Constellation-XT

Operator Reference Manual

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Chapter 1 - Introduction

Introduction

Constellation is part of a new family of products from Fairlight which marries together CC-1 processing with an ergonomic physical control surface in a combination that has a significant impact on productivity and efficiency.

The Constellation interface incorporates a unique combination of dedicated editing and large format mixing features, an advanced graphical user interface and powerful database capabilities. These tools allow the operator to work quickly and efficiently without impeding the creativity of the digital recording, editing and mixing process.

About This Manual

The Constellation-XT User Manual provides all the information necessary to rapidly become proficient at operating the system in a professional audio environment.

This manual is designed to familiarize sound editors and engineers with the facilities provided by Constellation-XT. The terminology and concepts used in this manual assume a reasonable knowledge of audio principles and studio procedures.

Finding the Information You Need

Read through the chapters in the order presented to learn all the features of the system or use the Table of Contents or Index to quickly find the specific information you require. The manual is divided into the following chapters, each covering a specific topic:

Operational Instructions

Chapters 2 to 35 describe the procedures used to manage workflow and perform recording, editing, signal processing, playback and mixing operations.

Installation Instructions

Complete installation instructions are included in the DREAM II Installation Manual.

Specifications

Chapter 36 includes complete specifications and connection details for the Constellation-XT System.

Chapter 2 - Constellation-XT Overview

Introduction

Constellation-XT is the latest generation digital audio system from Fairlight, offering exceptional power and speed for recording, editing and mixing.

Configurable with up to 96 disk recorder tracks and up 212 physical inputs and outputs, Constellation integrates full recording and editing capability with a fully featured, fully automated mixing engine capable of delivering final mixes in any format up to 7.1 surround.

A highly intuitive work surface enables fast, ergonomic access to all of Constellation-XT's many features. These include 8-band EQ, three-stage dynamics processing, and comprehensive grouping of faders and buses. Constellation-XT is also equipped with Fairlight's well-known Binnacle editor. The Binnacle presents the key editing functions in a highly optimised layout centred around the jog wheel. A new set of mouse-based editing functions adds even more convenience and familiarity to Dream II's editing interface.

While Constellation-XT is a complete solution for a studio undertaking full production and mixing of the majority of long form, commercials, film and radio work, it is also part of the Dream II Family of products and is the ideal partner to the Satellite, a digital audio workstation, and Station, an integrated editor and mixer.

Terminology

Mixing Section	The portion of the Constellation-XT control surface that provides mixing control.
Editing Section	The portion of the Constellation-XT control surface that provides editing control.
Project	The file created by Fairlight software containing the stored audio and its editing and mixing instructions.
Physical Input/Output	An analog or digital audio input or output.
Track Feed	A signal path (channel) feeding to or from the disk recorder which can be processed and routed to mix buses and monitoring.
Live Feed	A signal path (channel) fed from a live, real time signal that has been brought from a physical input and can be processed and routed to mix buses and monitoring.
Bus	Destination of a mixing operation. Feeds are usually routed to buses via a multiformat surround panner. Buses may be configured with various multichannel formats such as stereo, LCRS, 5.1 or 7.1. Multitrack buses provide bus paths for summing feeds to be recorded to disk or other I/O.

Bus Element	One component signal of a bus (e.g. left, right, centre or surround). Bus elements are automatically allocated to individual buses as they are created. Each system has a finite number of bus elements which will limit the format of buses as they are created. For example, a Mocha Espresso sized Constellation-XT has 48 available bus elements allowing: 1 X 5.1 main bus, 4 x 5.1 sub-buses, 2 X 5.1 auxes, and 2 X stereo auxes; or, 1 X 7.1 main bus, 3 X 5.1-buses, 4 X stereo aux buses, and 4 X mono aux buses and 8 X Multitrack buses. On the other hand a Grande Latte size has 72 available bus elements.

Signal Flow

Signal paths for feeds and buses comprise both fixed and moveable processing blocks. Signal paths may be configured in formats from mono up to 7.1 surround. Individual elements may be controlled together as part of a bus or Link Group, or unfolded and controlled separately. When a track feed is armed for recording, the fader may be switched to control the level at the input to the disk recorder as shown below.

Track and Live Feeds

- Up to 96 Track Feeds
- Up to 48 Live Feeds
- 4 band automated EQ: Bell, Shelf - High & Low, Notch
- 2 band automated Filters: High Pass and Low Pass at 12 pr 24 dB per octave
- Compressor plus Limiter plus Expander / Gate
- Insert
- Direct Out
- Track Metering
- Aux Sends: 12, each in any bus format up to 7.1
- Fader and Mute
- Panning: up to 7.1 surround

Link Groups

- Up to 8 members with linked parameter controls and support for advanced surround panning features.

Main Bus

- 1 x Main Bus
- Formats: Mono, Stereo, LCR, LCRS, LCRSS, 5.1, 6.1, 7.1
- Compressor
- Insert
- Direct Out
- Master Fader and Mute

Sub-Buses

- 8 x Sub-Buses
- Formats: Mono, Stereo, LCR, LCRS, LCRSS, 5.1, 6.1, 7.1
- Compressor
- Insert
- Direct Out
- Master Fader and Mute

Aux Buses

- 12 x Aux Buses
- Formats: Mono or Stereo, LCR, LCRS, LCRSS, 5.1, 6.1, 7.1
- Insert
- Master Fader and Mute

Multi Track Buses

- 24 x Multi - Track Buses
- Mono Format
- Master Fader and Mute

User Interface

The Constellation-XT system offers improved ease of use and operator efficiency, achieved through integration and advanced ergonomic design of the user interface.

Constellation-XT is made up of five interconnected hardware devices:

1. PC containing CC-1 Engine
2. Audio Interface box(es) (one SX-20 and optional SX-48s)
3. Constellation-XT console with Mouse
4. Recorder/Editor Video Monitor (not supplied)
5. Mixer Video Monitor (not supplied)

Plus additional optional components:

- Main Meter
- Channel Meters
- MADI interface cards

"Selection" and "Calling"

Because Constellation-XT supports various recording, editing and mixing functions, it is useful to refer separately to the way channels are singled out for different functions.

Selection

"Selection" is used when a signal path is to be acted upon by the Editing, Patching or Automation software.

In Editing and Patching operations, selection is done using the Selection Panel or the Mouse.

In Automation operations, selection is done as above, and also using the Soft buttons on the faders.

Calling

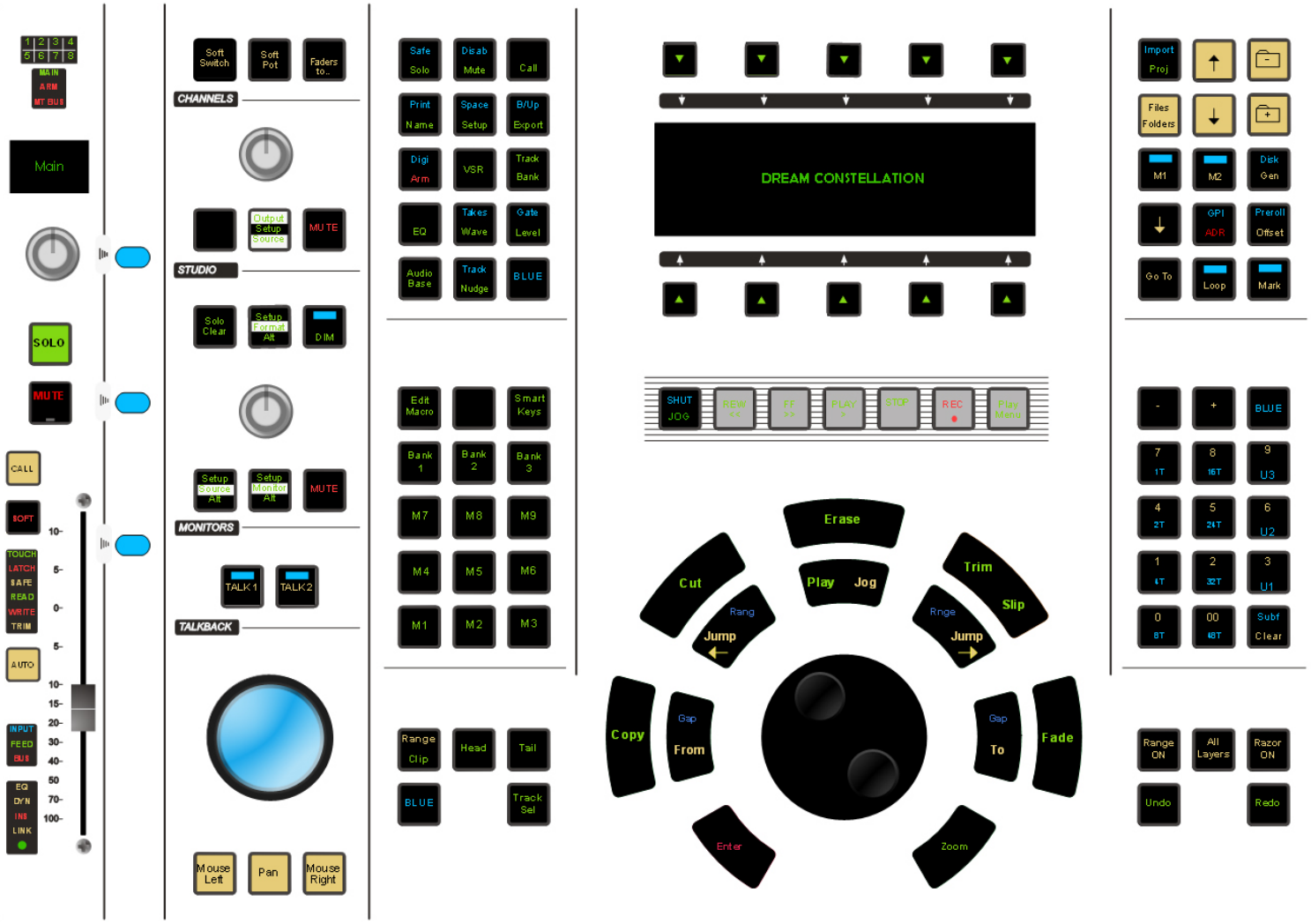
"Calling" is used when a signal path is to be brought to the Master Fader, the Channel Panel, the In-Line panel (when in single Channel mode) or any other resource where the mixer is controlling a single channel in real time.

Calling a channel is done by pressing the CALL button on any fader, or by mouse-clicking a signal path on the Mix Display.

There is also a Call mode where automatic calling features can be set up.

Constellation Features

The Constellation control surface incorporates the various hardware user interface features indicated below:



Monitor Selection Keys

Constellation-XT's studio and control room monitor sets allow user configurable control over selections of multiformat sources for monitoring in the control room or in the studio.

Bus Selection and Patching Keys

The patching and assignment keys provide access to the various patching menus. Bus Selection Keys are used for selecting buses for assignment, patching and mix control.

Track Selection Keys

The Track Selection Keys are used for selecting tracks and clips for editing and for arming tracks. Press a track key to add a track to the current selection. Double press a key to select that track only. To select a range, hold down the first key and double press the last track in the range.

The Track/Channel Selection Keys are also used to select analog I/Os and signal paths for patching.

The second bank of tracks, numbers 49 to 96, are selected using the **49-96** key.

A track can also be selected or deselected by clicking its number in the left column of the screen with the mouse. Double-clicking a track's number makes it the only selected track.

Live Feed Selection Keys

The **Live Feed** Selection Keys are used for selecting live feeds for mixing and patching operations. The **Live Feed** Selection Keys are also used

- to select digital I/Os for patching
- for Multi Track Bus Selection – press the **Multi Track** button and use the first 24 **Live Feed** keys to select Multi Track buses

Speaker Mute Keys

These keys are used for muting individual studio monitor speakers. The speaker mute keys are also used to select individual bus elements during bus and link group patching operations.

Menu Keys

These menu keys provide access to a range of editing, project management and signal processing functions. Most keys have two functions the names of which are displayed in colour on the button cap. To activate the function displayed in blue, press and hold one of the three **BLUE** keys while pressing the menu key.

Most functions can also be selected from the screen using the standard Windows menu system.

Soft Keys

Soft keys provide access to the menu options displayed on the LCD Constellation display. There are two rows of soft keys, upper and lower. The soft keys are illuminated to show available menu options, and flash when an operator response is required.

LCD Menu Display

The LCD display provides status information and displays the menu options associated with the Menu Soft Keys. Menu options are displayed immediately above or below the Soft Key used to select the option.

Project and Machine Control Keys

These Menu Keys provide access to the main project navigation functions, machine control, and autolocation menus. To activate the function displayed in blue, press and hold one of the three **BLUE** keys while pressing the menu key.

Automation Keys

These keys provide access to all automation functions.

Edit Target Keys

These keys modify the effect of each edit. For instance a **Cut** may be performed on a **Range**, a **Clip**, the **Head** of a clip or the **Tail** of a clip.

Transport Keys

The transport keys provide standard tape transport functions plus Jog/Shuttle selection and a range of play options under the **Play Menu**. To enter Record press the **Play** and **Record** keys together. Hold down the **Jog/Shuttle** key for a menu of Jog/Shuttle settings. Hold down the **Record** key for a menu of record options.

The QWERTY keyboard space bar can also be used to Play and Stop the transport.

Macro Keys

Macro keys can be programmed to play back sequences of keystrokes. There are three banks of nine macro keys.

Binnacle Editing Keys and Jog Wheel

The Binnacle is at the heart of Constellation 's advanced editing interface. Dedicated edit functions are associated with these keys. In addition to normal Jog/Shuttle transport operations, the jog wheel is used for zooming and parameter selection in soft menus.

Numeric and Track View Keys

The Numeric Keys are provided for entering timecode locations or parameter values. By pressing and holding one of the three **BLUE** keys, the Track View Keys select the number of tracks visible on the monitor track display. The **Clear** key can be used to clear numeric and text fields on the LCD menu and also to cancel dialogue box requests.

Edit Option Keys

The edit option keys modify the effect of each edit. An edit can be performed on **All Layers**, on a time **Range**, and can insert or delete time via **Razor** mode.

Trackball

The Trackball (or mouse) is used as a conventional pointing device for the on-screen graphical interface.

Many new mouse-based functions have been added to the user interface in Satellite-AV. All mouse-based functions will be described in context of their appropriate editing chapters.

Monitor Controls

These controls allow adjustment of the listening level in the studio and control room and the selection and configuration of the nine possible multiformat monitor sets. The monitor source can also be selected here.

Fader Section

The Fader Section provides a motorised touch sensitive linear fader for control of the level of the current signal path. Also included are Solo and Mute keys, Automation Enable, and bus Master and Fold keys.

Utility Function Keys

These keys offer useful functions such as Multitrim for controlling parameters across temporary groups of feeds or buses; Fader Copy for quick duplication of complete path configurations; and an oscillator for alignment and signal tracing.

Master Enable Keys

The Master Enable keys allow fast global parameter automation enabling. Individual parameters can be enabled independently on the Channel Panel.

Fader Set Selection Keys

The order in which faders appear on the control surface is completely user definable. Fader sets are user defined selections of faders. The operator can quickly switch between banks of faders using the fader set selection keys.

Multi-track busses + Display of MT assignments

This feature allows the user to allocate some of the system's bus elements to up to 24 mono multitrack busses on the Constellation.

This is accomplished by directly selecting the 'Multi Track' button in the 'Setup' section.

Path Configuration Section

The DREAM II Channel Panel provides complete display and control over all the parameters for a single path or group of paths. The Path Configuration Section can be used to define the order of signal processing elements within each path.

Dynamics Section

The Channel Panel dynamics section offers a complete set of user controls for the three fully featured dynamics modules on each signal path. All control changes may be written as automation data to be played back in real time.

EQ Section

The Channel Panel equaliser section provides dedicated control of the eight-band equaliser available on each signal path. All control parameters can be fully automated.

Surround Panner

The Panning section on the Channel Panel offers controls for all of the sophisticated panning operations available in the Constellation panning model. In addition to a traditional joystick interface for panning mono signals and link groups, the panning section allows high level spatial manipulation of complete surround mixes. The spread and rotate controls provide the ability to create radical changes in perspective with ease.

Auxiliary Sends

The auxiliary sends section of the Channel Panel provides access to the individual send levels and pre/post switching for any feed called to the Master Fader. Four discrete send controls are provided for the first four sends while the last eight sends share two sets of controls. All auxiliary send controls can be recorded as real time automation data.

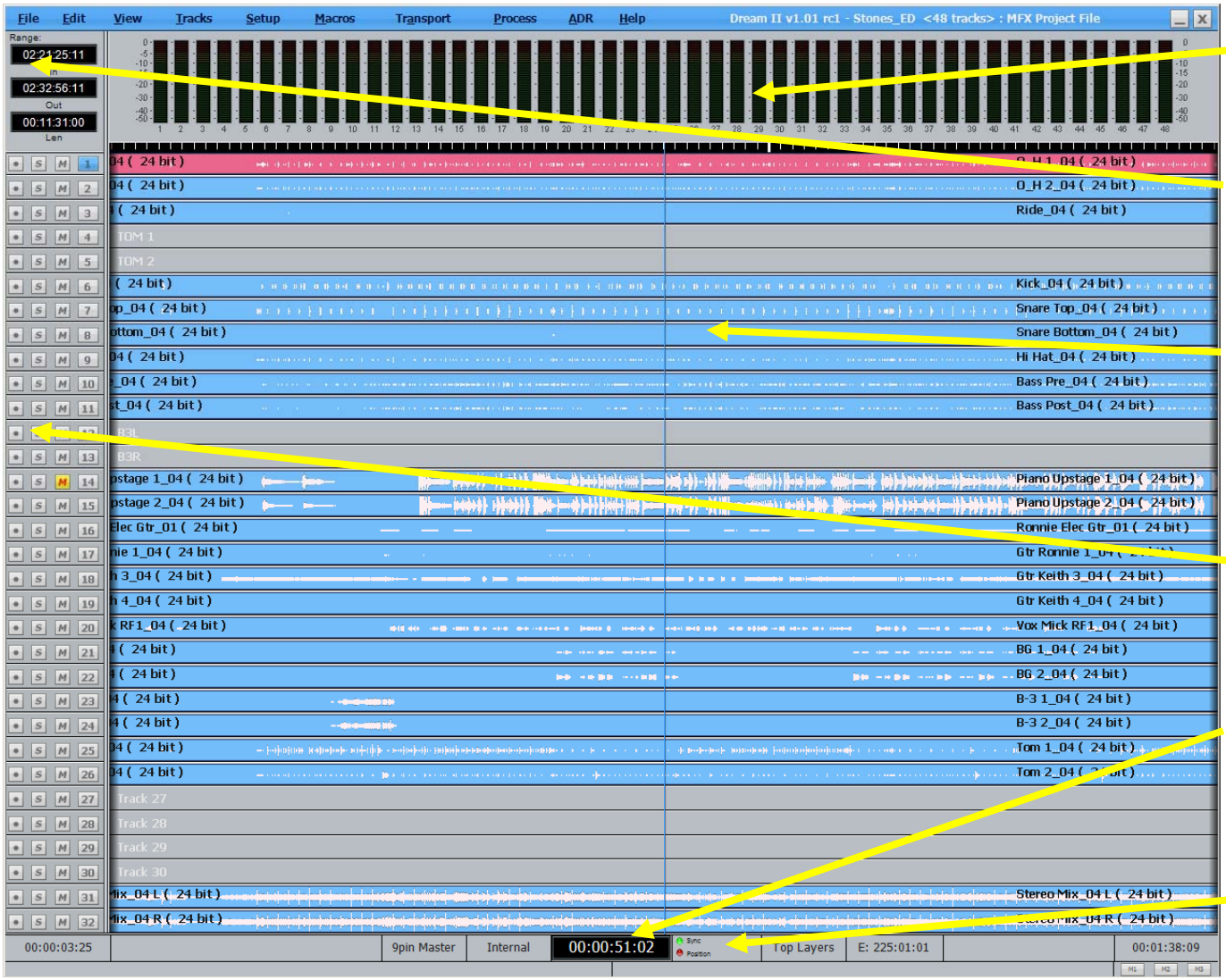
Fader Strip

Each DREAM II fader panel provides twelve complete fader strips. Faders can be configured to be displayed in any order as required, allowing the operator to remain in the mixing “sweet spot” while being in easy reach of all current feeds, groups or buses.

Each strip includes an automated LCD legend panel displaying details of the current feed or bus name, any current modifications to fader function and the currently selected parameter under control. A user definable soft pot and soft key provides ready access to often used parameters. Standard mute and solo button functions are provided. A touch sensitive, long throw motorised fader provides precise control over signal levels. An automation enable and extensive automation indicators keep the operator informed and in control of all mix operations. Further status indicators are provided for signal source and path configuration giving the operator a complete overview of each channel.

Recorder/Editor Display Features

The graphical display provides status information, clip and waveform display and visual feedback for editing functions.



Smart Pane

This area contains a number of different displays at different times. It may show Meters, Clip EQ parameters, Fade parameters, and so on. Each description of editing functions will include details of the Smart Pane display elements.

Range Display

This area contains three timecode values associated with Editing Ranges. They are, respectively, the Range In time, Range Out time, and Range duration. When Range is switched off, these numbers show the last range that was created, which can be restored by pressing the Range On key, or selecting the Range On command from the Edit Menu.

Track and Clip Area

This area shows a selection of the available tracks, and the audio clips on them. A complete description of all its functions is contained in the chapter on Editing.

Timecode Display

This line shows the timecode at the left and right of the screen, and also at the centre line (or Play Cursor position).

To the right of the timecode display are two lights which change colour as follows:

Sync – shows green if the system has a viable sync signal, otherwise red

Position – shows green if the system sees a viable position signal, such as timecode or 9-pin, otherwise red.

Status View

This area shows information such as the Project name, and status and alert messages from the system.

Mixer Display Features

The mixer display shows real-time status of fader levels for all track feeds, live feeds and buses, plus signal levels for the Main bus and the currently called signal path. Also shown is the path configuration for the current path displaying the status of all signal processing parameters. A path may be a single mono feed or a bus or multichannel surround format link group.

- Faders can be clicked and dragged with the mouse to change level.
- Faders can be double-clicked to set them to 0 dB.

Track Feed and Live Feed Channel Tiles

Each Track and Live Feed is represented with the track name and fader level, plus indicators for EQ, dynamics, insert, solo, solo defeat, and mute.

The parameter window within each channel tile provides a condensed display of the current settings of the Channel Panel for EQ, dynamics or pan.

- EQ – a graph displays the EQ transfer response.

- Dynamics - a simplified transfer function for compressor, limiter, expander, gate, and the various combinations of these can be displayed.

- Pan - a miniature display of the pan surround field with the red pan position is displayed. The pan position changes in real time.

Buses

The fader levels of the Main, sub and auxiliary buses are displayed. Signal level meters for the Main bus are also displayed.

Signal Path Display

The signal path display, or Fat Channel, shows a detailed display of the parameters for the currently called signal path. A signal path may be a mono live or track feed, a bus or a multichannel surround format link group which can be selected and modified from a single set of controls.

- The user and system names of the signal path are displayed at the top left. The input box at the left of the signal path, indicates the format or element name of the path and the user name and system name of the physical input from which it is patched
- The input meter shows the signal level at the input of the signal path.

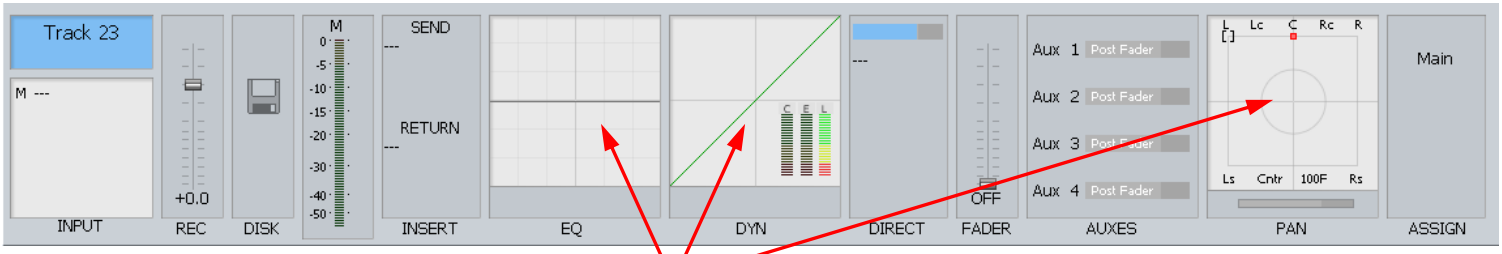
- If a track feed is selected, the input fader level is shown (this fader can be controlled from the **Faders To...** menu).
- The EQ display shows a graph of the equaliser response. The numeric values of the parameters currently being modified are displayed below the graph. If the equaliser is switched IN the graph is highlighted, if switched OUT the graph is dimmed.
- The dynamics display shows the composite transfer function of the entire dynamics section. The display also includes gain reduction signal meters for all three sections. The numeric values of the parameters currently being modified are displayed below the graph. If the dynamics are switched IN the graph is highlighted, if switched OUT the graph is dimmed.
- The insert send and receive I/O patching is displayed. If the insert is switched IN the insert display is highlighted, if switched OUT the display is dimmed.
- The main fader level for the signal path is displayed with a numeric display of the fader gain.
- The direct out level, pre/post status and output patching is displayed. If the direct out is switched ON the direct out display is highlighted, if switched OFF the display is dimmed. The direct out level is shown with a horizontal bar. If the direct out is switched ON the bar is yellow, if switched OFF the bar is violet. The section of the bar above 0dB of gain is shown in red.
- The Auxiliary bus display shows the status of each aux send. The send level is shown with a horizontal bar. If the send is switched ON the bar is yellow, if switched OFF the bar is violet. The section of the bar above 0dB of gain is shown in red.
- The pan display offers a sophisticated representation of the signal path panner. The display always shows a 7.1 sound field as the panning information for any path can be applied to any format bus to which it is assigned. The red circle indicates the current pan position. The white brackets show the current position of the joystick which must be moved over the red circle to capture control of the pan position. If a link group has been called, the pan display shows a red circle for the pan position of each member and a yellow circle for the position of the virtual link group master. When diverge is applied, a white circle represents the perceived image size.
- When a bus is called, the output box displays the output patching, showing each bus element and the user and system names of the physical outputs to which they are connected.

Zoom Panels

- Constellation features dedicated full Screen displays for the called Channel EQ, Dynamics, Aux, and Pan settings. These displays automatically 'pop-up' whenever a relevant control is touched.
- Users may define (in the menu <**BLUE**> Utils) the duration of the delay to enable the return to the main screen. Alternatively the screen may remain locked where multiple operations may be required for any given number of channels.
- There is a dedicated zoom key on the Constellation, and the display can be locked by hitting:
- <**BLUE**> Zoom

It is possible to see more detail when adjusting EQ, Dynamics and Pan control, using Zoom Panels. In particular, numeric values for all parameters are shown, and update as they are changed.

