS mode, but it provides a much better idea of the actual acoustic energy of a track.

Use sum + difference mode: Select this option if you want the current meter to display levels in sum + difference mode. This mode shows two levels, one is the shared stereo level, and the other is the difference between the two stereo levels.

Reset all overloaded indicators: This option clears the clip warning from all meters.
Keyboard shortcut: \.

Chapter 4: Timing, snapping, and synchronisation

4.1 The time-line bar, and the tempo properties

The time-line bar (Fig. 4.1.1) is made up of two horizontal lanes. Although this may not be visually obvious at first, if you click in the upper-half of the time-line, you will see a large red box outlining the top section. This box shows the current tempo region. By default there will be only one region in a new edit. This default region is shown as the current tempo at the far left of the time-line.

The bottom lane shows the time divisions used for grid-snapping, and as a visual reference for building edits. Markers are also shown in the bottom lane.

Figure 4.1.1

Markers

Markers allow you to create bookmarks in your edit so that you can quickly navigate between sections of a song.

The markers are numbered 0-9 and correspond to the number keys on your keyboard. To jump to a marker, simply press the corresponding key. The play-head cursor then moves to the marker location.

Holding the **CTRL** key (**CMD** for Mac users) whilst pressing a number key sets the corresponding marker at the play-head cursor location. Repeating this process removes the marker.

If you set a marker that has already been placed, the marker simply moves to the new location.

The right-click options

Right-clicking on the upper lane shows a pop-up menu (Fig. 4.1.2) offering the following options:

Insert a tempo change at the cursor position: Select this option to create a new tempo region starting at the location of the play-head cursor.
Keyboard shortcut: **CTRL + E** (**CMD + E** for Mac users).

Delete this tempo change: This option removes the currently selected tempo region.
Keyboard shortcut: **DELETE** or **BACKSPACE**.

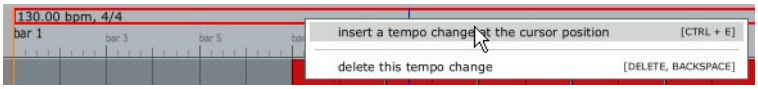

Figure 4.1.2

Right-clicking on the lower lane shows a pop-up menu that corresponds to the menu available from the "timeline" button in the control section. This menu is discussed later in this chapter.

The tempo properties

When a tempo region is selected, its properties are shown in the properties-panel (Fig. 4.1.3).

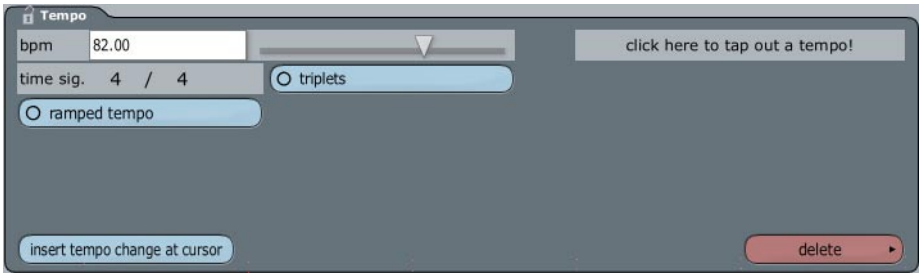

Figure 4.1.3

BPM: This field allows you to view and change the tempo of the selected tempo region. The tempo is set in terms of Beats Per Minute.

Time sig.: This field allows you to view and change the time signature of the tempo region. Clicking on either of the two numbers displays a pop-up menu from which you can select alternative beat and measure values.

Triplets: When this option is selected, the grid for the tempo region shows triplet divisions.

Ramped tempo: When this option is selected, Tracktion creates a smooth tempo change across the range of the current region. If you want a section of a song to ramp gradually from one tempo to another, you can use this option to achieve this. Create three tempo regions, the first and last of these being your starting and destination tempos. The middle region should span the section of your song over which you want the tempo ramp to occur. Set the middle region to the target tempo, and enable the "ramped tempo" option.

Click here to tap out tempo: If you click this pad, you will be prompted to tap out a tempo with your mouse-button. As you tap, the box displays your current tempo. You will notice that the tempo takes a few clicks to become steady, keep clicking until the tempo is roughly constant. When the tempo seems to be stable, click the "apply" button that is to the right of the tap pad. Tracktion will use your timing to set the tempo for this region.

Insert tempo change at cursor: This option inserts a tempo change at the current play-head cursor position. Keyboard shortcut: **CTRL + E** (**CMD + E** for Mac users).

Delete: When this button is clicked, a pop-up menu (Fig. 4.1.4) appears.

- *Delete this tempo setting:* This option removes the current tempo region.
  Keyboard shortcut: **DELETE** or **BACKSPACE**.
- *Delete all tempo changes from edit:* This option removes all tempo changes, leaving the entire edit set to the initial tempo.

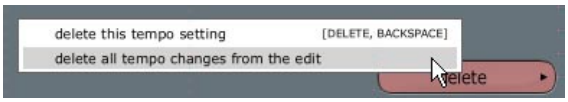

Figure 4.1.4

4.2 The “timecode” button

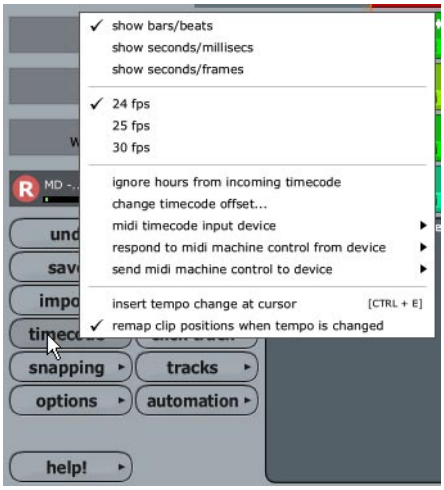

Figure 4.2.1

Clicking on the “timecode” button displays a pop-up menu with the following options:

Show bars/beats: When this option is selected, Tracktion uses bar and beat divisions for the timing grid. The time-line, play-head cursor position, and the snap grid will all use this timing scale.
Keyboard shortcut: **T**.

Show seconds/millisecs: When this option is selected, Tracktion uses second and millisecond divisions for the timing grid. The time-line, play-head cursor position, and the snap grid will all use this timing scale.
Keyboard shortcut: **T**.

Show seconds/frames: When this option is selected, Tracktion uses second and frame divisions for the timing grid. The time-line, play-head cursor position, and the snap grid will all use this timing scale. This option is very useful when working with video synchronisation.
Keyboard shortcut: **T**.

24/25/30 fps: When the time-line is set to show time in seconds and frames, this control selects how many frame divisions exist for each second. This frame rate is also used for MIDI Timecode input and output.

Ignore hours from incoming timecode: When this option is selected, Tracktion ignores the “hours” value when chasing incoming Time code. The timecode will instead be indexed to the same hour as the current position in the edit.

Change timecode offset: This option allows you to add an offset to the incoming timecode time. When this option is selected, a dialogue-box appears (Fig. 4.2.2), from which you can enter an offset. The offset is defined in terms of hours, minutes, seconds, and frames, and is added to the incoming time code to determine Tracktion’s current cursor position. Negative offsets are possible by holding down the “–” key whilst entering in a value.

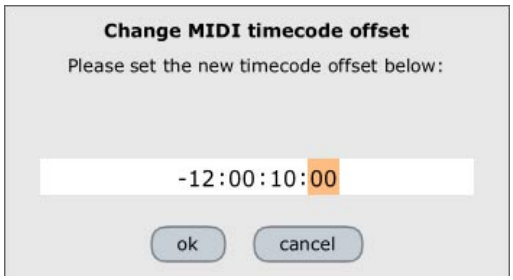

Figure 4.2.2

MIDI timecode input device: This option displays a sub-menu where one can select which MIDI input device will be receiving timecode.
Note: Timecode chasing is activated via the padlock icon in the transport section.

Respond to midi machine control from device: This option displays a sub-menu. Select which MIDI input device will be receiving MIDI machine control (MMC). If you do not wish to receive MMC from any MIDI input device, then select "none."
Note: The current version of Tracktion only recognises MMC transport commands.

Send midi machine control to device: This option displays a sub-menu. Select which MIDI output device you wish Tracktion to send MIDI machine control. If you do not wish to send MMC to any MIDI output devices, select "none."

Insert tempo change at cursor: Select this option to insert a new tempo at the current play-head cursor position.
Keyboard shortcut: **CTRL + E** (**CMD + E** for Mac users).

Remap clip positions when tempo is changed: When this option is selected, Tracktion will react to manual tempo changes by resizing clips and adjusting their locations so that they stay synchronised with the new tempo. The effect is a bit like writing on the surface of a balloon and then stretching it. Your writing retains its position in relation to the balloon, but will be physically larger.

You can see the effect of this option by placing two bar long MIDI clips side by side in an edit. If you change the tempo with this option disabled, the clips retain their position with respect to each other, but will no longer be one bar in length. If you play the clips, they will still be playing at the original tempo.

If you undo the tempo change, and then repeat the previous step with this option enabled, it will almost appear that nothing has happened. The clips will still be one bar long, and will be correctly aligned with each other and the edit. If you play them though, you will see that the tempo of the MIDI contents has changed.

Tip: These options are also available by right-clicking on the time-line.

4.3 The "snapping" button

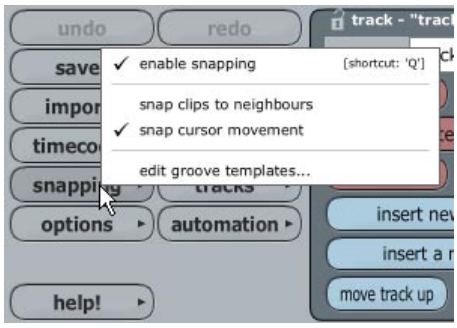

Figure 4.3.1

Controls relating to grid-snapping and quantising can be accessed from the "snapping" button (Fig. 4.3.1).

Enable snapping: This option toggles whether clips and MIDI events snap to the current grid.
Keyboard shortcut: **Q**.

Snap clips to neighbours: This option toggles whether clips will snap to edges of neighbouring clips. When enabled, snapping occurs even if the neighbouring clip's boundary is not itself snapped to any grid.
Keyboard shortcut: **CTRL + ALT** (**CMD + CTRL** for Mac users) can be used to temporarily enable snap-to-neighbour whilst dragging clips.

Snap cursor movement: This option toggles whether the play-head cursor snaps to the current grid when manually repositioned.

Edit groove templates: Displays the groove template editor. The groove editor is described in Chapter Six.

4.4 The "click-track" button

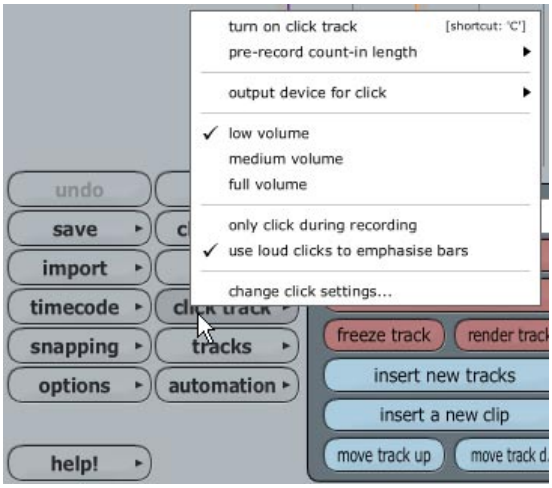

Figure 4.4.1

The click-track provides a metronome for you to play along to when playing or recording live. This is often useful when recording a band one track at a time, as it helps them to keep in time and thus reduces the need for later editing.

A number of menu options are available for customising the click-track to your needs. These options can be accessed by clicking the "click track" button (Fig. 4.4.1).

Turn on click track: This option toggles whether the click track is currently enabled.
Keyboard shortcut: **C**.

The click-track will only be heard during playback or recording.

Pre-record count-in length: This control allows you to set a period of click track time before recording starts.

Output device for click: Use this setting to choose which output the click track is sent to. If you choose an audio output, Tracktion plays a sample for the click sound. If you choose a MIDI output, Tracktion sends a MIDI note to the selected device for each click. The waveform, or MIDI patch, used can be configured from the "click track settings..." button.

Low / medium / full volume: Use this option to select the volume of the click track.

Only click during recording: When this option is enabled the click-track will only be active when recording, otherwise the click-track will be heard during normal playback.

Use loud clicks to emphasise bars: When this option is selected, the first beat of the bar is emphasised by a louder click.

Change click settings: This option displays a dialogue-box (Fig. 4.4.2) from which you can configure the click sound. The following options are available:

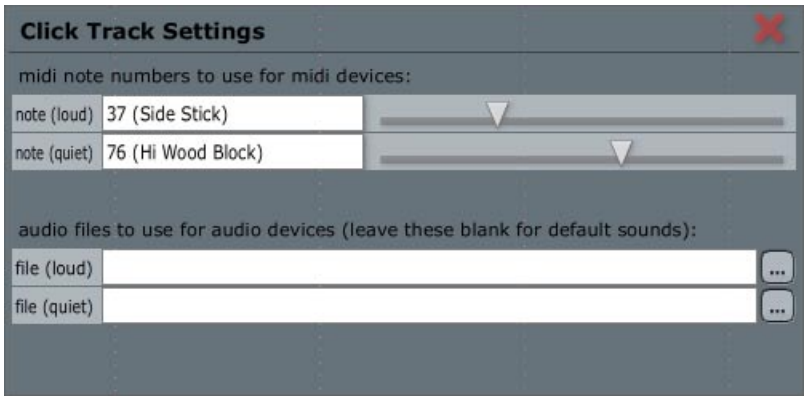

Figure 4.4.2

- **Midi note numbers to use for midi devices (loud/quiet):** These two options allow you to select the MIDI note that is sent for the loud click, and for the quiet click. The MIDI note is sent on MIDI Channel 10.
- **Audio files to use for audio devices (loud/quiet):** These two options allow you to select the audio file that is heard for the loud and quiet clicks. If these fields are left empty, and the output device is an audio device, Tracktion provides its own click sound.

4.5 The video window

The video window can be used to score music to film. The video is shown in a floating window, which can be moved to a second screen if desired.

To show a video for scoring:

- Switch to the edit page.
- Click the “options” button in the control-section. This displays a pop-up menu.
- From the menu, select the “set QuickTime movie file” option.
- A dialogue-box appears from which you can navigate to the QuickTime movie file you wish to view.
- Click the “timecode” button, and select this video’s frame-rate from the pop-up menu.

The following video related options are available from the “options” button:

Show QuickTime movie window: This options toggles whether the movie window is displayed on screen. If you attempt to show the movie window when no QuickTime movie file has been chosen, you will be prompted for the movie file first.
Keyboard shortcut: **ALT + M** (**CTRL + M** for Mac users).

Set QuickTime movie file: This option allows you to choose the movie file that you wish to score.

Change video start time offset: Use this option to set the time at which the video playback should begin.

Further options are available for working with video by right-clicking on the video window:

Hide window: Select this option to close the window.

Keep window on top: When this option is selected, the video window will not be obscured by other windows if you click on them. This allows you to use the video window easily on single monitor set-ups, as the video window can be visible at all times, even when you are making edits to your arrangement.

Size options: Use these options to set the size of the movie window on screen. The sizes are given in terms of multiples of the source video resolution.

Mute QuickTime audio track: This option controls whether the audio track contained in the movie is muted.

Chapter 5: Audio clips

5.1 Working with the clip tools

When a clip is selected, the title-bar at the top of the clip displays a collection of tools for working with the clip (Fig. 5.1.1). These tools, common to both audio and MIDI clips, are how you define the size of the clip, and the region of the source audio file that the clip is displaying. To move the clip, rather than the contents, just drag anywhere on the title-bar other than on the tool icons.

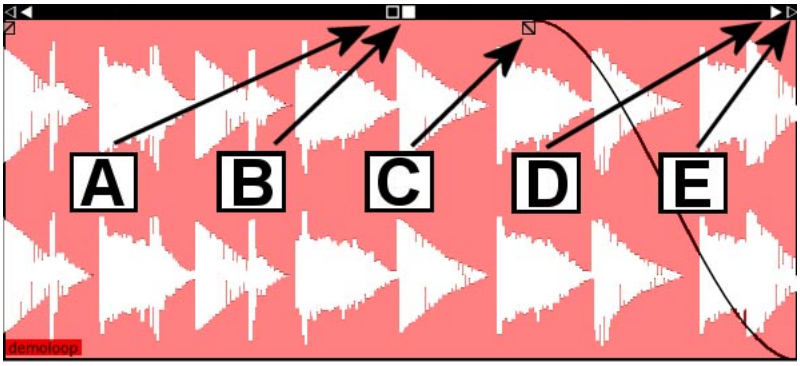

Figure 5.1.1

A and **B**: The two squares located in the centre of the title-bar are used to slide the clip or its contents around. Dragging on the hollow square icon (labelled **A**) allows you to move the clip forwards or backwards along the time-line without moving the contents of the clip. The solid square icon (labelled **B**) is the inverse of the first function in that the clip stays still, but the contents are moved. Note that you cannot shift the clip beyond the boundaries of the source material. Once either edge of the source material has been reached, these options will cease to function.