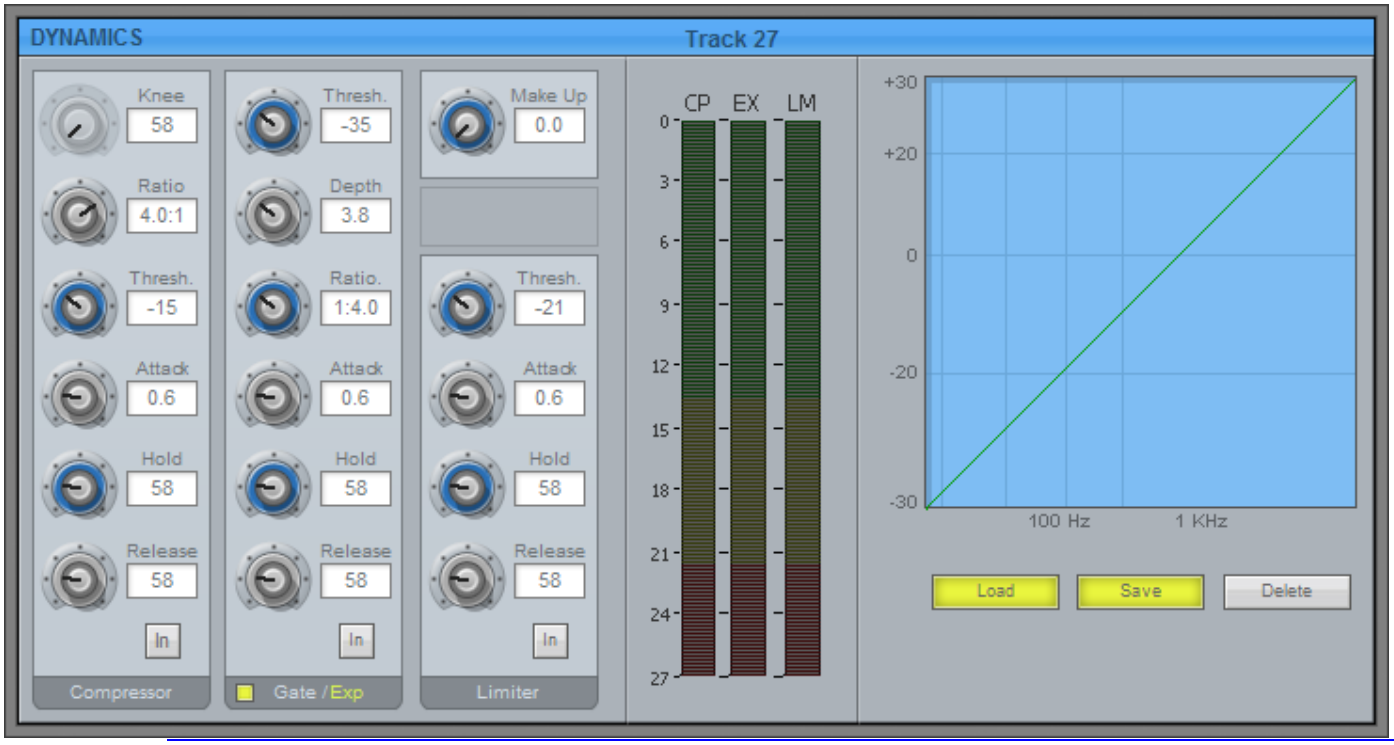
To display a zoom panel, you may also right click in the corresponding display in the Fat Channel.



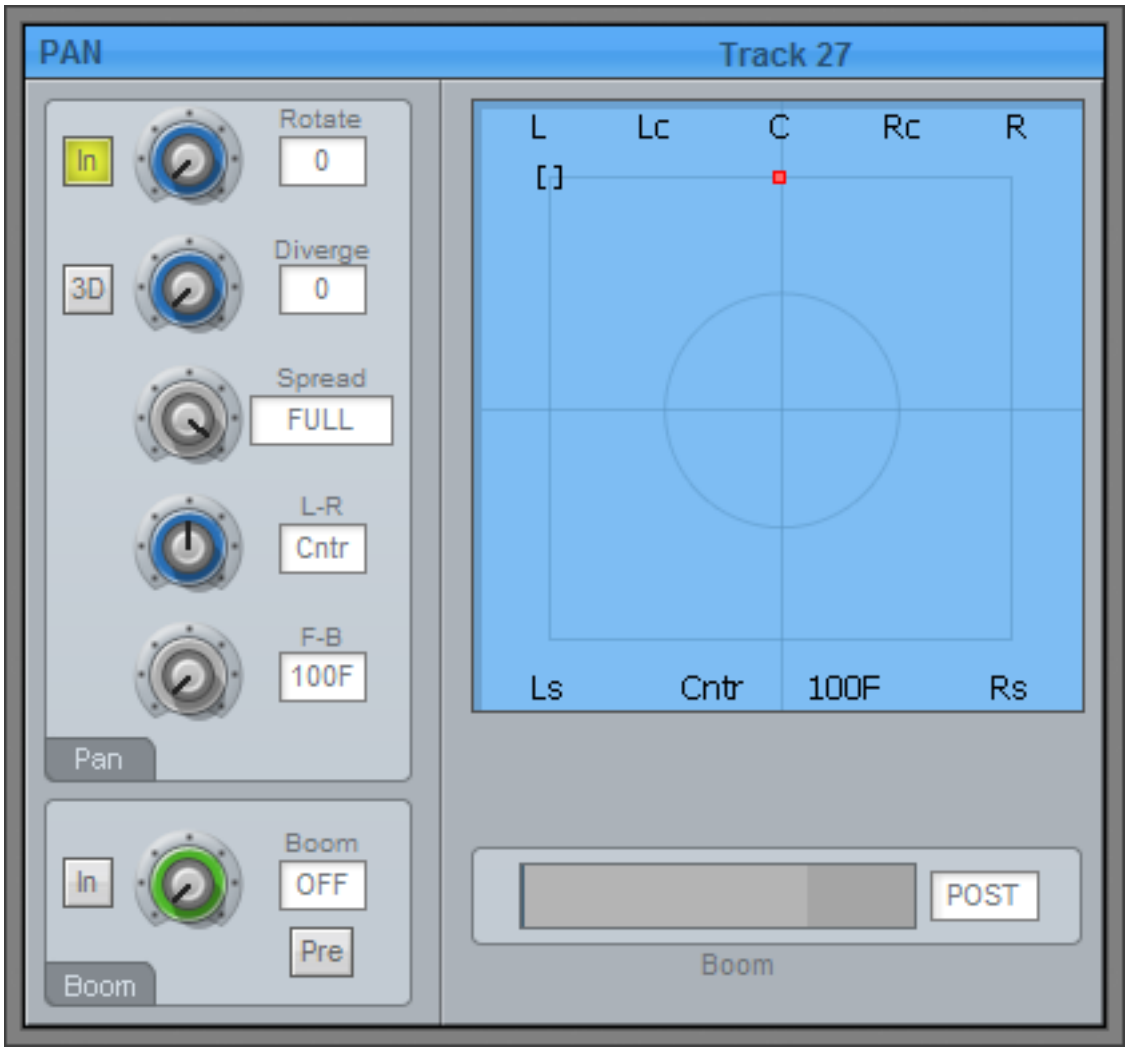
Right-Click here to display Zoom panels

The Equalizer Panel

The Dynamics Panel



The Pan Panel



Starting the System

Step 1 Start the host computer (PC) by turning on its power switch. The PC will boot the Windows XP operating system and display your PC desktop. Both video monitors should be powered up and displaying the Windows desktop.

Step 2 Power on the audio interface box(es) (SX-20 and one or more SX-48s). In most installations they can be left powered on all the time, and will "wake up" when the PC starts up and the CC-1 board initialises.

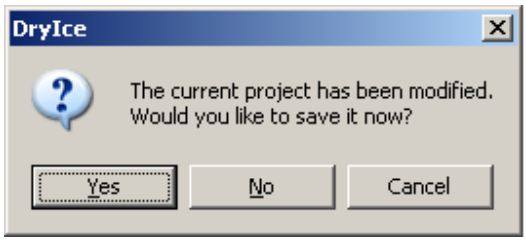
Step 3 Power on the Constellation-XT mixer surface.

Step 4 Start the Dream II application by double-clicking its desktop icon, or by selecting it in the Start Menu under the Fairlight group.
If the system is correctly configured, the FMC mixer application will also start automatically with Dream II.

System Shutdown

Step 1 Exit Dream II by selecting Exit from the File Menu, or by the keystroke combination Alt-F4 when Dream II is in focus (click anywhere on the editing screen to bring it into focus if necessary).

Step 2 If a project is open, the system will prompt you to save any changes that have occurred since it was opened.



Click Yes if you want to save the changes in the project. This may take a minute or so, during which a progress bar will grow in size.

Step 3 You may now power down the Constellation surface, and shut down your PC if desired. It is recommended that the audio interface boxes remain powered up unless you are dismantling the installation.

Using the System

Follow the instructions in the following chapters to quickly learn all the operating procedures necessary for completing audio production tasks with Constellation.

Chapter 3 - Projects

Introduction

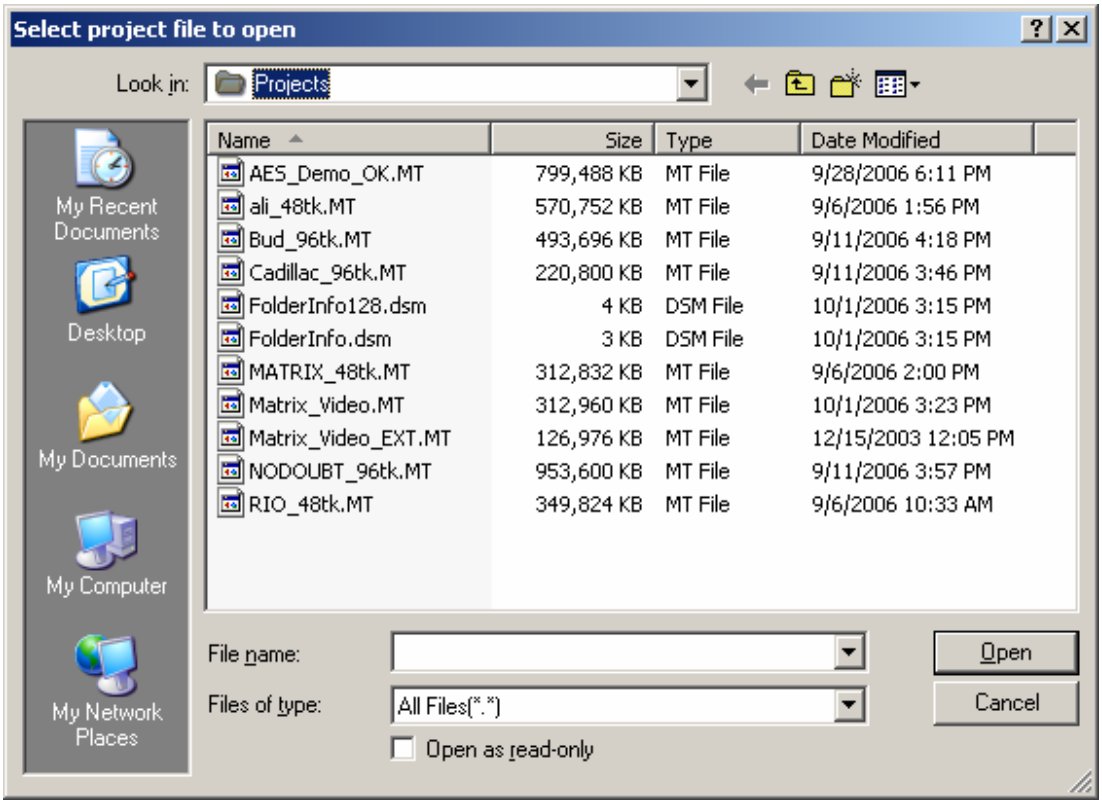
DREAM II uses 'Project' files to store your work. All audio recordings, editing and file imports are done within Projects. A project contains all the edit information, mixing, patching and automation data, plus DREAM II settings, as well as links to the audio and/or video files that have been incorporated into the project. Edits performed on the audio and video data are non-destructive and are represented by clips which refer to pieces of audio or video data.

As with other standard Windows applications, Projects must be saved to disk before being closed, or all changes since opening will be lost. Project files are given the `.MT` filename extension by default.

Opening a Project

Step 1 Select the Open command from the onscreen File Menu in the Editing screen. Alternatively you may press the Proj button in the DREAM II console, then click the Open command from the drop down menu in the Editing screen.

Step 2 The system displays a list of all the projects in the last folder you visited. If necessary, browse to other folders to see other projects that you may wish to open.



Step 3 Click on the name of the Project you wish to open, then click the Open button. The system will load all of the audio and reconnect to any external files that were used last time in the project.

Opening a Recent Project

DREAM II keeps a list of your most recent projects. To open one of these, click the File button, or press the Project key, to display the File Menu.

Your four most recent projects are shown at the bottom of the menu list. Simply click on one of them to open it again.

Opening Files Across the Network

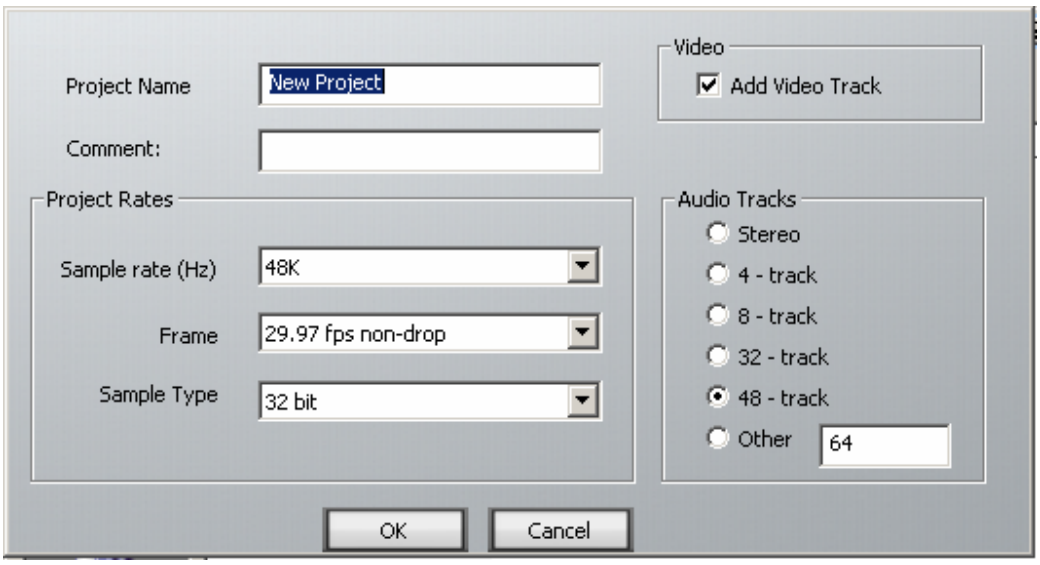
If your DREAM II system is part of a PC network, the system will allow you to open a Project located across that network, for example on a server. In this situation the number of tracks that can be played may be limited, depending on network bandwidth and other traffic. In addition, the response of the system may be slower than usual.

For best performance, it is always best to locate projects on the local hard drive in your DREAM II PC.

Creating a New Project

Step 1 Select the New command from the File Menu in the Editing screen. Alternatively you may press the Proj button in the DREAM II console, then click the New command from the drop down menu in the Editing screen.

Step 2 The system displays the New Project dialog.



Step 3 Fill in the form presented by the system.

Project Name	The name you enter here cannot be changed before saving the file, though it is possible to Save As under a different name. It is also possible to rename the project, as explained below.
Comment	Put any text in here for your convenience.
Sample rate	The system supports sample rates up to 96 kHz. The number you enter here can be changed in the Sync display up to the time of your first recording, but after that it is fixed for subsequent recordings.

Frame	The value you place here can be changed in the Sync display at any time afterwards. It should match the incoming timecode format for correct synchronisation.
Sample Type	The system supports sample depths of 16 or 24 bits. You can change this value at any time, affecting subsequent recordings. All previously recorded audio is played back at its recorded sample depth.
Video	Add Video Track. If this is checked the system will display a video track at the top of the track display.
Audio Tracks	Choose the number of tracks you would like in the project.

Step 3 Click OK to create the project.

Closing a Project

There is no explicit Close command. You may load or create a new project at any time, or simply shut down the system. Instructions for shutting down the system can be found in the section System Shutdown in Chapter 2.

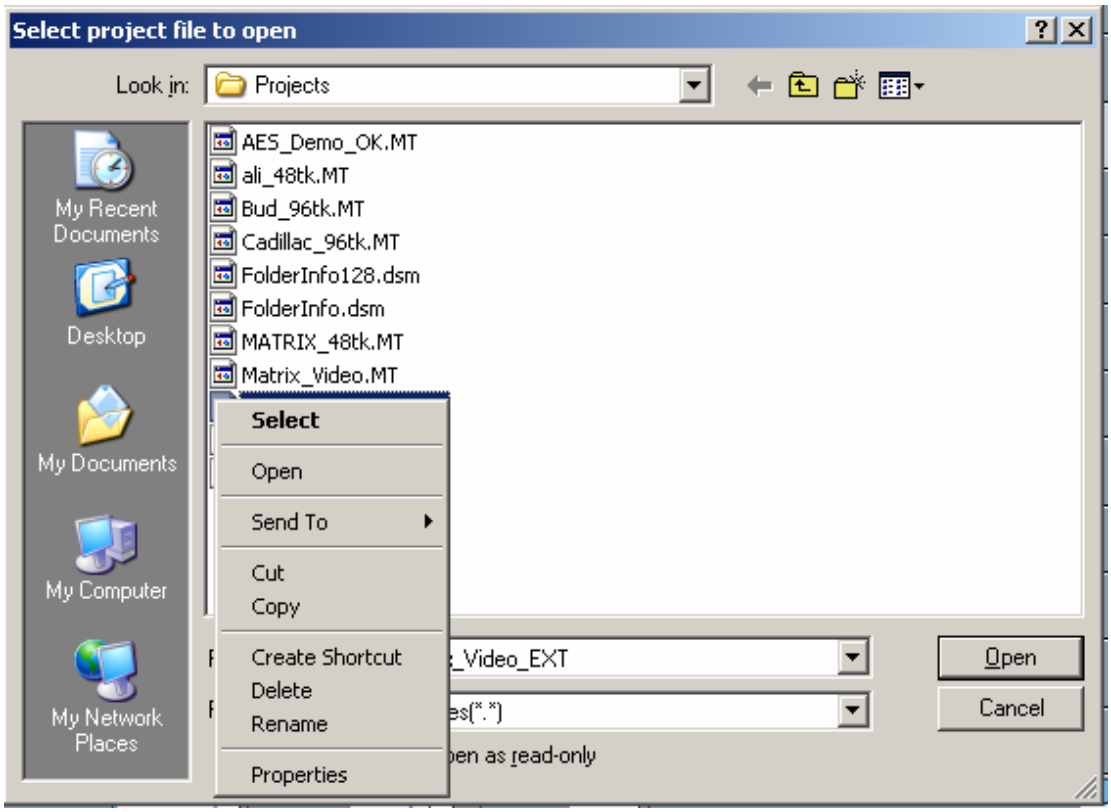
Note that, when opening or creating a new project, the system will prompt you to save the one that is already open (if any). This must be done for your recent changes to be saved.

Deleting Projects

A project can be deleted using Windows Explorer, like any other file. It is also possible to delete a file in the Open or Save dialogs, as follows:

Step 1 Select the Open or Save As command from the File Menu in the Editing screen.

Step 2 The system displays the appropriate dialog.



Step 3 Right-click on the file you wish to delete. The system will display a list of commands.

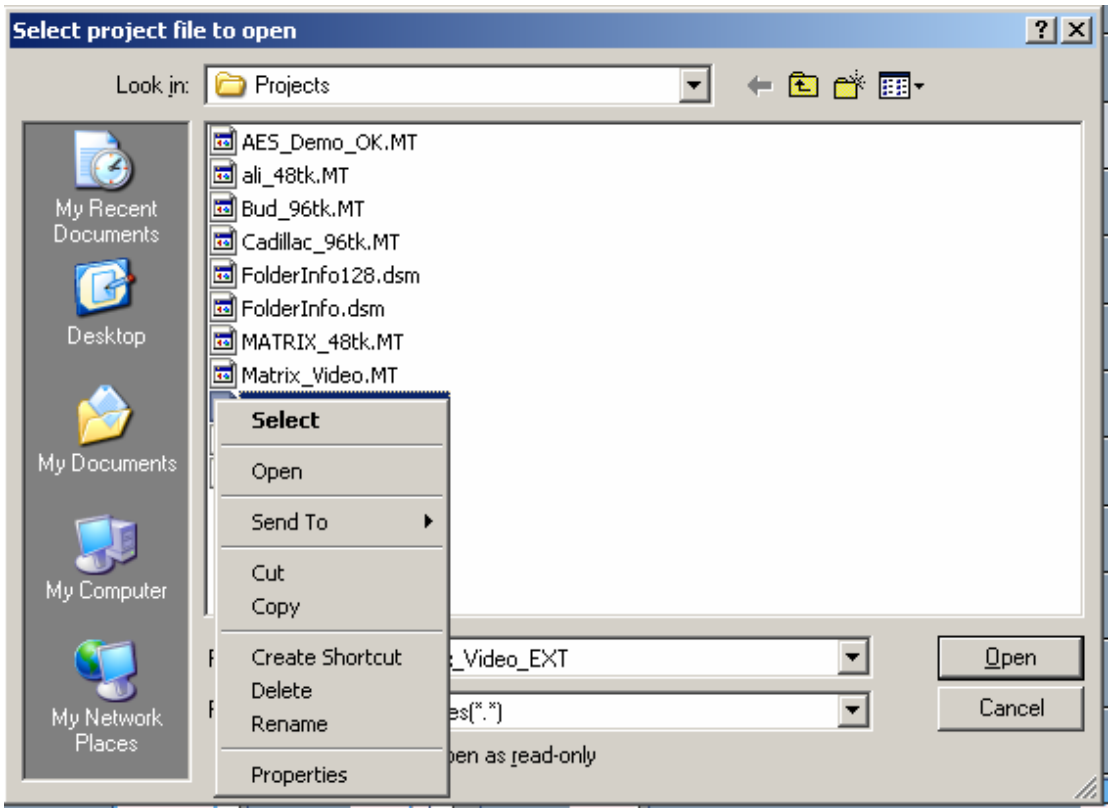
Step 4 Select delete from the list of commands. The system will ask you to confirm that you wish to delete the file.

Renaming Projects

A project can be renamed using Windows Explorer, like any other file. It is also possible to delete a file in the Open or Save dialogs, as follows:

Step 1 Select the Open or Save As command from the File Menu in the Editing screen.

Step 2 The system displays the appropriate dialog.



Step 3 Right-click on the file you wish to rename. The system will display a list of commands.

Step 4 Select rename from the list of commands. The system will highlight the current name of the file, allowing you to edit it. Press the ENTER key after editing, to confirm your new name for the project.

Chapter 4 - Tracks & Transport

Introduction

DREAM II provides up to 192 disk recorder tracks routed via dedicated track feeds. In addition to the track feeds DREAM II supports 96 live feeds which may be used for effects returns or any other real-time signal source. DREAM II supports up to 256 analog and digital inputs and outputs which may be patched to track feeds or buses as required (see "Patching and Assignment" on page 42 for more details on patching).

Displaying Tracks

Disk recorder tracks are displayed on the video screen. Select the number of tracks to display by holding down the **BLUE** key, and pressing one of the numeric keys labeled **1T**, **2T**, **4T**, **8T**, **16T**, **24T**, **32T** and **48T**. The most recently selected track always appears in the track display.

Step 1 Hold down the **BLUE** key

Step 2 Press the desired **Track Display** key

You can also select the desired track view in the onscreen View Menu, Tracks Submenu.

User Selection of Tracks

In addition to the track selections described above, you can display any number and selection of tracks, including discontiguous numbers. There are three User Sets, labelled U1, U2 and U3, which can be set and recalled at any time.

To create a User Set

Step 1 Hold down the **BLUE** key

Step 2 Press the **3**, **6** or **9** key, and hold it down.

Step 3 Select the tracks that you want in this set. Deselect tracks that you do not want in this set.

Step 4 Release the **3**, **6** or **9** key.

To access a User Set

Step 1 Hold down the **BLUE** key

Step 2 Press and release the **3**, **6** or **9** key.

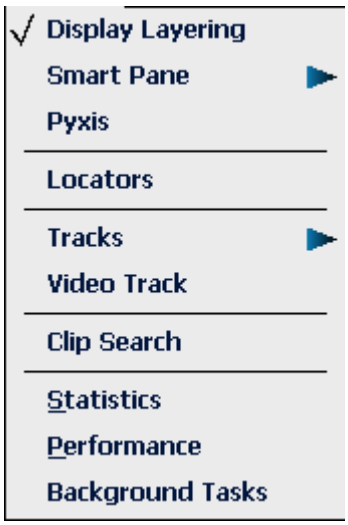
To return to a contiguous track set, simply select one.

NOTE: When a user set is displayed, the last-selected track does not automatically appear on screen.

The Clip

When audio is recorded or imported into Constellation it is displayed as a clip. The clip is a reference to the audio data stored on disk. Clips can be cut, copied or moved without affecting the original audio data.

When new clips are recorded or pasted above existing clips, the clips become layered one above the other. Normally only the top clip is seen and heard during play-back. DREAM II now allows all layers to be seen and heard simultaneously. To do this, use the BLUE + Takes key to toggle Display layering on or off, or select/deselect Display Layering in the onscreen View menu.

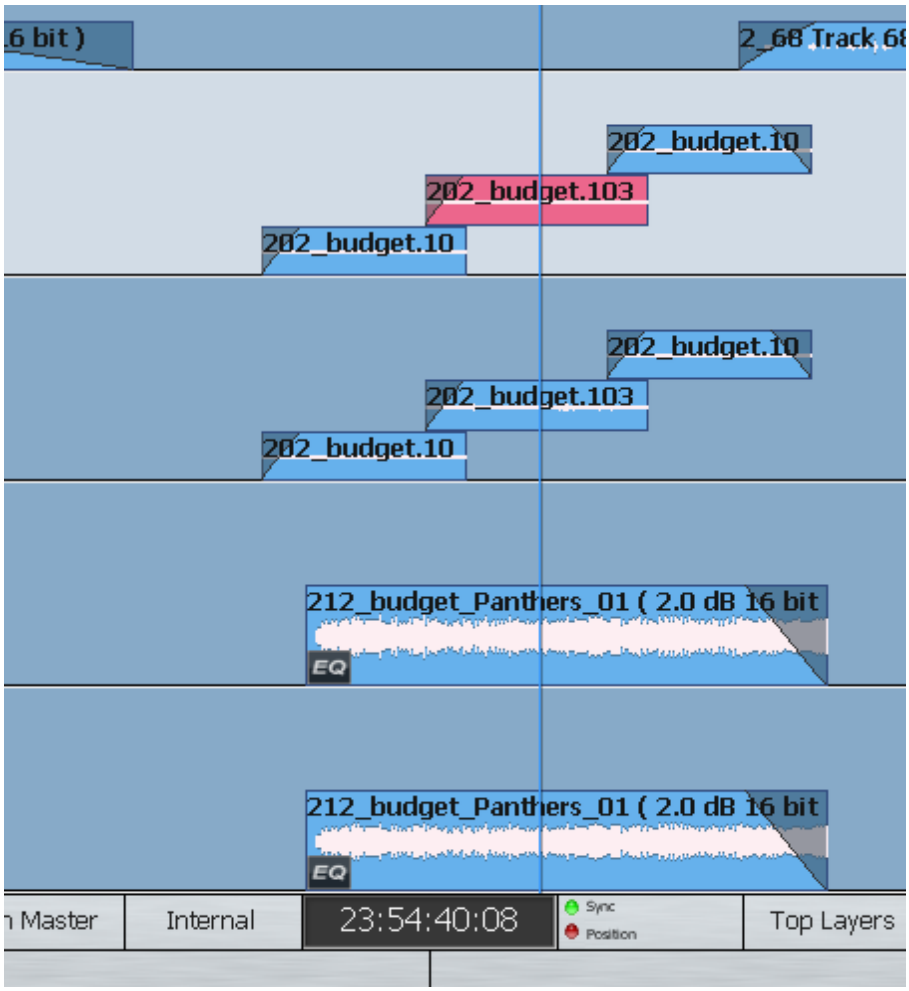


While Display Layering is on, you can drag clips from one layer to another using the mouse. This is described in more detail in Chapter 11 – Editing.

The left end of the clip is known as the head. The right end is the tail.

Clips also contain information about the original timecode location of the audio data when recorded, and the current timecode location of the displayed clip.

If a clip shows only a portion of the associated audio data on disk, it may be trimmed to show more.



Multichannel Clips

DREAM II adds the concept of 'Multichannel Clips'. Currently Multichannel clips are limited to Stereo for legacy compatibility. Multichannel clips are displayed with a link (chain) icon. You can create multichannel clips in the onscreen Edit menu. Once a clip has been defined as multichannel, operations on one channel of the clip (eg – EQ) affect all other channels. Multichannel status can be toggled on or off, allowing for independent control of each clip channel.

Selecting Tracks

DREAM II's Selection Panel has 48 dedicated Track Feed selection keys.

The feed selection keys perform different functions depending on the current mode of operation. The selection keys are used for selecting tracks for editing or mixing, creating groups, arming tracks and enabling automation.

Feeds may be grouped and linked in various formats. Selecting the Group Master or a member of a Link Group will select all members of the group. See "Grouping" on page 150 for more details on group behaviour.

In FOLLOW mode, the master fader selection follows the most recent edit track selection. FOLLOW is selected from the CALL menu by pressing the **Call** key. This is described in detail in "Faders" on page 73.

In the edit modes, selected tracks are highlighted on the video display and the track keys are illuminated.

Using Track Keys

Any DREAM II hardware controller provides quick and easy tactile track selection.

Press a dark track selection key to add that track to the selection.

Press a lit track selection to remove that track from the selection.

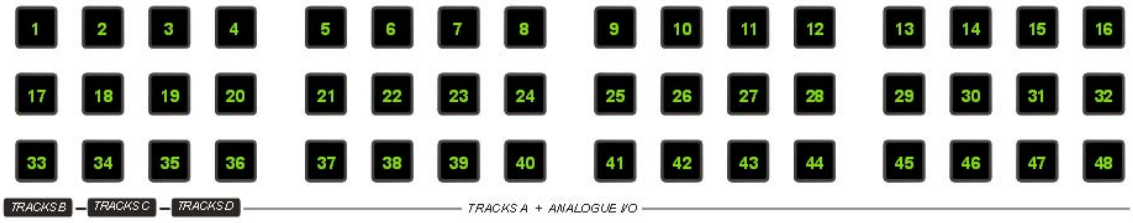
To select a range of tracks, press and hold down the first track select key and double click the last track selection key you wish to be active. All other selections will be deselected.

To select a single track, double click on the desired track selection key. All other selections will be deselected.

Selecting a track which is a member of a link group will select all tracks in the link group. To select an individual member of a link group, hold down the **BLUE** key and press the track selection key.

The track selection may also be changed by holding the **Track Sel** key, to the left of the jog wheel, and turning the jog wheel or pressing the **+** or **-** keys. This is useful for moving selections from one track to another.

The most recently selected track is always displayed.



TRACK BANK Key

The TRACK BANK key is used to switch between two banks of 48 tracks, making up the maximum total of 96. It affects both the track selection keys and the tracks displayed on the Edit Screen.

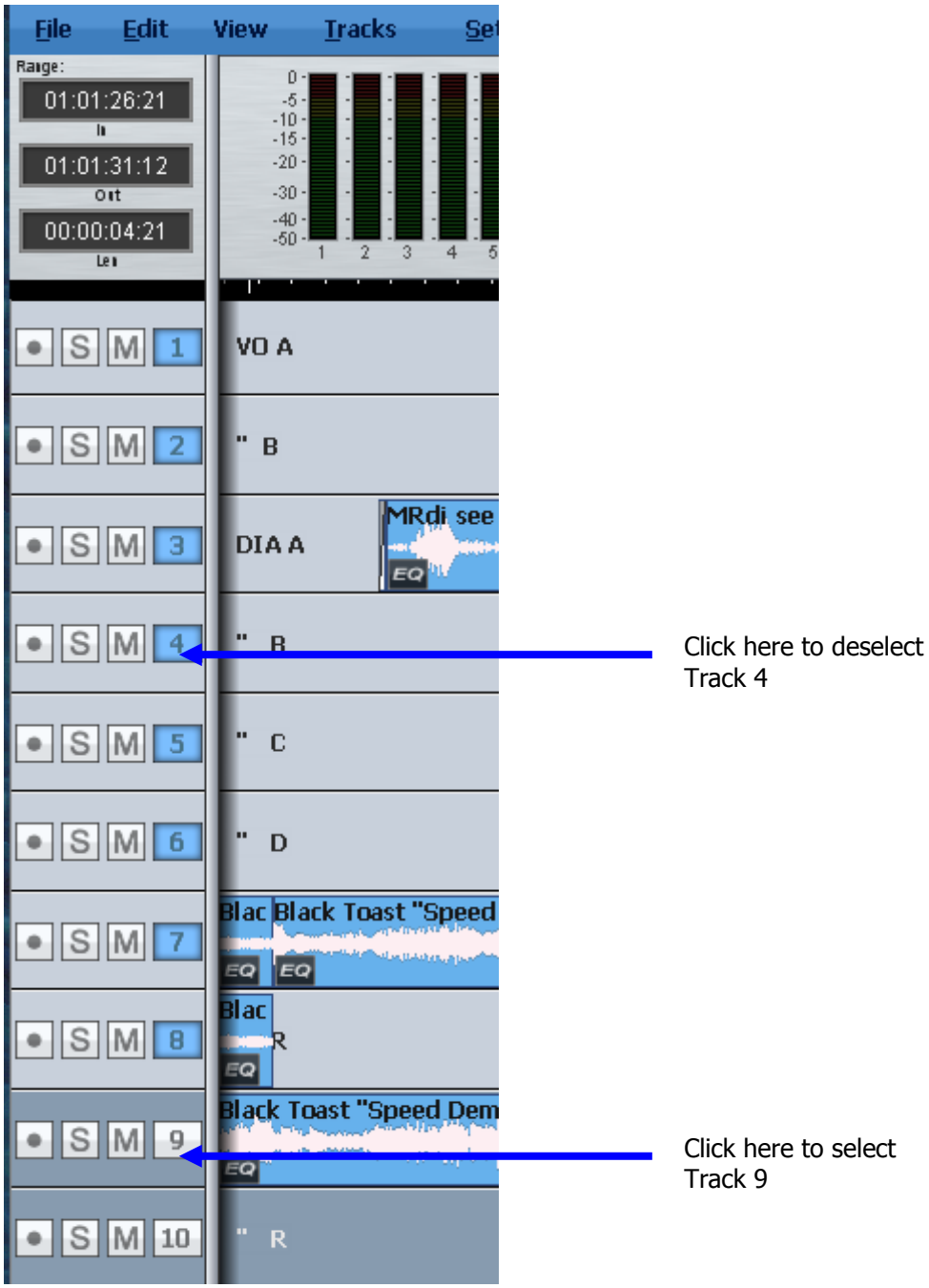
To use it, hold down the TRACK BANK key, then press one of the LCD Soft Keys.

Using the Mouse

Press a dark onscreen track selection key to add that track to the selection.

Press a lit onscreen track selection to remove that track from the selection.

Click and drag your mouse in the onscreen track selection pane to select/deselect multiple tracks.



To select a single track, double click its number. All other tracks will be deselected.

Another way of selecting a track is to ctrl-click on a clip. This cannot be used to deselect a track. Ctrl-clicking will also select the clip, and create a range (or extend the current one) to include that clip.

Note: the mouse can also be used to:

- Mute or unmute a track – click the M
- Solo or unsolo a track – click the S
- Arm or disarm a track – click the button at left

Time Scale and Display Zooming

The track display represents a 24 hour continuous loop. The timescale can be zoomed from a twelve frame display to an eleven hour display.

At all times, the cursor position indicates the current play point.

Step 1 Hold down the **Zoom** Binnacle key

Step 2 Turn the jogger wheel to zoom in and out

The Mouse wheel can also be used to zoom the display.

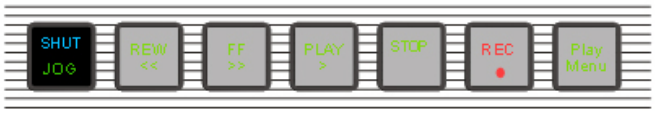
Sub-frames can be toggled on or off by holding down the **BLUE** key and pressing the **SUBF** key on the numeric keypad.

Track display selection and zooming is possible while playing and recording.

Transport Controls

The **PLAY**, **STOP**, **FF** and **REW** controls work in a similar manner to a tape machine. An additional feature is increasing the fast-forward and rewind speeds by pressing the respective keys multiple times. This accelerates through 8, 24, 60, 150 and 360 times play speed.

To enter record press the **REC** and **PLAY** keys together.



The play command can be accessed also by pressing the **PLAY** key on the Binnacle. See the chapter on "Editing" on page 124 for more details.

The Space bar on the QWERTY keyboard can also be used to toggle the transport between Play and Stop.

More Jog Commands

Pressing the **JOG** key when stopped enters the Jog mode.

Jog mode can also be accessed by pressing the **Play/Jog** key on the Binnacle.

Holding the **BLUE** key while jogging increases the jog speed by four times.

Mouse "Jogging"

The mouse can also be used to move the transport. Simply right-click anywhere and drag horizontally to move the transport. Audio is not heard while this takes place.

Shuttle

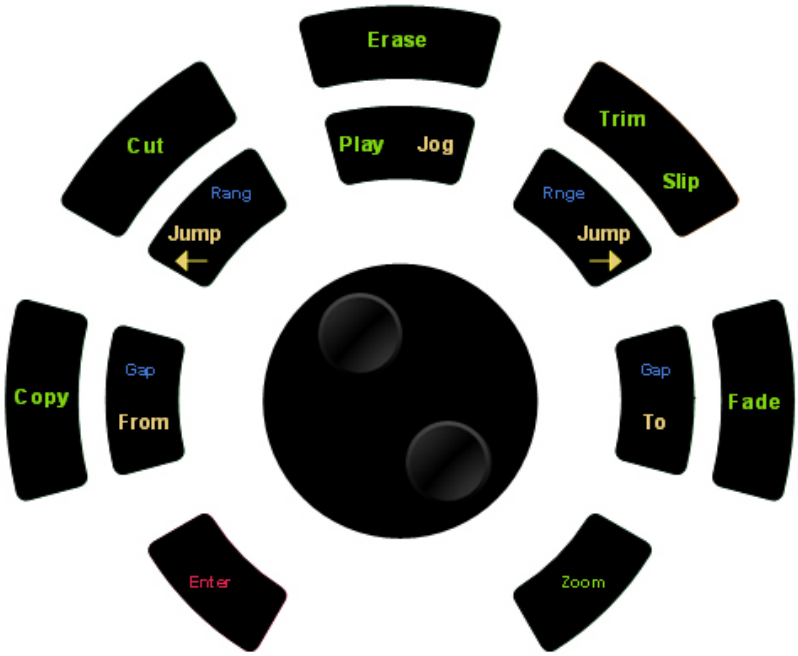
To shuttle the transport, hold down the **BLUE** key and press **JOG/SHUT**. The jogger wheel will then increase and decrease the transport velocity in forward and reverse.

Press the **FF** or **REW** keys to reverse the shuttle direction. To play at normal speed in reverse, press **PLAY**, hold down the **BLUE** key and press **JOG/SHUT**, then press **REW**.

Jump

The **Jump** keys provide a fast method of locating forwards and backwards through a Project.

The **Jump** keys are located on the Binnacle, left and right of the **Play/Jog** key.



Jump Methods

Holding down one of the **Jump** keys displays the Jump menu in the lower Constellation display.

POINT	The transport will locate to the head, tail, sync point or fade point(s) of a clip on the selected track or tracks.
MARK	The transport will locate to the next mark.

Selecting one or both of these menu items will take effect when the **Jump** key is released, and will remain as the jump method until a different method is selected.

If both Point and Mark are selected, the transport will stop at all the places mentioned above.

NOTES:

1. The sync point of a clip defaults to the head of a clip unless changed with the Edit menu, using the Set Sync Point command, or using the `{sync point}` soft key in the Binnacle Trim mode.
2. Jump to point will only work on selected tracks.
3. Holding down the Shift key and pressing a Jump key will override the Jump Menu and jump to point. Holding down the Ctrl key and pressing a Jump key will override the Jump Menu and jump to mark.
4. Holding down the BLUE key and pressing either Jump key will locate the transport to the start or end of the Range.

Keyboard Jumps

Pressing the Left Arrow and Right Arrow keys on the QWERTY keyboard has the same effect as pressing the left and right Jump keys.

Locator functions

Rapid navigation through the project is achieved by using the GO TO menu functions and by making MARKS on the time-line. For more information see "Go To" on page 182 and "Marks" on page 212.

Selecting a Range

A Range allows a group of clips across one (or multiple tracks) to be selected. Many functions provided by Constellation-XT require the use of a Range. Use the **From** and **To** keys on either side of the Jog wheel to set ranges. Range mode may be turned on or off by pressing the **Range ON** key, to the right of the Binnacle.

Selecting a Range using Cursor Position

Step 1 Locate to the time at which you wish to start the range.

Step 2 Press the **From** key. (Some functions start with FROM automatically).

Step 3 Locate to the time at which you wish to end the range.

Step 4 Press the **To** key.

The duration of the range is indicated on the screen time display above the track display, and the range is high-lighted on the track display.

Many functions start making a range as soon as you enter the function. To change the FROM point, just press the **From** key at any time.

Range Menu

To access the Range menu options, press and hold either the **From** or **To** key and select the desired menu option by pressing the associated soft key.

The following functions operate the same for both **From** and **To**:

TIME	Enter a timecode value using the numeric keypad and press **Enter**. Alternatively, use the jog wheel or **Jump** keys to adjust the range independent of the play position.
MARK	Select a mark by turning the Jog wheel and pressing **Enter**, or by pressing one of the flashing selection keys which represent previously entered marks. See "Marks" on page 209.
LAST	The last FROM or TO point is used, this recovers the previous range and is the same as pressing the **Range ON** key.
PROJECT HEAD/TAIL	Sets the FROM or TO points to the Project Head or Project Tail marks which mark the first and last positions at which audio has been recorded, or clips are placed.

Jumping to Range ends

Holding down the **BLUE** key and pressing either **Jump** key will locate the transport to the start or end of the Range.

Setting a Range With the Mouse

The mouse can be used to set a range. To do this, click in a part of a track where there is no clip, then drag the mouse to another timecode and release it. The time swept out by the mouse will become the new range.

To remove a range, click where there is no clip, and the range will disappear.

Selecting Clips with the Mouse

Clicking on a clip while holding down the Ctrl key on the QWERTY or the BLUE key on the DREAM II controller keyboard causes the clip to be selected (or deselected if it was already selected). In addition, a range is created, exactly large enough to contain all clips that were already selected, plus the one just clicked.

The newly created range does not, however, select any clips that were not previously selected, other than the one just clicked. Put more simply, Ctrl-clicking a clip adds to the selection without selecting any other clips.

Similarly, a clip that was already selected can be deselected by Ctrl-clicking, as long as it is within a range.

Combining the Mouse and DREAM II Controller

It is often useful to combine the DREAM II controller and Mouse for fast, complex operations. For example, a range may be selected using the Transport Controls and From and To keys. Then individual clips within the selected range can be deselected using the mouse. Many useful combinations are possible, limited only by your imagination and personal preference.

Play Menu

The Play Menu enables soft key selection of various transport selections.

Step 1 Press the **Play Menu** transport key.

Step 2 Press the desired soft key function.

All the Play Menu functions except `{again}`, preroll the transport by one second:

`again`	Plays from the same place the transport last went into play. No additional preroll is applied.

Chapter 5 - Patching and Assignment

Introduction

Before any recording, editing or mixing can be performed on Constellation-XT, the system must be configured and input signals patched to feeds, feeds to buses, and buses to outputs.

Setting up Your Control Room Monitors

If this is the first time your Constellation-XT has been used you will first need to set up and patch your control room monitors. See "Monitoring" on page 63 for instructions on patching and using your monitors with Constellation.

Some Terms

Patching

Patching means connecting signal paths – the output of one to the input of another. It can be accomplished as follows:

- Use the Patch I/O screen if you are new to the system, don't change patching very often, or don't use the system very often.
- Use the Selection Panel if you are an experienced user or plan to become one. It takes some time to learn, but it's faster for many operations.

Assignment

Assignment means sending signals to Buses, where they are collected and mixed. This is accomplished as follows:

- Use the Bus Assign menu to assign a lot of signals to one bus.

- Use the Mixer screen Virtual channel display to see and change all the bus assignments for one feed. This can also be done using the Path Configuration buttons.
- Use the Stem Assign menu when you want to assign a signal to some Bus Elements and not others.

Patching Methods

Constellation offers several different patching methods, summarised in the following paragraphs. All methods can be used at the same time.

Patching with the I/O screen

In this method, signal paths and physical inputs are shown on the mixer screen, and can be selected by touch. It has the advantage that the signal path labels, such as "CD Left" or "Reverb Ret 2", can be seen and readily chosen. It also provides exactly the same method for insert sends and returns as for other signal paths.

NOTE: Most new users will find this patching method easier.

Patching with the Selection Panel

In this method, signal paths and physical inputs are selected on the Selection Panel, using buttons. It has the advantage of speed, particularly when patching groups of signal paths.

Feeds are selected by pressing one or more of the selection keys at the top of Constellation. These keys are also used to display and select the associated inputs and outputs during patching operations.

Buses are selected by pressing one of the bus selection keys. Individual bus elements are selected by pressing one or more of the illuminated speaker mute buttons at the left of the selection keys.

In general, patching procedures require the operator to first select the destination, then select the source

Fast patching with the Path Configuration buttons

Fast patching targets a single signal path, so it is simple to operate.

Using the Patch I/O Screen

The following basic steps are used to patch any signal to any other.

Step 1 Press the **Patch I/O** key. The system displays the Patch I/O screen.

Step 2 Select a Source (see below).

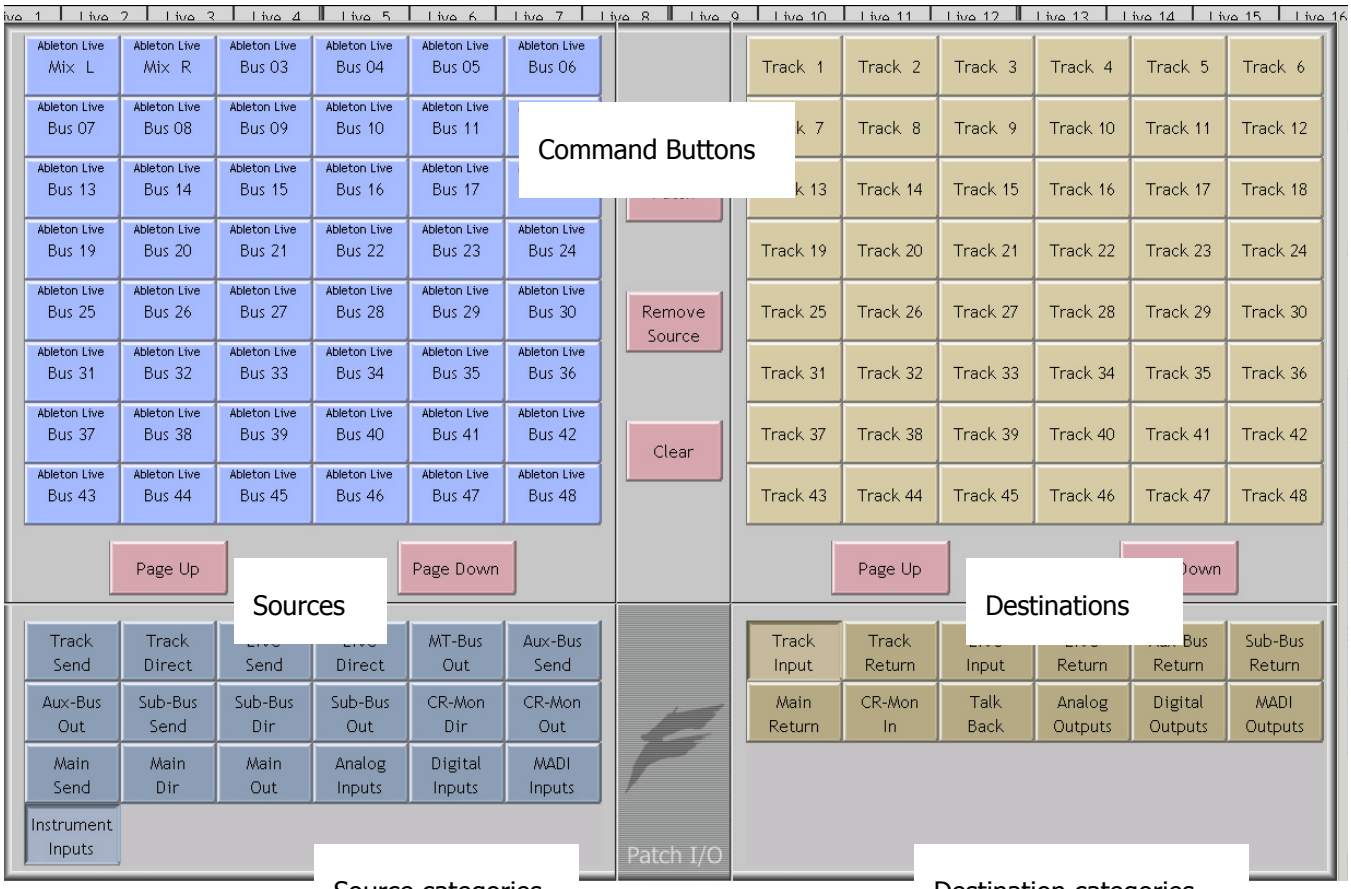
Step 3 Select a destination (see below)

Step 4 Touch (or click) the **Patch** button on the screen.

The Patch I/O Screen

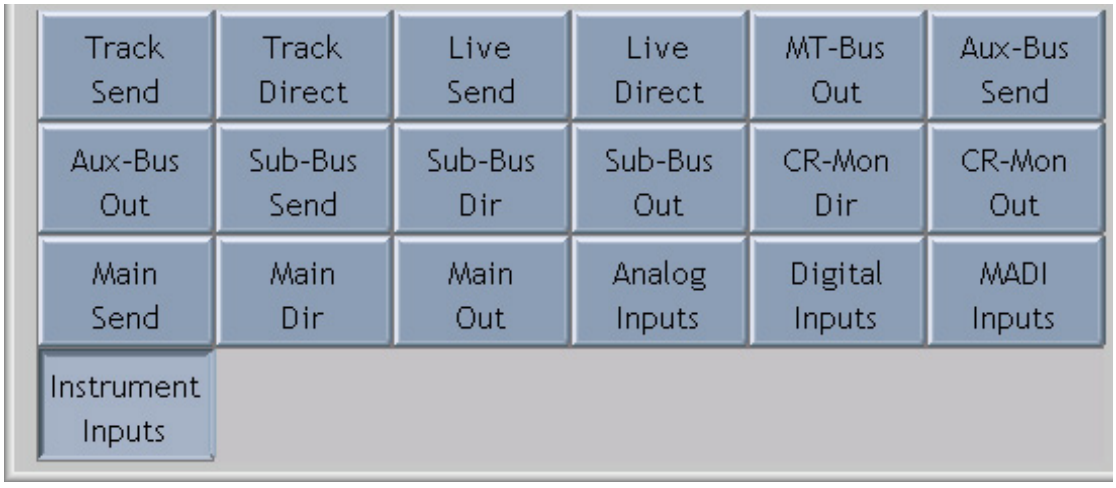
All patching operations can be carried out on the Patch I/O screen, which is used to represent the physical inputs, outputs and signal paths being patched together. This is automatically shown when the Patch I/O button is pressed. You can force its display by typing <SHIFT-Pause|Break> and then P.

Sources are shown on the left of the screen, while destinations are shown at the right.



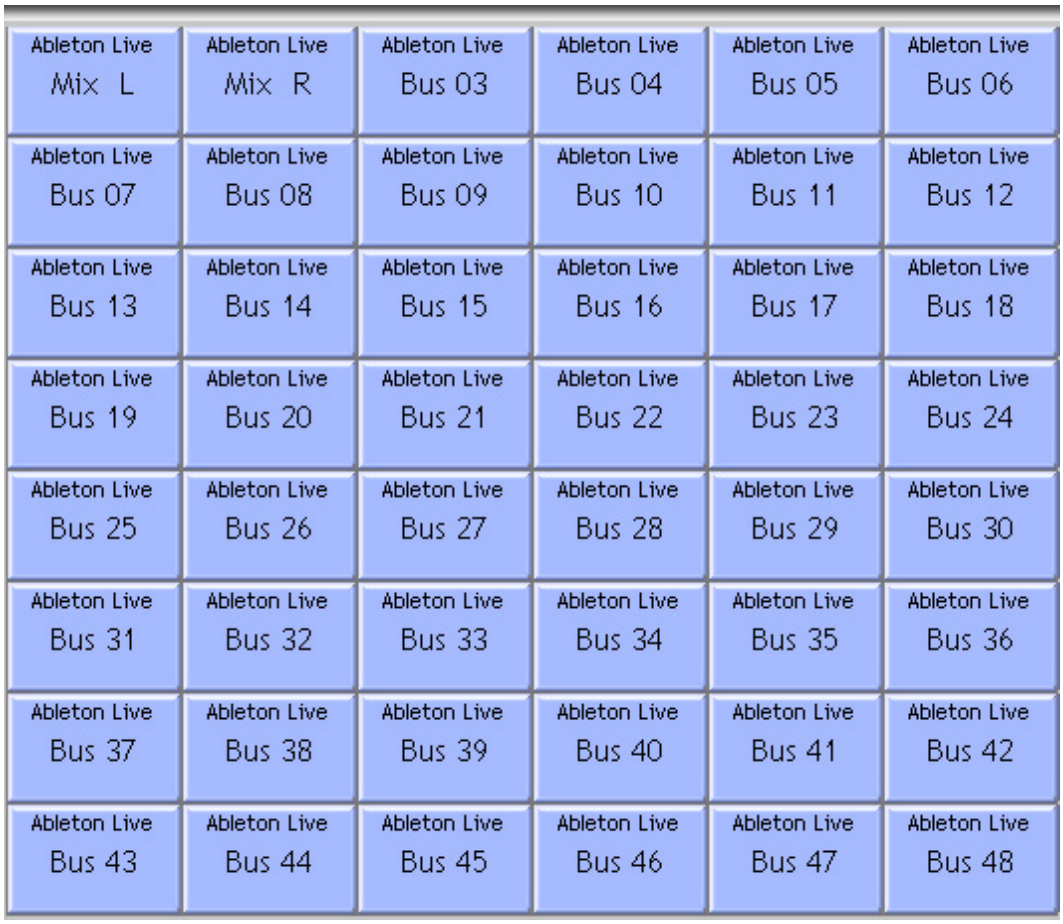
Signal Path

Categories of signal paths are selected in the lower part of the screen.



Source categories

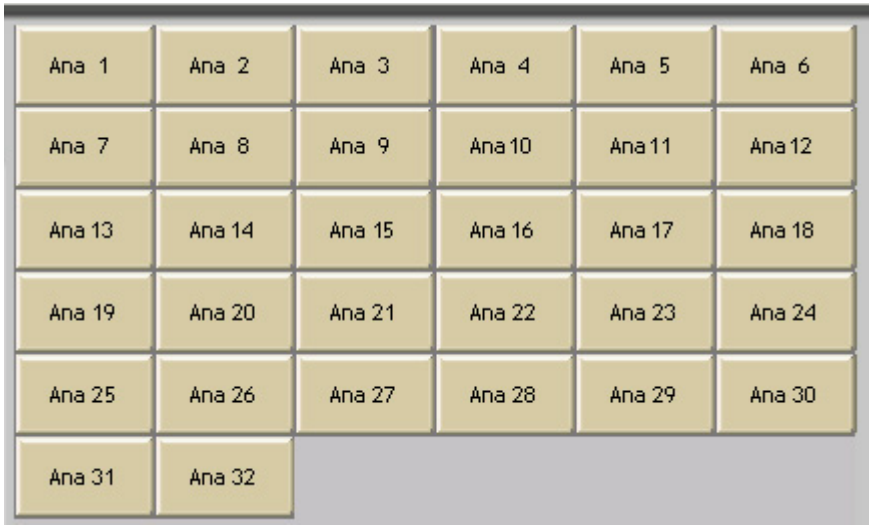
Selecting a category of sources expands the category in the upper left of the screen.



In this case the Rewire outputs have been selected.

Destination categories

Selecting a category of destinations expands it into the upper right of the screen.

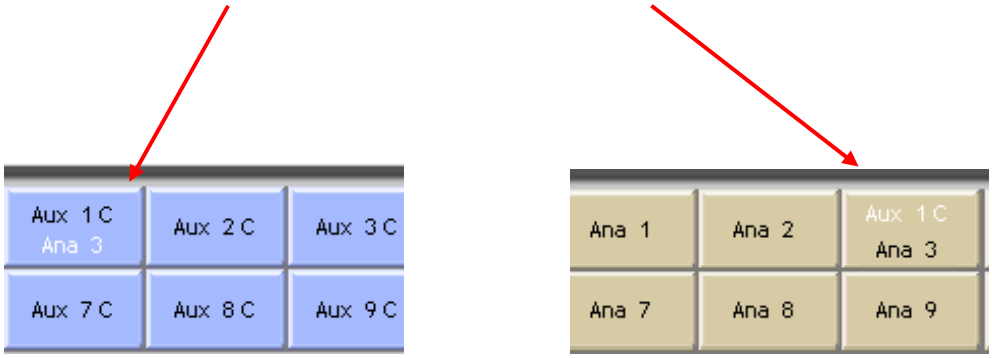


In this case the analog outputs are shown.