C: Audio clips have built in support for volume fades that can be set by dragging the two envelope icons (labelled **C**) to the desired envelope break points. The left-most envelope icon allows you to set a fade in period, whilst the right-most allows you to set a fade out period. The shape of the fade is controlled by an option in the clip properties.

D and **E**: The size of the clip can be adjusted by dragging on either of the two arrow icons to each side of the title-bar. The hollow arrow icon (labelled **D**) simply resizes the clip, leaving the position of the contents fixed in relation to the edit. The solid icon (labelled **E**) also resizes the clip, but in this case, the clip contents will be fixed in relation to the side of the clip being adjusted. Note that you cannot resize the clip beyond the boundaries of the source material. Once either edge of the source material has been reached, these options will cease to function. Holding down the **ALT** (**CTRL** for Mac users) key whilst resizing the clip with these controls causes them to switch to stretch mode. In this case, the visible area of the clip contents stays fixed, but is stretched to match the new clip size.

5.2 The audio clip properties

When an audio clip is selected, the following properties are shown in the properties-panel:

Tip: You can easily selected (or lasso) a number clips at once. With the mouse in the arrange area, hold down the **ALT** key (**CTRL** for Mac users), and the mouse pointer changes to a cross-hair. Now simply click and drag a rectangle across all of the clips you wish to select.

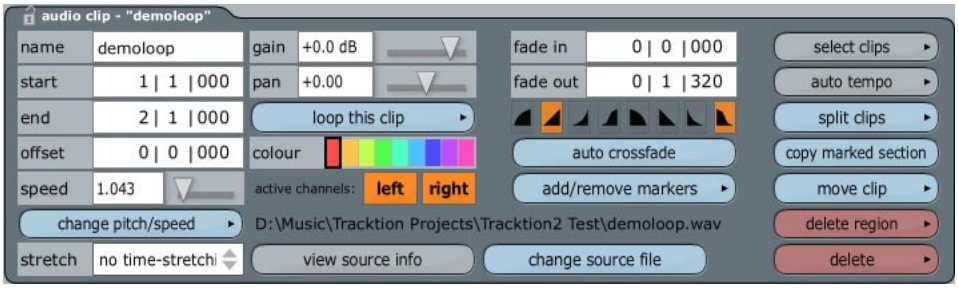

Figure 5.2.1

Name: The name is shown at the bottom of the clip in the arrange area.

Start/end: These are the points on the time-line at which this clip begins and ends. You can adjust these fields manually.

Offset: View/edit the relationship between the start of the audio and the start of the clip.

Speed: This controls the rate (pitch/speed) at which the audio is played back. A value of one is the normal speed. Higher values result in the audio being pitched (or sped) up, and lower values correspondingly result in the audio being pitched (or slowed) down.

Change pitch/speed: This option displays a menu with standard semitone/octave pre-sets for the "speed" setting.

Stretch: Select the time-stretching mode to use. Normally when changing the speed of an audio clip, both the length and pitch of the clip will change together. Time-stretching allows an adjustment of length without affecting pitch, or vice-versa.

Gain: Use this control to boost or cut the level of this clip.

Pan: Use this control to adjust the stereo panning of this clip.

Loop this clip: This button allows you enable or disable looping mode. When a clip is in looped mode, the source audio file appears to repeat endlessly. When enabling loop mode, you are presented with a menu from which you can select a default length for the looped clip.

Colour: You can assign a colour to the clip, which can help to visually differentiate between instruments.

Active channels: You can use these two toggle buttons to disable the left or right channels. This allows you to quickly convert a stereo audio file to mono.

View source info: Clicking this button shows information about the source item.

Fade in/out: View or edit the fade envelope breakpoints (tool "**C**" in Fig. 5.1.1) for this clip.

Fade slope: Choose the slope type for the fade in/out envelopes from these icons.

Auto crossfade: If this clip overlaps another audio clip, this button adjusts the fade in and out envelopes of the two clips, to automatically to create a cross-fade across the overlapping region.

Add/remove markers: These options allow you to place and remove markers on an audio clip. Markers can be used to point out regions of interest for later attention.

Change source file: Click this button to change the audio file that this clip references.

Select clips: Clicking this button displays a menu that provides handy shortcuts for selecting groups of clips.

Auto tempo: Use this to set the tempo of the edit to match the clip. This can be useful if you have a rhythm or melody in mind, and you are unsure of the tempo. If you record yourself playing a small snatch of the song, you can then use the recorded clip to determine the correct tempo.

Clicking this button displays a menu with two options (Fig. 5.2.2):

Figure 5.2.2

- *Set the edit's tempo based on this clip's length:* Use this option to calculate the tempo for the edit from the length of the clip. When this option is chosen, a further menu is shown from which you can select how many beats this clip contains.
- *Set the edit's tempo based on the marked region:* Use this option to calculate the tempo for the edit from the distance between the loop-markers. When this option is chosen, a further menu is shown from which you can select how many beats the loop region contains. This option is broadly similar to the previous option, but it allows you to quickly use the loop markers to region out a tightly played phrase from which to determine the tempo.

Split clips: This option splits the selected clip(s) into two parts. Clicking this button displays a menu with three options (Fig. 5.2.3):

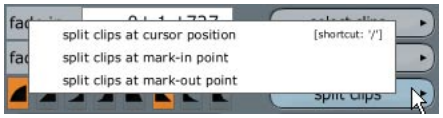

Figure 5.2.3

- *Split clips at cursor position:* Any selected clip(s) that straddle the current play-head cursor position will be split into two parts.
  Keyboard shortcut: **/**.
- *Split clips at mark-in point:* Any selected clip(s) that straddle the loop-begin marker will be split into two parts.
- *Split clips at mark-out point:* Any selected clip(s) that straddle the loop-end marker will be split into two parts.

Copy marked section: This option takes the section of the clip between the loop markers and copies it to the clipboard.

Move clip: This option provides tools for moving the clip(s). Clicking this button displays a pop-up menu (Fig. 5.2.4) with four options:

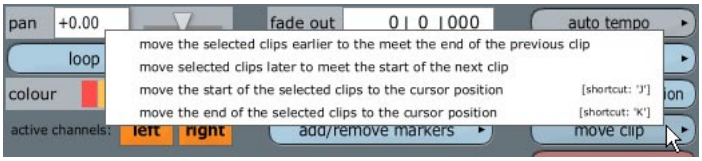

Figure 5.2.4

- *Move the selected clips earlier to meet the end of the previous clip:* The selected clip is pushed up against the end of the preceding clip in its track.
- *Move the selected clips later to meet the start of the next clip:* The selected clip is pushed up against the start of the next clip in its track.
- *Move the start of the selected clips to the cursor position:* The selected clip will be moved to the current play-head cursor position.
  Keyboard shortcut: **J**.
- *Move the end of the selected clips to the cursor position:* This option causes the clip to be located before the current play-head cursor position, with its end located at the cursor position.
  Keyboard shortcut: **K**.

Delete region: Clicking this button displays a menu with five options for deleting regions from clips. All of these options are non-destructive.

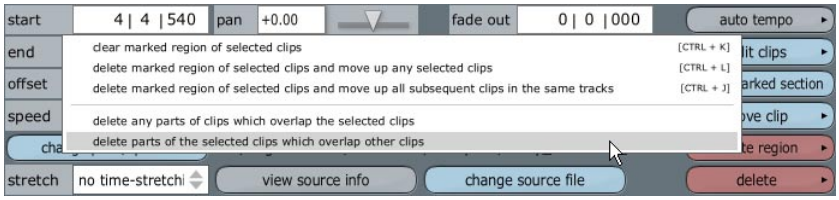

Figure 5.2.5

- *Clear marked region of selected clips:* This option replaces the marked region of any selected clips with silence.
  Keyboard shortcut: **CTRL + K** (**CMD + K** for Mac users).
- *Delete marked region of selected clips and move up any selected clips:* This option removes the marked region on selected clips and moves any selected clips back to close the gap.
  Keyboard shortcut: **CTRL + L** (**CMD + L** for Mac users).
- *Delete marked region of selected clips and move up all subsequent clips in the same tracks:* When this option is selected, the marked region on all selected clips is removed and the gap closed.
  Keyboard shortcut: **CTRL + J** (**CMD + J** for Mac users).
- *Delete any parts of clips which overlap the selected clips:* This option causes any clips overlapping the current clip to be trimmed accordingly.
- *Delete parts of the selected clips which overlap other clips:* This option causes any parts of this clip that overlaps any others to be trimmed accordingly.

Delete: Clicking this button displays a pop-up menu (Fig 5.2.6) with two options for deleting clips:

Figure 5.2.6

- *Just remove clip from the edit:* This option removes the clip from the edit, leaving the source audio unaffected.
  Keyboard shortcut: **DELETE** or **BACKSPACE**.
- *Remove the clip and also delete its source audio file:* This option removes both the clip and the source audio file.
  Keyboard shortcut: **CTRL + M** (**CMD + M** for Mac users).
  Note: This option is destructive.

5.3 The right-click options

When you right-click on an audio clip, you are presented with a pop-up menu (Fig. 5.3.1) displaying the following options:

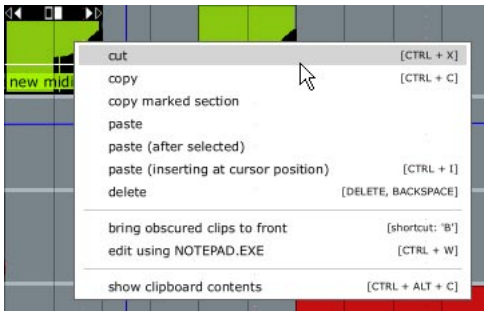

Figure 5.3.1

Cut: Select this to perform a standard "cut" operation. The selected clip(s) are removed and added to the clipboard.
Keyboard shortcut: **CTRL + X** (**CMD + X** for Mac users).

Copy: Select this to perform a standard "copy" operation. The selected clip(s) are copied to the clipboard.
Keyboard shortcut: **CTRL + C** (**CMD + C** for Mac users).

Copy marked section: Select this to copy any part(s) of the selected clip(s) that is located between the loop-begin and loop-end markers.

Paste: Select this to perform a standard "paste" operation. The contents of the clipboard are pasted after the current clip. If this option is performed a number of times, each new paste is placed after the one preceding it.
Keyboard shortcut: **CTRL + V** (**CMD + V** for Mac users).

Paste (after selected): Select this option to paste the contents of the clipboard at the end of the selected clip.

Paste (inserting at cursor position): Select this option to paste the contents of the clipboard at the play-head cursor position. If the cursor is located over this, or another clip on this track, the clip will be split to make room for the pasted material.
Keyboard shortcut: **CTRL + I** (**CMD + I** for Mac users).

Delete: Select this to remove the clip from the edit.
Keyboard shortcut: **DELETE** or **BACKSPACE**.

Delete (+ delete source files): When this option is selected, the clip and its source material are deleted. Using this function will affect any other clips that reference the source file, so use this with caution.
Keyboard shortcut: **CTRL + M** (**CMD + M** for Mac users).

Bring obscured clips to front: If this clip is placed over another clip, you can use this option to bring the hidden clip forward.
Keyboard shortcut: **B**.

Edit using ...: If you have selected a default wave editor application, this option opens this clip's source audio file in it.
Keyboard shortcut: **CTRL + W** (**CMD + W** for Mac users).

Set start time to original start time of source BWAV: If an audio file has an original start-time stored in a BWAV header, selecting this option moves the clip to that location. This is very handy when importing audio files into Tracktion projects, as they will correctly line up with their original location. All recordings made from input devices are set to create WAV files and contain a BWAV start-time. For further information on configuring the audio input devices, see Chapter 2.3.

Show clipboard contents: This option displays the contents of the clipboard in the properties-panel.
Keyboard shortcut: **CTRL + ALT + M** (**CMD + CTRL + M** for Mac users).

Chapter 6: MIDI clips

6.1 The MIDI clip tools and MIDI editor

The MIDI clip tools are broadly similar to the audio clip tools, with the exception that the fade-in/out tool is not present. You should review the section on audio clips in the previous chapter if you are unfamiliar with the audio clip tools.

The User's Guide details how to use the MIDI editor. The next section serves as a reference only. If you are looking for a guide to using the MIDI editor, please consult your Tracktion User's Guide.

When MIDI clips have been stretched or zoomed to a sufficient vertical size, Tracktion switches to the MIDI editor, or "piano roll" mode. You can switch to the MIDI editor very quickly by either double-clicking on the clip to be edited, or pressing the **Z** key when a MIDI clip is selected. Figure 6.1.1 shows the MIDI editor and its associated tools.

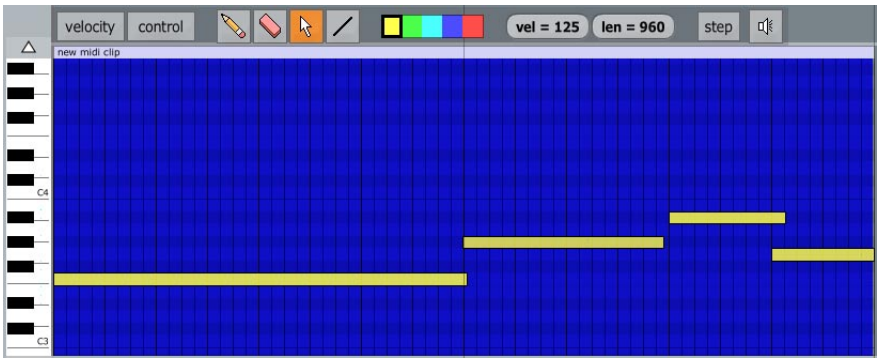

Figure 6.1.1

The MIDI editor is made up of a number of lanes that run horizontally along the clip. Each of these lanes represents a note on a musical scale. The piano keyboard graphic shows the note that each lane represents.

To change the octave(s) shown in the editor:

- Drag the piano keyboard vertically with the left mouse button.

  or

- When the **ALT** key (**CTRL** for Mac users) is held down, you can drag anywhere in the MIDI editor to adjust the currently visible octave(s).

To zoom into or out of the octave spread:

- Drag the piano keyboard with the right mouse button.

A default octave range can be set for the piano-roll. Click the "options" button in the control-section and, from the pop-up menu, select the "default midi editor vertical scale" option. This displays a sub-menu from which you can select whether the piano roll should display two octaves, four octaves, six octaves, or a full-scale view.

Velocity: When this button is clicked, the velocity editor pane is shown.

Control: When this button is clicked, the control-change editor pane is shown.

Pencil tool: When the pencil tool is selected, clicking on the editor will insert new MIDI notes. Clicking in the control editor pane inserts a new control change.
Keyboard shortcut: **D**.

Eraser tool: When the eraser tool is selected, clicking on a note or control change removes it from the clip. Keyboard shortcut: **E**.

Selection tool: When the selection tool is active, a note, or group of notes, can be highlighted for editing. In the control-change editor pane, this tool allows existing continuous controller events to be edited. Keyboard shortcut: **S**.

Line tool: This tool allows you to draw a line of MIDI notes, or control-change events.

Colour tools: The colour tools allow you to assign colours to the selected MIDI note(s).

Vel: This field shows, and alters, the velocity of the currently selected note(s). When entered by hand, new notes are created with the velocity shown here. If the "use incoming velocities for MIDI step entry" option (available from the "options" button in the control section) is not selected, this velocity is also applied to notes entered in step-entry mode.

Len: This field shows, and alters, the length of the currently selected note(s). New notes are created with the length shown here.

Step: When this option is selected, an external MIDI controller can be used to incrementally enter notes into the clip.

Speaker: When the speaker option is selected, notes are transmitted as they are entered and edited.

6.2 The MIDI clip properties

When a MIDI clip is selected, the following properties are shown in the properties-panel:

Tip: You can easily selected (or lasso) a number clips at once. With the mouse in the arrange area, hold down the **ALT** key (**CTRL** for Mac users) and the mouse pointer changes to a cross-hair. Now simply click and drag a rectangle across all of the clips you wish to select.

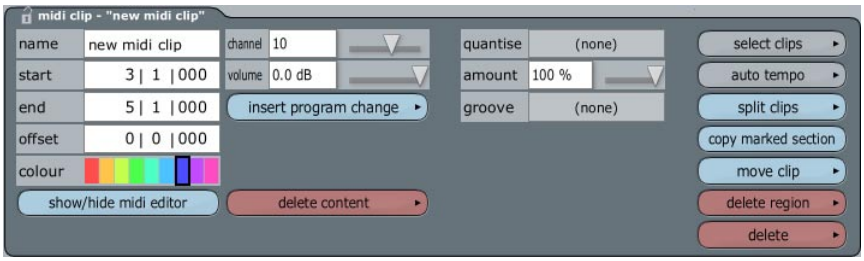

Figure 6.2.1

Name: The name is shown at the bottom of the clip in the arrange area.