Making a Patch

Select a source and a destination (e.g. Aux 1 C and Ana 3) then touch the Patch button in the center.

Afterwards the tiles used in the patch will show the results. Source is always shown above destination.



Notes:

You can select multiple sources and multiple destinations and patch them all with one command. For example, select Analog Inputs 1 to 8 and Track Inputs 9-16, then click the Patch command once.

Any source can be patched to any destination. For example a Bus Element can be patched to a Track Input, for recording purposes. To illustrate, select the Category Sub-Bus Out (the outputs of all the Sub Busses.) The expanded view will show the Sub-Bus elements separately, and they can be selected and patched to track inputs for recording.

To deselect all the signal paths you have selected, touch the Clear button.

What are the Categories?

Each category name has two parts. The first part can be

Track – a recording track

Live – a Live Feed, which is a full-featured channel bringing audio directly to

a bus

Main – the Main mix bus

MT-Bus – a Multi-track bus, as used in traditional mixing systems

Sub-Bus – a multi-Element bus used for extra mixing functions

Aux-Bus – a mono or stereo bus, tied to the Auxiliary sends on the channels

Mon – shows the elements of the Control Room and Studio monitor paths

Analog – an analog physical input or output

Digital – an AES-EBU physical input or output

MADI – a MADI physical input or output

The second part can be:

In – the input of a signal path (not a physical input)

Out – the output of a signal path (not a physical output)

Direct – each signal can have a Direct Output

Send – Insert Send from a signal path

Return – Insert Return to a signal path

Talkback – the Talkback system – shows Comm1 and Comm2

Inputs – physical inputs (analog or digital)

Outputs – physical outputs (analog or digital)

So, for example Analog Inputs means the physical analog input ports, while Aux-Bus Send means the Insert Sends from the Aux Busses.

Patching Using the Selection Panel

When using the Selection Panel, slightly different techniques are used, depending on the type of signal path being patched. Note that all patching operations can also be achieved using the Patch I/O screen (see above).

Patching Inputs

Each Track Feed, Live Feed can be fed from a physical input or a Bus Element.

Patching a physical input to a signal path means connecting the audio at the physical input to the input of the signal path.

Live Feed	Connects the input directly to the destination bus of the feed (a Live Feed without an input cannot make any sound). Live Feeds are used for effects returns, microphone signals or other real-time inputs for mixing.
Track Feed	When a disk recorder track is armed an input can be recorded on to the track and monitored through it. During mix down the disk recorder track is played back and mixed to a bus through the Track Feed.

Feeds are inherently mono although they can be linked into multiformat Link Groups as described in "Link Groups" on page 150.

Physical inputs can also be patched to Insert Returns. This is done in the Insert Config Menu, which is described later in this chapter.

Patch Interrogation

While input patching operations are in progress, the track and live selection keys are used to represent the physical inputs as described in the procedures below. The following convention for feed selection key and bus key illumination provides information on the current status of the patching:

- Inputs not currently patched to the selected feeds - Dimly Lit
- Inputs currently patched to the selected feeds - Brightly Lit
- Inputs currently patched to other feeds - Flashing Off to Dim
- Inputs not installed - Unlit
- Buses not currently patched to any feeds - Dimly Lit
- Buses patched to the currently selected feeds - Brightly Lit
- Buses patched to feeds other than those currently selected - Flashing Off to Dim

Analog And Digital Inputs

Physical inputs are numbered 1 to 64 Analog and 1 to 64 Digital, of which the latter can be further extended to include1 to 64 AES/EBU and 1 to 256 MADI. During patching the Digital Inputs are represented by the Live Feed keys, and the Analog Inputs by the Track Feed Keys.

Patching Physical Inputs To Feeds

The patching procedure requires the operator to first select the destination(s), then select the source(s). To patch physical inputs to Feeds:

Step 1 Press the Patch I/O key.

Step 2 Select the destination feeds using the Track Feed and/or Live Feed keys in the Selection Panel (or you can use the feeds already selected).

Step 3 Press the `{patch}` soft key.

Step 4 If you want to use digital inputs, use the digital input type soft key `{AES/MADI}` to select the type.

Step 5 If you want to use inputs above 48, press a soft key to select the range: 49-96, 97-144, 145-192

Step 6 Select any number of physical inputs by holding one down, then optionally selecting others, or double pressing the last in a range, before releasing the original.

The physical inputs are patched to the feeds successively until the feeds are all used. If the physical inputs are all used before the feeds are, then patching starts again from the first physical input.

For example, selecting only one input will cause it to be patched to all selected Feeds. Selecting two inputs will cause them to be alternately patched to the selected feeds.

If any of the inputs are used elsewhere, you will be asked to share, remove or replace.

Fast Patching Inputs From the Path Configuration Panel

Step 1 Press the **Call** key to enter call mode.

Step 2 Press a feed on the selection panel to call the feed to the Channel Panel.

Step 3 Press and hold the **Input Patch** key on the Path Configuration Section.

Press the {AES/MADI} soft keys to select the desired digital input type, if using digital inputs.

Inputs of the selected type already assigned to the selected feed are brightly lit.
Inputs that are available for patching are illuminated dim.
Inputs assigned to other feeds flash between off and dim illumination.
Inputs that are not installed are not illuminated and cannot be selected.

Step 4 Press a live or track selection key to select a new input for the path.

Input Gain and Phase

Analog and Digital inputs can have digital gain or attenuation, and phase reversal applied at the input. Inputs are selected by first selecting the signal paths that they are patched to.

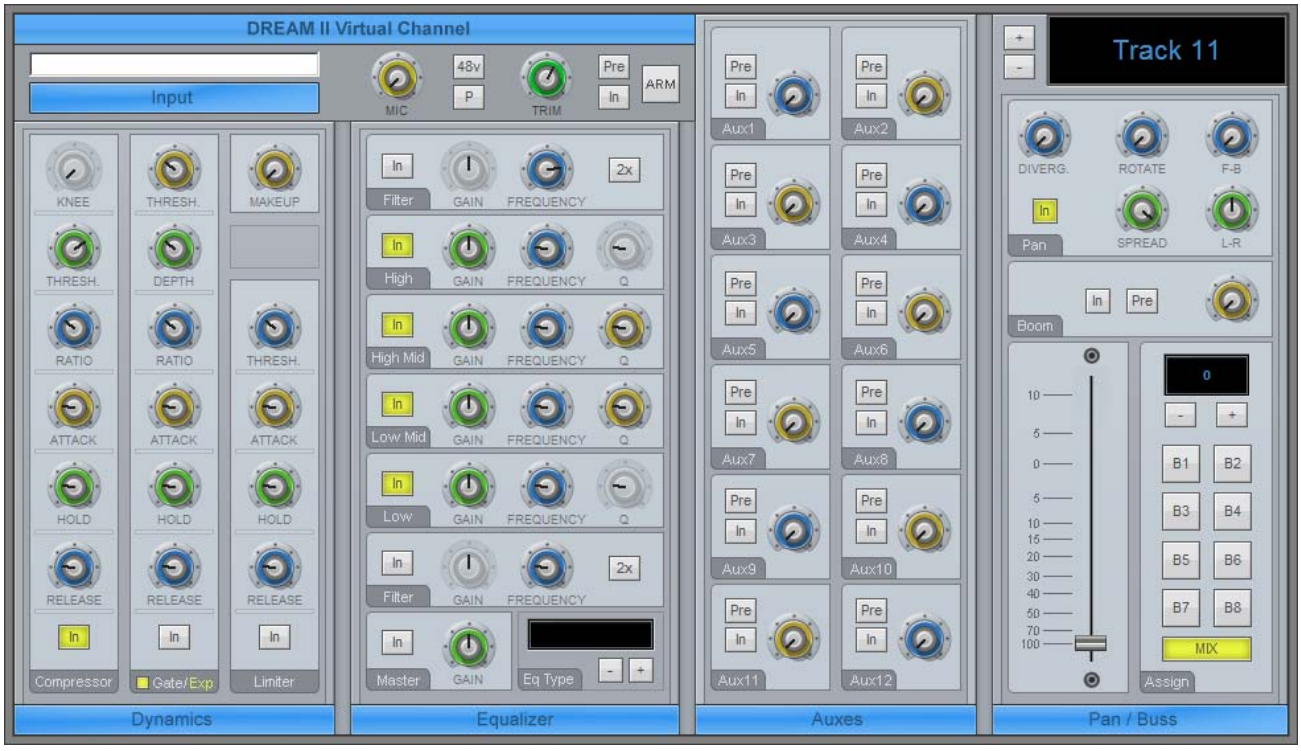
There are two ways to set input gain and phase. You can use the mixer screen or the feed keys.

Using the Mixer Screen

This method is used one channel at a time.

Step 1 Right-click the signal path whose input gain and/or phase is to be set.

The DREAM II Virtual Channel is displayed.



The Input section is in the top left.

Step 2 Click on the Trim control and drag the mouse to change input gain.

Step 3 Click the Phase control (P) to toggle input phase.

You can also adjust Mic gain and switch 48 V phantom power on and off, if using Fairlight mic preamps.

Using the Feed Keys

This method can be used with many Tracks or Live Feeds at the same time.

Step 1 Press the **Patch I/O** key.

Step 2 Select the feeds whose inputs you wish to adjust.

Step 3 Press the {Gain} soft key.

If all the inputs of the selected signal paths have the same gain value, that value is shown in the LCD below the {Gain} soft key as an absolute value {ABS}, otherwise this field is initialised to 0 dB and is displayed as a relative value {REL}. {ABS} represents the absolute value of all Inputs. {REL} represents a trim or relative offset value applied to all inputs.

Step 4 Use the Jog wheel or +/- keys to adjust the relative gain in real time or use the numeric keys to enter an absolute value and press **Enter** to complete.

To set input phase:

Step 1 Press the **Patch I/O** key.

Step 2 Select the signal paths whose inputs you wish to adjust.

Step 3 Press the {Phase} soft key to toggle the phase of the selected inputs.

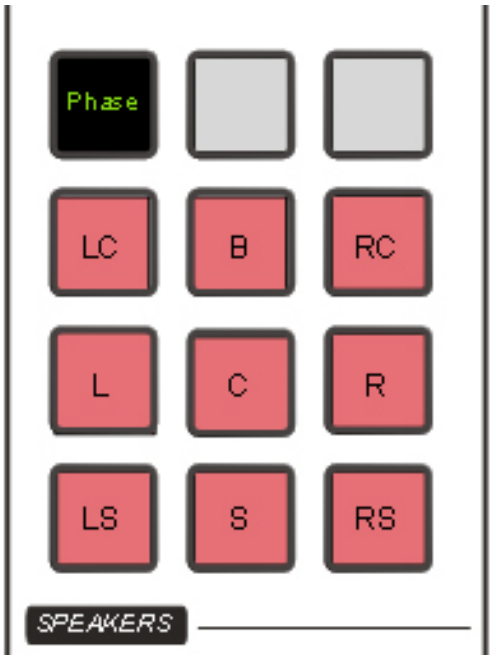
If the inputs to all selected signal paths are in phase the phase soft key is illuminated green.

If the inputs to all selected signal paths are out of phase the phase soft key is illuminated amber.

If the inputs to the selected signal paths do not all have the same phase status the phase soft key flashes red. Press the soft key to set all inputs in phase.

Patching Bus Elements to Feeds

The individual elements of a bus may be patched to feeds for recording or other processing.



Bus Elements may be patched to a number of feeds, or to a link group, as follows:

Step 1 First enter the Patch I/O Menu by pressing the Patch I/O key

Step 2 Select the destination feed or link group using the Track or Live Feed keys on the Selection Panel (or you can use the ones already selected).

Step 3 Press the Patch soft key.

Step 4 Press the **Main**, an **Aux** or a **Sub-Bus** key, or press the **Multi Track** key and some of the Live Feed keys. The Main or Sub-Bus Elements will be patched to the feeds in the following order: Left, Left Centre, Centre, Right Centre, Right, Left Surround, Centre Surround, Right Surround, Boom. Elements that are not in the current bus or group format are not displayed or patched. If a stereo Aux Bus is selected the left channel is patched first then the right. Multi track buses are patched in numerical order.

The bus elements are patched to the feeds successively until the feeds are all used. If the bus elements are all used before the feeds are, then patching starts again from the first bus element.

Patching to Insert Returns

Patching procedures for feed and bus insert returns are similar to the procedures just discussed. Insert patching is achieved by first calling a feed to the Channel Panel and pressing the **Insert Config** Key in the Path Configuration Section. For more information on calling feeds to the Channel Panel see "Calling a Signal Path to the Master Fader" on page 74. The insert point may be moved within the feed signal path. See "Moving the Insert Point" below.

Patching Insert Returns

To patch a physical input to any signal path Insert Return:

Step 1 Select a signal path (Track Feed, Live Feed, Link Group or bus) by:

a) pressing the **Call** key, then using the selection panel.

or b) touching a tile on the Mixer Screen.

Step 2 Press the **Insert Config** key in the Path Configuration section of the Channel Panel.

Step 3 Press the {Returns} soft key on the LCD menu.

Step 4 Press the {Patch} soft key..

Step 5 Choose the input for the insert return using the same techniques as for inputs to signal paths.

If the signal path is a Bus or Link Group, the Speaker Mute keys are used to select individual elements for patching. Alternatively, multiple inputs can be selected at the same time by holding one down, then selecting others, or double pressing the last in a range, then releasing the original. They will be patched consecutively to the elements of the bus or link group.

Inserts may be switched in and out of circuit by pressing the {ON/OFF} soft key. Insert return gain and phase may also be adjusted in the **Insert Config** menu.

Moving the Insert Point

The path menu allows the position of the insert point to be moved within the signal path of any feed.

Step 1 Press the **Path** key which is located between **Phase** and **Arm** keys at the top of the Channel Panel to display the Path menu in the LCD.

Step 2 Press the {INS pre EQ/DYN} or {EQ/DYN pre INS} soft key to move the insert point before or after the equaliser and dynamics sections.

The Signal Path display at the bottom of the mixer display is updated to show the current path configuration.

Patching One Input To Multiple Signal Paths

It is possible to patch the same physical input to many different signal paths, and have it heard on many of them at the same time. This includes Live Feeds, Track Feeds, and Insert Returns. The exception is that only one of a group of Track Feeds with the same physical input can be armed, or put in Thru mode, at one time.

The user is prompted before sharing of physical inputs takes place. So, when a physical input is selected as part of the patching operations described above, if it is already being used by another signal path, the following warning message appears: {One or more inputs already patched. Do you want to share, replace or remove?} Press the {Share} or {Replace} soft key to choose the patching option you require. Press the input selection key again to remove it from the selection.

When {Share} is selected, inputs that are already patched to existing destinations remain patched to those destinations, and are also patched to the currently selected destinations.

When {Replace} is selected the input is unpatched from its current destinations and patched to the currently selected destination.

Unpatching Inputs

To remove input patching from a set of one or more feeds, press the **Patch I/O** key, select the feed and press the {unpatch inputs} soft key.

The Remove Patching command on the Patch I/O screen can also be used for this function.

Patching Outputs

Physical outputs can be patched from buses, insert sends, direct outs and monitor outs.

Using the Patch I/O screen is the same as for inputs, with appropriate selections.

The method for using the Selection Panel is explained below.

Patching Bus Outputs

To select physical outputs for the buses:

Step 1 Press the **Patch I/O** key to enter the Patch I/O menu.

Step 2 Press the {Inputs/Outputs} soft key to select {Outputs}.

Step 3 Select the Main Bus, a Sub-Bus or an Aux Bus by pressing a bus selection key. Or select a Multi Track bus by pressing the **Multi Track** key and then a **Live Feed** key.

Step 4 Press the {Patch} soft key.

Step 5 Press the {AES/MADI} soft key to choose the desired type of digital output, if desired.

The track feed keys may now be used to select analog outputs for the bus and the live feed keys to select digital outputs.

Outputs of the selected type (Analog and AES/MADI) currently patched to the selected bus element are brightly lit.

Outputs of the selected type (Analog and AES/MADI) currently patched to other sources flash off to dim.

Outputs of the selected type (Analog and AES/MADI) currently available are dimly lit.

Outputs of the selected type (Analog and AES/MADI) that are not fitted are unlit.

The outputs can be selected for one bus element at a time. The Speaker Mute key of the current bus element is illuminated green.

Speaker mute keys for bus elements already patched flash off to dim green.

Speaker mute keys for bus elements not currently patched are illuminated dim green.

Step 6 Each bus element may be patched to a single output or multiple outputs. Press the {SINGLE/MULTI} soft key to select single or multi mode.

Step 7 In SINGLE mode the current bus element is advanced automatically when an output is selected. Press a track key to select the output for the current bus element.

The bus elements advance in the following order: Left, Left Centre, Centre, Right Centre, Right, Left Surround, Centre Surround, Right Surround, Boom. Elements that are not in the current bus or group format are not displayed.

To skip the current bus element press the {Next} soft key.

To remove patching for the current bus element and leave it with no output, press the {Blank} soft key.

In MULTI mode outputs for the selected bus element may be toggled ON or OFF by pressing the corresponding **Track** keys. If the key is flashing, pressing the key will remove it from its current source and patch it to the current element. Press a track key to add it to the outputs for the current bus element.

To advance to the next bus element press the {Next} soft key or press another speaker mute key to select that bus element out of sequence.

Press the **Patch I/O** key to return to the previous mode or select another bus to patch by pressing a bus selection key.

Patching AFL/PFL Outputs

To select outputs for the AFL/PFL bus:

Step 1 Press **Patch Output** key.

Step 2 Press the **PFL** key.

Step 3 Now two outputs may be selected in the usual way, with the **Speaker Mute** keys selecting only Left and Right

When outputs are selected for the AFL/PFL bus, it no longer interrupts the Control Room Monitor signal.

Patching Insert Sends

The insert point may be moved within the feed signal path. See "Moving the Insert Point" on page 50. To select physical outputs for insert sends:

Step 1 Press the **Call** key to call a feed or bus to the Channel Panel.

Step 2 Select the feed or bus to be inserted, or press the track key of any member of a link group to select the group, or retain the existing selection.

Step 3 Enter the Insert Menu by pressing the **Insert Config** key on the Path Configuration section of the Channel Panel.

Step 4 Press the {Patch} soft key in the LCD menu.

Step 5 Press the AES/MADI soft key to choose the desired type of digital output, if required.

The track feed keys may now be used to select analog outputs for the insert sends and live feed keys to select digital outputs.

Outputs of the selected type (Analog and AES/MADI) currently patched to the selected bus element are brightly lit.

Outputs of the selected type (Analog and AES/MADI) currently patched to other sources flash off to dim.

Outputs of the selected type (Analog and AES/MADI) currently available are dimly lit.

Outputs of the selected type (Analog and AES/MADI) that are not fitted are unlit.

If the selected path is a bus or a link group the outputs can be selected for one bus or link group element at a time. The Speaker Mute key of the current bus or link group element is illuminated green.

Speaker mute keys for bus or link group elements already patched flash off to dim green.

Speaker mute keys for bus or link group elements not currently patched are illuminated dim green.

Step 6 Each insert send may be patched to a single output or multiple outputs. Press the {SINGLE/MULTI} soft key to select single or multi mode.

Step 7 In SINGLE mode Press a track key to select the output for the current feed insert send.

OR

If the selected path is a bus or link group, in SINGLE mode the current bus or link group element is advanced automatically when an output is selected. Press a track key to select the output for the current bus or link group element insert send.

The bus or link group elements advance in the following order: Left, Left Centre, Centre, Right Centre, Right, Left Surround, Centre Surround, Right Surround, Boom. Elements that are not in the current bus or group format are not displayed.

To skip the current bus or link group element press the {Next} soft key.

To remove patching for the current bus or link group element and leave it with no output, press the {Blank} soft key.

In MULTI mode outputs for the selected feed, bus or link group element may be toggled ON or OFF by pressing the corresponding **Track** keys. If the key is flashing, pressing the key will remove it from its current source and patch it to the current element. Press a track key to add it to the outputs for the insert send.

To advance to the next bus or link group element press the {Next} soft key or press another speaker mute key to select that bus element out of sequence.

Press the **Insert Config** key to return to the previous mode or select another path to patch by pressing a track or bus selection key.

Inserts may be switched in and out of circuit by pressing the {ON/OFF} soft key.

Patching Direct Outputs

Any feed or bus may be sent to a Direct Output. Direct Outputs may have one or more physical outputs. To select physical outputs for Direct Outputs:

Step 1 Press the **Call** key to call a feed or bus to the Channel Panel.

Step 2 Select a feed or link group by pressing a track or live key or select the Main Bus, a Sub-Bus or an Aux Bus by pressing a bus selection key.

Step 3 Press the **Direct Config** Key on the Path Configuration section of the Channel Panel.

Step 4 Press the {Patch} soft key in the LCD menu.

Step 5 Use the {ANALOG/DIGITAL} and {AES/MADI} soft keys to choose the desired type of output.

The track feed keys may now be used to select analog outputs for the Direct Out and the live feed keys for digital outputs.

Outputs of the selected type (Analog and AES/MADI) currently patched to the selected feed or bus element are brightly lit.

Outputs of the selected type (Analog and AES/MADI) currently patched to other sources flash off to dim.

Outputs of the selected type (Analog and AES/MADI) currently available are dimly lit.

Outputs of the selected type (Analog and AES/MADI) that are not fitted are unlit.

If the selected path is a bus or a link group the outputs can be selected for one bus element at a time. The Speaker Mute key of the current bus element is illuminated

green.

Speaker mute keys for bus elements already patched flash off to dim green.

Speaker mute keys for bus elements not currently patched are illuminated dim green.

Step 6 Each direct out may be patched to a single output or multiple physical outputs. Press the {SINGLE/MULTI} soft key to select single or multi mode.

Step 7 In SINGLE mode Press a track key to select the output for the current feed direct out.

OR

If the selected path is a bus or link group, in SINGLE mode the current bus or link group element is advanced automatically when an output is selected. Press a track key to select the output for the current bus or link group element direct out.

The bus or link group elements advance in the following order: Left, Left Centre, Centre, Right Centre, Right, Left Surround, Centre Surround, Right Surround, Boom. Elements that are not in the current bus or group format are not displayed.

To skip the current bus or link group element press the {Next} soft key.

To remove patching for the current bus or link group element and leave it with no output, press the {Blank} soft key.

In MULTI mode outputs for the selected feed, bus or link group element may be toggled ON or OFF by pressing the corresponding **Track** or **Live** keys. If the key is flashing, the system will warn you that the output is used by another signal path. Press a track key to add it to the outputs for the direct out.

To advance to the next bus or link group element press the {Next} soft key or press another speaker mute key to select that bus element out of sequence.

Press the **Direct Config** key to return to the previous mode or select another bus to patch by pressing a bus selection key.

For a signal path with ports established for Direct Output, the {Direct ON/OFF} soft key is used to turn the direct output on and off.

Direct Out Pre/Post

The direct output signal can be derived before or after the feed/bus fader. Press the {Pre/Post} soft key to toggle the direct output.

Direct Out Gain

The direct output signal can have gain or attenuation applied prior to the output. Press the {Gain} soft key and turn the jog wheel or use the numeric keys and press **Enter** to set the gain. If a bus or link group is selected, all bus elements or link group members are set to the same absolute direct output level. To alter the direct out level of a single member of a link group, individually select the member by holding down the **BLUE** key and pressing the selection key.

Patching External Meter Outputs

To select outputs for the External meter sets:

Step 1 Press the **Meters** key

Step 2 Press the {meter outputs} soft key.

Step 3 Use the ANALOG/DIGITAL and AES/MADI soft keys to choose the desired type of output.

Select outputs using the Track keys.

Any number of outputs can be chosen for external meters, and this number will determine the maximum size of a meter set.

Track keys illuminated brightly are part of a Meter Set

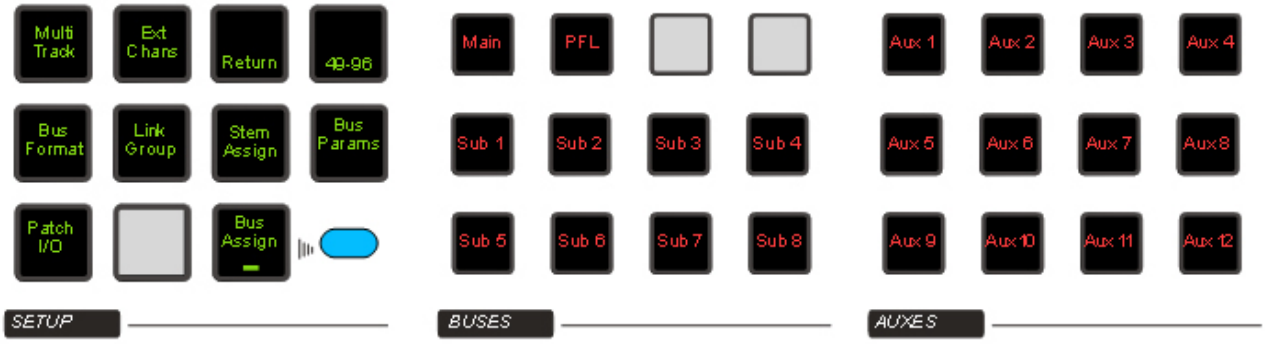
Step 4 Press a lit Track key to unlink it from a Meter Set

Monitor Outputs

Patching monitor outputs is covered in "Patching Outputs for Control Room Monitor Sets" on page 63.

Configuring Bus Formats

The Main Bus, Sub-Buses and Aux Buses may be configured in mono, stereo or multi-channel surround formats. Each bus comprises individual bus element signal paths from one up to a maximum of eight. These elements include left, right, centre, etc. Bus formats must be configured prior to use.



The Bus Format Menu

The Bus Format Menu is used to set the format i.e. the number and type of independent bus elements comprising each bus:

Step 1 Press the **Bus Format** Key.

Step 2 Select one or more of the Main, or a Sub or Aux Bus by pressing the **Main**, **Sub** or **Aux** keys.

The format of the selected bus is displayed in the LCD and the elements are lit on the speaker mute keys.

To Select a Multi Track Bus, Press the MT Buses key, and select using the Live Key

Step 3 Available formats for the selected buses are displayed on the LCD. Press a soft key to select the format required.

The formats available for Main and Sub-Buses are:
Mono; Stereo; LCR; LCRS; LCRSS(L,C,R,LS,RS); 5.1 (L,C,R,LS,RS,B); 6.1 (L,C,R,LS,CS,RS,B); 7.1 (L,LC,C,RC,R,LS,RS,B); and OFF; and Bus Reduction (for Sub-Buses only).

Note that the Main bus can not be set to {OFF} – it must have a format of at least Mono.

The formats available for Multi - Track Buses are: {Mono} and {OFF}

The formats available for Aux Buses are: {Mono}, {Stereo} and {OFF

See "Bus Reduction" on page 60 for details on using reduction buses.

Bus elements are assigned automatically from a finite pool of 48. As formats are defined for each bus, the number of available bus elements is reduced. The number of remaining elements available is displayed on the LCD.

Assigning Signals to Buses

Feed signals are routed to Main, Sub and Aux buses via a panner element in each signal path. Feeds can also be assigned to Multitrack buses which are mono buses used for sub-mixing or recording to disk. Sub-Buses may also be assigned to the Main Bus if they are used for sub-mixing or as separate stems.

An alternative to normal bus assignment is Stem Assign. Stem Assign allows the outputs of the panner to each bus element to be disconnected. This is useful when adding a pre-mixed stem to a mix. Each element of the stem may be assigned only to its corresponding bus element.

Assigning Feeds to Buses

To assign signal paths to buses:

Step 1 Press the Bus Assign key

Step 2 Press the bus selection key of the destination bus to which you want to assign signal paths. This can be the Main Bus or any Sub Bus

The selected bus key will light, and so will all the Track and Live Feed keys associated with feeds already assigned to that bus.