Start/end: These are the points on the time-line at which this clip begins and ends. You can adjust these fields manually.

Offset: View/edit the relationship between the start of the MIDI data and the start of the clip.

Colour: You can assign a colour to the selected clip(s).

Show/hide midi editor: Click this button to show or hide the MIDI editor for the selected clip(s). Keyboard shortcut: **Z**.

Channel: This option allows you to set the MIDI channel that events in this clip are transmitted on.

Volume: This setting allows you to scale the note velocities in the selected clip(s).
0 dB leaves the velocities untouched, lower values reduce them.

Insert program change: When this button is clicked, a pop-up menu (Fig. 6.2.2) appears. From this menu, you can edit program change messages associated with this clip.

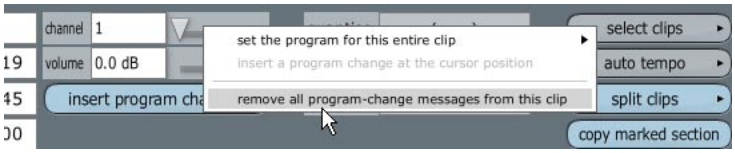

Figure 6.2.2

- *Set the program for this entire clip:* This option sets a program for the clip. The program change will be transmitted at the start of the clip each time the clip is played. Use this option carefully as many MIDI devices require a few seconds for program changes to complete and MIDI notes sent during this period may be ignored.
- *Insert a program-change at the cursor position:* This option inserts a program change event into the clip at the position of the play-head cursor.
- *Remove all program-change messages from this clip:* This option removes any program change messages from the clip. If the clip seems to be behaving strangely during playback, it is always worth using this option to ensure no rogue program changes have crept in.

Delete content: This button displays a pop-up menu (Fig. 6.2.3) that provides options for removing content from MIDI clips.
Note: These options are all destructive.

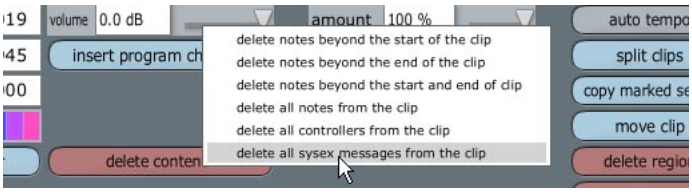

Figure 6.2.3

- *Delete notes beyond the start / end of the clip:* Use these options to remove any MIDI events that exist beyond the boundaries of the current clip.
- *Delete all notes from clip:* Use this option to remove all notes from the selected clip.
- *Delete all controllers from the clip:* Use this option to remove all control-change messages and program changes from the clip.
- *Delete all sysex messages from the clip:* Use this option to remove any sysex data contained in the clip. Sysex data is a type of manufacturer specific MIDI data that can be used to control low-level features of a MIDI device. Typically, these kinds of features are not easily controlled through standard MIDI events (sysex is used to transmit instrument presets for example). Because sysex is heavily manufacturer specific, it is generally not meaningful to other devices. Some MIDI keyboards can generate large amounts of sysex data, which takes up unnecessary memory, and may even cause problems for other devices. Use this option to remove the unwanted sysex data.

Quantise: The clip-level quantise is used in tandem with the "amount" field to tighten the groove of MIDI notes contained within the selected clip(s). The start and end times of notes are pulled towards the quantising grid selected for this option. Ideally the quantise grid should be equal to the smallest note timings in your clip, i.e., if your clip contains notes that are spaced at 16ths, you should choose the "1/4 beat" option. Notice that the grid is defined in terms of fractions of a beat, rather than fractions of a bar.

The visual locations of the notes within the selected clip will change in response to changes in quantise settings. Clip level quantising is non-destructive.

Amount: Select how much the notes in this clip should be pulled towards the quantise grid (described above). 100% gives rigid quantising, whereas 0% would have no effect.

Groove: Select or edit groove templates. When a groove template is selected, Tracktion applies the groove to notes in the selected clip(s). Unlike with quantise, you will not see changes to note positions when a groove template is chosen. The groove template editor is discussed later in this chapter. Groove templates are non-destructive.

Select clips: This button displays a pop-up menu that provides handy shortcuts for selecting groups of clips.

Auto tempo: Use this to set the tempo of the edit to match the clip. Clicking this button displays a pop-up menu (Fig. 6.2.4) with two options:

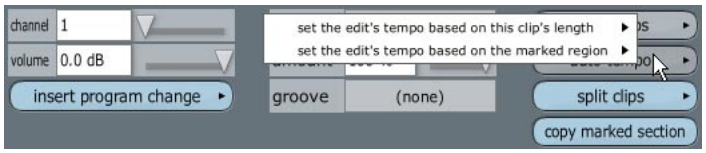

Figure 6.2.4

- *Set the edit's tempo based on this clip's length:* Select this option to calculate the tempo from the length of the clip. When this option is chosen, a further menu is shown from which you can select how many beats this clip contains.
- *Set the edit's tempo based on the marked region:* Select this option to calculate the tempo from the distance between the loop-markers. When this option is chosen, a further menu is shown from which you can select how many beats the loop region contains.

Split clips: Use this option to split the selected clip(s) into two parts. Clicking this button displays a pop-up menu (Fig. 6.2.5) with three options:

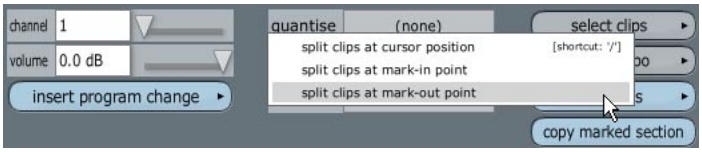

Figure 6.2.5

- *Split clips at cursor position:* Any selected clip(s) that straddle the current play-head cursor position will be split into two parts.
  Keyboard shortcut: /.
- *Split clips at mark-in point:* Any selected clip(s) that straddle the loop-begin marker will be split into two parts.
- *Split clips at mark-out point:* Any selected clip(s) that straddle the loop-end marker will be split into two parts.

Copy marked section: This option takes the section of the clip between the loop markers, and copies it to the clipboard.

Move clip: This option provides tools for moving the clip(s). Clicking this button displays a pop-up menu (Fig. 6.2.6) with four options:

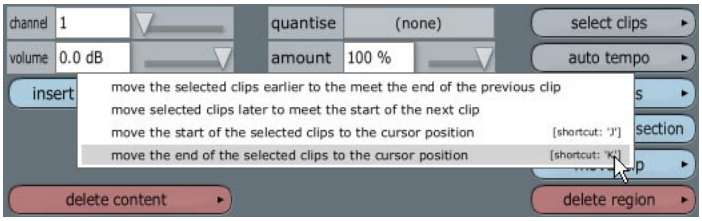

Figure 6.2.6

- *Move the selected clips earlier to meet the end of the previous clip:* The selected clip is pushed up against the end of the preceding clip in its track.
- *Move the selected clips later to meet the start of the next clip:* The selected clip is pushed up against the start of the next clip in its track.
- *Move the start of the selected clips to the cursor position:* The selected clip will be moved to the current play-head cursor position.
  Keyboard shortcut: **J**.
- *Move the end of the selected clips to the cursor position:* The clip to be located before the current play-head cursor position, with its end located at the cursor position.
  Keyboard shortcut: **K**.

Delete region: Clicking this button displays a pop-up menu (Fig. 6.2.7) with five options for deleting regions from clips. All of these options are non-destructive.

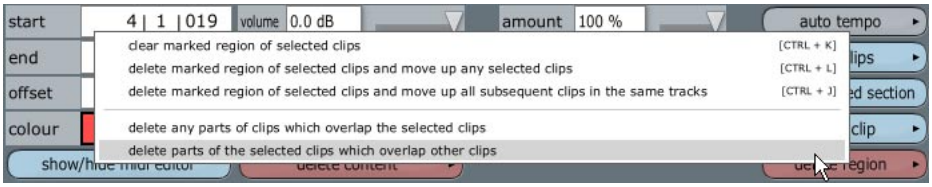

Figure 6.2.7

- *Clear marked region of selected clips:* This option replaces the marked region of selected clips with silence.
  Keyboard shortcut: **CTRL + K** (**CMD + K** for Mac users).
- *Delete marked region of selected clips and move up any selected clips:* This option removes the marked region of selected clips. If a gap was created in the selected clips, the remainder is moved back to close it.
  Keyboard shortcut: **CTRL + L** (**CMD + L** for Mac users).
- *Delete marked region of selected clips and move up all subsequent clips in the same tracks:* When this option is selected, the marked region on all selected clips is removed, and the gap is closed.
  Keyboard shortcut: **CTRL + J** (**CMD + J** for Mac users).
- *Delete any parts of clips which overlap the selected clips:* This option causes any clips overlapping the current clip to be trimmed accordingly.
- *Delete parts of selected clips which overlap other clips:* This option causes any parts of this clip that overlaps any others, to be trimmed accordingly.

Delete: Click this button to remove the clip.
Keyboard shortcut: **DELETE** or **BACKSPACE**.

6.3 The right-click options

When you right-click on a MIDI clip, a pop-up menu appears (Fig. 6.3.1) displaying the following options:

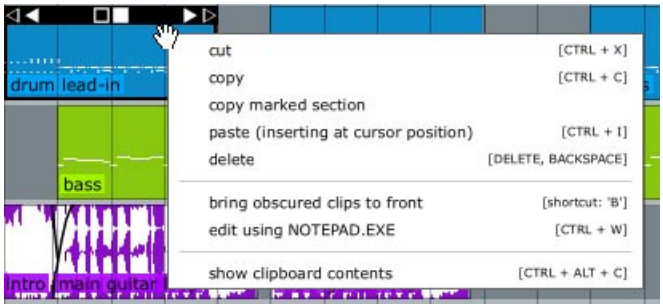

Figure 6.3.1

Cut: Select this to perform a standard "cut" operation. The selected clip(s) will be removed and added to the clipboard.
Keyboard shortcut: **CTRL + X** (**CMD + X** for Mac users).

Copy: Select this to perform a standard "copy" operation. The selected clip(s) will be added to the clipboard.
Keyboard shortcut: **CTRL + C** (**CMD + C** for Mac users).

Copy marked section: Select this to copy any part(s) of the selected clip(s) that is located between the loop-begin and loop-end markers.

Paste: Select this to perform a standard "paste" operation. The contents of the clipboard will be pasted after the current clip. If this option is performed a number of times, each new paste will be placed after the one preceding it.
Keyboard shortcut: **CTRL + V** (**CMD + V** for Mac users).

Paste after selected: Select this option to paste the contents of the clipboard at the end of the selected clip.

Paste (inserting at cursor position): Select this option to paste the contents of the clipboard at the play-head cursor position. If the cursor is located over this, or another clip on this track, the clip will be split to make room for the pasted material.
Keyboard shortcut: **CTRL + I** (**CMD + I** for Mac users).

Delete: Select this to remove the clip from the edit.
Keyboard shortcut: **DELETE** or **BACKSPACE**.

Delete (+ delete source files): When this option is selected, the clip and its source material are deleted. Using this function will affect any other clips that reference the source file, so use this with caution.
Keyboard shortcut: **CTRL + M** (**CMD + M** for Mac users).

Bring obscured clips to front: If this clip is placed over another clip, you can use this option to bring the hidden clip forward.
Keyboard shortcut: **B**.

Show clipboard contents: This option displays the contents of the clipboard in the properties-panel.
Keyboard shortcut: **CTRL + ALT + X** (**CMD + CTRL + X** for Mac users).

Note: In addition, if the MIDI editor is visible, the pencil, select, eraser, and line tools are also available from the right-click menu.

6.4 The selected note properties

When notes are selected, their properties are shown in the properties-panel (Fig. 6.4.1).

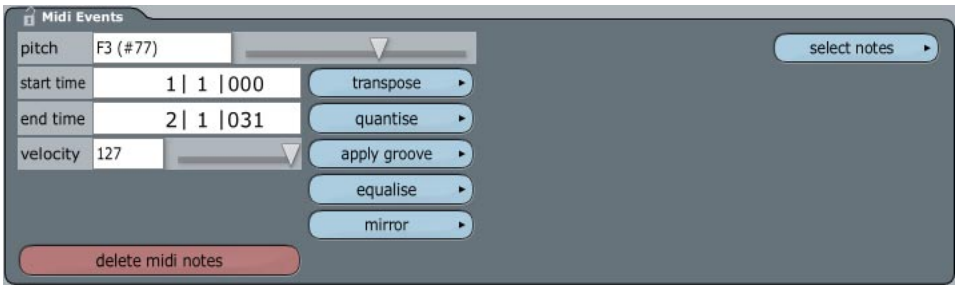

Figure 6.4.1

Pitch: Here you can view or alter the pitch of the selected note(s).

Start / end time: These fields show the start and end time of the note in relation to the clip.

Velocity: View or edit the velocity of the selected note(s).

Delete midi note: This button deletes the selected note(s).
Keyboard shortcut: **DELETE** or **BACKSPACE**.

Transpose: This button displays a pop-up menu from which you can select amounts in semi-tones by which to transpose the selected note(s).

Quantise: This option allows you to destructively quantise the selected note(s). When this button is clicked, a pop-up menu is shown from which you can select the quantise grid.

Apply groove: This option allows you apply a destructive groove quantise to the selected note(s). When this button is clicked, a pop-up menu is shown from which you can select the groove pattern.

Equalise: When two or more notes are selected, equalise allows you to force them all to the same velocity or length. The new velocity/length will be an average of the current velocity/length values for the selected notes.

Mirror: When two or more notes are selected, mirror allows you to flip the notes vertically or horizontally. Applying this function to existing MIDI clips can be a useful way to find inspiration.

Select notes: This option displays a pop-up menu providing shortcuts for selecting groups of notes that share common properties, such all notes with a given pitch, length, or velocity.

6.5 The groove editor

The groove editor can be opened by either:

- Clicking the “groove” option on the MIDI clip properties-panel, and selecting the “groove editor” option.

or:

- Clicking the “snapping” button in the control section, and selecting the “groove editor” option.

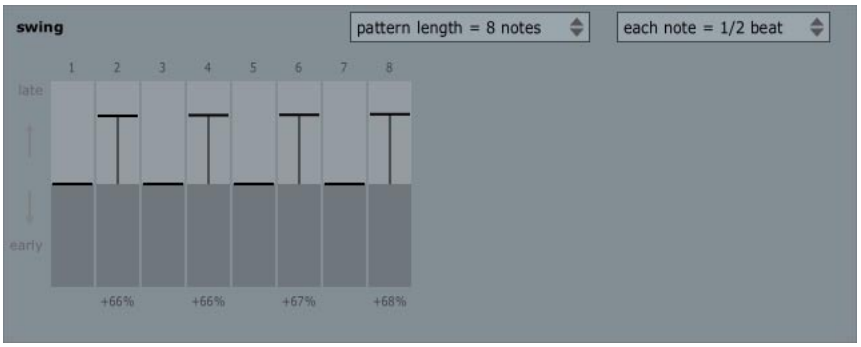

Figure 6.5.1

Each column in Figure 6.5.1 represents a time division, where the size of the division is defined by the “each note =” drop-down list. In Figure 6.5.1, the time divisions have a size equal to 1/2 a beat. There are eight columns, so the whole pattern is 4 beats long (eight times 1/2).

The columns each contain a horizontal line. This line controls how the timing of a note at each given time-division is altered. In the first column, the line is located at the halfway mark (the point between the two shaded regions). This means that there is no time offset. Notes that fall into this division will be played with their current timing. In the second column, however, the bar is about two thirds of the way into the upper region. As such, notes that fall into this time division will be played early.

Quite literally, if you imagine a MIDI clip with eight notes, all spaced at equal 1/8ths of a bar, then you dragged every other note forward in time a little, you would have the groove pattern shown above (a simple swing groove).

Applying this groove pattern to a MIDI clip with eight equally spaced 1/8th notes would add a corresponding swing groove to the clip.

The amount of divisions available can be set from the “pattern length” field.

In addition to the groove editing tools, the groove editor window has the following options:

Create new template: Click this button to add a new template the list.

Rename template: Click this button to rename the selected template.

Reset template: Click this button to return the template to the default form.

Delete template: Use this option to remove the selected template from the list.

Import template: Use this option to load a previously exported template file.

Export template: This option allows you to save a template as a file. You can use this to back-up templates, or to share them amongst your collaborators.

Chapter 7: Automation

7.1 The automation pop-up menu, and the curve properties

The transport section contains two extra options for working with automation.

Automation read: When this button is active, Tracktion will play automation curves, otherwise they will be ignored.
Keyboard shortcut: **H**.

Automation record: When this button is active, any changes made to automatable parameters whilst playback is active will be recorded.
Keyboard shortcut: **Y**.

Most filters, be they Tracktion native, or 3rd party VST/VSTi plug-ins, have parameters that can be altered in real-time. Tracktion can record and playback these changes, allowing you to adjust aspects of your mix such as track volumes, and send levels, at various points throughout the span of a song. In addition, you can use automation to implement expressive changes to instruments; for example, varying the cut-off frequency of a virtual instrument over time.

One unusual aspect of automation when using Tracktion is that automation curves for a given filter can be placed on any track, not just the track that hosts the filter. Typically you would display an automation curve on the track that it relates to, as it is visually more tidy to do so. If, however, you have two parameters on a track that you wish to automate, and you wanted to see them side by side, you can easily do this:

- Drag the "A" icon at the top-right corner of the track that contains your target filter, and drop it onto the filter to see the available automation parameters. Select the first of the parameters for this filter that you wish to automate from the pop-up menu.
- Drag the "A" icon from some other track to the target filter. It is probably best to use the tracks directly below the filter track, as this will keep things tidier on screen. Select the second parameter that you wish to automate from the pop-up menu.
- Repeat the previous step for every parameter for this filter that you wish to automate.

The automation pop-up menu

The tools for working with automation curves can be accessed by clicking on the "A" icon at the top-right corner of every track. When this icon is clicked, a pop-up menu
(Fig. 7.1.1) with the following options is shown:

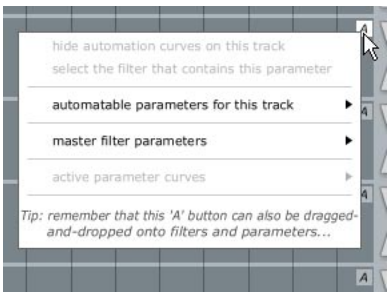

Figure 7.1.1

Hide automation curves on this track: Select this option to have Tracktion hide the currently displayed automation curve.

Select the filter that contains this parameter: This option automatically gives focus to the filter to which this parameter belongs.

Automatable parameters for this track: This option displays a sub-menu containing all available automatable parameters for this track. Select the parameter you wish to view or edit from this list. Parameters that have automation curves are shown in a different colour.

Master filter parameters: This option displays a sub-menu containing all available automatable parameters for filters contained in the master filter section.

Active parameter curves: This option displays a sub-menu containing all parameters that currently have automation curves.

The curve properties

When a point on a visible automation curve is selected, the curve properties are shown in the properties-panel (Fig. 7.1.2).

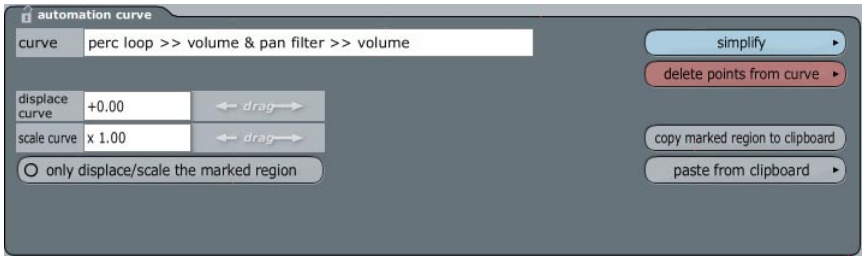

Figure 7.1.2

Curve: This field shows the currently selected automation curve. The first value is the track name, followed by the filter name, and finally the parameter name.

Displace curve: This control allows you to adjust the level of all points on an automation curve. Dragging the arrow controls, or editing the number value by hand, causes the level of the automation curve values to be increased or decreased by the specified amount. If, for example, you wanted to raise the over-all level of an automation curve by 1 dB, you could do so by simply entering "+1" in the number box.

Scale curve: Much like the "displace curve" control, this allows you to adjust the level of all points on an automation curve. Rather than applying a fixed offset to the curve though, this control scales the curve by the factor shown. Setting this field to 0.5 on a volume curve, therefore, would halve the volume of the curve at all points.

Only displace/scale the marked region: When this option is selected, the two displace options described above only affect the curve points within the region set by the loop-start/end markers.

Simplify: This option can be used to reduce the amount of automation points contained on a curve. You can opt to process the entire curve, or just the region between the loop-start/end markers. Three levels of simplification are available:

- *Light:* This option removes points that make little difference to the shape of the curve.
- *Medium:* This option removes a number of points whilst still keeping the general shape of the curve intact.
- *Strong:* Only the points most fundamental to the curve shape are retained.

Delete points from curve: This button displays a pop-up menu with options to delete sections of the selected automation curve:

- *Delete all points from curve:* The entire active automation curve will be removed. The level of the parameter will be set to the curve value at the current play-head cursor position.
- *Delete points within the marked region:* Any points on the active curve that are located between the loop-start/end markers will be removed.
- *Delete points within the marked region and close the gap:* Any points on the active curve that are located between the loop-start/end markers will be removed. Points to the right of the loop-end marker will be pulled forward in time to close the gap between the markers.

Copy marked region to clipboard: Any points located between the loop-start/end markers will be copied to the clipboard. They can then be pasted onto this, or other automation curves.
Keyboard shortcut: **CTRL + C** (**CMD + C** for Mac users).

Paste from clipboard: Use this option to paste copied automation curve points into the selected curve. When this button is clicked a pop-up menu with the following options is shown:

- *Paste curves in at cursor position:* The copied automation curve will be pasted into the current curve. Existing automation points may be overwritten.
  Keyboard shortcut: **CTRL + V** (**CMD + V** for Mac users).
- *Paste curves to fit between markers:* The copied automation curve will be pasted into the region between the loop-start/end markers. If the curve is longer or shorter than the loop region, then the curve's length will be scaled to match. Existing automation points may be overwritten.

7.2 The "automation" button

The automation button can be found at the bottom left of the edit page (Fig. 7.2.1). When this button is clicked, a menu containing the following options is displayed:

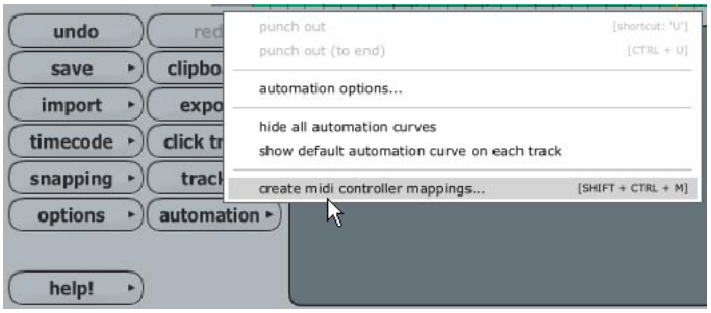

Figure 7.2.1

Punch out: Selecting this option whilst automation recording is in progress causes the recorded changes to be simply inserted into any existing automation curve.
Keyboard shortcut: **U**.

Punch out (to end): Selecting this option whilst automation recording is in progress causes automation points beyond the punch-out point to be cleared.
Keyboard shortcut: **CTRL + U** (**CMD + U** for Mac users).

Automation options: When this option is selected, a dialogue-box (Fig 7.2.2) containing the following options appears:

- *Glide:* This option controls the time over which recorded automation events will be cross-faded into the existing curve.
- *Simplify newly-recorded automation:* Recorded automation curves may contain a lot of unnecessary points. When this option is activated, Tracktion attempts to determine and remove these extraneous automation points. Whilst it is probably a good idea to have this option active, if you do choose to disable it, you can later simplify an automation curve from the automation properties-panel.
- *Shift automation timing to compensate for plug-in delays:* Some filters need to process audio ahead of the current play-head position to work correctly. This option ensures that automation curves for these filters are kept correctly in synch.

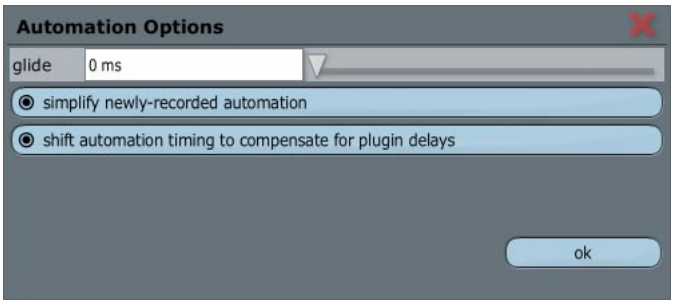

Figure 7.2.2

Hide all automation curves: This option removes all automation curves from view. The curves are still active, just not visible.

Show default automation curves on each track: This option displays automation curves on every track. If no automation curves exist for a track, this option shows the volume curve, otherwise it selects the first of the active curves.

Create midi controller mappings...: This option shows the editor for assigning MIDI controllers to automation parameters. Assigning MIDI controllers to filter parameters allows you to use external MIDI control devices, or the modulation wheel on your MIDI keyboard, to manipulate parameters in real-time. This can be handy for experimenting with automation ideas, producing creative automation curves, or when performing live.

The mapping editor is made up of two columns. The left-hand column shows mapped MIDI controllers, and the right-hand column shows the automation parameter currently mapped to the controller.

To create a new map, click in the controller column, in the box labelled "click here to choose controller." You will be prompted to move the controller you wish to map. Adjust the controller and Tracktion will detect it. Once the controller is chosen, Tracktion creates a new entry in the list. Now you can click the parameter box and choose a parameter from the pop-up menu.

Your assigned controller mappings are saved with the current edit.

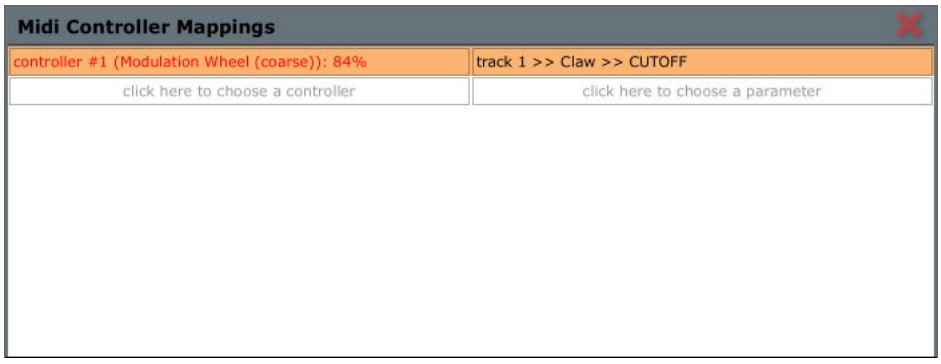

Figure 7.2.3

Note: Be sure to check the "allow MIDI controller remapping" option is not disabled for the MIDI input device. This option can be found in the properties of the input device.

7.3 Using the Mackie Control Universal with Tracktion

The Mackie Control Universal (Fig. 7.3.1, shown with the Tracktion overlay) is a powerful mixing surface that, when partnered with your Tracktion audio workstation, combines the convenience and tactile feel of a classic mixing console with all of the power and flexibility of today's high performance computers.

The MCU offers eight motorized fader strips. These faders are automatically assigned to Tracktion's volume and pan filters, allowing for true real-time "fader riding" on eight tracks at once. Because they are motorized, recorded changes to levels in Tracktion are immediately reflected on the MCU's surface as an edit is played back.

To the right of the mixer strips is a master fader, also motorized, which controls the master volume level in Tracktion.

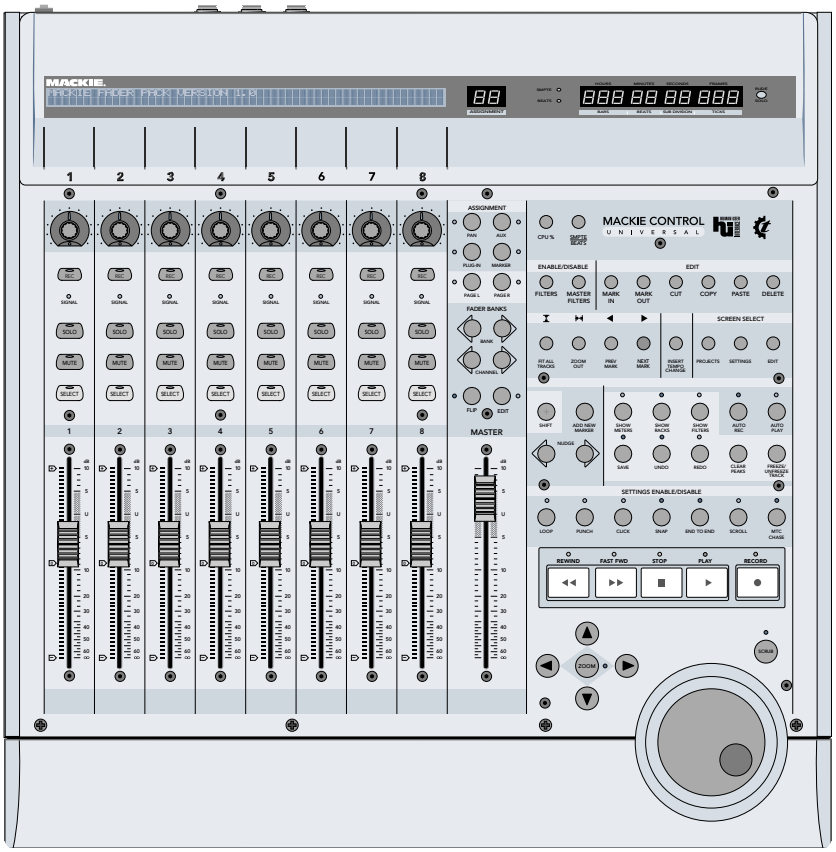

Figure 7.3.1

Each channel strip also offers a range of buttons and controls for working with the assigned track. A large scribble strip at the top of the MCU provides information and feedback about the current track or action. Figure 7.3.2 shows the upper part of the channel strip.

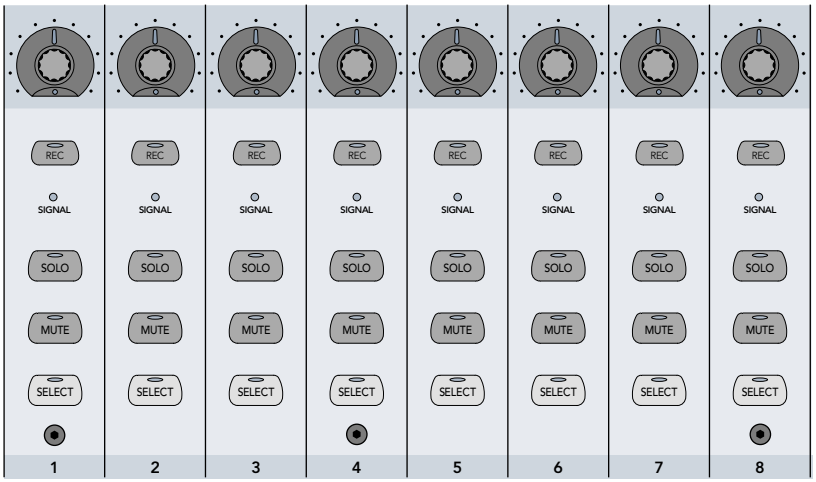

Figure 7.3.2

The V-Pot: At the top of each channel strip there is a rotary controller, or V-Pot. The V-Pot can be used to control various functions and parameters, depending on the current "assignment," and can act both as a rotary control or a push switch. We will look at the assignment buttons, and the operation of the various modes in a few pages.

Each V-Pot has an illuminating collar that provides feedback relating to the current V-Pot position or state. If a V-Pot is functioning as a switch, the collar alternates between fully lit and un-lit to show the switch state. When a V-Pot is acting as a rotary controller, the collar shows a single light which indicates the current rotary position of the V-Pot.

REC: If the track has an input device attached, this button can be used to arm and un-arm the input. When the input is armed, an LED located in the REC button lights.

SIGNAL: Each channel has a green signal LED, which illuminates in time with a channel's audio level. This allows you to view at a glance whether audio is currently present on the track. The light illuminates solidly when the channel's signal is at 15 dBFS.

SOLO: When this button is pressed, the track will be soloed. This button is similar to clicking on the "**S**" part of the mute/solo control in Tracktion's filter-section. Unlike in Tracktion, where it is necessary to use a modifier key to solo more than one track though, the MCU solo buttons work cumulatively.

When a track is soloed in Tracktion, the solo button on the MCU illuminates. In addition, a master "RUDE" solo lamp located by the MCU's time-line display blinks to alert you to the presence of a soloed track.

Soloing tracks is extremely useful when trying to make changes to the tonality of a sound, such as via EQ, or when programming synthesiser patches, as it allows you to hear the sound in isolation.

MUTE: When this button is pressed, the track will be muted. This button behaves exactly the same as clicking on the "**M**" part of the mute/solo control in Tracktion's filter-section. When a track is muted in Tracktion, the mute button on the MCU illuminates. You can use mute to temporarily silence an instrument, or group of instruments.

Holding down the SHIFT button on the MCU whilst muting a track causes the level of the volume/pan filter for the track to temporarily switch to –inf. Repeating the shifted mute resets the level back to its original state. This allows you to automate track mutes.

SELECT: When the MCU is in "plug-in mode", the select button gives focus to the first filter on the track that the channel strip is controlling. We will discuss the plug-in mode a little later in this section.

To the right of the channel strip, there are six buttons in a section called “fader banks” (Fig. 7.3.3). The top four of these buttons are used to scroll the MCU’s channel strips through the tracks of an edit. As such, you can use the eight channel strips to mix your entire edit, regardless of how many actual tracks there are.