Press the MT Buses key and any of the live feed keys to select a Multitrack bus as the destination bus.

Step 3 Press any Track or Live Feed key to toggle its assignment on or off. You may use double-clicking and hold-double clicking to select exactly one or a sequence of keys respectively.

Press the All Tracks soft key to assign all tracks to the selected bus.

Press the All Live soft key to assign all Live Feeds to the selected bus.

Press the deassign all soft key to deassign all sources.

Step 4 Press the Bus Assign key to return to the previous mode or select any other mode.

Bus Assignment may be automated using the **Enable** key next to the **Bus Assign** key.

Note: once the Main Bus is selected as the destination bus, Sub-buses can be added to the source selection as described below. Press the **Main** key again to de-select the Main bus as the destination before selecting a Sub-bus as a new destination for bus assignment.

Fast Bus Assignment with Path Configurator

The Path Configurator controls all the routing and assignment for the signal path currently selected to the Central Processing Panel.

Step 1 Press the **Call** key to enter the call mode.

Step 2 Press a feed selection key to call a feed to the Channel Panel.

Step 3 Hold down the **Bus Routing** key in the Path Configuration section at the top of the Channel Panel.

Buses to which the feed is currently routed are illuminated.

Step 4 Press any bus selection key to assign the current feed to that bus.

Press the **Multi Track** key and then a **Live Feed** key to assign the current feed to that bus.

If Multi Trim is ON, more than one signal path may be selected. If there are buses to which all of them are assigned, those bus keys will be illuminated. Pressing an illuminated bus key deassigns all the selected signal paths.

Bus keys to which some but not all of the selected signal paths are assigned will flash dim to bright. Pressing a flashing key deassigns all the selected signal paths, extinguishing the bus key. Double-pressing the flashing key assigns all the selected signal paths without first deassigning them.

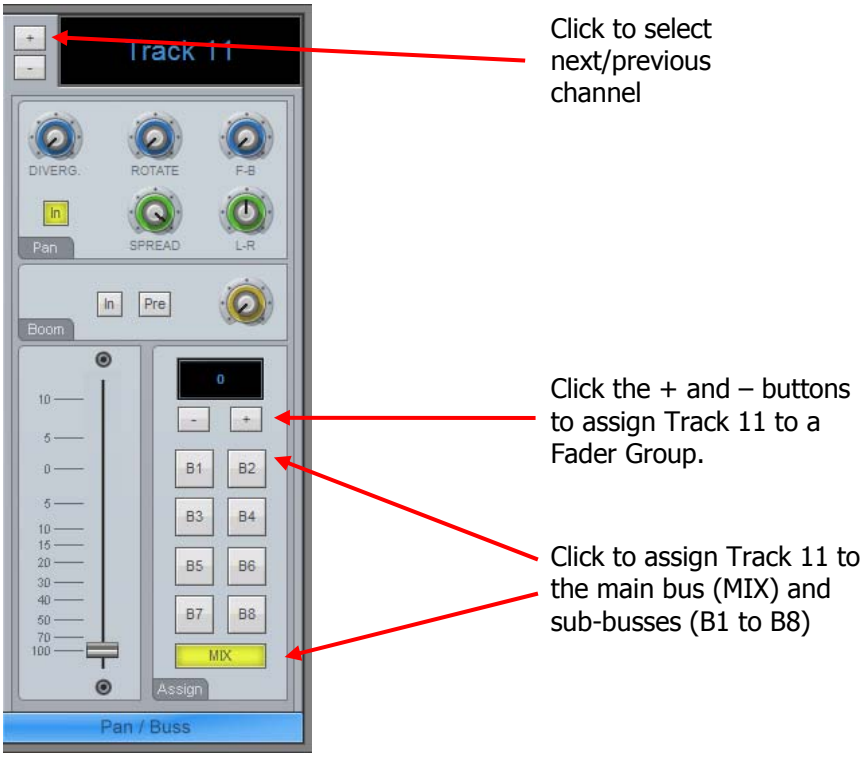
Bus Assign from the Mixer Screen

Step 1 Right Click a Track or Live Feed on the Mixer screen.

Step 2 Use the lower right hand section to toggle assignments to buses.

Step 3 Use the + and – buttons to move to the next/previous channel.

Step 4 When finished, right-click anywhere in the Virtual Channel to make it disappear, or select an editing mode.



Stem Assign

It may be desirable to assign a feed or members of a link group to a restricted set of the bus elements in the Main or Sub-Buses. This procedure is useful where the element order of an imported mix stem differs from the internal DREAM II bus and link group element order, or when the panner alone cannot be used to create the desired assignment or spatial effect.

To ensure that signals are routed to bus elements at unity gain turn off the panner in the selected feeds by de-selecting the **Panning IN** key on the Channel Panel.

Feeds for stem assignment must first be assigned to the desired bus using bus assign, see "Assigning Signals to Buses" on page 57 above.

Step 1 Hold down a **BLUE** key and press the **Stem Assign** key.

Step 2 Press the bus selection key of the destination bus to which you want to assign signal paths. This can be the Main Bus or any Sub Bus to which the feed is currently assigned.

The **Speaker Mute** keys now show which elements of the destination bus, the signal path is assigned to. Elements currently assigned are brightly lit, unassigned elements are dimly lit, and elements unavailable in the destination bus are off.

Only bus elements that are available in the destination bus format can be selected.

Step 3 Press any **Track**, **Live Feed** or **Link Group** key to toggle its selection on or off.

Step 4 Use the **Speaker Mute** keys to toggle destination bus elements on and off.

Multiple signal paths may be selected at the same time. If any bus elements are enabled in all of them, their **Speaker Mute** keys are solidly illuminated and may be toggled off.

If any bus elements are enabled in some but not all the selected signal paths, their **Speaker Mute** keys flash. Pressing any flashing key enables that bus element in all the selected signal paths. Press again to remove the bus element

Bus elements that are not enabled in any of the selected signal paths are dimly lit and may be toggled on for all selected signal paths.

Stem Assign Soft Key Options

Press `{connect all}` to connect the selected feeds to all bus elements.

Press `{disconnect all}` to disconnect the selected feeds from all bus elements.

Press `{boom only}` to disconnect the selected feeds from all bus elements except the Boom element.

Press `{all but boom}` to connect the selected feeds to all bus elements except the Boom element.

Stem Assign Group Members

If a Link Group is chosen as the source, the individual elements are all stem assigned identically. If it is desired to change the group or bus members individually, the bus is first selected, then hold down a **BLUE** key and double press the member feed selection key. See "Link Groups" on page 150 for more details.

Aux to Main Bus

Aux buses cannot be assigned to the Main Bus.

Bus Reduction

Bus reduction provides a separate fader for each feed assigned to a reduction Sub-Bus, independent of the fader feeding the Main Bus. This allows separate simultaneous mixes to be created in more than one format. The reduction bus fader may be configured to be pre or post the normal channel fader, thus providing a level offset/trim of the main mix, or a completely independent mix. The reduction mix fader levels may be modified in a separate automation pass without effecting the main mix.

Reduction buses may be configured in any format and may optionally be assigned to the Main Bus.

Creating a Reduction Bus

Step 1 Press the **Bus Format** Key.

Step 2 Select a Sub-Bus by pressing a **Sub** key in the selection panel.

Step 3 Select a format by pressing a soft key in the LCD menu. Available formats for the selected buses are:

Mono; Stereo; LRC; LRCS; LRCSS(L,C,R,LS,RS); 5.1 (L,C,R,LS,RS,B); 6.1 (L,C,R,LS,CS,RS,B); 7.1 (L,LC,C,RC,R,LS,RS,B)

Step 4 Press the `{REDUCT'N MODE}` soft key in the LCD menu.

Step 5 Select one of the three reduction modes by pressing one of the soft keys described below.

`{Normal}`	Normal mode turns bus reduction off and configures the Sub Bus like an ordinary Sub Bus with no separate reduction fader level.
`{Reduce}`	Reduce mode provides all the reduction bus features and causes the Sub Bus to inherit all the feed assignments subsequently made to the Main Bus.
`{Free}`	Free mode provides all the reduction bus features but requires feeds to be manually assigned to the reduction Sub Bus using the normal bus assign procedure, or using the MUTE key while **Faders To...** is active for the selected bus.

Note that the `{REDUCT'N MODE}` soft key is illuminated to indicate the status of the selected Sub-Buses. If the selected buses are in `Normal` mode, the soft key is dim green If the selected buses are in `{Reduce}` mode the key is dim amber. If the selected buses are in `{Free}` mode the key is dim red. If the selected buses are in a mixture of modes the key flashes.

Step 6 Press the `{End}` soft key to complete the operation.

Controlling the Bus Reduction Mix

Bus Assignment

If the reduction Sub-Bus is set to `{Reduce}` mode, it inherits all the feed assignments made to the Main bus. The feed's send to the bus faders defaults to post main feed fader therefore the reduction bus mix is identical to the main mix.

If the reduction Sub-Bus is set to `{Free}` mode, feeds must be explicitly assigned to the Sub-Bus. This may be done using the normal bus assign procedure or through the **Faders To...** menu.

Step 1 Hold down a **BLUE** key and press the **Faders To...** key.

Step 2 Select the Sub-Bus you wish to assign to. Only Sub-Buses which are configured as reduction buses will be illuminated and available for selection.

The channel faders now control the send levels for the selected Sub-Bus. The faders snap to 0dB which is an offset to the main feed fader. See "Faders To..." on page 80 for more details.

Step 3 The channel **MUTE** keys may be used to control the bus assignment to the selected bus. Press a **MUTE** key to un-mute the feed and assign it to the selected bus.

Fader Levels

When a Sub-Bus is configured for bus reduction a separate fader is provided in each feed signal path to control the mix to that bus. To access this fader hold down a **BLUE** key and press the **Faders To...** key, then select the reduction Sub-Bus from the selection panel. The faders snap to 0dB which is an offset to the main feed fader. See "Faders To..." on page 80.

The level sent to the Sub-Bus is always derived post Channel fader and post channel Mute. With the Sub-Bus fader set to zero and the Mute button off, the Sub-bus level is identical to the Main Bus level. The Sub-Bus fader and Mute are therefore used to "offset" the level going to the Main Bus, to take account of its special purpose to the project.

Pan Position

The position of the feed pan control is shared by both the Main Bus and the reduction Sub-Bus.

LCR panning information for the Main Bus may apply to a reduced set of outputs in a smaller format Reduction Bus. The positions of panpots are preserved, retaining the signal image position in the reduced bus.

Front-back panning information will be completely ignored if the reduced bus has no rear channel(s).

See "The Monitor_Matrix.TXT File" on page 233 for a discussion on automatic downmix settings.

Bus Params Menu Options

Typically a signal's audio will be sent to Sub-Buses exactly the same way as to the Main Bus, and will affected by the Main bus fader level, pan position and mute status.

The Bus Params menu allows the user to change that behaviour for any selection of signal paths.

`{Pre/Post Fader}` A pre fader send is not affected by the setting of the main feed fader. The send's level control sets the absolute level of the send. For a Post fader send the send level is added to the main fader level.

`{Pre/Post Mute}` A pre mute send is not affected by the mute status of the main feed level. A post mute send follows the main mute, but may also be muted independently.

`{Pre/Post Pan}` A pre pan send is not affected by the setting of the main feed panning. The send's pan control sets the absolute panning for the send. For a Post pan send the send panning is added to the main feed panning.

Chapter 6 - Monitoring

Introduction

Constellation provides flexible choices of monitor sources, formats and speaker destinations. It also supports automatic fold down or up into narrower or wider formats, allowing, for example, a 5.1 mix to be checked in stereo monitors.

Programmable Source Sets and Monitor Sets provide storage and instant recall of monitoring configurations.

Control Room and Studio

Separate monitoring facilities are provided for Control Room and Studio speakers. Control Room setups target up to 8 speakers, while Studio setups are strictly stereo.

Control Room setups include 12 macros that can switch sources or monitor sets into operation, while Studio Setups include 3 independent "Cues" that can be run simultaneously.

Source and Monitor Sets

A Control Room Source Set is a set of up to 8 source signals that can be sent to the speakers. Because you will want to listen to different things at different times, the system lets you create and save up to 8 Monitor Sets so you can choose them quickly, in addition to the "normal" monitoring source, the Main Bus.

A Studio Source Set is the same as a Control Room Source Set, but it has only two signals.

A Monitor Set is a set of speakers, or rather the physical outputs connected to a set of speakers. The system allows you to create and save up to 16 Control Room Monitor Sets, each with up to 8 outputs, and 8 Studio Monitor Sets, each with up to 2 outputs.

Monitor Matrix

The Monitor Matrix is a built-in 8 into 8 mixer. It takes the source signals (up to 8) and feeds them to the outputs (up to 8). Normally this is just passing the audio from input to output, but the user may choose a different monitor format, like folding a 5.1 signal down to stereo for compatibility checking. In this case the mixer will mix the 6 source signals down to two output signals.

For the Studio setups, the Matrix comprises three 8 into 2 mixers, corresponding with Cue 1, Cue 2 and Cue 3.

Patching Outputs for Control Room Monitor Sets

To set the format and select the physical outputs for any of the monitor sets follow the steps below. All settings must be saved, see "Saving Monitor Setups" on page 72.

Step 1 Hold down a **BLUE** key and press the **Monitor Setup** key next to the Monitor Level Control.

Step 2 Press the `{Patch Outputs}` soft key.

Step 3 Press the soft key to select the speaker set you wish to patch e.g. `{SpkSet1}`.

Step 4 To determine the number of outputs required, you must specify the format of the speaker set. Press the `Format` soft key to cycle through the available formats. These are `{None}`, `{Mono}`, `{Stereo}`, `{LCR}`, `{LCRS}`, `{LCRSS}`, `{5.1}`, `{6.1}`, `{7.1}`.

Step 5 Select the type of digital physical output you wish to patch to by pressing the

{AES/MADI} soft keys.

Step 6 The speaker mute keys are now used to select each speaker. The current speaker mute key is brightly lit. Other elements included in the specified format are dimly lit. Press a speaker mute key to select the element to patch.

Step 7 Live feed keys now represent digital outputs and track feed keys represent analog outputs. Press a feed selection key to select a physical output for the current speaker. Only one output can be selected for each speaker, selecting a new output replaces the previous patch.

The output feed selection key patched to the current Monitor Element is brightly lit. Output track keys used for other purposes flash. Output track keys available for patching are dimly lit.

Use soft keys to choose outputs higher than 48.

Step 8 Select the speakers to patch one by one, by pressing each speaker mute key and following the patching procedure described above.

System Outputs

Specific outputs may be defined for use with control room monitors only. System output ports are only available for patching in the Monitor Setup Patching page. System ports are defined in the I/O Config.TXT file as described in "The I-O Config.TXT File" on page 229. Use system output ports for patching your control room monitors to avoid accidentally patching other sources direct to the power amplifier inputs.

Naming Control Room Speaker Sets

Alternative speaker sets may be given more meaningful names specific to the current installation.

Step 1 Hold down a **BLUE** key and press the **Monitor Setup** key next to the Monitor Level Control.

Step 2 Press the {Patch Outputs} soft key.

Step 3 Press the soft key for the speaker set you wish to name e.g. {SpkSet1}.

Step 4 Press the {Name} soft key.

Step 5 Type the name on the PC keyboard and press **Enter**. Use a maximum of seven characters.

Trimming Relative Speaker Levels

The level of each speaker in a speaker set can be adjusted independently. This is useful for setting surround speaker levels and compensating for different amplifier gains.

Step 1 Hold down a **BLUE** key and press the **Monitor Setup** key next to the Monitor Level Control.

Step 2 Press the {Patch Outputs} soft key.

Step 3 Press the soft key for the speaker set you wish to adjust e.g. {SpkSet2}.

Step 4 The speaker mute keys are now used to select each speaker. The current speaker mute key is brightly lit. Other elements included the specified format are dimly lit. Press a speaker mute key to select the element to patch.

Step 5 Press the {Gain} soft key and use the jog wheel or **+/-** keys to adjust the gain in real time, or use the numeric keys and press **Enter** to complete.

Step 6 Select the speakers to adjust one by one, by pressing each speaker mute key and following the gain procedure described above.

Selecting Control Room Monitor Speakers

The system provides up to nine sets of monitor speakers, which are named Main and Alternative Speaker Set 1 to 8. The default speaker set is Main.

The **Monitor Alt** key in the Monitor section is used to toggle between the Main speakers and the current (i.e. most recently selected) Alternative speaker set. The **Monitor Alt** key is illuminated when the alternative monitors are selected.

To change the current Alternative speaker set:

Step 1 Hold down a **BLUE** key and press the **Monitor Setup** key next to the Monitor Level Control.

Step 2 Select one of the alternative speaker sets by pressing the appropriate soft key. The alternative speaker set is immediately switched into the monitoring chain.

Each set of monitors can be set up in any of the available formats which are Mono, Stereo, LCR, LCRS, LCRSS, 5.1, 6.1, or 7.1. Selecting a monitor set of a lower or higher format than the currently selected monitor source will cause the elements of the source to be folded up or down to fit the format of the speaker system. See "The Monitor_Matrix.TXT File" on page 230 below for details on modifying the default downmix behaviour of the system.

Selecting a Control Room Monitor Source

The monitor source can be selected from one of the following:

- The **Main** Bus, a **Sub**-Bus, or an **Aux** Bus,

OR

- external source presets 1 to 16, named {ExtSrc} by default on the LCD soft keys, which can be patched from any physical input, allowing monitoring of CD players, surround encoders/decoders and other external devices.

The **Source Alt** key in the Monitor section is used to toggle between the Main bus and the current (i.e. most recently selected) alternative source. The **Source Alt** key is illuminated when the alternative source is selected.

To change the current alternative source:

Step 1 Hold down a **BLUE** key and press the **Source Setup** key next to the Monitor Level Control.

Step 2 Select an alternative source by pressing one of the **bus selection** keys or one of the Ext Src soft keys in the LCD menu. The alternative source is immediately switched into the monitoring chain.

Patching External Monitor Sources

To set the format and patch the physical inputs for external monitor sources, follow these steps:

Step 1 Hold down a **BLUE** key and press the **Source Setup** key next to the monitor level control.

Step 2 Press the {define ExtSrc} soft key.

Step 3 Press the {ExtSrc} soft key for the source you wish to patch.

Step 4 To determine the number of inputs required, you must specify the format of the external monitor source. Press the {Format} soft key to cycle through the available formats. These are {Mono}, {Stereo}, {LCR}, {LCRS}, {LCRSS}, {5.1}, {6.1}, {7.1}

Step 5 Select the type of physical digital input you wish to patch to by pressing the {AES/MADI} soft keys.

Use soft keys to choose outputs higher than 48.

Step 6 The speaker mute keys are now used to select each element of the external source format. The current speaker mute key is brightly lit. Other elements included in the specified format are dimly lit. Press a speaker mute key to select the element to patch.

Step 7 Feed selection keys now represent the physical inputs of the type selected. Press a feed selection key to select a physical input for the current source element. Only one input can be selected for each element, selecting a new input replaces the previous patch.

The input feed selection key patched to the current source element is brightly lit. Input feed selection keys used for other purposes flash but may be selected and automatically shared. Input feed selection keys not used elsewhere are dimly lit. Unlit keys show inputs that are not fitted.

Step 8 Select the source elements to patch one by one, by pressing each speaker mute key and following the patching procedure described above.

Naming External Monitor Sources

Alternative monitor sources may be given more meaningful names specific to the current installation.

Step 1 Hold down a **BLUE** key and press the **Source Setup** key next to the monitor level control.

Step 2 Press the {define ExtSrc} soft key.

Step 3 Press the {ExtSrc} soft key for the source you wish to name.

Step 4 Press the {Name} soft key.

Step 5 Enter the name using the PC keyboard and press the **Enter** key to complete the operation

Monitor Format

In addition to the alternative speaker sets, Constellation allows the operator to monitor a source in any format required. For instance a stereo source can be monitored in mono to check for compatibility. Similarly, a 5.1 surround source can be checked in stereo. The format heard is always the smaller of the speaker set or monitor format.

By default the monitor format is the same as the current monitor set selected with the **Monitor** key. If a different monitor format is then selected, the monitor source signals are summed, attenuated or distributed to be heard in the selected format.

The **Format Alt** key in the Monitor section is used to toggle between the default format for the current speaker set and the current (i.e. most recently selected) Alternative format. The **Format Alt** key is illuminated when the alternative format is selected.

To change the current alternative format:

Step 1 Hold down a **BLUE** key and press the **Format Setup** key next to the Monitor Level Control.

Step 2 Select an alternative format by pressing one of the format soft keys in the LCD menu. The alternative format is immediately applied to the monitoring chain.

Whenever the signal path or monitor source being monitored is narrower than the current Monitor Format, the speakers that are not needed are muted.

See "The Monitor_Matrix.TXT File" on page 230 to see how the default settings are derived. The user can modify these settings to suit any mode of operation or to make Constellation monitoring conform to any surround delivery format requirements.

Operators should be aware that while Constellation is capable of playing a surround mix on any speaker format, when checking for compatibility, the appropriate decoding system should be employed for the target audience listening environment. See "Inserts in Monitoring" below for details on employing external decoders in the monitoring path.

Inserts in Monitoring

Inserts in monitoring are not used explicitly, but can be chosen by using the **Source Setup** Menu, which allows any physical inputs to be monitored. This allows, for instance, both the LtRt outputs of a Dolby encoder and the individual LCRS outputs of a Dolby decoder to be monitored directly as external monitor source inputs.

See "Selecting a Control Room Monitor Source" on page 65 above and "Patching External Monitor Sources" on page 65 for more details on setting up and using monitor sources.

Monitoring Controls

The Control Room monitoring controls include:

Monitor Level

The Monitor Level control provides direct control of the control room listening level.

Dim

The **DIM** key next to the monitor level control reduces the monitor level by a fixed amount. Follow these steps to set the Dim level reduction amount:

Step 1 Hold down the **DIM** key next to the Monitor Level Control. The DIM key is illuminated when the monitors are dimmed. The level reduction is displayed on the LCD. The range is 0 to -20dB.

Step 2 Turn the jog wheel to enter the value.

Step 3 Release the **DIM** key.

Press the **DIM** key again to return to normal listening level.

Fixed Reference Level

The **BLUE** **Fixed** key next to the monitor level control is used to set the monitoring level to a fixed reference standard volume. The Fixed key bypasses the Monitor Level control. Follow these steps to set the fixed monitoring level:

Step 1 Select the monitor system to calibrate by pressing the **Monitor** key to select the Main monitors or hold down the **BLUE** key and press the **Monitor** key then select an

alternative monitor set.

Step 2 Using a pink noise source and a sound pressure level meter, follow the steps in "Trimming Relative Speaker Levels" on page 68 to set all speakers to the same sound pressure level (for 5.1 film mixing the surround speaker level may be reduced by 3dB). Adjust the pink noise level in each bus element to 0VU, -20dBFS or your local standard. Use the speaker mute keys to mute all speakers except the centre speaker. Place the SPL meter at your normal listening position and use the amplifier gain controls to roughly set the sound pressure level to 83dBSPL, 85dBSPL or your local standard (set the meter to slow response, C weighted). Repeat this process for all speakers.

Step 3 Hold down the **BLUE** and **Fixed** keys to enter the fixed calibration mode. The variable gain setting is displayed on the LCD.

Step 4 Turn the jog wheel to adjust the level.

Step 5 Release the **Fixed** key.

Press the **Fixed** key again to re-enable the Monitor Level control.

NOTE: Refer to SMPTE RP 200 Proposed SMPTE Recommended Practice: Relative and Absolute Sound Pressure Levels for Motion-Picture Multichannel Sound Systems or your local standards manual for more details on reference monitoring levels.

Master Mute

Press the **MUTE** key next to the Monitor Level control to mute the control room monitor outputs. The **MUTE** key is illuminated red when the monitors are muted. Press the **MUTE** key again to unmute the monitors. The master mute key flashes when any individual speaker is muted.

Individual Speaker Mutes

The individual Speaker Mutes can be used to mute each individual speaker. The speaker mute keys are illuminated dim red for elements available in the selected speaker format or monitoring format. Press a speaker mute key to mute the selected speaker. The mute key will be lit bright red when muted. Press the key again to unmute the speaker.

The speaker mute keys are also used for bus and link group element selection during patching operations.

Monitor Phase Reversal

The phase of each monitor speaker may be inverted. Hold down the phase key above the speaker mute keys and press the speaker mute key of the speaker you wish to modify. The mute key will flash to indicate that its phase is currently inverted. Hold down the phase key and press the speaker mute key to return to normal phase.

Selecting Studio Speaker Sets

The Studio Monitoring system can select from 9 Studio Speaker Sets. Studio Speaker Sets can be either stereo or mono and may be patched to loudspeakers or headphone amplifiers as required. Follow these steps to select the current Studio Speaker Set:

Step 1 Hold down a **BLUE** key and press the **Setup/Output** key in the Studio Monitor Controls section.

Step 2 Selects from one of the 9 available speaker sets by pressing a soft key.

Step 3 Hold down a **BLUE** key and press the **Setup/Output** key again, or press any other

menu key to continue working

Patching Studio Speaker Outputs

To set the format and select the physical outputs for any of the monitor sets follow these steps:

Step 1 Hold down a **BLUE** key and press the **Setup/Output** key in the Studio Monitor Controls section.

Step 2 Press the {patch outputs} soft key.

Step 3 Select the speaker set you wish to patch by pressing one of the 9 speaker set soft keys.

Step 4 To determine the number of outputs required, you must specify the format of the speaker set. Press the {Format} soft key to cycle through the available formats. These are {None}, {Mono}, {Stereo}.

Step 5 If patching to a digital output select the type of physical output you wish to patch to by pressing the {AES/MADI} soft keys.

Step 6 The speaker mute keys are now used to select each speaker. The current speaker mute key is brightly lit. Other elements included in the specified format are dimly lit. Available elements are Centre for mono, or Left and Right for stereo. Press a speaker mute key to select the element to patch.

Step 7 Live feed keys now represent digital outputs and track feed keys represent analog outputs. Press a feed selection key to select a physical output for the current speaker. Only one output can be selected for each speaker, selecting a new output replaces the previous patch.

The output feed selection key patched to the current Monitor Element is brightly lit. Output feed keys used for other purposes flash. Output feed keys available for patching are dimly lit.

Step 8 Select the speakers to patch one by one, by pressing each speaker mute key and following the patching procedure described above.

Press the {next} soft key to step through the elements or press the {blank} soft key to leave an element blank.

Step 9 Press the {end} soft key to complete patching.

System I/O Ports

System output ports are only available for patching in the Monitor Setup Patching page. System ports are defined in the I/O Config.TXT file as described in "The I-O Config.TXT File" on page 229. Use system output ports for patching your studio monitors to avoid accidentally patching other sources direct to the power amplifier or headphone inputs.

Naming Studio Speaker Sets

Studio speaker sets may be given more meaningful names specific to the current installation.

Step 1 Hold down a **BLUE** key and press the **Setup/Output** key in the Studio Monitor Controls section.

Step 2 Press the {patch outputs} soft key.

Step 3 Select the speaker set you wish to patch by pressing one of the 9 speaker set soft keys.

Step 4 Press the {name} soft key and type the name on the PC keyboard.

Step 5 Press **Enter** to complete.

Selecting Studio Monitor Sources

The studio monitor source can be selected from one of the following:

The **Main** Bus, a **Sub**-Bus, or an **Aux** Bus,

OR

external source presets 1 to 16, named {ExtSrc} by default on the LCD soft keys, which can be patched from any physical input, allowing monitoring of CD players, VTRs, or other external devices.

Step 1 Press the **Setup/Source** key in the Studio Monitor section.

Step 2 Press any bus selection key to select a bus as the monitor source.

Press any of the external source soft keys to select an external source (press the {MORE} soft key to select external sources 9 to 16).

Press the {Follow C/R} soft key to make the studio monitor follow any selection made for the control room monitors.

Patching External Sources

External monitor sources are setup and patched in the Source Setup menu in the control room section. See "Patching External Monitor Sources" on page 65 above for complete instructions.

Monitor Sets

Monitor sets provide a useful way to store and recall monitoring configurations. 16 monitor sets are available for the control room monitoring system and 8 for the studio monitoring system. Monitor sets can store setups as simple as source selection, or as complex as a complete monitoring configuration including: fixed level, speaker mutes, speaker set, monitor format and source.

Recalling Monitor Sets

Step 1 Press the {CR BANK} or {STUDIO BANK} key in the Monitor Sets section at the top of the selection panel, to toggle between the two banks of monitor set keys for the control room or studio. In bank 1 the selection keys are illuminated red, in bank 2 the keys are green.

Step 2 Press one of the monitor set selection keys labelled CR1-8 or S1-4 to recall the monitor set configuration. The selected monitor set key is brightly lit when pressed.

Setting Up Monitor Sets

Step 1 Follow the instructions in the sections above to achieve the monitoring configuration you wish to save.

Step 2 Press the **Setup** key in the Studio/Monitor section to display the setup screen.

Step 3 If necessary press the **CR Bank** or **Studio Bank** selection key for the control room or studio monitor set you wish to store.

Step 4 Press the monitor set selection for the set you wish to store.

Step 5 Choose the attributes of the current monitoring setup to store by pressing one or more of the attribute selection soft keys.

Press just the `{Source}` key to save the current source selection. Select any of the other attributes which are: `{Fixed Level}` (for control room), `{Speaker Mutes}` (for control room), `{Speaker Phase}` (for control room), `{Speaker Set}`, `{Alt Format}` (for control room).

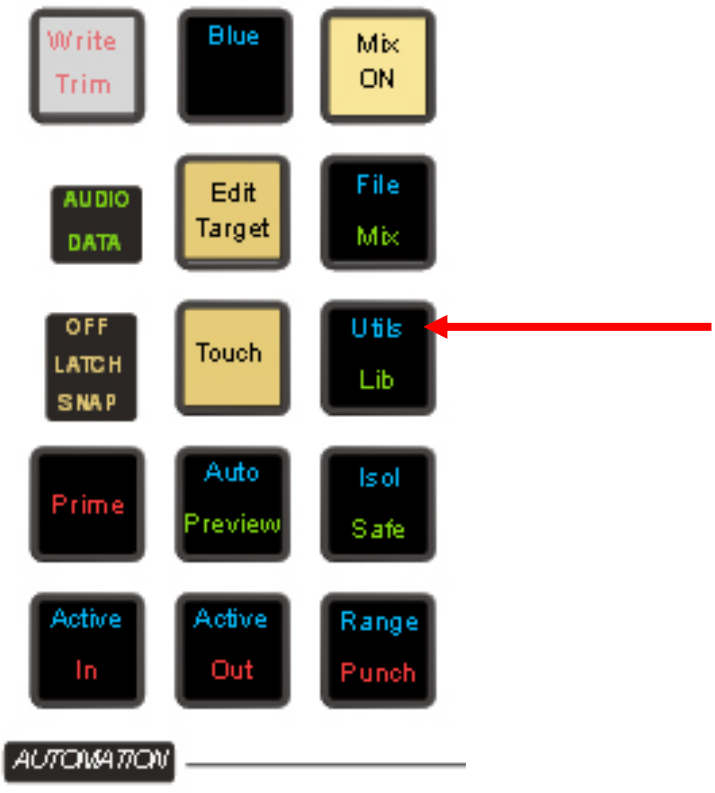
Step 6 Press the `{STORE}` soft key to save the monitor set configuration.

Press any other menu key to continue working.

Labeling Monitor Sets

The monitor set keys are fitted with removable lenses to enable the user to print and fit their own key cap text inserts on clear film.

Saving Monitor Setups



The **BLUE Utils** menu offers the Update Sys-File item for storage of system settings. System Files are stored in the *C:\Program Files\ Fairlight\FMC\Data* directory.

Step 1 Hold down the **BLUE** key and press the **Utils** key to enter the Utils menu.

Step 2 Press the `{Update Sys-File}` soft key to store the system settings. This information is stored in the following files:

Monitor_Sources.TXT - patching and formats of external monitor sources and Monitor Sets.

Speaker_Sets.TXT - patching and formats of all speaker sets.

Setup_Variables.TXT - Call Follow state and Constellation brightness.

Solo

Individual feeds may be soloed into the monitoring system. There are three solo modes which may be entered by pressing the **SOLO** key above any fader. These are solo-in-place or SIP, after-fader-listen or AFL, and pre-fader-listen or PFL. SIP mutes all other feeds leaving only the soloed feeds feeding the bus being monitored. SIP supports monitoring in any format. AFL and PFL modes replace the current monitor source with a stereo solo bus whenever a feed is soloed. All soloed feeds are routed to the solo bus. Soloed link groups are automatically downmixed to allow all their members to be monitored in the stereo monitor bus, normal monitor down mixing occurs between the monitor bus and the selected speaker set.

The AFL solo signal is derived after the feed fader and mute. PFL solo is derived before the feed fader and mute.

Hold down a **BLUE** key and press the **Utils** key to enter the Utils menu. Press the `{Solo}` soft key to select the solo system to be used.

Soloed feeds are shown with a green indicator on the mixer video display.

See "Solo" on page 74 for more details on the mixer solo system.

Solo Clear

The **Solo Clear** button clears all currently soloed paths, press the **Solo Clear** button again to restore the soloed channels.

SIP Defeat

Press the **SIP Defeat** key in the Path Configuration section of the Channel Panel to prevent the selected feed from being muted when other feeds are put into SIP. Alternatively, hold down a **BLUE** key and press the **MUTE** key above any fader to toggle SIP Defeat for that channel. This feature is useful for keeping reverb returns live when channels feeding them are soloed.

SIP Defeat feeds are shown with a grey solo indicator on the mixer video display.

SIP Defeat is sometimes referred to as Solo Safe.

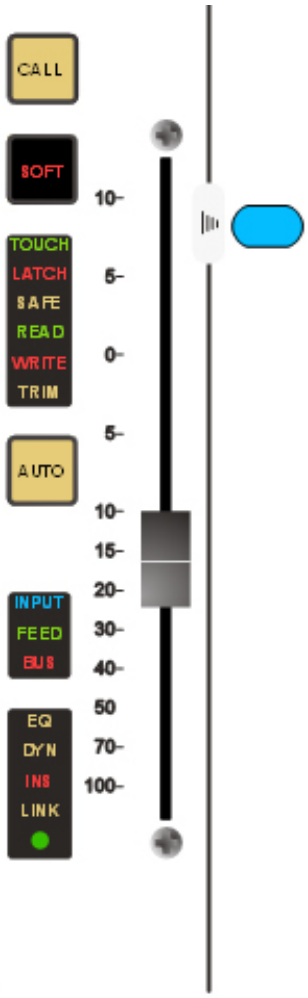
Disk Recorder Solo

The disk recorder solo system allows an selection of track to be soloed. For details of the disk recorder solo and mute functions, see "Solo and Mute" on page 180.

Chapter 7 - Faders

Introduction

Constellation-XT has one touch sensitive motorised Master Fader, which can be used to control the level of an individual feed, a bus, or a group of feeds. The fader section includes **MUTE** and **SOLO** buttons for eliminating and isolating a feed from the mix. In addition, the fader section includes a **Master** key to call the Main bus to the fader for level control, and the **AUTO** key for arming automation record.



Operation

Calling a Signal Path to the Master Fader

To assign the Master Fader to control a particular signal path, the signal path is called to the fader. Press the **CALL** key then press a feed selection key to call an individual feed or a pre-defined group of feeds, or press the **Main** bus key, or a **Sub** or **Aux** bus key or a Multitrack Bus. Calling any member of a Link Group will call the entire group to the Master Fader. To call a Fader Group, hold down the **Fader Group** key and press a Fader Set selection key. Group operation is described in detail in "Grouping" on page 150.

A signal path can be called to the Master Fader in three ways:

Press the CALL key on a particular fader.

Touch a tile on the main Mixer screen.

Use the CALL key.

Step 1 Press the **Call** key.

Step 2 Press a feed selection key, or the **Main** bus, or **Sub**, or **Aux** bus, or a Multitrack Bus (using the **Multi Track** key and a **Live Feed** key). The fader now controls the level of the selected signal path and the path is displayed at the bottom of the mixer display.

Fader Follows Selection

The fader selection can automatically follow the most recent signal path selection for context sensitive level control. Press the **CALL** key and press the `{Follow}` soft key to select the follow mode. Follow can be set to one of the following states:

Call by Solo	The Master Fader controls the most recently soloed signal path in mix mode. This refers only to mixer solo, engaged by pressing the **SOLO** key next to a fader.

The Master Key

The **Master** Key allows the Main Bus level control to quickly be called to the Master Fader and Channel Panel. Press the **Master** key again to return to the previous selection.

Solo

Constellation offers two solo systems, disk recorder solo and the mixer solo.

Zero Faders and Pan Pots

A fader can be set to exactly zero dB by holding down the **BLUE** key and touching the fader.

Similarly a pan pot can be placed exactly in its centre position by holding down the **BLUE** key and touching the pan pot.

Mixer Solo

Individual feeds may be soloed in the monitoring system. There are three solo modes which may be entered by pressing the **SOLO** key next to any fader. These are solo-in place or SIP, after-fader-listen or AFL, and pre-fader-listen or PFL.

SIP mutes or reduces the level of all un-soloed feeds, leaving the soloed feeds feeding the bus being monitored, at the normal level set by their faders. SIP supports monitoring in any format, determined by the current monitor source.

AFL and PFL modes replace the current monitor source with the stereo solo bus whenever a feed is soloed. All soloed feeds are routed to the solo bus. Soloed link groups are automatically upmixed or downmixed to allow all their members to be monitored in the stereo monitor bus, normal monitor upmixing or downmixing occurs between the monitor bus and the selected speaker set.

The AFL solo signal is derived after the feed fader and mute. PFL solo is derived before the feed fader and mute.

To set the solo mode:

Step 1 Clear any soloed channels by holding down a **BLUE** key and pressing the main **SOLO** key.

Step 2 Hold down a **BLUE** key and press the **Utils** key to enter the Utils menu.

Step 3 Press the {Solo} soft key to select the solo mode to be used.

Soloed feeds are shown with a green indicator on the mixer video display.

Solo Clear

The **Solo Clear** button clears all currently soloed paths.

Solo Contrast

When a feed is soloed in SIP mode all other feeds are reduced in level by the amount set in the **Utils** menu. To adjust the solo contrast:

Step 1 Hold down the **BLUE** key and press the **Utils** key.

Step 2 Press the {Solo} soft key and turn the jog wheel to set the gain reduction level. The range is 0 to -100dB, -100dB is off.

SIP Defeat

Press the **SIP Defeat** key in the Path Configuration section of the Channel Panel to prevent the selected feed from being muted when other feeds are put into SIP. Alternatively, hold down a **BLUE** key and press the **MUTE** key above any fader to toggle SIP Defeat for that channel. This feature is useful for keeping reverb returns live when channels feeding them are soloed.

SIP Defeat feeds are shown with a grey solo indicator on the mixer video display.

SIP Defeat is sometimes referred to as Solo Safe.

Call Follows Solo

The current feed called to the Channel Panel and Master Fader can follow the currently soloed feed. Call follows solo is enabled in the **Call** menu:

Step 1 Press the **Call** key to display the Call menu.

Step 2 Press the {Call by Solo} soft key to toggle call follows solos on or off.

Disk Recorder Solo

To solo a random selection of tracks use the **Solo** key located in the upper set of function keys. This function is not included in mix automation. Indicators next to the track numbers on the track display show red for soloed tracks and blue for muted tracks.

Step 1 Press the **Solo** key located in the upper set of function keys.

Step 2 Select the feeds that are to be soloed by pressing the feed selection keys to toggle feeds in and out of the selection. The currently soloed feeds are illuminated.

Step 3 Press the **Solo** key again to return to the previous mode. While any signal path is soloed, the **Solo** key flashes.

An alternative way of using the **Solo** key is to hold it down, make a selection of signal paths, then release it. This causes immediate return to the previous operation mode.

Solo Menu

The disk recorder solo functions are available from the **Solo** key at the top of the Constellation. While the **Solo** key is held down, or while its menu is active, the soft key menu offers a number of additional functions:

Solo On/Off — Pressing the Solo ON/OFF soft key toggles the currently selected group of signals in and out of solo.

Mute

A single feed, fader or link group can be muted using the **MUTE** key in the Master Fader section, or above any fader. This mute function can be automated along with other parameters. Muted feeds are shown with a red indicator on the mixer video display.

Disk Recorder Track Mute

To mute a random selection of tracks use the track **Mute** key located in the upper set of function keys. This function is not included in mix automation. Indicators next to the track numbers on the track display show blue for soloed muted tracks.

Step 1 Press the track **Mute** key located in the upper set of function keys.

Step 2 Select the tracks that are to be muted by pressing the track selection keys to toggle feeds in and out of the selection. The currently muted feeds are illuminated.

Step 3 Press the **Mute** key again to return to the previous mode. While any signal path is muted, the **Mute** key flashes.

An alternative way of using the **Mute** key is to hold it down, make a selection of signal paths, then release it. This causes immediate return to the previous operation mode.

The disk recorder mute functions are available from the **Mute** key at the top of the Constellation. The While the **Mute** key is held down, or while its menu is active, the soft key menu offers a number of additional functions:

Mute On/Off — The On/Off soft key toggles the entire set of muted channels on and off.

The Soft Key

When automation Mix On is selected and either the Mix or Enable menus are displayed, the Soft Key on each fader strip can be used to add the feed to the enable matrix.

Automation Mode Selection

The **AUTO** key places the selected signal path in automation record.

Fader Displays

The status of the signal path associated with each fader is indicated with illuminated tally displays.

TOUCH — The fader is being touched.

LATCH — Touch is active and in Latch mode. Once a control is touched it will continue to write data after it is released.

SAFE — The selected signal path is in safe mode and will not update automation data.

READ — The selected signal path is in read mode and playing back automation data in mix mode.

WRITE	The selected signal path is armed to write automation data, the Constellation is in write mode and recording automation. The WRITE indicator flashes while in Preview or when in Glide-Back.
TRIM	The selected signal path is set to trim automation data, the Constellation is in trim mode and recording automation. The TRIM indicator flashes while in trim mode but not recording.
INPUT	The fader controls the input level to a disk recorder track.
BUS	The fader controls a bus level.
LINK	The fader is a member of a link group.
Signal LED	The Signal present LED monitors the channel audio level. For Track Feeds the level is taken before the channel processing or inserts, after the disk recorder. For Live Feeds the level is taken before the channel processing. The default signal present thresholds are as follows: -50dBFS=green; -20dBFS=amber; 0dBFS=red. Elements of these settings can be customized using the System_Variable File. See "Metering Numeric Peak Level" on page 235 for more details.

Using Groups

Fader Groups provide an efficient means of controlling more than one signal from a single fader. The inherent bus structure associated with multiformat work is handled seamlessly through the use of Link Groups. These aspects of the DREAM II system are discussed fully in "Grouping" on page 150.

Naming Feeds and Buses

Feeds, link groups and buses can be named from the **Call** menu.

Step 1 Press the **Call** key to access the Call menu.

Step 2 Press a track, live or bus selection key to call a path to the master fader.

Step 3 Press the `{name}` soft key and type a name on the PC keyboard.

Step 4 Press **Enter** to store the name. The name will now appear on the fader LCD and on the mixer display.

Press the **Tab** key to enter the name and step to the next feed. Hold the **Shift** key and press **Tab** to move to the previous feed.

Controlling the Signal Path

Channel Panel

Once a feed or bus has been called to the Master Fader, all the elements of the signal path may be controlled from the dedicated controls on the Channel Panel. See "The Channel Panel" on page 84 for complete details on using the EQ, Pan, Dynamics and Auxiliary sends.

Input Gain and Phase

Input gain and phase controls are accessed from the **Patch I/O** menu.

Step 1 First enter the Patch I/O Menu by pressing the **Patch I/O** key.

Step 2 Select the feed or feeds whose inputs you wish to adjust.

Step 3 Press the {Gain} soft key.

Step 4 Use the Jog wheel to adjust the value or use the numeric keys and press **Enter** to complete.

To set input phase:

Step 1 First enter the Patch I/O Menu by pressing the **Patch I/O** key.

Step 2 Select the feed or feeds whose inputs you wish to adjust.

Step 3 Press the {Phase} soft key to toggle the phase of the selected inputs.

See "Input Gain and Phase" on page 49 for more details.

Inserts

Inserts are controlled from the **Insert Config** menu.

Step 1 Enter the Insert Menu by pressing the **Insert Config** key on the Path Configuration section of the Channel Panel.

Step 2 Press the {Send/Return} soft key to select patching for outputs or inputs.

Step 3 Select the feed or bus to be inserted.

Step 4 Press the {Patch} soft key to select physical inputs or outputs for the insert send and return.

Step 5 Press the {ANALOG/DIGITAL} and {AES/MADI} soft keys to choose the desired type of input or output.

Step 6 Press a track feed selection key to select a physical input or output.

Press the {ON/OFF} soft key to switch the insert in or out of circuit.

Direct Outs

Step 1 Press the **Direct Config** key on the Path Configuration section of the Channel Panel to enter the Direct Outputs menu.

Step 2 Select a feed or bus.

Step 3 Press the {Patch} soft key to select a physical output for the direct out.

Step 4 Use the {ANALOG/DIGITAL} and {AES/MADI soft} keys to choose the desired type of output.

Step 5 The track feed keys may now be used to select outputs for the Direct Out.

Press the {Direct ON/OFF} soft key is used to turn the direct output on and off.

Press the {Pre/Post} soft key to derive the direct output from before or after the feed or bus fader.

Press the Gain soft key and turn the jog wheel or use the numeric keys to enter a gain value for the direct output. Press **Enter** to complete the operation.

Faders To...10

The **Faders To...** menu allows the channel faders to be assigned to one of a number of feed parameters.

Press the **Faders To...** key to toggle the fader between its normal function and the function selected in the **BLUE Faders To...** setup menu. The faders will snap to the level of the selected parameter on each channel. All other controls on the Channel Panel continue to function normally.

To select the **Faders To...** function follow these steps:

Step 1 Hold down the **BLUE** key and press the **Faders To...** key to display the Faders To... menu.

Step 2 Press one of the menu soft keys to select one of the following functions:

`{Input}`	allows the faders to control the signal level prior to the disk recorder in a track feed.
`{Direct Output}`	the faders control the direct out level of each feed.
`{Boom Level}`	the fader controls the Boom level for each feed.

OR

Select an Aux bus or a reduction Sub-Bus to control the feed send level to the selected bus.

Select a Sub-Bus that has been set up for bus reduction to control the independent feed fader for that bus. See "Bus Reduction" on page 60 for details on bus reduction.

Step 3 Press the `{Auto Monitor}` soft key when a bus is selected to automatically switch that bus in to the monitoring chain whenever the **Faders To...** key is pressed.

Faders to Aux

While **BLUE Faders To...** is active, any of the **Aux** bus selection keys may be selected and the Aux key will be illuminated. All channel faders now control the level at which their signal path is sent to the selected Auxiliary bus (Bus Master faders are excluded).

The **MUTE** key now controls the aux send ON/OFF control. If the selected Aux bus is wider than mono, the soft pot allows the panning of the aux send to left and right bus elements.

The mute, pan and fader controls may be automated and will record data for the aux bus send level, pan and ON/OFF parameters. Use the enable keys next to the Master fader to enable these parameters for automation.

Select a Sub-Bus that has been set up for bus reduction to control the independent feed fader for that bus. See "Bus Reduction" on page 60 for details on bus reduction.

Step 4 Press the `{Auto Monitor}` soft key when a bus is selected to automatically switch that bus in to the monitoring chain whenever the **Faders To...** key is pressed.

Faders to Reduction Bus

While **BLUE Faders To...** is active, Sub buses which are configured for bus reduction may be selected and the bus selection key will be illuminated. All channel faders now control the level at which their signal path is sent to the selected Sub-Bus.

The **MUTE** key now controls the bus assignment to the selected Sub-Bus.

The mute, pan and fader controls may be automated and will record data for the bus send level, pan and assignment parameters. Use the enable keys next to the Master fader to enable these parameters for automation. See "Bus Reduction" on page 60 for more details.

If the signal path is a Link Group, the rotary control allows the balance of the sends to Elements of the Aux bus.

Fader To Reduction Sub-Bus

While **BLUE Faders To...** is active, any of the **Sub** bus selection keys of Sub-Buses configured for bus reduction may be selected and the **Sub** key will be illuminated. All channel faders now control the level at which their signal path is sent to the selected Sub bus (Bus Master faders are excluded).

The **Mute** key now controls the bus assignment to the selected Sub-Bus for the feed. This has the effect of muting the feed signal in the selected bus.

The reduction bus channel fader may be configured to pre or post the normal channel fader. This is achieved using the **Bus Params** menu. When set to `{Post}`, the reduction channel fader defaults to 0dB and provides an offset to the normal channel fader. When set to `{Pre}`, the reduction channel fader provides an independent mix level for the reduction Sub-bus. See "Bus Reduction" on page 60 for more details.

The mute and fader controls may be automated and will record data for the bus send and bus assign parameters. Use the enable keys next to the Master fader to enable these parameters for automation.

Fader To Input

While **BLUE Faders To...** is active, the `{Input}` soft key may be chosen. All track feed faders now control the level prior to the disk recorder. This can be used to control the level going to disk during recording. Note that live feed faders are inactive when Faders To Input is selected.

The fader control can not be automated.

Faders to Direct Output

While **BLUE Faders To...** is active, the `{Direct Output}` soft key may be chosen. All channel faders now control the direct out level.

The **Mute** key toggles the direct output ON and OFF.

The fader control may be automated and will record data for the direct out level parameter. Use the enable key next to the Master fader to enable this parameter for automation.

Fader To Boom

While **BLUE Faders To...** is active, the `{Boom}` soft key may be chosen. All channel faders now control the boom level.

The **Mute** key toggles the boom ON and OFF.

The fader control may be automated and will record data for the boom level parameter. Use the enable key next to the Master fader to enable this parameter for automation.

Faders to Bus Reduction

While Blue Faders To is active, all Sub-Buses assigned to Bus Reduction are dimly lit. Any of them may be pressed, causing the faders to control the levels going to the reduced bus.

In this mode, faders and rotary controls output offsets from the levels going to the Main Bus. By default, the levels and pans being sent to the reduced bus are the same as those sent to the Main Bus, but the controls allow offsets to be created, and recorded to automation.

If the fader offset is zero, the fader is located at 0 dB, so its position always reflects the offset of the level to Bus Reduction against the level to the Main Bus. This means there is a limit of +10 dB on the offset.

If the LR pan offset is zero, the pan control is at 12 o'clock when LR pan is selected for the channel. Similarly for the FB pan control. Divergence, Spread and Rotation all act to produce offsets to the panning of the signal path selected to the CAP.

The Mute key on each fader acts in tandem with the Mute control setting of the send to the Main bus. Its effect is to toggle the Bus Reduction Mute EQUAL or OPPOSITE the Main Bus Mute.

For example, if the Main Bus Mute is ON, then the signal path will send no level to the Main Bus. By default it will send no signal to the Bus Reduction Sub-bus either.

In this situation the Bus Reduction Mute is in EQUAL mode, and its light will show ON, because the channel is muted. If the key is now pressed, the Bus Reduction Mute goes to OPPOSITE, the Bus Reduction send level is unmuted, and the light goes OFF.

If the Main Bus Mute is turned OFF at this time (by the automation for example), the Bus Reduction Mute goes ON, because it is still in OPPOSITE mode.

Faders To … under Automation

While Faders To is active, the parameters controlled by the individual control elements (Fader, Panpot, Mute Switch etc.) are recorded into the automation as usual. The Enable buttons associated with those controls, which are found on the single fader located in the editing panel, are used to enable the currently controlled parameters, not the normal ones. There are Enable buttons for the Fader, panpot and Mute Switch, but not for the Solo key. When that is being used to control a parameter, as in the case of Faders to Aux when it controls the Pre/Post switching, it can only be separated from the recording of the other controls by using Trim Mode or Touch Write, which are described in Chapter 3, Automation, on page 189.

Channel Faders

Constellation may be loaded with up to 48 channel faders. Each fader may control a live or track feed, a bus, a link group master, or a fader group.

The signal path associated with each fader is determined by the current fader set. The name of the signal path is displayed in the LCD window above each fader. The default fader sets display feeds and buses in ascending numerical order from left to right. See "Fader Sets" below for more information on using fader sets.

The Call Key

Press the **CALL** key on any fader to call the signal path assigned to that fader to the Channel Panel.

Zero Faders and Pan Pots

A fader can be set to exactly zero dB by holding down the **BLUE** key and touching the fader.

Similarly a pan pot can be placed exactly in its centre position by holding down the **BLUE** key and touching the pan pot.

Fader Sets

Channel Faders are assigned to signal paths using the **Map** key in the Fader Set Section.

Fader sets define the function of each channel fader on the Constellation. Fader sets are stored along with the preset snapshot in each project. In addition, separate fader set setups are stored in each automated mix that is saved. There are 10 fader sets available at any time. Press any fader set key to instantly recall that fader configuration.

Mapping Fader Sets

Step 1 Press the **Map** key in the Fader Set section.

Step 2 Press a fader set number key to select the fader set to map.

Step 3 The **CALL** key on the first fader will flash to indicate that it is ready to be defined.

Selection keys on the selection panel for signal paths already in the current fader set are illuminated. The selection key of the path currently assigned to the current fader will flash.

Press any feed, bus or group selection key on the selection panel to assign that path the current fader.

Step 4 The next fader is automatically selected and the path assigned to it flashes. Continue to assign faders in order or select a fader out of sequence by pressing its **CALL** key and making a selection on the selection panel.

Step 5 Press the **Map** key to complete mapping or select another fader set to map.

Mapping Multiple Faders

A range of feeds may be mapped to a range of faders.

Step 1 Press the **Map** key.

Step 2 Press the **CALL** key of the first fader in the range.

Step 3 Hold down the first selection key in the range and double press the last selection key.

The paths selected will replace the paths previously assigned to the sequence of faders starting with the fader selected.

Mapping Link Groups

If a member of a link group is selected to map to a fader, only the link group master is assigned. If a link group is included in a range, the group takes up only one fader.

Inserting and Deleting Faders

When the **Map** key is pressed the map menu is displayed in the LCD. Press the `{Insert}` key to insert a path at the current fader position. Press the `{Delete}` key to delete the current path from the fader set. Press the `{Blank}` key to leave the current fader un-mapped.

Holding Faders

To temporarily retain a selection of channels in their current fader positions when recalling a new fader set, simply touch and hold the faders while pressing a fader set key. The existing channels will temporarily replace those in the new fader set.

Press the fader set key without holding a fader, to resume the normal fader set.

Chapter 8 - The Channel Panel

Introduction

The Channel Panel provides all the detailed processing control needed for one signal path. Signal paths are called to the Channel Panel and the Master Fader one at a time to have their parameters adjusted. The currently called signal path is displayed in the channel display on the mixer screen.

Multi Trim allows multiple paths to be controlled at once see "Multi Trim" on page 155 for more details. Link groups allow groups of faders to be adjusted from a single control, see "Grouping" on page 150 for more details.

Calling a Signal Path

The **Call** key may be used at any time to select any signal path to the Master Fader:

Step1 Pressing and releasing **Call** causes the function to latch on. In this mode, the **Feed** or **Bus** key representing the signal path currently on the Master Fader is illuminated.

Step 2 Pressing any other selection key brings that signal path to the Master Fader, whereupon its key is illuminated fully and all other selection keys are extinguished. Only one signal path may be selected at a time in Call mode, however this may include multichannel link groups or buses.

Step 3 Pressing the **Call** key again exits Call mode, and returns the system to the previous mode of operation.

The selection of elements that existed in that previous mode is restored, with the signal path selected in Call mode remaining on the Master Fader.

The **Call** key may also be pressed and held while calling a signal path to the Master Fader. In this case, releasing the **Call** key returns the system to its previous mode and selection immediately.

Pressing the **Call** key on any fader on a fader panel will call that signal path to the Master Fader and Channel Panel.

Call Follow

Call Follow enables the current edit or mix selection always be called to the Master Fader. This provides context sensitive control for fast, intuitive mixing control. The last signal path selected will be the current Master Fader selection.

Press the **Call** key to access the Call Follow menu. Call Follow has five options:

Edit	When in Edit mode any path selected is called to the Master Fader.
Mix	When in Mix mode any path selected is called to the Master Fader.