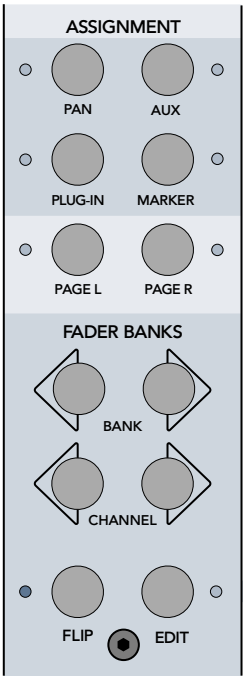

Figure 7.3.3

Assignment buttons

There are four assignment buttons: PAN, AUX, PLUG-IN, and one that is not currently supported by Tracktion, called MARKER. The marker mode will provide an easy way to navigate between the sections of your edits that have song markers, and will be added in a future version of Tracktion. The assignment buttons are shown in Figure 7.3.3.

The selected assignment mode defines the purpose of the eight V-Pots. When one of the four assignment buttons is selected, the LED to the side of the button illuminates and the scribble-strip (Fig. 7.3.6) updates to show the current functionality available to the V-Pots. In addition, the two-character LED display between the scribble-strip and the time-line indicator updates to display the selected assignment mode.

Pan mode

When the MCU is in pan mode, the V-Pots control panning for the eight current tracks. The large two-character assignment display updates to show the legend “Pn.”

The pan mode provides a layout of controls that is common to most mixers, and can be thought of as the default mode. For standard mixing purposes, this is where you are likely to do most of your work.

The current pan position for each V-Pot is shown by an LED in its collar. Pressing a V-Pot causes the pan position to be reset to centre.

The scribble strip shows the track name for each track, to make track identification easy. A level meter is also shown for each track.

The Page L and Page R buttons are not used when in pan mode.

Aux mode

When the MCU is in aux mode, the V-Pots can be used to control the send amount for the eight aux-send buses in Tracktion. The large two-character assignment display updates to show the legend “Au.”

The page left and right buttons select which one of the eight auxiliary buses is currently active. If a track does not contain an aux-send filter for the active bus, the lower lane of the scribble-strip will be empty for that track.

The current send amount is shown by an LED in the collar of each V-Pot.

The scribble strip shows the track name, along with the currently selected aux-send.

Plug-in mode

When the MCU is in plug-in mode, the V-Pots are assigned to the parameters of the currently selected filter. The large two-character assignment display updates to show the legend “PL.”

There are four cursor buttons at the lower-right corner of the MCU, which can be used to select a plug-in to control. The left and right arrow buttons allow you to navigate through the filters on the current track. The up and down arrow buttons move to the first filter in the preceding or subsequent track.

To use the cursor controls to navigate through the filter section:

- Click the “edit” button to enable it (the LED to the side of it lights).
- Disable the “zoom” button (it will be un-lit), located in the centre of the cursor keys.

- Use the cursor keys to select a plug-in to edit. When a plug-in is selected, it is highlighted on screen with a red outline.

When a plug-in is selected, the first two V-Pots show the track name and the plug-in name. The following six V-Pots are assigned to the first six parameters of the plug-in. If the plug-in has more than six filters, the "Page L" and "Page R" buttons can be used to scroll through them.

The scribble strip shows the current parameter name, and the current level for each of the V-Pots. In addition, the V-Pot collar shows the current rotary position.

The fader bank buttons

There are six buttons in the section labelled "fader banks" (Fig. 7.3.3).

BANK left/right: These buttons allow you to scroll the MCU through the track list in your Tracktion edit. In this way you can use the MCU to mix all of your entire edit, regardless of how many tracks it contains. Pressing the bank right key causes the MCU to scroll to the next eight tracks in your edit, whereas pressing the bank left key, cause the MCU to scroll to the previous eight tracks.

CHANNEL left/right: Much like the bank l/r buttons, these buttons allow you to scroll through the tracks in your edit, but pressing these buttons only scrolls one track at a time.

FLIP: The flip button transposes the faders and V-Pots, such that the V-Pots act as volume controls, and the faders are assigned to whatever task the V-Pots were previously serving. You can use the flip option in all of the MCU's modes, so the faders can be used to control filter parameters, or aux-send levels, for example. Flipping the controls in this manner allows you to use the touch sensitive faders for tasks other the setting levels.

EDIT: This button puts the four cursor keys into "edit" mode. Depending on the current assignment mode, the cursor keys work slightly differently when edit is selected. In all assignment modes except the plug-in assignment mode, the behaviour of the cursor controls is determined by the object that currently has focus in Tracktion.

- If a clip is selected, the cursor buttons can be used to navigate through the clips in an edit. The left and right buttons move to the previous or next clips on the current track. The up and down buttons move to clips in the preceding or subsequent tracks.
- If a track is selected, the up and down buttons can be used to move focus up or down within the track list. The left and right buttons are ignored.
- If the plug-in assignment mode is active, or a filter is currently selected in Tracktion, the cursor controls will navigate between plug-ins in the filter section.

Note: If the "zoom" button (discussed on the next page) is also active, the "edit" mode state will be over-ridden and the cursor buttons operate in zoom mode.

Scrub, scroll, and zoom controls

The large scrub wheel at the lower right-hand corner of the MCU allows you to quickly scroll the play-head cursor through an edit.

To the left of the wheel there are four arrow buttons, and a zoom button.

When both the "edit" and "zoom" buttons are disabled, the up and down arrow buttons scroll vertically through the on-screen track list, and the left and right buttons scroll the edit horizontally.

When the zoom button is selected (the LED to the right of the button will be lit), the arrow buttons allow you to zoom in and out of your edit both horizontally and vertically.

The scrub button is not implemented in the current version of Tracktion, but support for this tool may be added in a future release.

The transport controls

All of Tracktion's transport controls and functions are available from buttons on the right-hand side of the unit (Fig. 7.3.5). All of the buttons in this section have LEDs that show the current state of toggle buttons, and the transport controls.

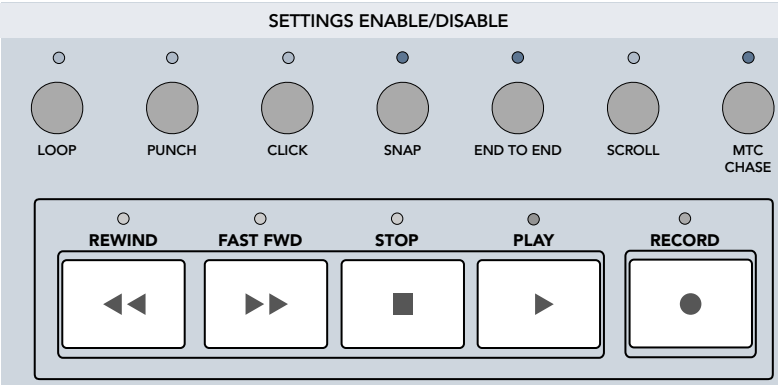

Figure 7.3.5

REWIND: This button behaves the same as the rewind button in Tracktion's transport section. Tapping it twice in quick succession, though, is equivalent to pressing Tracktion's return-to-zero button.

If snap-to-grid is enabled, a short press jumps the play-head cursor to the previous snap-location. If snap-to-grid is disabled, or if the rewind button is held for a period of time, the play-head cursor will continue to scroll until the button is released.

FAST FWD: This button behaves the same as the fast-forward button in Tracktion's transport section.

If snap-to-grid is enabled, a short press jumps the play-head cursor to the next snap-location. If snap-to-gird is disabled, or if the fast-forward button is held for a period of time, the play-head cursor will continue to scroll until the button is released.

PLAY: This button behaves the same as the play button in Tracktion's transport section.

STOP: Click this button once to stop playback. Clicking it when play-back is stopped is equivalent to pressing Tracktion's return-to-zero button.

RECORD: This button behaves the same as the record button in Tracktion's transport section.

LOOP, PUNCH, CLICK, SNAP, END TO END, and SCROLL: These buttons toggle their respective modes. Clicking these buttons is equivalent to click their on-screen counterparts.

MTC CHASE: This button toggles timecode chasing. Clicking this button is equivalent to clicking the padlock icon in Tracktion's transport section.

Note: Tracktion's transport controls are described in detail in Chapter 3.6.

Shortcut buttons

The bank of buttons above the MCU's transport section provide shortcuts for a host of standard editing operations within Tracktion (Fig. 7.3.6).

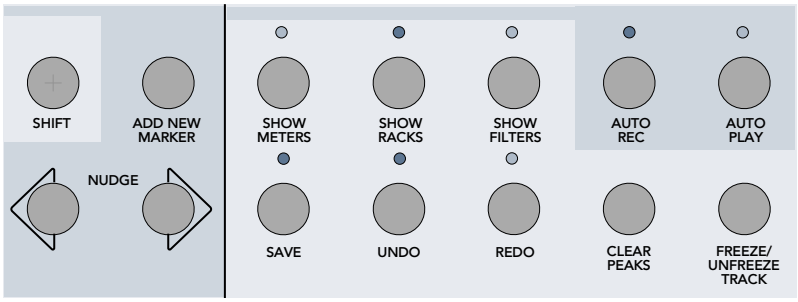

Figure 7.3.6

SHIFT: Some of the MCU's controls have alternate operating behaviour when the MCU's shift button is held down. Functions that offer a secondary mode of operation when the shift button is held down will be described as such throughout this section. Note, this shift button is not related in any way to the shift button on your computer keyboard.

ADD NEW MARKER: Click this to add a marker at the current play-head cursor position. Markers will be placed sequentially, starting with marker zero. Each new marker will use the first free marker number, up to marker nine.

NUDGE L/R: These buttons nudge the selected clip(s) or note(s) to previous/next snap point. This is equivalent to the **CTRL + LEFT / RIGHT** (**CMD + LEFT / RIGHT** for Mac users) keyboard shortcut.

SHOW METERS: Use this button to toggle the big meter view on and off.

SHOW RACKS: Use this button to toggle the rack editor.

SHOW FILTERS: Use this button to toggle the filter panel view on and off.

SAVE: Shortcut to save the edit.

UNDO/REDO: Shortcut for undo/redo operations.

AUTO REC: This button toggles the automation record mode on and off. Clicking this button is equivalent to clicking the red "A" button in Tracktion's transport section.

AUTO PLAY: This button toggles the automation read mode on and off. Clicking this button is equivalent to clicking the green "A" button in Tracktion's transport section.

CLEAR PEAKS: Use this button to clear the clip indicator on all meters.

FREEZE/UNFREEZE TRACK: Use this button to freeze or unfreeze the current track. Freezing is discussed in Chapter 8.1.

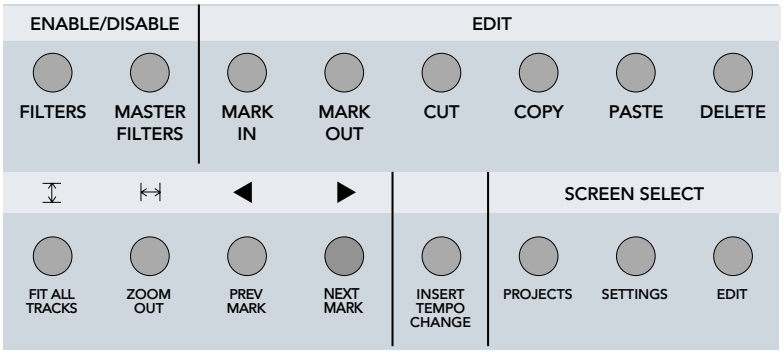

Figure 7.3.7

FILTERS: Press this button to toggle the enable/disable state for all of the filters, on whichever track is selected on the MCU.

MASTER FILTERS: Press this button to toggle the enable/disable state for all master filters.

MARK IN: Press this button to set the In-marker to the current play-head cursor location.

MARK OUT: Press this button to set the Out-marker to the current play-head cursor location.

CUT: Press this button to perform a standard clipboard cut operation.

COPY: Press this button to perform a standard clipboard copy operation.

PASTE: Press this button to perform a standard clipboard paste operation.

DELETE: Press this button to perform a standard clipboard delete operation.

FIT ALL TRACKS: Press this button to resize all tracks such that they are all visible.

ZOOM OUT: Press this button to zoom the edit out such that the entire edit is visible.

PREV MARK: Press this button to jump the play-head cursor to the previous marker point.

NEXT MARK: Press this button to jump the play-head cursor to the next marker point.

INSERT TEMPO CHANGE: Press this button to insert a tempo change at the current cursor position.

PROJECTS: Press this button to switch to the projects page.

SETTINGS: Press this button to switch to the settings page.

EDIT: Press this button to switch to the edit page.

The time display

The MCU features a large time display that shows the location of the play-head cursor in the edit. Clicking the “SMPTE/BEATS” button, located just below the time-display (Fig. 7.3.8), toggles the MCU’s display, and Tracktion’s time-line, between SMPTE and beats/bars.

The assignment field shows the currently selected assignment mode for easy reference.

To the left of the “SMPTE/BEATS” button is a button labelled “CPU %.” When this button in depressed, the MCU shows the current CPU usage for your computer in the two-character assignment display. When the button is released, the assignment display switches back to showing the current assignment mode.

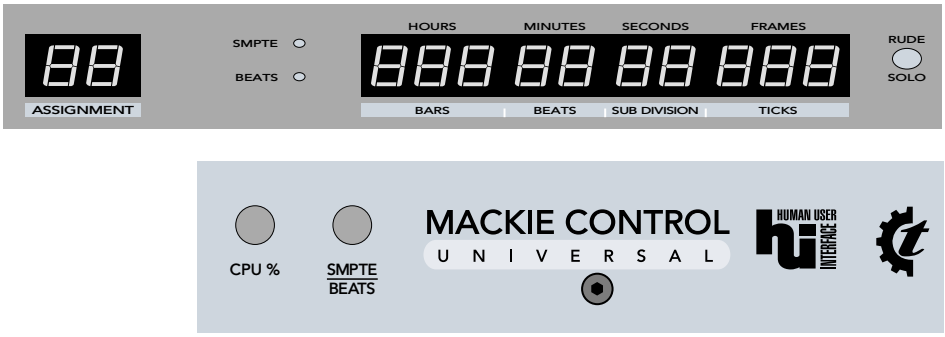

Figure 7.3.8

The RUDE SOLO LED, located to the right of the time-display, illuminates, quite rudely we might add, when a track is in solo mode.

7.4 Using the Mackie Control C4 with Tracktion

The Mackie Control C4 provides a powerful way to work with filters inside Tracktion. Whether used as a partner to the Mackie Control Universal, or as a stand-alone mixer/plug-in controller, the Mackie Control C4 effortlessly integrates into the Tracktion environment.

The C4 has 32 continuous rotary controllers, or V-Pots, arranged as four rows of eight, and a section of mode and utility buttons. Four “mode” controls switch the C4 between plug-in mode, mix mode, aux mode, and edit mode. The mode and utility buttons are shown in Figure 7.4.2. These modes will be described later in this section.

Manipulating the parameters of your plug-ins with the hands-on tactile feel of hardware rotary controllers, is as simple as selecting the plug-in on screen. The C4 will recognise that a plug-in has been selected, and automatically map the available parameters across the 32 V-Pots. If the plug-in has more then 32 parameters, a simple click of a button on the C4 surface allows you to page through to the extra parameters. The C4 provides a greatly more efficient and flexible way of working with plug-ins than can be achieved with just a keyboard and mouse, and in addition makes a great partner to the Mackie Control Universal.

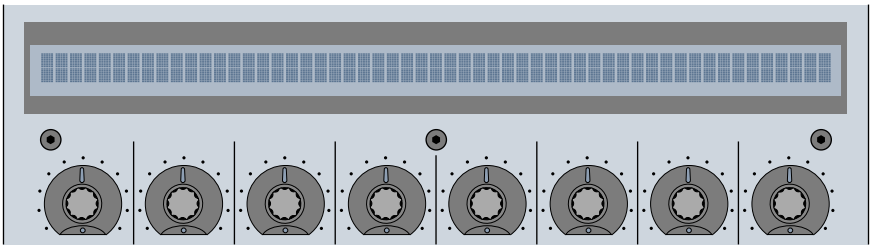

Figure 7.4.1

A single row of the C4’s four available V-Pot rows is shown in Figure 7.4.1. These V-Pots can be used as both rotary controllers, and as push-buttons (simply press the knob). Each V-Pot has an illuminating collar that shows the current rotary position of the V-Pot or, alternatively, the state of a toggle button. The scribble strip above the V-Pots automatically displays the name of whichever parameter is currently assigned to the V-Pot. In many cases, the current value of the parameter will be shown too.

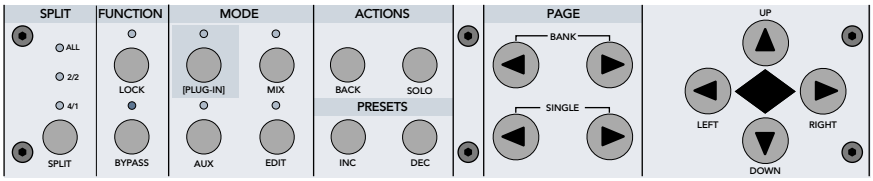

Figure 7.4.2

Using the C4 to control a filter in Tracktion

If you have not already installed your C4 device, refer to Chapter 2.8 for information on installing external controllers.