All	Any selection in Mix or Edit mode is called to the Master Fader.
Off	The Call key must be pressed before selecting a signal path for control by the Master Fader and Channel Panel.
Solo	Call by Solo: Pressing the Solo key above a fader calls the path to the Channel Panel
Touch	Call by Touch: Touching a fader calls its signal path to the Channel Panel

Channel Panel General Operation

The Channel Panel consists of five sets of dedicated user controls. When using the Channel Panel a signal path is called from the selection panels or by pressing the **Call** key on an individual fader. The Channel Panel controls are:

Equalisers	4 band parametric / shelving / notching equalisers plus 2 bands of switchable hi / lo-pass filters and shelving EQs.
Panning	Complete surround panning including diverge, rotate and spread.
Dynamics	Compressor plus limiter and expander or gate.
Auxiliary Sends	Four aux sends with discrete sets of controls, plus two controls shared by eight sends.
Path Config-uration	Overview of complete signal path with dedicated controls for gain, delay and phase, plus configuration keys for inserts, direct outs, patching and routing.

The Master Fader

The Master Fader provides level control to whichever signal path has been called to the Channel Panel.

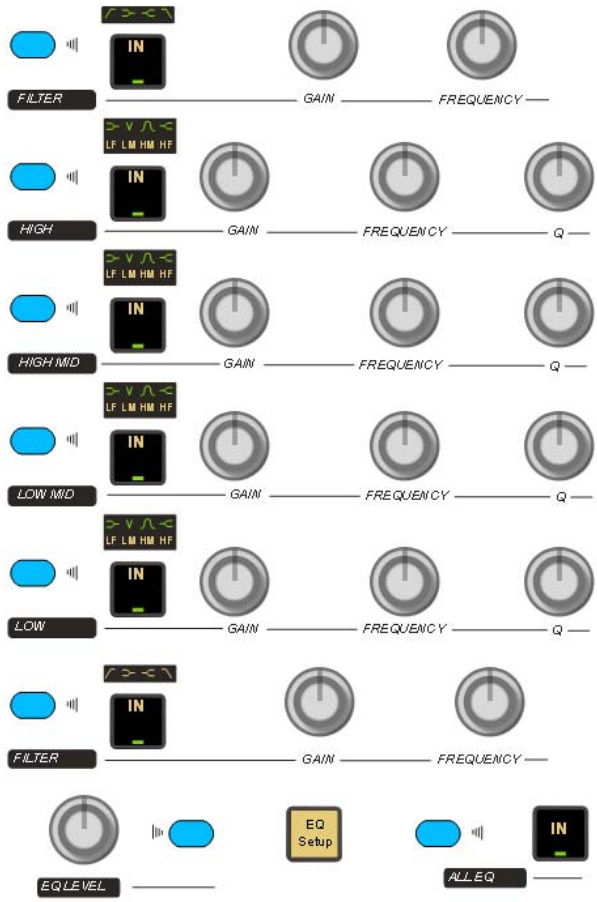
Equaliser

The equaliser provides four bands of parametric EQ and two filters. Each parametric section can be switched to band-pass/reject, shelving or notch. Each parametric section can be switched to one of four ranges:

- LF - 10-250Hz;
- LMF - 50Hz-1k50Hz;
- HMF - 450-8k00Hz;
- HF 1k40-22k0Hz.

Each parametric section provides +/-18dB of gain. Q has a range of 0.3 to 10. When notch is selected the filter has a gain of 0 to -99dB

The equaliser can be bypassed and also provides a gain makeup control with a range of +/-18dB.



Using the Equaliser

The equaliser controls are organised into six equaliser sections plus the lower section containing gain make-up and EQ Setup and EQ bypass controls. As the EQ parameters are modified their values are displayed in the fat channel display at the bottom of the mixer video display.

Starting with the lower section, the **Level** control provides gain make-up with a range of +/-16dB. The **Level** control can be included in the current automation parameter selection by pressing the blue enable key.

The **EQ Setup** key is used to toggle the function of the key in each section between Shape, Range and Bypass. Press the key once and shape displays will flash allowing selection of the shape of each filter by using the **IN** key on each section. Press the **EQ Setup** key again and the band displays on each section flash. Press the **EQ Setup** key again and the IN keys on each section adopt their normal bypass function.

The **EQ IN/OUT** bypass key bypasses the entire equaliser on the selected signal path when not illuminated.

Filter Sections

Sections 1 and 6 control hi or lo-pass or shelving filters. Press the **EQ Setup** key once to select control over the filter shape. Press the **IN** key on each section to step through the available filter shapes: shelving, hi-pass, or lo-pass.

The **Gain** control controls the gain of shelving filters with a range of +/-18dB. The slope of hi or lo-pass filters are fixed at -12dB/octave. The actual gain and slope values are displayed on the fat channel at the bottom of the mixer video display.

The **Freq** control of the filters provides the following ranges of control:

hi-pass: 20Hz - 1.50kHz

lo-shelf: 10Hz - 1.50kHz

lo-pass: 3kHz - 18kHz

hi-shelf: 8kHz - 22kHz

The blue enable key at the left of the filter sections add all the controls in the section to the current automation parameter selection.

Parametric Sections

Sections 2 to 5 control parametric equalisers. Press the **EQ Setup** key once to select control over the filter shape. Press the **IN** key on each section to step through the available filter shapes: lo-shelf, notch, band-pass or hi-shelf. Press the **EQ Setup** key again to select control over the frequency range. Press the **IN** key on each section to step through the available ranges: LF - 10-250Hz; LMF - 50Hz-1k50Hz; HMF - 450-8k00Hz; HF 1k40-22k0Hz.

The **Gain** control controls filter gain with a range of +/-18dB for band-pass. The **Frequency** control controls the centre or cut-off frequency of the filter in the ranges described above.

The **Q** control controls the Q of band-pass/reject filters with a range of 0.3 to 10.

The blue enable key at the left of the EQ sections add all the controls in the section to the current automation parameter selection.

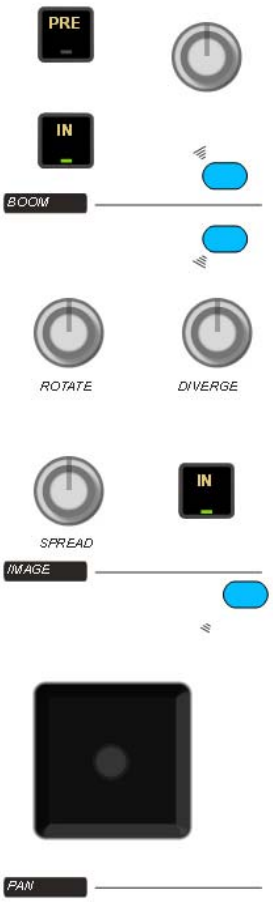
EQ Flat

To quickly set an individual band to flat, hold down a blue key and press the band **IN** key to set the gain to 0dB.

To flatten the entire EQ section, hold down a **BLUE** key and press the **EQ IN** key. This will set the entire EQ section to a default flat set-up with low shelf, low mid and high mid parametric, and high shelf filters.

The Surround Panner

The Channel Panel provides controls for a comprehensive surround panning system. The panner automatically configures itself for control of signals within all the supported surround formats. In addition to simple two-dimensional panning of a mono signal, the surround panner provides advanced control of multichannel signal paths in contained in link groups.



The supported surround formats are: Stereo; LCRS; LCRSS; 5.1; 6.1; and 7.1.

For mono signal paths the pan control is a simple panner, moving the signal left to right, and front to back around the surround field with the addition of divergence control to increase the size of the sound field.

For link groups, the pan control pans all members of the link group at once, and adds spread and rotate functions which can imitate the effect of a camera pan with the entire surround sound field or collapse the entire sound field into a single point. Link groups can be created with default pan settings for each member, see "Link Group Format" on page 148.

The surround panner provides automated control of a level control matrix between the feeds and the individual bus elements of the buses to which the feed is currently assigned.

Using the Panner

Step 1 Call a signal path to the Channel Panel by pressing the **CALL** button then pressing a feed selection key or pressing the **Call** button on any fader. Or, use Call Follow as described in "Call Follow" on page 84 above. The signal path must be assigned to a bus for the panner to have any effect.

Step 2 Adjust the controls to achieve the desired result. The parameter values are displayed in the fat channel section at the bottom of the mixer video display. See the details of each

control below.

Joystick

The joystick provides control over the perceived source location of the signal within the surround sound field by applying proportional intensity panning. Moving the joystick from left to right moves the signal from left to right across the speaker system. Moving the joystick front to back only has effect in formats that have surround channels.

When a link group is created the master pan control for the group defaults to a centre position and applies offsets to the pan positions of the individual members.

The blue enable key adds the joystick to the current automation parameter selection.

Trackball

The trackball can also be used for two dimensional panning. Press and hold the **Pan** key below the trackball and move the ball to control the front/back position of the signal.

Panning IN/OUT

The Pan **IN/OUT** key bypasses the level control matrix of the panner and sends the signal path at unity gain to all destination bus elements.

The connection to individual bus elements may be turned on and off using stem assignment as described in "Stem Assign" on page 59.

If the signal being panned is a Link Group, all members of the group are sent to all bus elements.

Diverge Control

The diverge control spreads the signal of an individual feed across more of the adjacent loudspeakers making the perceived size of the sound source larger.

The diverge control operates in one-dimensional or two-dimensional mode. To switch between modes hold down the **BLUE** key and press the **Panning IN** key. The fat channel pan display changes from a bar to a circle when divergence is added.

The boom or LFE channel is not included in diverge.

One-dimensional Diverge

One-dimensional mode is useful for spreading a mono source across left, right and centre speakers in a 5.1 bus for example, without allowing the signal to move into the surround loudspeakers. The divergence control range is 0 to 100%. At 0% the panner behaves as if the signal were a single point source. When the signal is panned to front-centre, at 70% divergence the signal is sent at equal level to left, centre and right loudspeakers. The divergence control approximates an equal loudness contour as it adds signal to more loudspeakers. As the control moves beyond 70%, signal is removed from the centre loudspeaker or the loudspeaker closest to the pan target, and progressively added to the other loudspeakers. At 100% divergence there is no signal in the centre loudspeaker and the signal is distributed equally to left and right loudspeakers.

Two-dimensional Diverge

Two dimensional mode is useful for quickly spreading a signal to all loudspeakers or for contracting an effect from all loudspeakers down to a single speaker. Two-dimensional diverge

includes front and surround loudspeakers. As the divergence is increased towards 70% the signal is distributed to all loudspeakers. Beyond 70% the signal is removed from the loudspeaker closest to the pan target.

For Link Groups, divergence is applied to all members individually. When a link group is created with default pans, divergence is set to minimum.

The Spread Control

The spread control is only available when a link group is selected. The spread control adjusts the perceived size of a surround mix. The spread control range is from 0 to 100%. At 0 the display reads POINT, meaning point source. At 100 the display reads FULL, meaning full surround. At FULL spread the LR and FB pan controls have no effect as each member of the link group is hard panned to their respective bus elements. As the spread is reduced, the panning of each link group member is made to converge with the location of the link group master pan control. With the spread control less than full, the pan control enables the sound field to be moved to favour the location of the pan target. As the spread control approaches POINT, the panning of each member becomes closer to the pan location of the link group master. This has the effect of mixing the signals of each link group member so that they all emerge from the same loudspeakers as determined by the link group master pan.

When a link group is created with default pans, spread is set to maximum, divergence is set to minimum and rotation is set to zero.

The spread control can be used to great effect when it is desired to collapse the surround sound field to a point source. This may occur for instance, where the camera moves continuously from an interior shot to an exterior or visa versa. The surround field can be established for the interior and then as the camera moves through the door or window, the surround field collapses and pans and fades down to the location of the window. As this is occurring a pre-mixed surround field for the exterior can be growing from the rear speakers and spread out to the entire speaker system as the exterior shot is established.

Rotate Control

Rotate controls the left/right and front/back pan controls to rotate a single feed around the centre of the room. Adjust the front/back pan to reduce the radius of rotation.

Use rotate on a link group to rotate a pre-mixed surround sound field with respect to the listener's position. This effect is the audible equivalent of panning a camera, where all the elements in the visual field are subject to the same angular movement.

The rotate control range is from -180 to +180 degrees. When rotation is applied, the panning of each link group member is offset in the direction of the rotation.

Rotate can be used in conjunction with spread and link group pan to create more or less audible panning effects for the entire surround soundfield.

When a link group is created with default pans, spread is set to maximum, divergence is set to minimum and rotation is set to zero.

Hold down the **Pan** key below the trackball and turn the jog wheel to achieve continuous rotation.

Pan, Diverge, Spread, Rotate Automation Enable

The blue enable key adds this group of controls to the current automation parameter selection.

Boom

The Boom control is available when the selected signal path is feeding a bus whose surround format includes a sub-bass or low frequency effects channel. These include the following formats: 5.1; 6.1; and 7.1.

The boom level is independent of the panner position. The boom element of a link group is only ever assigned to the boom element of the bus to which the link group is assigned.

Boom ON/OFF

The signal sent to the boom element of a bus may be switched on or off using the In switch in the Boom section.

Boom Level

The **Boom Level** control adjusts the amount of signal sent to the boom element of the bus to which a feed or link group is assigned. The boom level control range is OFF to +10dB. This level control may be pre or post the feed fader.

Boom Pre/Post

The **BOOM Pre/Post** button determines whether the boom signal is derived before or after the feed fader. This allows the boom level to be controlled by a combination of the feed fader level and the Boom Level control, or in pre-fader mode, just the Boom Level control.

Dynamics

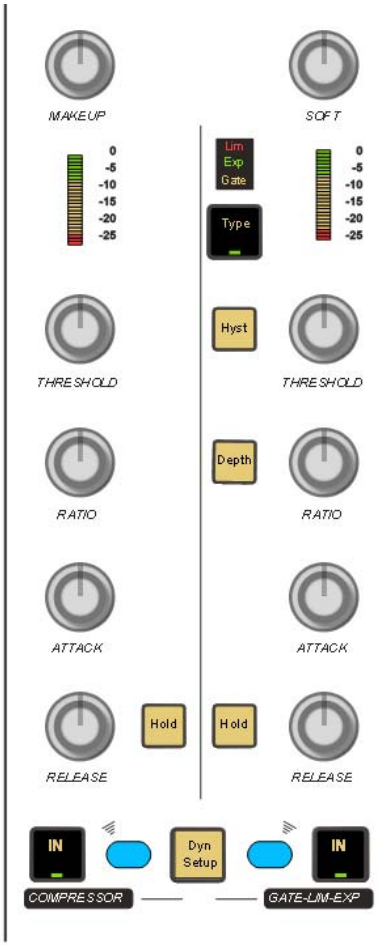
The DREAM II Dynamics comprises three sections, the first of which is a compressor, the second of which is a limiter, and the third an expander or a gate. The dynamics transfer function and parameter values are displayed in the fat channel at the bottom of the mixer video display.

The three sections are controlled as follows:

For the Compressor, use the dedicated controls.

For the Limiter, use the Type switch to select Lim, then use the controls at the right.

For the third section, use the Type switch to select Exp OR Gate, then use the controls at the right. If you change the setting from Exp to Gate or vice versa, the operation of the controls will change.



Compressor Parameters

Gain Makeup

The **Gain** control adjusts the gain makeup. This gain element is used to compensate for the overall gain reduction caused by reducing the dynamic range of the signal.

Gain Reduction Meter

The Gain Reduction Meter displays the amount of gain reduction being applied by the compressor.

Compression Threshold

The **Thresh** control adjusts the compressor threshold. This sets the signal level above which gain reduction occurs. The control range is -50 to 0dB.

Compression Ratio

The **Ratio** control adjusts the compression ratio. This sets the gain reduction ratio (input to output) applied to signals which rise above the threshold level. The control range is 1.0:1 to 10:1.

Compressor Attack Time

The **Attack** control adjusts the attack rate time constant of the sidechain detector. The control range is 0 to 100mS.

Compressor Release Time

Press the **Hold** key to toggle the **Release** control between Hold and Release. The **Release** control adjusts the release time constant of the sidechain detector. The control range is 0.03 to 4.03mS.

Compressor Hold Time

Press the **Hold** key to toggle the **Release** control between Hold and Release. Hold time controls the delay between applying gain reduction and commencing release of gain reduction.

Compressor Automation Enable

The blue enable key adds the compressor controls to the current automation parameter selection.

Compressor IN/OUT

The Compressor **IN/OUT** key bypasses the compressor section.

Limiter Parameters

Press the **TYPE** `Lim/Exp/Gate` key to select the Limiter controls.

Limiter Threshold

The **Thresh** control adjusts the limiter threshold. This sets the maximum output level of the limiter section. Control range is from -50 to 0dB.

Limiter Attack Time

The **Attack** control adjusts the attack rate time constant of the sidechain detector. The control range is 0 to 100mS.

Limiter Release Time

Press the **Hold** key to toggle the **Release** control between Hold and Release. The **Release** control adjusts the release time constant of the sidechain detector. The control range is 0.03 to 4.03mS.

Limiter Hold Time

Press the **Hold** key to toggle the **Release** control between Hold and Release. Hold time controls the delay between applying gain reduction and commencing release of gain reduction.

Limiter IN/OUT

The **Lim/EXP IN/OUT** key bypasses the limiter section.

Expander Parameters

Expander Threshold

The **Thrsh** controls adjusts the expander threshold. The expander threshold sets the signal level below which gain reduction occurs. The control range is from -50 to 0 dB.

Expander Ratio

The **Ratio** control adjusts expander ratio. This sets the gain reduction ratio (input to output) applied to signals which fall below the threshold level. The control range is 1.0:1 to 10:1.

Expander Depth

Press the **Depth** key to toggle the **Ratio** control between Ratio and Depth. Expander depth sets the maximum amount of gain reduction that will be applied when the signal falls below the expander threshold. When the signal falls below the level determined by the expander threshold minus the expander depth, no gain reduction is applied. The control range is from 0 to 60.2dB.

Expander Attack Time

The **Attack** control adjusts the attack rate time constant of the sidechain detector. The control range is 0 to 100mS.

Expander Release Time

Press the **Hold** key to toggle the **Release** control between Hold and Release. The **Release** control adjusts the release time constant of the sidechain detector. The control range is 0.03 to 4.03mS.

Expander Hold Time

Press the **Hold** key to toggle the **Release** control between Hold and Release. Hold time controls the delay between applying gain reduction and commencing release of gain reduction.

Gate Parameters

Gate Threshold

The **Thresh** control sets the signal level below which gain reduction occurs. The control range is from -50 to 0dB.

Gate Hysteresis

Press the **Hyst** key to select gate hysteresis for the **Thresh** control. The gate hysteresis, sets the difference between the level which must be exceeded to open the gate, and the level below which the signal must fall to close the gate. The control range is 0 to 12.5dB.

Gate Depth

Press the Depth key to select gate depth for the **Ration** control. This sets the maximum amount of gain reduction that will be applied when the signal falls below the gate threshold. When the signal falls below the level determined by the gate threshold minus the gate range, no gain reduction is applied. The control range is from 0 to 60.2dB.

Gate Attack Time

The **Attack** control adjusts the attack rate time constant of the sidechain detector. The control range is 0 to 100mS.

Gate Release Time

Press the **Hold** key to toggle the **Release** control between Hold and Release. The **Release** control adjusts the release time constant of the sidechain detector. The control range is 0.03 to 4.03mS.

Gate Hold Time

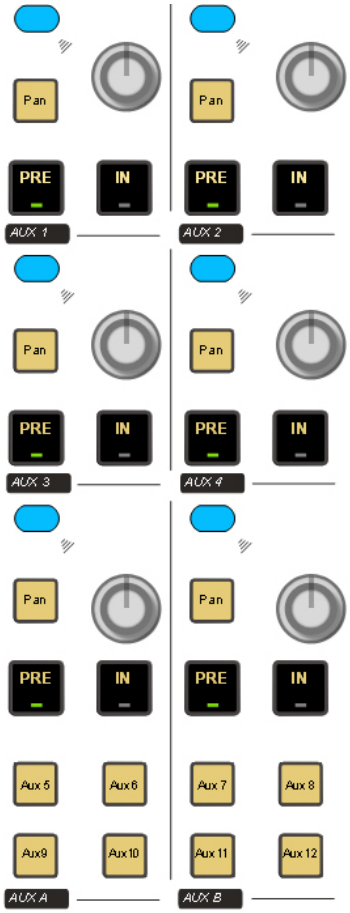
Press the **Hold** key to toggle the **Release** control between Hold and Release. Hold time controls the delay between applying gain reduction and commencing release of gain reduction.

Limiter/Expander/Gate Automation Enable

Press the blue enable key to add the limiter, expander and gate controls to the current automation parameter selection.

Auxiliary Sends

Each feed in Constellation includes twelve auxiliary bus sends. The auxiliary send signals are derived immediately before or after the feed fader. Each auxiliary bus may be configured in any of the supported surround formats. Press the **Bus Format** key and an Aux bus selection key to set an auxiliary bus format. See "The Bus Format Menu" on page 57 for more details. To control the auxiliary bus master level, **CALL** the bus to the Master Fader by selecting it from the bus selection keys.



Auxiliary Send Controls

The first four auxiliary sends have discrete controls while the last eight share two sets of controls. Each auxiliary send has the following controls:

Level

The level control adjusts the amount of signal sent from the selected feed to the auxiliary bus. The control range is OFF to +10dB.

Send ON/OFF

The send **IN/OUT** key toggles the feed to auxiliary bus assignment on or off. This control has the same effect as bus assignment via the bus assign menu.

Pan

If the selected bus is configured stereo, the pan control adjusts the amount of signal sent to each element of the auxiliary bus. If the bus is mono the pan control has no effect.

Press the **Pan** key to turn the pan control on or off. When the pan control is off the auxiliary send signal is sent to all auxiliary bus elements at equal level. Use Stem Assign to turn assignment to individual bus elements on or off see "Stem Assign" on page 59 for more details.

Pre/Post

Press the **Pre/Post** key to derive the auxiliary bus send level from before or after the feed fader.

Setting Aux Pan Post Feed Pan

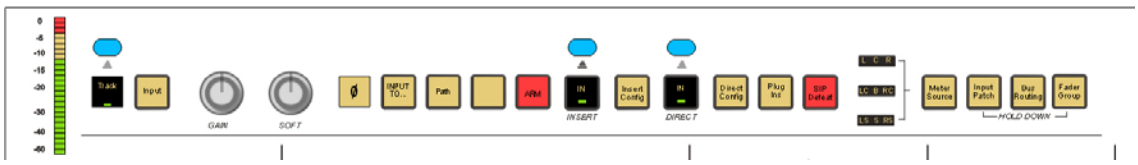
This is done in the **Bus Parameters** Menu.

Path Configuration

Not all path configuration features are available in DREAM II Software release 2.0. The available features are described below.

The Path Configuration section of the Channel Panel provides fast access to many patching and configuration functions for the selected signal path. Signal paths called to the Channel Panel may be mono feeds or link groups or buses with a number of bus elements. Path configuration operations may vary depending on the type of signal path being modified.

Changes made in the Path Configuration Section are displayed in the fat channel display at the bottom of the mixer video display.



Gain

The Gain controls the input level; -20 to +20 to the desired feed.

UP4 Mic Amp Control

It is possible to control the UP4 preamplifier using Ethernet remote control by Fairlight's DREAM II integrated mixing/editing systems. The "Soft" knob the handles input level and the Input switch handles Phantom power for the called channel, if it has a mic-linked input patched to it. A display has been added to indicate gain on the "Mix Screen Fat Channel Display".

Level Meter

The level meter at the left of the Path Configuration displays the signal level immediately prior to the fader. The **Meter Source** key can be used to switch the meter between the group members or bus elements within the signal path.

Gain

This control applies only to feeds with physical inputs. It trims the level in the signal path immediately after the analog to digital converter or the AES or MADI input. This is the same parameter that is found in the **Patch I/O** `{Inputs}` menu.

Phase

The phase reverse control inverts the signal at the physical input. This is the same parameter that is found in the **Patch I/O** `{Inputs}` menu.

Input To...

For Track Feeds only, Input To... allows the input to be routed to the track, or directly to buses to provide extra fader-controlled inputs to the mix.

Path

The Path Menu is opened by this key. It allows the user to determine the order of processing units in the signal path.

The menu includes five processing blocks, whose default order in a signal path is:

Record

EQ

Dyn

Insert

Meter

The Record block is only available when the signal path is a track feed.

All five (or four) blocks can be moved to any position in relation to each other.

To move a block:

Step 1 Select its soft key

Step 2 Move it to the left or right using the Move Left and Move Right soft keys.

Step 3 The block moves, and is displayed on the soft key to the right or left, swapping places with whichever block was previously there.

EQ and Dynamics cannot be moved while ON.

Arm

Arm is used make a track feed ready to record. The track must have an input patched to it before it can be armed, furthermore, the same input must not be patched to another track that is already armed.

If the current signal path is a Link Group made up entirely of Track Feeds, all the members with unique inputs may be armed.

The **Insert IN** key switches the insert in for the selected signal path. This only works if the signal path has insert send and return ports defined.

Each signal path may have inserts, except for Auxiliary buses.

Insert Enable

Insert Enable is used to add the **Insert IN** control to the current automation parameter selection.

Insert Config

Insert Config enters the insert menu.

Patching Insert Sends

Step 1 Press the **Call** key to call a feed or bus to the Channel Panel.

Step 2 Select the feed or bus to be inserted, or press the feed selection key of any member of a link group to select the group, or retain the existing selection.

Step 3 Enter the Insert Menu by pressing the **Insert Config** key on the Path Configuration section of the Channel Panel.

Step 4 Press the {Patch} soft key in the LCD menu.

Step 5 Press the {AES/MADI} soft key to choose the desired type of digital output, if required.

The track feed keys may now be used to select analog outputs for the insert sends and live feed keys to select digital outputs.

Outputs of the selected type (Analog and AES/MADI) currently patched to the selected bus element are brightly lit.

Outputs of the selected type (Analog and AES/MADI) currently patched to other sources flash off to dim.

Outputs of the selected type (Analog and AES/MADI) currently available are dimly lit.

Outputs of the selected type (Analog and AES/MADI) that are not fitted are unlit.

If the selected path is a bus or a link group the outputs can be selected for one bus or link group element at a time. The Speaker Mute key of the current bus or link group element is illuminated green.

Speaker mute keys for bus or link group elements already patched flash off to dim green.

Speaker mute keys for bus or link group elements not currently patched are illuminated dim green.

Step 6 Each insert send may be patched to a single output or multiple outputs. Press the {SINGLE/MULTI} soft key to select single or multi mode.

Step 7 In SINGLE mode Press a track key to select the output for the current feed insert send.

OR

If the selected path is a bus or link group, in SINGLE mode the current bus or link group element is advanced automatically when an output is selected. Press a track key to select the output for the current bus or link group element insert send.

The bus or link group elements advance in the following order: Left, Left Centre, Centre, Right, Right Centre, Left Surround, Centre Surround, Right Surround, Boom. Elements that are not in the current bus or group format are not displayed.

To skip the current bus or link group element press the {Next} soft key.

To remove patching for the current bus or link group element and leave it with no output, press the {Blank} soft key.

In MULTI mode outputs for the selected feed, bus or link group element may be toggled ON or OFF by pressing the corresponding feed selection keys. If the key is flashing, the system will warn you that the output is used by another signal path. Press a track key to add it to the outputs for the insert send.

To advance to the next bus or link group element press the {Next} soft key or press another speaker mute key to select that bus element out of sequence.

To complete patching press the **Insert Config** key to return to the previous state or select another path to patch by pressing a track or bus selection key.

Patching Feed Insert Returns

Step 1 Enter Call mode by pressing the **Call** key.

Step 2 Press the feed selection key of the feed you into which you want to patch an insert, or keep the current selection.

Step 3 Press the **Insert Config** key in the Path Configuration section of the Channel Panel.

Step 4 Press the {Returns} soft key on the LCD menu.

Step 5 Press the {Patch} soft key.
The **Track Feed** keys now show the analog physical inputs and the **Live Feed** keys show the digital physical inputs.

Step 6 Press the {ANALOG/DIGITAL} and {AES/MADI} soft keys to select the desired input type.