To get started:

- Turn on your C4 device.
- Start Tracktion, and load the edit on which you wish to work.
- Press the "plug-in" button on the C4's interface. The LED above the "plug-in" button should illuminate. The "plug-in" button selects one of the four modes that the C4 can be used in. The other three are discussed over the next few pages.

Assigning the C4 to a filter can be performed into two different ways:

- If you are sitting near your computer, simply select the filter that you wish to control by clicking the filter icon on-screen.
- The scribble strips on the C4 will update to show the available parameters, and the V-Pot collars will indicate their current values.

Or, you can select a filter directly from the C4's interface by:

- When the "plug-in" button is pressed, the C4's V-Pots will be assigned to the first 32 tracks in your edit, and the track names will be shown in the scribble strip above.
- Pressing a V-Pot will focus the C4 on the associated track.
- If the track you wish to select is not one of the first 32, you can use the "single" buttons to scroll the C4 backwards and forwards one track at a time through your track list. In addition, the "bank" buttons can be used to scroll a complete V-Pot strip (i.e., eight tracks) at a time.
- Once a track has been selected by pressing the appropriate V-Pot, the C4's display will switch to showing that track's filter list. Each filter will be assigned to a V-Pot, with a corresponding label shown in the scribble strip.
- Pressing on a V-Pot that has an assigned filter selects that filter for editing. Tracktion responds to the filter selection as if the filter had been clicked on screen, and the C4 will update to show all available parameters for the filter.

If a filter offers more than 32 parameters, the bank and page buttons on the C4 can be used to scroll through them. The C4's control buttons are described later in this section.

Tip: When a filter is selected in Tracktion, you can use the C4's cursor keys to navigate through the filter section. The left and right cursor keys move you to previous or next filters on the current track. The up and down cursor keys move you to previous or next track.

Using the C4 as a mixing surface

The C4 can also be used as mixing surface for users that do not have a Mackie Control Universal.

Two of the mode buttons, MIX and AUX turn the C4 into a mixing surface that can, depending on which of these two modes is currently active, control volume/pan, or auxiliary send levels.

MIX: Selecting the mix mode provides volume and pan controls for sixteen tracks at the same time. Each track is represented as a pair of V-Pots, one for volume and one for pan. In addition, the track's name and a level meter is shown on the scribble pad. The page controls allow you to move through your track list. This allows the C4 to serve as a mixing console for users who do not own a Mackie Control Universal.

When the mix mode is activated, the LED above the mix button is illuminated. The mix mode provides simultaneous control for up to sixteen tracks at a time.

For each track, two V-Pots are paired. The first V-Pot controls the level of the track, and the second controls the panning. The current volume and pan levels for each track can be seen by looking at the C4's collar. The track name for each of the sixteen tracks is shown above the first V-Pot, and a level meter is shown above the second.

If a track contains more than one level/pan filter, the C4 controls the last level/pan in the chain.

Pressing a V-Pot resets the control associated with it. V-Pots assigned to volume controls will reset back to 0 dB, or unity. V-Pots assigned to pan controls will reset back to centred.

The BANK and SINGLE buttons in the PAGE section allow you to control which 16 tracks are currently in focus for the C4. The BANK buttons scroll an entire strip of four tracks at a time, whereas the SINGLE buttons scroll a track at a time. This allows you to work on all tracks in your edit regardless of how many there are.

AUX: The aux mode shows the eight auxiliary send buses along the top row of V-Pots.

When the "aux" mode is selected, the C4 displays the eight Tracktion send buses in the top-most channel strip. Pressing one of the eight V-Pots selects the corresponding aux bus. When a bus is selected, the remaining 24 V-Pots act as rotary send level controllers. You can mix 24 tracks at a time in this manner. If a track does not contain a send filter for the selected aux-bus, the V-Pot will be ignored.

If the send is a stereo send, then pressing the V-Pot switches it to pan mode.

As with the mix mode, the BANK and SINGLE buttons can be used to navigate through the tracks in your edit.

Using the C4 to control Tracktion

The "edit" mode assigns typical editing functions to each of the 32 V-Pots, allowing you to perform operations such as cut and paste from the C4. In addition, the transport options (play, cursor forwards/backwards, record, return to zero) and mode button (such as loop, punch, and click) are assigned. Each V-Pot's function is clearly labelled on the scribble pad, and performing the function is as simple as pushing the V-Pot. This is great for users that have a C4 but not an MCU as it provides much of the MCU's control power.

To access the "edit" mode, simply press the EDIT button. The LED above the button illuminates to show that the edit mode is active.

The four rows of V-Pots are broken into four function groups: views, modes, editing, and transport.

The "view" options

1. **Projects:** Switch to the projects page inside Tracktion.
2. **Settings:** Switch to the settings page inside Tracktion.
3. **Edit:** Switch to the edit page inside Tracktion.
4. **Fit tracks:** Fit all tracks on screen. This option is equivalent to pressing the F8 key, or selecting the "fit all tracks on screen" option from the "tracks" button (Chapter 3.3).
5. **Fit edit:** Fit entire edit on screen. This option is equivalent to pressing the F5 key, or selecting the "zoom to fit entire edit on screen" option from the time-line right-click menu (Chapter 4.1).
6. **Big meters:** This button toggles the big meter view, equivalent to selecting the "show big input level meters" option from the "options" button.
7. **Show input:** Use this button to display or hide the input section.
8. **Show filters:** Use this button to display or hide the filter section.

The “modes” options

1. **Loop:** Toggle loop mode. The V-Pot’s collar is fully illuminated when the loop mode is active, and un-lit when it is disabled.
2. **Punch:** Toggle punch mode. The V-Pot’s collar is fully illuminated when the punch mode is active, and un-lit when it is disabled.
3. **Click:** Toggle click-track. The V-Pot’s collar is fully illuminated when the the click-track is active, and un-lit when it is disabled.
4. **Snap:** Toggle snap-to-grid. The V-Pot’s collar is fully illuminated when snapping is active, and un-lit when it is disabled.
5. **E-to-E:** Toggle end to end mode. The V-Pot’s collar is fully illuminated when end-to-end mode is active, and un-lit when it is disabled.
6. **Scroll:** Toggle scroll mode.
7. **Chase:** Toggle timecode chasing. The V-Pot’s collar is fully illuminated when timecode chasing is active, and un-lit when it is disabled.
8. **TC mode:** Toggle the time-line display between SMPTE and and beats/bars.

The “editing” options

1. **Cut:** Perform a standard clipboard cut operation.
2. **Copy:** Perform a standard clipboard copy operation.
3. **Paste:** Perform a standard clipboard paste operation.
4. **Delete:** Perform a standard clipboard delete operation.
5. **Mark in:** Set the loop-start marker to the current play-head cursor position.
6. **Mark out:** Set the loop-end marker to the current play-head cursor position.

The “transport” options

1. **Return to zero:** Return the play-head cursor to the start of the edit.
2. **Stop:** Stop playback mode.
3. **Play:** Start playback mode.
4. **Record:** Start recording.
5. **Rewind:** Move the play-head cursor back through the edit. Press stop to stop scrolling.
6. **Fast Forward:** Move the play-head cursor forwards through the edit. Press stop to stop scrolling.
7. **Automation Play:** Toggle the automation read mode. The V-Pot’s collar fully illuminates when the automation read mode is active, and un-lit when it is disabled.
8. **Automation Record:** Toggle the automation record mode. The V-Pot’s collar fully illuminates when the automation record mode is active, and un-lit when it is disabled.

Function buttons

1. **Split:** Support for the split button has not been implemented in current versions of Tracktion, but may be added in a later update.
2. **Lock:** This button keeps the C4 focused on the current filter even if you select another filter within Tracktion. This allows you to keep the C4 armed for working with a specific plug-in, whilst performing other operations with the mouse and keyboard.
3. **Bypass:** This button toggles the enabled/disabled state of the selected filter. This is useful for quickly comparing the original and effected version of a sound. For example, if you want to hear what effect an EQ is having on a track, temporarily disabling the EQ filter provides a baseline reference to contrast against.

Actions buttons

1. **Back:** The back button takes you up one level in the C4's interface hierarchy. If you have a filter selected, for instance, the back button would move you back to seeing the list of filters on the current track.
2. **Solo:** The solo button switches the current track to solo mode. This button only has any effect if you are in plug-in mode and have a plug-in selected. Soloing tracks is extremely useful when programming sounds, or making changes to EQ, as it allows you to hear the sound in isolation.

Presets buttons

The increment and decrement preset buttons allow you to move up and down through the pre-sets in the "programs" list for the selected filter. This allows you to quickly page through effects or synth plug-in presets, making it easy to find one that is suitable for your edit.

Page buttons

1. **BANK left/right:** The bank buttons page the C4 though the available tracks, or filter parameters in blocks of eight at a time, effectively scrolling the options up or down a line.
2. **SINGLE left/right:** The single buttons scroll the C4 though the available tracks, or filter parameters one at a time.

The cursor buttons

The cursor buttons are used to navigate the cursor up, down, left, or right in the LCD display or onscreen.

Chapter 8: Freezing and rendering

8.1 Freezing

If you find that your edits require more processing power than your computer can provide, and upgrading is not an option, freezing may just be the answer to your needs.

The freeze function works to free up CPU usage by bouncing frozen tracks into a single audio file.

To "freeze" a track:

- Click the track name to display its properties.
- Click the "freeze track" button in the properties-panel.

"Freezing" causes Tracktion to render the selected track(s), along with their filters, down to a single temporary file on your hard-drive. A progress bar will be shown whilst the tracks are being frozen. After a few moments, the freeze operation will complete. The frozen tracks will be shown with their height at the smallest size. Any filters used by the tracks will be disabled (Fig. 8.1.1).

Figure 8.1.1

By combining all frozen tracks into one single file, Tracktion makes it possible to play as many tracks as you need. Even laptop computers, usually hindered by slower hard-drives than their desktop counterparts, will be able to handle the demands of large projects, making work on the road a real possibility.

There is a cost to this seemingly unlimited power though. Freezing and unfreezing tracks can take a long while, as the time taken to freeze or unfreeze will grow longer with every extra frozen track. It is also not possible to make any changes to a frozen track. Whether it be editing MIDI, audio, or changing the volume or pan settings, if you need to change some aspect of a track you will need to unfreeze it. Unfreezing tracks is simply a case of displaying the track properties as normal and clicking the "unfreeze" button. Once unfrozen, your tracks will return to normal size, with all filters and settings just as you left them.

Freeze can be very useful when making audio recordings in edits that already have lots of audio tracks. With these audio tracks already placing a high load on your hard-drive, recording takes may be spoilt by drop-outs. Freezing the existing audio tracks will help to ensure that hard-drive performance issues do not impact on recording quality.

When mixing projects that rely on freeze, you may be able to reduce time spent waiting for tracks to freeze and unfreeze by working on the mix in sections. For example, perhaps you can get away with freezing only the bass and percussion, leaving you free to mix the vocals and lead instruments. When you are ready to move on, you could simply unfreeze the edit, and freeze everything that will not be altered during the next mixing section.

If you find that you need to tweak levels and effects constantly on some tracks, you may want to consider using track rendering instead.

8.2 Rendering

Rendering is not quite as easy to use as track freezing, but it does have a few advantages.

Unlike with freeze, in which all tracks are stored in a single file, render creates a new file for each rendered track. The rendered audio file will take the resolution and sample rate of the default audio output device.

To render a track:

- Click the track name to display its properties.
- Click the "render track" button in the properties-panel.
- You will be prompted for a location to store the rendered file. Typically, you would use the project's local folder.
- Once you have told Tracktion where to store the file, you will see a dialogue-box like the one shown in Figure 8.2.1.

Figure 8.2.1

This dialogue-box controls what happens to the source track after the render operation is complete.

Replace: This option removes the source track, and places the rendered audio clip in its place. This operation is destructive. A rendered track cannot be un-rendered at a later stage.

Add rendered tracks: This option inserts a new track, containing the rendered clip, into the edit. The source track is not affected. Whilst not as elegant as freeze, this option provides a way to render tracks non-destructively.

Cancel: This option simply aborts the render.

A point worth noting here is that after rendering, your track will take the form of a standard audio clip. This means it can be processed, edited, and passed through whatever filters you want, just like any other audio clip.

Rendering tracks containing audio clips will not reduce the load on your computer unless they also contain filters that are processor intensive.

Muting a track has the effect of reducing any processor load it may otherwise have generated. You can make use of this when using the "add rendered tracks." When the new track has been created, the source track can be muted and moved to the bottom of the track-list out of the way. If at any time, you do need to make changes to the original, just reactivate the track, edit it, and re-render it.

Tip: Filters that are disabled will not be rendered. If, for example, you wished to render a track without making the current compression and volume settings permanent, you could disable these filters before rendering. Use the "replace" render option, and drag the disabled filters to the new track. There you can re-enable them and edit them at a later stage.

Chapter 9: Rack filters

9.1 What are rack filters?

If you have so far been amazed at how intuitive and instantly obvious Tracktion is to use, rack filters may come as a bit of a shock. They aren't difficult to use as such, but it may not be immediately apparent how to use them; indeed you may not even be all that clear as to what they actually do. Don't worry, they really are easy to understand and use with a just little hands on demonstration.

You should by now be familiar with the "aux send" and "aux return" filters; if you have not already encountered these filters, it may be beneficial to go back and review the discussion on them in the User's Guide before reading further.

Just like aux-sends, racks can take audio from a number of tracks, and just like aux-returns, racks can inject that audio into another track. In fact, at their core, the aux-send and aux-return filters are basically stripped down rack filters.

Rack filters have two defining characteristics: firstly they can span a number of tracks, and secondly they provide a modular surface upon which you can potentially create completely new effects and synthesizers.

Track spanning -- learning to share

It is probably easier to show this than to describe it, so let's do a quick experiment with racks:

- Add a new filter to Track One of an empty edit, and when prompted for a filter to insert, add a Tracktion delay.
- Now, right-click the delay filter and select "wrap this filter in a new rack filter." This will create a brand new rack filter that contains the Tracktion Delay filter. We'll see what this actually means in a few pages time.
- Next, add a new filter to Track Two. When prompted for a filter to insert, open the "Rack Filters" folder in the filter list, and select the "Delay wrapper" entry (Fig. 9.1.1).
- Finally, lower the main output level for Tracktion to at least –6 dB (really, this step is worth it!)

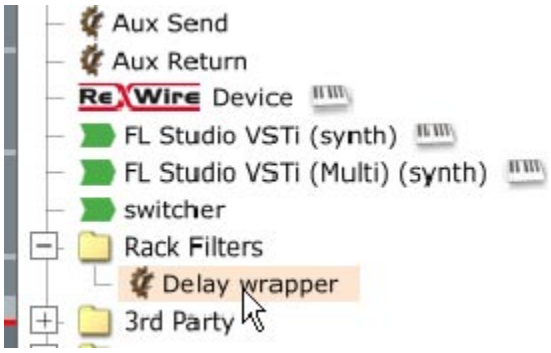

Figure 9.1.1

Note: The "Rack Filters" folder shows any racks that have been created for the current edit.

Load an audio file onto Track One, or send it some audio from one of your input devices. Watch the level meters for both Track One and Track Two (Fig. 9.1.2). What is happening here is that rather than the two tracks having their own copy of a filter, as would normally be the case, both tracks are actually sharing the same rack filter. Essentially this is the same thing that happens with the standard aux send and aux return filters, but racks let you take things a step or two further, as shall see throughout the remainder of this chapter.

Figure 9.1.2

So why the need to lower the master volume? If you look at your master level you should see why. Despite the fact that you have dropped the master volume by 6 dB, the level meter will be showing the same level as the level meters on tracks one and two. Because both tracks are receiving exactly what was fed to the rack, with no attenuation anywhere, the level has effectively been doubled!

The thing to note here is that racks allow you to move audio from one track to another, and they do this by being in two places at once.

You may want to save this edit, as we will come back to it in a few pages time.

Building blocks -- a modular world

Rack filters aren't just useful for moving audio around, they have another, wholly different, trick up their sleeve too.

What you have seen so far is the outside of a rack filter, and much like any of the other filters you have used inside Tracktion, what goes on inside them is largely unknown. One engaging aspect of real hardware is that you can, if you are so inclined, take the lid off and poke around at the stuff that makes it all work. That's not so easy to do with software, and most likely would be in violation of the software license anyway. Rack filters can't give you access to the low-level workings of filters, but if you do like to experiment a little, they offer a good compromise.

In short, rack filters allow you to take a group of filters and use them as building blocks to make more powerful filters. You could, for instance, layer a number of software instruments to create powerful monster synthesisers. Maybe you've got some ideas for processing stereo channels differently to create some interesting stereo widening effects. Or perhaps you just want to save a few of your favourite effects chains for use across projects. Either way, it's worth taking the lid of off rack filters and looking inside.

9.2 Managing rack filters

Adding rack filters to tracks

You can add a rack filter to a track in the same way that you would add standard filters. The filter list contains a folder called "rack filters," which in turn contains all of the rack filters in your current edit. When you are prompted for the filter to insert, select a rack from this list and it will be added to the track as normal.

There is an alternative way to add rack filters to a track though. When a rack is selected, the properties-panel contains a draggable icon (visible at the top-right corner of Fig. 9.2.2) that can be used to quickly add a rack to the filter section. This draggable behaves the same as the "new filter.." draggable icon, but just adds the current rack filter. You won't be prompted for a filter type to add.

The rack filter editor

To display the rack filter editor, click the "racks" button at the top-right-hand corner of the edit page. Keyboard shortcut: **CTRL + G** (**CMD + G** for Mac users). The arrange area will be reduced in size slightly and a rack editor strip (Fig. 9.2.1) will be shown below it.

If you look at Figure 9.2.1 you will notice three pins on either side of the rack canvas. These pins form the inputs (on the left-hand side) and the outputs (on the right-hand side) of the rack filter. The top-most input and output pins carry MIDI data. The two pins below carry the left and right channels of audio.

There is a name tab at the top-left corner of the rack editor. Each rack contained in the current edit appears as a tab here. Clicking a tab brings the corresponding rack to the fore.

Figure 9.2.1

New rack: This button displays a pop-up menu from which you can create a new rack filter:

- *Create new empty rack:* Select this option to create a standard stereo in/out rack filter.
- *Load a preset rack:* Select this option to create a new rack filter and load the selected rack-preset into it. If no rack-presets have been saved, this option is unavailable.

Show one rack/two racks: Use this button to toggle between one large editor canvas and two smaller ones.

Clicking inside the rack filter editor will show the properties in the properties-panel (Fig. 9.2.2).

Figure 9.2.2

Name: Use this field to give the new rack filter a name. The name appears over the rack filter icon in the filter view, and is used as the preset name if this rack filter is saved as a preset. It is a good idea to give racks descriptive names. Opening an edit that contains a number of cryptically named racks, after a few months have passed, is a misery you can happily avoid.

New input/output channel: Use these options to add new audio input/output pins to the rack. When you select one of these options you are prompted for a name for the pin. It is a good idea to label left and right pins accordingly, as this will make managing the rack filter easier when it comes time to place it on a track. Figure 9.2.3 shows an empty rack filter with two extra output pins.

Figure 9.2.3

Rename input/output channel: To rename a pin, click this button and select the pin from the pop-up list. You are then be prompted for a new name.

Delete input/output channel: To delete a pin, click this button and select the pin from the pop-up list.

Delete: This option deletes the rack from the edit. Use this with care, as any tracks that require this rack will be affected.

Manage rack presets: This option allows you to add or remove presets from the preset list.

- *Add this rack to the list of presets:* This option adds the current rack to the preset list, making it visible to other projects and edits.
- *Delete a preset rack type:* To remove a rack preset, click this, and select the preset from the pop-up list.

Tip: You can use presets as a way to make copies of a rack. Depending on the nature of a rack filter, it may not be desirable to have it be shared across a number of tracks, but you may still want more than one instance of it. The solution is to save the rack as a preset, then create new racks from that preset. Once you are done, you can delete the preset to tidy up behind yourself.

9.3 How to build rack filters

As an example of how rack filters are constructed, let's extend Tracktion's delay filter to a true stereo type.

To start off:

- Open the rack editor.
  Keyboard shortcut: **CTRL + G** (**CMD + G** for Mac users).
- Click the "new rack" button, and select "new empty rack" from the pop-up menu.
- Enter "stereo delay" in the name field (Fig. 9.3.1).

Figure 9.3.1

For this rack to do anything useful, we need to add some filters to it:

- In the same way that you would add filters to a track, drag the "new filter" draggable icon onto the rack editor canvas and drop it.
- When prompted for a filter to add, choose the "Delay" filter.
- When you drop the filter Tracktion will ask you whether you want to auto-connect the filter; click the "no" button.

If all went well your rack should contain a single filter icon as shown in Figure 9.3.2. This filter forms one channel of our stereo delay. We now need to add a second delay, which will act as the other channel, so following the same procedure as you used to add the first filter, add a second delay filter to the editor.

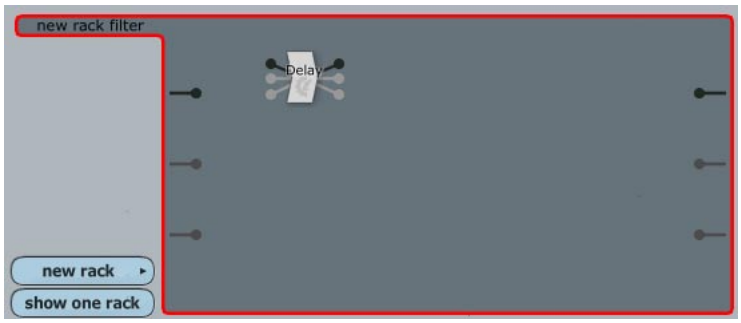

Figure 9.3.2

When building racks it is a good idea to try and place filters tidily and in logical positions, because whilst the location of the filter makes no difference to how the rack works, it does make it easier for you to see what is going on. Filters can be moved around inside the rack editor by clicking and dragging them to the desired destination. Try moving the two delay icons around until they form a vertical line roughly half way across the editor panel. This will make it easy to see how the stereo delay works.

The final thing you need to do is to make the connections that allow the filters to talk to the outside world. On the delay filter in Figure 9.3.2, you can see there are three pins on either side of the filter icon. Just like with the rack itself, the top-most pins are the MIDI input/output pins, and the two lower pins are the left and right stereo channels. Making connections between pins is easy — just click on one of the pins and drag a line to the other. If you create a connection you do not want, you can remove it by simply clicking on the line and dragging it into an empty part of the rack canvas. Figure 9.3.3 shows the stereo delay correctly connected to the rack pins. Practise dragging the connections until you can comfortably create this circuit.

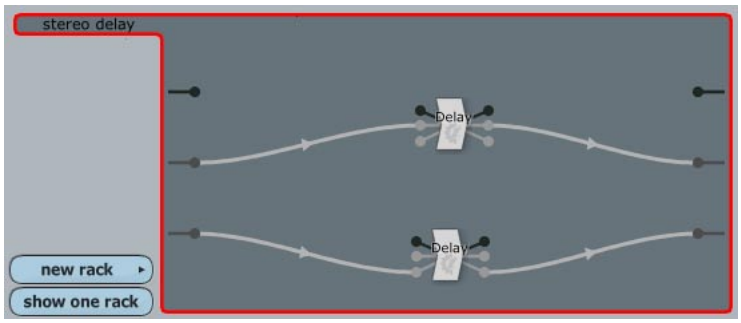

Figure 9.3.3

Note: The only permissible way to wire pins is for right-pointing pins to be connected to left-pointing pins, and vice-versa. In addition, MIDI pins cannot be wired to audio pins. Feedback loops are not allowed.

To create a true stereo delay effect, we need to set the right and left delay periods, so:

- Select the left channel delay, or top-most filter icon, and choose “1/2 beat” from the tempo menu (Fig. 9.3.4).
- Now select the other delay, and set the tempo to “1/4 beat”.

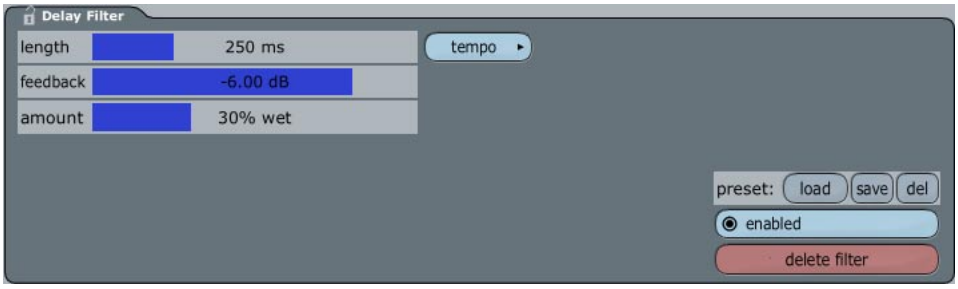

Figure 9.3.4

At this point you have a fully working stereo delay. Try adding this rack filter to a track, and you should hear the stereo delay effect. There is a lot more you could do with this rack to make it more interesting. Try experimenting with adding other filters to the rack, or feeding the output from one of the delays into the input of the other.

9.4 Racks, tracks, inputs, and outputs

Earlier parts of this chapter have referred to the possibility of racks featuring more than two input or output channels. Let's now look at how this works, and how you would use such a rack.

You may recall that in Tracktion all tracks are natively stereo in nature. Given this, how can a rack with more than two audio inputs receive any input on the extra inputs? To answer this question we need to look at the properties-panel for a rack filter that has been placed in a track, such as that shown in Figure 9.4.1. The four options on the left-hand side of the image are where you select which of the rack's inputs and outputs to connect to the current track. Clicking on one of the values will display a pop-up similar to the one pictured below. The pop-up menu shows the choice of available inputs offered by the rack.

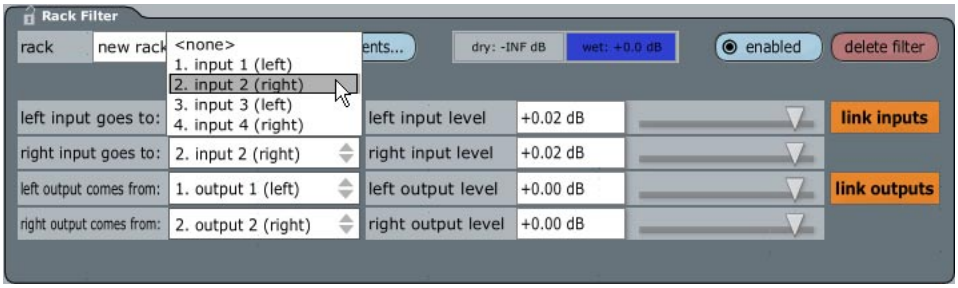

Figure 9.4.1

Because the track itself is a fixed stereo track, you can only connect the track to two of the rack's inputs and outputs at any one time. However, there are no restrictions on which of the rack's pins you connect the track to. For example, there is no reason why you couldn't send both the left and right channels of a track to just input four on the rack.

Looking again at Figure 9.4.1, you can see that each of the track's input and output boxes has a corresponding level control. By adjusting these levels you can control how much of the track's audio is sent to each of the inputs, and how much of the rack's output is returned to the track. The "link inputs" buttons control whether the channels act as stereo pairs when adjusting the levels.

Above the level controls there are two sliders: dry and wet. These function as standard wet/dry controls, setting how much dry signal is retained, and how much of the processed signal is returned. The wet control largely duplicates the functionality of the left/right output level controls, though it can sometimes be easier to use. The dry control, on the other hand, is very important for many common rack tasks.

A basic auxiliary send

To close this section, let's just look at what is involved in using a rack filter as an auxiliary send. If you still have the simple demo edit from the first section of this chapter, open it up ready. If not, you may want to go back to section one and follow the steps for creating it.

Figure 9.4.2

Just like with the aux send and aux return filters, it is best to start by nominating a return track. In this example, we will call Track Two the return track, so when you have the edit ready:

- Place a reverb filter after the rack filter on Track Two (Fig. 9.4.2).
- In addition, to create a standard "post fade" send, you will need to move the rack filter on Track One to the right side of the volume/pan filter.

That's the return part taken care of, but since we don't have a special send filter, we need to adjust the track settings for the rack on track one:

- Click on Track One's rack filter and set the dry amount to 0 dB.
- Set the wet amount to –INF (Fig. 9.4.3).
  (In other words the exact opposite of their default states).

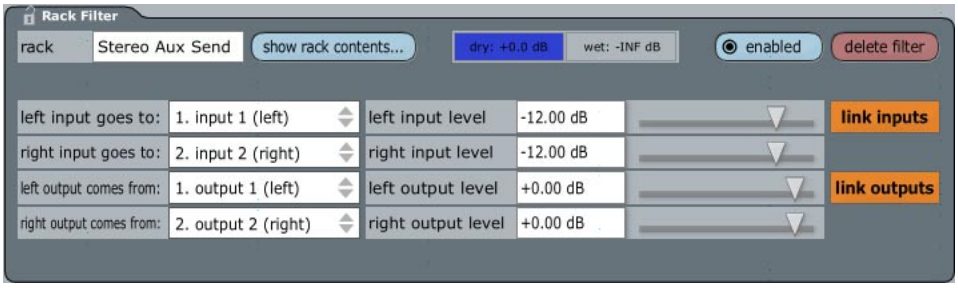

Figure 9.4.3

If you play the edit now, you should hear the reverb clearly over the audio on Track One. To adjust the send level of Track One, simply lower the left and right input level values as shown above.

To create further sends, place a copy of this rack filter on the track, set the wet/dry values as shown in Figure 9.4.3, and adjust the left/right input level values to control the amount of effect that will be applied to the track.

9.5 Working with multiple output VSTis

We looked briefly at multiple-output VSTis in the User's Guide, but let's take a closer look at how they work with racks. In addition, we'll look at an alternative approach to working with multiple-output VSTis.

The track spanning approach

The first method, as described in the User's Guide, uses the track spanning nature of rack filters to effectively place the VSTi on as many tracks as is needed.

To get started:

- Create a new rack filter and name it after your VSTi.
- Drag the "new filter" icon onto the rack canvas and select your VSTi from the filter list.
- You will be asked if you want Tracktion to auto-connect the filter. Answer "yes," and Tracktion will take care of wiring everything up for you.

If all went according to plan, you should see something like Figure 9.5.1.

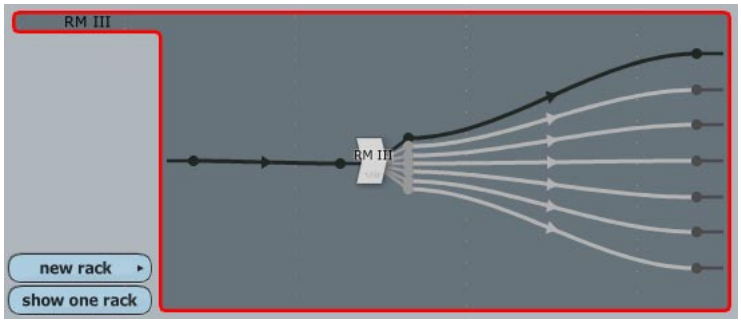

Figure 9.5.1

With your rack ready, you simply need to place copies of it on as many tracks as you have outputs. Keep in mind that mono outputs will need a track to themselves however.

All that is needed now is to edit the rack properties for each track, and choose the appropriate rack filter outputs in the “left/right output comes from” boxes.

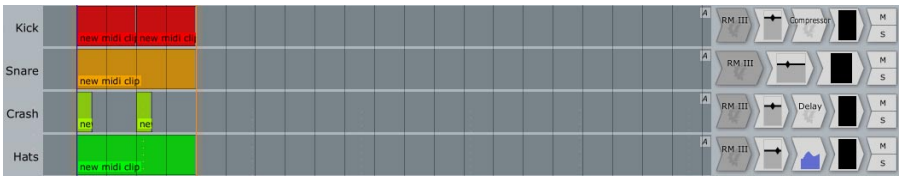

Figure 9.5.2

Note that the rack will receive MIDI from every track that hosts it, so you can even spread the MIDI parts across tracks. This makes a lot of sense for mult-timbral VSTis, as the various channels on the VSTi appear as normal tracks (Fig. 9.5.2).

The modular approach

If you would rather keep everything in one place, then you can wrap the entire of the arrangement shown in Figure 9.5.2 in a single rack. This allows you to use only one track, but keep the flexibility offered by spreading the VSTi across a number of tracks:

- Create a new rack filter, and name it after your VSTi.
- Drag the “new filter” icon onto the rack canvas, and select your VSTi from the filter list.
- You will be asked if you want Tracktion to auto-connect the filter.
- Unlike with the spanning approach, you should answer “no” to this question.
- Once you have you VSTi in place you can begin introducing and connecting the various filters needed to create a complete sub-mix inside the rack (Fig. 9.5.3).

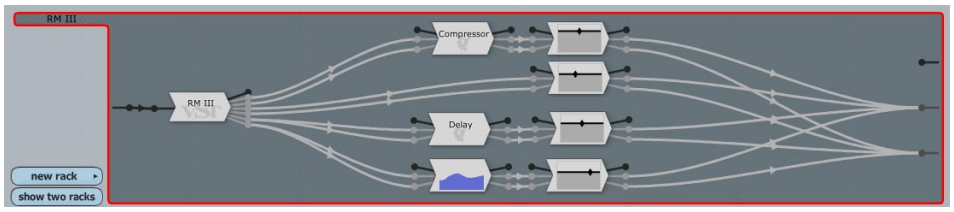

Figure 9.5.3

Although it may not look like it at first, this is the entire filter section of Figure 9.5.2 contained in one single rack. One big advantage of this approach is that this rack can be saved as a preset, and recalled with just a few mouse clicks for use in other projects.

Chapter 10: Importing and exporting

10.1 The import options

You can import material into Tracktion in a variety of ways:

- Audio and MIDI clips can be imported from files on your hard-drive or from removable media such as CDs.
- Audio tracks can be imported from audio CDs.
- You can import your recordings from Mackie HDR devices.

To import material, you can either:

- Switch to the projects page.
- Select the project or edit to import material into.
- Click the “import material” button in the properties-panel.
- A pop-up menu appears (described below).

or:

- Open the edit, and switch to the edit page.
- Click the “import” button located in the control section.
- A pop-up menu appears (described below).

Note: The options available differ slightly depending on which approach you take. If you want to import a Mackie HDR project, you must use the second method.

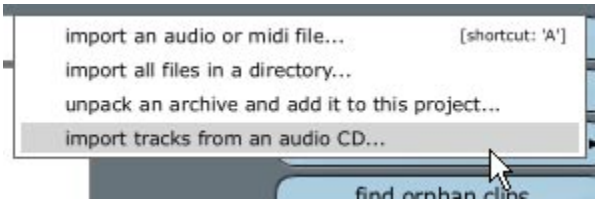

Figure 10.1.1

The project page “import material” options

Use this menu to associate audio or MIDI files with this project, or to import tracks from an audio CD (Fig. 10.1.1).

- *Import an audio or midi file...:* Use this option to add material on your hard-drive or a data CD to the edit. Files located on CDs are copied into the project folder, whereas files stored on a hard-drive are referenced from their source location.
  Keyboard shortcut: **A**.
- *Import all files in a directory...:* This option works much like the “import an audio or MIDI file...” option above. The difference is that this option imports all suitable files in the selected directory (folder).
- *Unpack an archive and add it to this project..:* This option adds the items from an archive into the current project.

- *Import tracks from an audio CD...:* Use this option to copy tracks from an audio CD into Tracktion. The imported tracks are saved as audio files in the project folder and added to the edit as standard audio clips. The "import audio tracks" dialogue-box is described later in this section.

The edit page "import" button options

Use this menu (Fig. 10.1.2) to quickly add content to an open edit, or to import content from a Mackie HDR device.

- **Import an audio or midi file...:** Use this option to add material on your hard-drive or a data CD to the edit. Files located on CDs are copied into the project folder, whereas files stored on a hard-drive are referenced from their source location.
  Keyboard shortcut: **A**.
- **Import tracks from an audio CD...:** Use this option to copy tracks from an audio CD into Tracktion. The imported tracks are saved as audio files in the project folder and added to the edit as standard audio clips.
- **Import a Mackie .prj project file:** Users of the Mackie HDR, MDR, or SDR hard disk recorders can import their projects into Tracktion for editing and mixing. HDR users should note, however, that the non-destructive fades, looped audio clips, and volume envelopes are not imported. So, if you have any important fades, loops, or envelopes in your project, render these tracks on the HDR first. All other edits will be accurately imported.

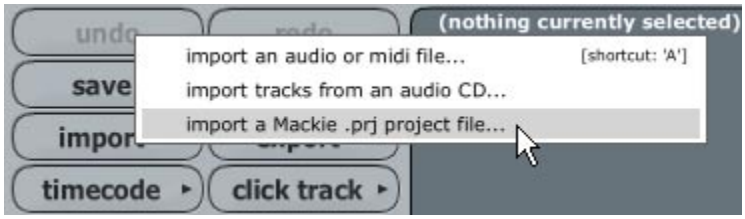

Figure 10.1.2

Note: You should ensure that your HDR, MDR, or SDR unit has the latest operating system installed, otherwise imports may not work correctly. The latest operating system can be obtained from http://www.mackie.com.

Importing audio from an audio CD

When the "import tracks from an audio CD" option is selected, a dialogue-box like the one shown in Figure 10.1.3 is displayed.

If an audio CD is inserted into the specified CD drive, the available audio tracks, along with some information about them, is displayed. Clicking anywhere on the bar to the right of the the track name begins previewing the CD track. The bar represents the time-line of the track, and the position that you click on the bar sets the point at which preview playback begins.

To the left of each track is a tick/cross icon. When a track is ticked, it is included in the import. Tracks that are not ticked will not be imported. You can toggle whether a track is queued for recording by clicking the track name.

CD drive: Use this option to select the CD drive attached to your computer that you wish to import audio tracks from.

Select all: Use this option to queue all audio tracks for importing.

Select none: This button removes (un-ticks) all tracks.

Volume: Use this slider to adjust the preview level.

Stop: Stop preview playback.

Start recording: All queued tracks will be imported into Tracktion.

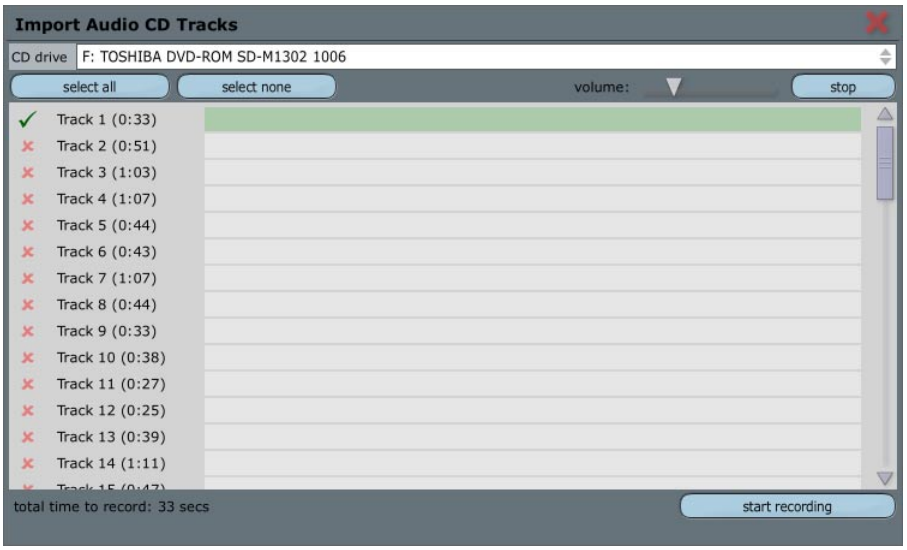

Figure 10.1.3

10.2 Exporting project and edit archives

Tracktion can create project archives that bundle a project file, edit(s), and all related materials, into a single file or folder. Archives are convenient for backing up your important work and for transferring projects between computers.

An edit archive is similar to a project archive, except that where a project archive contains a project file and all related edit files, an edit archive contains the project file and only the current edit. Because edit archives are only focused on the current edit, there are a few more available options for excluding unnecessary files from the archive.

To export a project:

- Switch to the projects page.
- Select the target project in the projects list.
- Click the “export project” button located in the properties-panel.

To export an edit:

- Switch to the projects page.
- Select the edit item from the items list.
- Click the “export edit” button located in the properties-panel.

  or:

- Open the edit.
- Switch to the edit page.
- Click the “export” button in the control section. This will display a pop-up menu.
- Select the “export an archive of this edit” option from the pop-up menu.

Tip: Exporting can also be used to tidy up projects by casting off orphaned clips, and stripping audio files of unused sections.

The export window appears (Fig. 10.2.1). Depending whether you are exporting an edit or a project, a few options shown in Figure 10.2.1 may not be present.

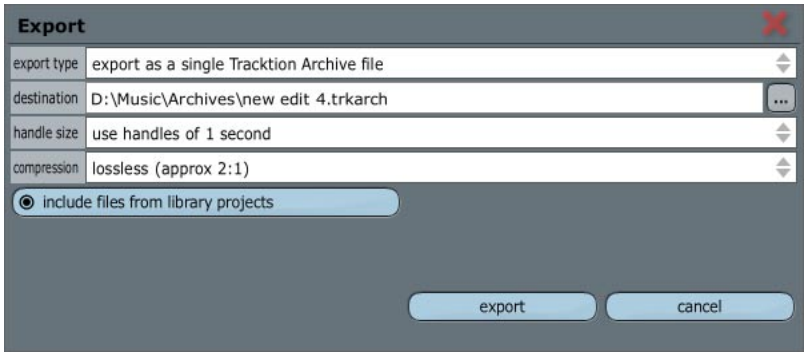

Figure 10.2.1

Export type: Tracktion can output an archive as a single file, or as a collection of files.

- *Export as a single Tracktion Archive file:* Use this option to export the entire archive as a single file. This is generally the most convenient way to back-up projects, or move them to another computer.
- *Export as files in a directory:* This option copies all of the archive material into the destination directory, but does not pack it all into one file. When this option is selected, the "compression" option is not available.

Destination: Use this option to select the folder in which the export file(s) will be saved.

Handle size: (Only available when exporting edits). This option allows you to control what happens to audio items that contain unused material.

If you have a vocal take that spans five bars, for example, but you only used the first two bars of it in the edit, Tracktion can trim the excess to reduce the archive file size. The audio file referenced by the project will not be altered, but the copy included in the archive will be trimmed according to the handle size setting:

- *Don't delete any unused audio:* When this option is selected, and the audio is exported in full. Use this if you believe you may later need currently unused audio material.
- *Export shortest possible media (no handles):* Select this option if you want Tracktion to completely discard unused audio in the archive. This will create the smallest possible file size, and is probably the best option for archiving completed work.
- *Use handles of n seconds:* These options allow you to retain the specified amount of surplus audio. For example, if a clip uses three seconds worth of material from the middle of a much longer audio file, selecting the "use handles of 1 second" option will cause five seconds (one + three + one) of the source material to be archived.

Compression: (Only available when export type is set to single file.) This option allows you to create smaller archives by compressing audio contained in the archive.

- *No compression (1:1):* Select this option to have the audio exported without any compression. This option will produce the largest file size. You should probably instead choose the "lossless 2:1" option.
- *Lossless (approx 2:1):* The audio in the archive will be compressed using a lossless encoder. This option provides the maximum audio quality whilst still producing significantly smaller archives than the "no compression" option.

- *High/Medium/Lowest quality:* When these options are selected, Tracktion will use a reductive, or lossy, encoding method on audio material, to reduce file size as far as possible. The encoding method used is Ogg Vorbis, which typically gives subjectively better results than MP3. These options are handy when collaborating across the Internet and absolute audio quality is not essential at all stages of the writing process.

Include files from library projects: (Only available when exporting edits.) When this option is checked, all files in the edit are included in the archive. If you uncheck this option, any files also present in your library projects are excluded from the archive. This can be useful if, say, you have common sample libraries on the computers that you typically share projects across. By placing the common samples in the library projects, you can have Tracktion reduce the archive size by not including redundant audio files.

10.3 Exporting audio files

Before you can burn your music to CD or convert it to MP3 format for internet distribution, you need to create a basic audio file. In Tracktion, this is referred to as exporting or rendering audio.

To an export an edit as an audio file:

- Open the edit by selecting the edit in the items list and clicking the "open for editing" button in the properties-panel.
- From the edit page, click the "export" button in the controls section. This displays a pop-up menu.
- From the pop-up menu, choose the "export audio file..." option.

Tip: Exporting audio files can be useful for creating loops that can be used in other projects. Large, complex, and computationally expensive percussive patterns, for example, can be exported into a single audio file. Not only is the audio file likely to be far more gentle on your computer's resources, it can sometimes be a useful creative tool to work with fixed loops.

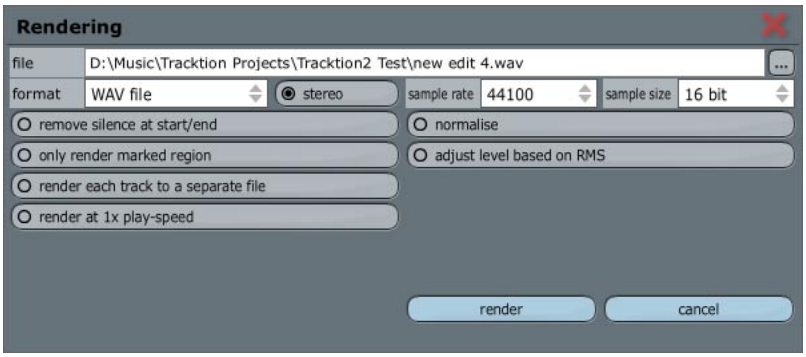

Figure 10.3.1

File: The exported audio will be saved at the location specified here..

Format: Use this option to select whether the export should create a WAV or an AIFF file.

Stereo: Select whether to export a mono, or stereo, audio file.

Sample rate: Select the sample rate of the file (for CDs, use 44100).

Sample size: Select the sample resolution of the exported audio file. If you are intending to burn this audio to a CD, use 16 bit. If you are exporting this audio for further editing, or to be used in other projects, you may want to instead export to 24 or 32 bit.

Remove silence at start/end: When this option is selected, Tracktion will trim silence from the ends of the edit.

Only render marked region: When this option is selected, Tracktion will export only the area between the loop markers.

Render each track to a separate file: When this option is selected Tracktion will export a separate audio file for every track in the edit. This is useful if you wish to import your work into another sequencer. When this option is disabled, Tracktion simply creates one single audio file of the entire mix. If you wish to burn the edit to a CD, you should uncheck this option.

Render at 1x play-speed: Some 3rd party plug-ins get confused when made to process audio at a rate faster than normal play-speed. In particular, plug-ins which use hardware processing, such as the UAD-1, will need to render at 1x speed. Whilst this option will greatly slow down renders, it may be worth trying if a plug-in produces unexpected results in the exported audio.

Normalise: When this option is selected, Tracktion automatically adjusts the level of the exported audio to use the maximum available audio head-room. If you are exporting to 16-bit, you probably always want this option enabled.

Adjust level based on RMS: This option works like the normalise option, but where normalise is calculated based on the peak audio level, this option scales the output based on its average level. Use this option with caution, since it may allow the result to clip.

10.4 Exporting MIDI files

To export an edit as a MIDI file:

- Open the edit by selecting it in the items list.
- Click the “open for editing” button in the properties-panel.
- With the edit open in the edit page, click the “export” button in the global controls section.
- From the displayed pop-up menu, choose the “export MIDI file...” option.

Note: When exporting MIDI for tracks that contain VSTis, be aware that any automation data on the track will be lost.

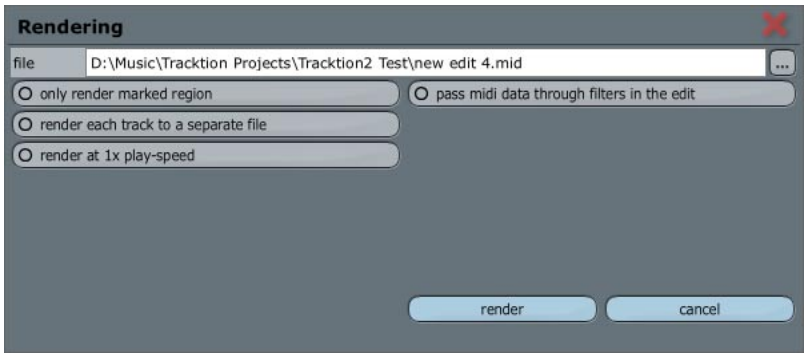

Figure 10.4.1

File: This option controls where the exported MIDI file will be saved.

Only render marked region: When this option is selected, Tracktion exports only the area between the loop markers.

Pass midi through filters in the edit: Typically, only MIDI data contained in MIDI clips is exported. When this option is enabled, any MIDI generated or altered by filters in the edit are also included in the exported MIDI file. Note, many filters do not pass MIDI data though to their outputs. If you render a track with such a filter present, and this option active, the MIDI data will be blocked by the filter. Therefore, to avoid MIDI data being lost during exporting, you may generally wish to leave this option off.

Render each track to a separate file: When this option is selected, Tracktion exports a separate MIDI file for every track in the edit. When this option is disabled, Tracktion simply creates one single MIDI file of the entire mix.

Render at 1x play-speed: Some 3rd party plug-ins get confused when made to process MIDI at faster than normal play-speed. Whilst this option will greatly slow down renders, it may be worth trying if a plug-in produces unexpected results in the exported MIDI.

Final words

We hope this reference guide has provided you with the information you need to start making great music with Tracktion.

If you have further questions, you can always visit the Tracktion forum on the Mackie web-site (http://forums.mackie.com/). There you will receive help from Mackie staff, and other users.

Tracktion has a thriving user community at the Raw Material Software forum at the KvR Audio web-site (http://www.kvraudio.com/forum/viewforum.php?f=22). You will find many enthusiastic Tracktion users who are always willing to lend a hand to fellow Tracktioneers. In addition, throughout the KvR site, you will find links to a huge library of freeware, and commercial plug-ins that you can use with Tracktion.

When all is said and done though, Tracktion is about writing music, and not about reading manuals, so with that said, we at Mackie and Raw Material Software thank you for making Tracktion your music production tool of choice. We hope you enjoy using it as much as we enjoyed creating it.

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