Inputs that are available for patching are illuminated dim.
Inputs of the selected type already assigned to the Feeds selected are brightly lit.
Inputs assigned to other feeds flash between off and dim illumination.
Inputs that are not installed are not illuminated and cannot be selected.

Step 7 Select the input by using the a feed selection keys.

If a signal path already has an insert return input, choosing another one will replace it, while choosing the current one will unpatch it.

Patching is completed by pressing an edit mode key or other menu key or by pressing **Insert Config** to return to the previous state.

Patching Link Group and Bus Insert Returns

Step 1 Press the **Call** key to call the bus or link group to the Channel Panel.

Step 2 Select the bus to be inserted by pressing a bus selection key or press the feed key of any member of a link group to select the group or, retain the existing selection.

To select a single member of a link group hold down the **BLUE** key and press the track key, then follow the procedure above.

Step 3 Enter the Insert Menu by pressing the **Insert Config** key on the Path Configuration section of the Channel Panel.

Step 4 Press the {Returns} soft key in the LCD menu.

Step 5 Press the {Patch} soft key.

The **Track Feed** keys now show the analog physical inputs and the **Live Feed** keys show the digital physical inputs.

Step 6 Press the {ANALOG/DIGITAL} and {AES/MADI} soft keys to select the desired input type.

Inputs that are available for patching are illuminated dim.
Inputs of the selected type already assigned to the bus or feeds selected are brightly lit.
Inputs assigned to other feeds flash between off and dim illumination.
Inputs that are not installed are not illuminated and cannot be selected.

Step 7 Bus elements and link group members are selected with the speaker mute keys.

Speaker mute keys corresponding to elements available in the current bus or link group format are illuminated dim green.

The current element for patching is illuminated bright green.

Elements that are already patched to inputs flash off to dim green.

The current bus or group element is advanced automatically when an input is selected. Press a feed selection key to select the input for the current bus or group element.

The bus or group elements advance in the following order: Left, Left Centre, Centre, Right, Right Centre, Left Surround, Centre Surround, Right Surround, Boom. Elements that are not in the current bus or group format are not displayed.

To skip the current element press the {Next} soft key.

To remove patching for the current bus element and leave it with no output, press the {Blank} soft key.

Step 8 To patch elements out of order press the speaker mute key of the element you wish to patch.

Inserts may be switched in and out of circuit by pressing the {ON/OFF} soft key. Insert return gain and phase may also be adjusted in the **Insert Config** menu.

Moving the Insert Point23

The path menu allows the position of the insert point to be moved within the signal path of any feed.

Step 1 Press the **Path** key which is located between **Phase** and **Arm** keys at the top of the Channel Panel to display the Path menu in the LCD.

Step 2 Press the {INS pre EQ/DYN} soft key to move the insert point prior to the equaliser and dynamics sections.

OR

Press the {EQ/DYN pre INS} soft key to move the insert point after the equaliser and

dynamics section.

The Signal Path display at the bottom of the mixer display is updated to show the current path configuration.

Direct IN

Direct IN switches on the Direct Output for the signal path. The signal path must have physical output defined for this purpose.

If the signal path is a Link Group, all the members with outputs defined may have Direct Output switched ON.

Any Feed or bus may be sent to a Direct Output. When a Feed which has physical output(s) defined for Direct Output is called to the CAP, the **Direct** key is dimly illuminated if the Direct Output is OFF and brightly lit if ON.

To switch the Direct Output on and off, press the **Direct IN** key.

Direct IN Enable

Direct IN Enable is used to add the **Direct IN** control to the current automation parameter selection.

Direct Config

The Direct Config key displays the Direct Menu.

Patching Direct Outputs

Step 1 Press the Call key to call a feed or bus to the Channel Panel.

Step 2 Select a feed or link group by pressing a track or live key or select the Main Bus, a Sub-Bus or an Aux Bus by pressing a bus selection key.

Step 3 Press the **Direct Config** Key on the Path Configuration Section of the Channel Panel.

Step 4 Press the `{Patch}` soft key in the LCD menu.

Step 5 Use the `{ANALOG/DIGITAL}` and `{AES/MADI}` soft keys to choose the desired type of output.

The track feed keys may now be used to select analog outputs for the Direct Out and the live feed keys for digital outputs.

Outputs of the selected type (Analog and AES/MADI) currently patched to the selected feed or bus element are brightly lit.

Outputs of the selected type (Analog and AES/MADI) currently patched to other sources flash off to dim.

Outputs of the selected type (Analog and AES/MADI) currently available are dimly lit.

Outputs of the selected type (Analog and AES/MADI) that are not fitted are unlit.

If the selected path is a bus or a link group the outputs can be selected for one bus

element at a time. The Speaker Mute key of the current bus element is illuminated green.

Speaker mute keys for bus elements already patched flash off to dim green.

Speaker mute keys for bus elements not currently patched are illuminated dim green.

Step 6 Each direct out may be patched to a single output or multiple physical outputs. Press the {SINGLE/MULTI} soft key to select single or multi mode.

Step 7 In SINGLE mode Press a track key to select the output for the current feed direct out.

OR

If the selected path is a bus or link group, in SINGLE mode the current bus or link group element is advanced automatically when an output is selected. Press a feed selection key to select the output for the current bus or link group element direct out.

The bus or link group elements advance in the following order: Left, Left Centre, Centre, Right, Right Centre, Left Surround, Centre Surround, Right Surround, Boom. Elements that are not in the current bus or group format are not displayed.

To skip the current bus or link group element press the {Next} soft key.

To remove patching for the current bus or link group element and leave it with no output, press the {Blank} soft key.

In MULTI mode outputs for the selected feed, bus or link group element may be toggled ON or OFF by pressing the corresponding **Track** or **Live** keys. If the key is flashing, the system will warn you that the output is used by another signal path. Press a feed selection key to add it to the outputs for the direct out.

To advance to the next bus or link group element press the {Next} soft key or press another speaker mute key to select that bus element out of sequence.

To complete patching press the **Direct Config** key to return to the previous state or select another bus to patch by pressing a bus selection key.

For a signal path with ports established for Direct Output, the {Direct ON/OFF} soft key can be used to turn the direct output on and off.

Direct Out Pre/Post

The direct output signal can be derived before or after the feed/bus fader. Press the {Pre/Post} soft key to toggle the direct output.

Direct Out Gain

The direct output signal can have gain or attenuation applied prior to the output. If all the outputs of the selected feeds have the same gain value, that value is shown in the LCD below the {Gain} soft key as an absolute value {ABS}, otherwise this field has the value 0 dB and is displayed as a relative value {REL}. {ABS} represents the absolute value of all Outputs. {REL} represents a trim or offset applied to all Outputs.

SIP Defeat

SIP Defeat, otherwise known as Solo Safe, prevents the signal path from being muted when another signal path is put into Solo-in-Place.

SIP Defeat may also be engaged by holding down a BLUE key and pressing the **MUTE** key on any channel. Solo Defeat is indicated by a grey S on the channel tile on the mixer display.

If multiple signal paths are selected and Multi Trim is ON, the **SIP Defeat** key will be solidly illuminated if all selected signal paths are SIP Defeated, and OFF if none of them are.

If some of them are SIP Defeated the key will flash, then pressing it once will remove SIP Defeat from all selected signal paths, double-pressing it will assert SIP Defeat for all selected signal paths.

Bus Routing

Bus Routing provides a fast alternative to the **Bus Assign** menu for assigning feeds and buses to buses.

Step 1 Call a signal path to the Channel Panel.

Step 2 Press and hold the **Bus Routing** key on the Path Configuration Section.

Buses to which the selected feed is currently assigned are illuminated.

Step 3 Press a bus selection key to toggle the assignment of the current path.

Fader Group

To assign the current feed to a fader group, hold down the **Fader Group** key in the Path Configuration section and press one of the Fader Set selection keys. See "Fader Group" on page 152 for more information on fader groups.

Multi Trim

The **Multi Trim** key allows the controls in the Central Assignment Panel to affect multiple signal paths at the same time.

While Multi Trim is active, all controls on the Central Assignment Panel and Master Fader temporarily act as master controls for all signal paths selected on the Selection Panel. For example, you may select Track Feeds 19-23, then increase the Band 1 gain for all of them.

The fader and rotary controls offset existing settings, while the switch controls are absolute, i.e. the first press of any switch puts all selected signal paths into one state, while subsequent presses change all of them to the other possible state. See "Multi Trim" on page 155 for more details.

The Clipboard

The **Clipboard** key displays a menu which allows copying of parameters from channel to channel. To use the clipboard, take the following steps:

Step 1 Call a signal path to the Channel Panel.

Step 2 Press the **Clipboard** key.

Step 3 Press the COPY soft key. This copies all the channel parameters from the currently called signal path to a clipboard.

Step 4 Call a different signal path to the Channel Panel.

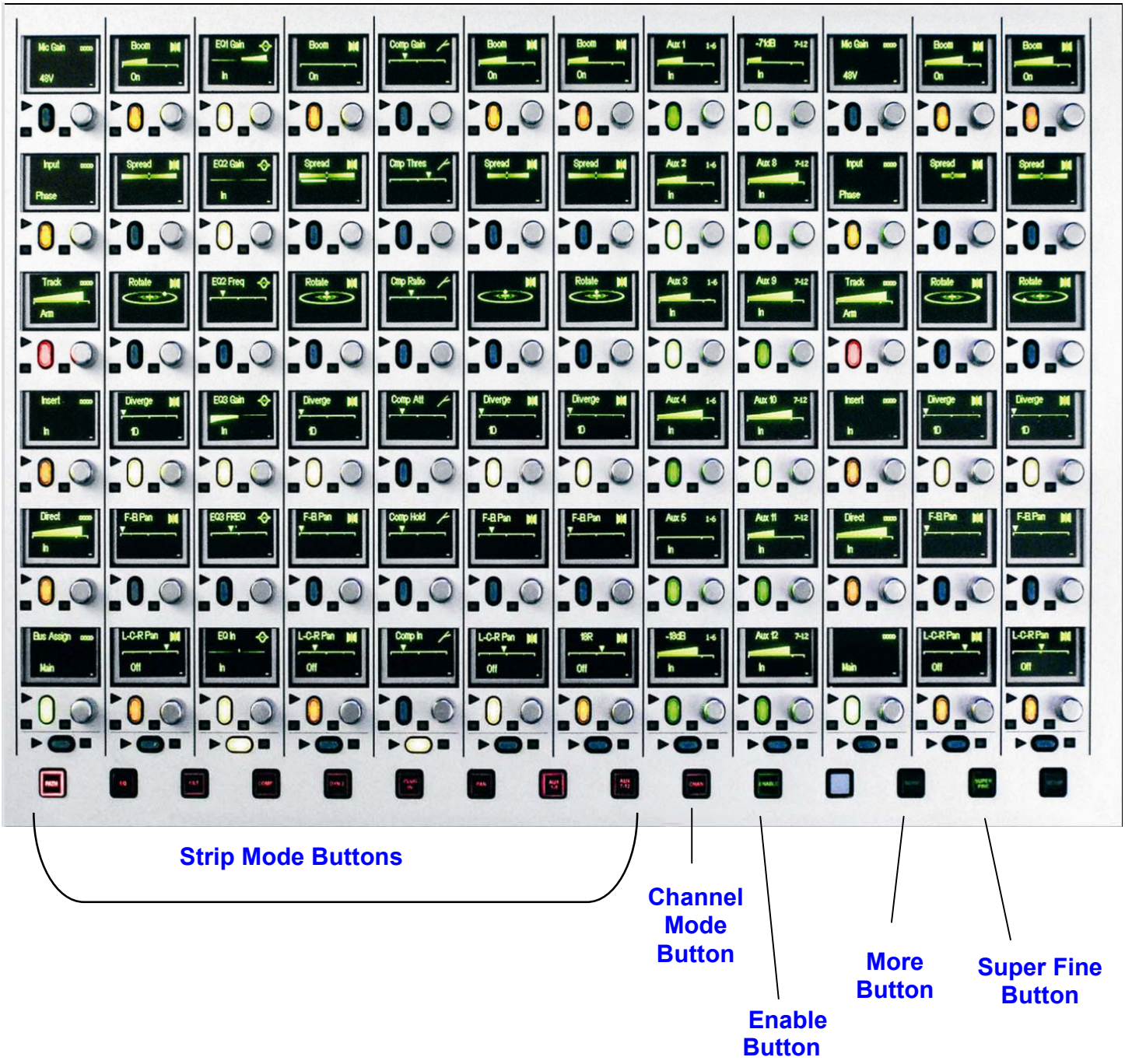
Step 5 Press any paste soft key. This pastes a selection of the clipboard parameters into the newly called signal path.

Chapter 9 - The In Line Panel

Introduction

The In Line Panel (ILP) provides controls for a number of signal paths at the same time, usually the ones belonging to the faders directly underneath. It can also be expanded to show more information about one channel.

Panel Controls



Strip Mode Buttons

These buttons are used to choose which parameters are displayed on the In Line Panel. They include the following parameter groups: Path, EQ, Filter, Comp, Dyn 2, Limiter, Pan, Aux 1-6, Aux 7-12.

To put a parameter group on one channel, press its button, then touch a rotary encoder on the target channel. You can have different parameters controlled for each different channel.

To put a parameter group on all channels, double-click its button. To exit that mode, double-click the illuminated strip mode button, and the system will return to the layout you had before.

Channel Mode Button

This button toggles the In Line Panel between its Normal Mode and its Fat Mode. These are explained just below.

Enable Button

This button is used to enable parameters for automation. To use it, press and hold this ENABLE button. Now "Tap" once on any of the touch-sensitive encoders to toggle its section's Automation enable.

Super Fine Button

This button is used to give very fine control with the rotary encoders. Press it once to gain about ten times the sensitivity on all encoders. Press again to release this function.

More Button

This button expands the functionality of a channel over one or two adjacent panels, giving more simultaneous controls. To operate it, press the More button, then double-tap any control to expand that channel.

To exit More mode, double tap a control on the expanded channel.

Control Functionality

Each control is equipped with a switch and a rotary control.

Display Functionality

The top line normally displays the name of the parameter being controlled by the encoder. When touched, the top line shows the numeric value of the parameter.

The middle line shows, in bar-graph format, the value of the parameter controlled by the encoder.

The bottom line shows the value/function of the parameter associated with the switch.

Main Switch

At the **Bottom** of the channel is a single switch, equipped with Automation enable and Automation status indication. This switch is typically used for EQ IN, COMP IN, GATE IN and PLUGIN INS.

Automation Indicators

One blue LED indicating Automation Enabled.

Two dual-color LEDs, indicating automation Status.

Panel Modes

The In Line Panel has two modes when controlling parameters for channels.

Normal Mode

In this mode, each vertical strip of the In Line Panel controls six parameters for the audio channel whose fader is immediately below. The Strip Mode buttons are used to control which group of parameters is displayed (see above).

Fat Mode

In Fat Mode, the whole In Line Panel is used to display one channel's parameters. To enter Fat Mode, press the Channel Mode Button.

Calling a Signal Path to the ILP

When the In Line Panel is in Fat Channel mode, one signal path uses all the controls. Selection of this signal path is the same as that of the Master Fader and the Channel Panel (and many other functions in the DREAM II system). It is referred to as "calling" the signal path.

To call a signal path, press the Call button on any fader, use the Call Menu (described in the next section) or left-click the channel's tile in the Mixer screen.

The **Call** key may be used to select any signal path to the In Line Panel when it is in Fat Mode, and also to the Master Fader. Press Call, then select a signal path from the screen.

In detail:

Step1 Pressing and releasing Call causes its function to latch on. The system displays the Channel Select display.

Step 2 Pressing any selection in the Channel Select display calls that signal path to the Master Fader and to the In-Line Panel while it is in Fat Channel mode. Only one signal path may be selected at a time in Call mode, but this may include multichannel link groups or buses.

While the Call key is latched its light will be on, and the Call Menu is displayed on the LCD panel. See below for more details.

Call Follow

Call Follow enables the current edit or mix selection to be always called to the In Line Panel (when in Fat Mode) and the Master Fader. This provides context sensitive control for fast, intuitive mixing control. The last signal path selected will be the current ILP and Master Fader selection.

Press the **Call** key to access the Call Follow menu. Call Follow has several options:

Edit	When in Edit mode any path selected is called to the Master Fader.
Mix	When in Mix mode any path selected is called to the Master Fader.
All	Any selection in Mix or Edit mode is called to the Master Fader.
Off	The Call key must be pressed before selecting a signal path for control by the Master Fader and Channel Panel.
Solo	Call by Solo: Pressing the Solo key above a fader calls the path to the Master Fader
Touch	Call by Touch: Touching a fader calls its signal path to the In Line Panel
ILP	Call by ILP: Whenever a control on the ILP is touched, the corresponding signal path is called to the Master Fader.

Zoom Screens

Each time a control on the In Line Panel is touched, the Zoom screen appropriate to that control is displayed on the Mixer screen.

You can control how long the Zoom screen stays on the screen using the Utils menu Zoom control. By setting it to zero, you can prevent Zoom screens from being displayed.

Path Controls

The Path strip controls the general behaviour of the audio channel.

Mic

The rotary knob controls the gain of a microphone preamp, if any, that is connected to the input of the channel.

The switch toggles Phantom Power on and off.

Input

The rotary knob controls the gain of the Input, after any conversion from analog to digital.

The button toggles the phase of the input.

Holding down the **BLUE** key while pressing the Phase button causes the Patch I/O menu to be displayed in the Mixer screen.

Track Arm

Can be used to arm a track, but only if an input is patched to it. (This is done using the Patch I/O button – see Patching and Routing for details.)

Insert

Switches the Insert In and Out of the channel. Only works if an Insert Return has been defined for the channel. (This is done using the Patch I/O button – see Patching and Routing for details.)

Holding down the **BLUE** key while pressing the Insert In/Out button causes the Insert Config menu to be displayed in the LCD.

Direct Output

The rotary knob controls the level of the Direct Output, while the switch mutes and unmutes this output. Only works if a Direct Output Port has been defined for the channel. (This is done using the Patch I/O button – see Patching and Routing for details.)

Holding down the **BLUE** key while pressing the Direct In/Out button causes the Direct Config menu to be displayed in the LCD.

Main Bus Assign

Toggles the assignment of the signal path to the Main Bus.

Holding down the **BLUE** key while pressing the Main button causes the Bus Assign window to display on the Mixer screen.

VCA Groups

The rotary control allows you to choose to which VCA group the channel belongs (or none).

Equaliser

The equaliser provides four bands of parametric EQ and two filters. Each parametric section can be switched to band-pass/reject, shelving or notch. Each parametric section can be switched to one of four ranges: LF - 10-250Hz; LMF - 50Hz-1k50Hz; HMF - 450-8k00Hz; HF 1k40-22k0Hz. Each parametric section provides +/-18dB of gain. Q has a range of 0.3 to 10. When notch is selected the filter has a gain of 0 to -99dB.

Gain controls include an IN/OUT switch for the band.

Hi Gain

High Frequency gain for the channel.

Hi-Mid Gain

High-mid gain for the channel.

Hi-Mid Frequency

High-mid frequency for the channel.

Lo-Mid Gain

Lo-mid gain for the channel.

Lo-Mid Frequency

Lo-mid frequency for the channel.

Lo Gain

Low frequency gain for the channel.

EQ In/Out

The switch at the bottom of the strip is EQ In/Out

EQ Flat

To quickly set an individual band to flat, hold down a **BLUE** key and press the band **IN** key to set the gain to 0dB.

To set the whole EQ section to flat, hold down a **BLUE** key and press the EQ Mode button.

Filter

The **Gain** control controls the gain of shelving filters with a range of +/-18dB. The slope of hi or lo-pass filters are fixed at -12dB/octave. The actual gain and slope values are displayed on the fat channel at the bottom of the mixer video display.

Gain controls include an IN/OUT switch for the specific filter.

The **Freq** control of the filters provides the following ranges of control:

hi-pass: 20Hz - 1.50kHz

lo-pass: 3kHz - 18kHz

The Surround Panner

The In-Line Panel provides controls for a comprehensive surround panning system. The panner automatically configures itself for control of signals within all the supported surround formats. In addition to simple two-dimensional panning of a mono signal, the surround panner provides advanced control of multichannel signal paths contained in link groups.

The supported surround formats are: Stereo; LCRS; LCRSS; 5.1; 6.1; and 7.1.

For mono signal paths the pan control is a simple panner, moving the signal left to right, and front to back around the surround field with the addition of divergence control to increase the size of the sound field.

For link groups, the pan control pans all members of the link group at once, and adds spread and rotate functions which can imitate the effect of a camera pan with the entire surround sound field or collapse the entire sound field into a single point. Link groups can be created with default pan settings for each member, see "Link Group Format" on page 150.

The surround panner provides automated control of a level control matrix between the feeds and the individual bus elements of the buses to which the feed is currently assigned.

Panning IN/OUT

The Pan **IN/OUT** key bypasses the level control matrix of the panner and sends the signal path at unity gain to all destination bus elements.

The connection to individual bus elements may be turned on and off using stem assignment as described in "Stem Assign" on page 59.

If the signal being panned is a Link Group, all members of the group are sent to all bus elements.

Diverge Control

The diverge control spreads the signal of an individual feed across more of the adjacent loudspeakers making the perceived size of the sound source larger.

The diverge control operates in one-dimensional or two-dimensional mode. To switch between modes hold down the **BLUE** key and press the **Panning IN** key. The fat channel pan display changes from a bar to a circle when divergence is added.

The boom or LFE channel is not included in diverge.

One-dimensional Diverge

One-dimensional mode is useful for spreading a mono source across left, right and centre speakers in a 5.1 bus for example, without allowing the signal to move into the surround loudspeakers. The divergence control range is 0 to 100%. At 0% the panner behaves as if the signal were a single point source. When the signal is panned to front-centre, at 70% divergence the signal is sent at equal level to left, centre and right loudspeakers. The divergence control approximates an equal loudness contour as it adds signal to more loudspeakers. As the control moves beyond 70%, signal is removed from the centre loudspeaker or the loudspeaker closest to the pan target, and progressively added to the other loudspeakers. At 100% divergence there is no signal in the centre loudspeaker and the signal is distributed equally to left and right loudspeakers.

Two-dimensional Diverge

Two dimensional mode is useful for quickly spreading a signal to all loudspeakers or for contracting an effect from all loudspeakers down to a single speaker. Two-dimensional diverge includes front and surround loudspeakers. As the divergence is increased towards 70% the signal is distributed to all loudspeakers. Beyond 70% the signal is removed from the loudspeaker closest to the pan target.

For Link Groups, divergence is applied to all members individually. When a link group is created with default pans, divergence is set to minimum.

The Spread Control

The spread control is only available when a link group is selected. The spread control adjusts the perceived size of a surround mix. The spread control range is from 0 to 100%. At 0 the display reads POINT, meaning point source. At 100 the display reads FULL, meaning full surround. At FULL spread the LR and FB pan controls have no effect as each member of the link group is hard panned to their respective bus elements. As the spread is reduced, the panning of each link group member is made to converge with the location of the link group master pan control. With the spread control less than full, the pan control enables the sound field to be moved to favour the location of the pan target. As the spread control approaches POINT, the panning of each member becomes closer to the pan location of the link group master. This has the effect of mixing the signals of each link group member so that they all emerge from the same loudspeakers as determined by the link group master pan.

When a link group is created with default pans, spread is set to maximum, divergence is set to minimum and rotation is set to zero.

The spread control can be used to great effect when it is desired to collapse the surround sound field to a point source. This may occur for instance, where the camera moves continuously from an interior shot to an exterior or visa versa. The surround field can be established for the interior and then as the camera moves through the door or window, the surround field collapses and pans and fades down to the location of the window. As this is occurring a pre-mixed surround field for the exterior can be growing from the rear speakers and spread out to the entire speaker system as the exterior shot is established.

Rotate Control

Rotate controls the left/right and front/back pan controls to rotate a single feed around the centre of the room. Adjust the front/back pan to reduce the radius of rotation.

Use rotate on a link group to rotate a pre-mixed surround sound field with respect to the listener's position. This effect is the audible equivalent of panning a camera, where all the elements in the visual field are subject to the same angular movement.

The rotate control range is from -180 to +180 degrees. When rotation is applied, the panning of each link group member is offset in the direction of the rotation.

Rotate can be used in conjunction with spread and link group pan to create more or less audible panning effects for the entire surround soundfield.

When a link group is created with default pans, spread is set to maximum, divergence is set to minimum and rotation is set to zero.

Hold down the **Pan** key below the trackball and turn the jog wheel to achieve continuous rotation.

Boom

The Boom control is available when the selected signal path is feeding a bus whose surround format includes a sub-bass or low frequency effects channel. These include the following formats: 5.1; 6.1; and 7.1.

The boom level is independent of the panner position. The boom element of a link group is only ever assigned to the boom element of the bus to which the link group is assigned.

Boom ON/OFF

The signal sent to the boom element of a bus may be switched on or off using the switch in the Boom section of the In Line Panel.

Boom Level

The **Boom Level** control adjusts the amount of signal sent to the boom element of the bus to which a feed or link group is assigned. The boom level control range is OFF to +10dB. This level control may be pre or post the feed fader.

Boom Pre/Post

Boom is always sent post-Fader in the Constellation system.

Pan, Diverge, Spread, Rotate Automation Enable

The blue enable key adds this group of controls to the current automation parameter selection.

Dynamics

The DREAM II Dynamics comprises three sections, a compressor, a limiter, and an expander or gate. The dynamics transfer function and parameter values are displayed in the fat channel at the bottom of the mixer video display.

The In-Line Panel offers one strip for the Compressor, called COMP, another for the expander or gate, called DYN2, and a third called LIMITER.

Comp Parameters

Gain Makeup

The **Gain** control adjusts the gain makeup. This gain element is used to compensate for the overall gain reduction caused by reducing the dynamic range of the signal.

Compression Threshold

The **Thresh** control adjusts the compressor threshold. This sets the signal level above which gain reduction occurs. The control range is -50 to 0dB.

Compression Ratio

The **Ratio** control adjusts the compression ratio. This sets the gain reduction ratio (input to output) applied to signals which rise above the threshold level. The control range is 1.0:1 to 10:1.

Compressor Attack Time

The **Attack** control adjusts the attack rate time constant of the sidechain detector. The control range is 0 to 100mS.

Compressor Hold Time

The **Hold** knob controls the delay between applying gain reduction and commencing release of gain reduction.

Compressor Release Time

The **Release** control adjusts the release time constant of the sidechain detector. The control range is 0.03 to 4.03mS.

Compressor IN/OUT

The Compressor **IN/OUT** key bypasses the compressor section.

DYN2 Parameters

DYN2 represents the second channel of dynamics. It may be configured as a limiter, expander or gate.

Press the **Mode** key in the top control to cycle amongst these three dynamics types.

Expander Parameters

Expander Threshold

The **Thrsh** controls adjusts the expander threshold. The expander threshold sets the signal level below which gain reduction occurs. The control range is from -50 to 0 dB.

Expander Ratio

The **Ratio** control adjusts expander ratio. This sets the gain reduction ratio (input to output) applied to signals which fall below the threshold level. The control range is 1.0:1 to 10:1.

Expander Attack Time

The **Attack** control adjusts the attack rate time constant of the sidechain detector. The control range is 0 to 100mS.

Expander Release Time

Press the **Hold** key to toggle the **Release** control between Hold and Release. The **Release** control adjusts the release time constant of the sidechain detector. The control range is 0.03 to 4.03mS.

Expander Hold Time

The **Hold** control sets the delay between applying gain reduction and commencing release of gain reduction. After the audio signal drops below threshold level, the expander is held open for this time before it starts the release curve.

Gate Parameters

Gate Threshold

The **Thresh** control sets the signal level below which gain reduction occurs. The control range is from -50 to 0dB.

Gate Hysteresis

The **Hyst** control sets the difference between the level which must be exceeded to open the gate, and the level below which the signal must fall to close the gate. The control range is 0 to 12.5dB.

Gate Range

The **Range** control sets the maximum amount of gain reduction that will be applied when the signal falls below the gate threshold. Once the signal has fallen below the level determined by the gate threshold minus the gate range, no gain reduction is applied. The control range is from 0 to 60.2dB.

Gate Attack Time

The **Attack** control adjusts the attack rate time constant of the sidechain detector. The control range is 0 to 100mS.

Gate Hold Time

The **Hold** control sets the delay between applying gain reduction and commencing release of gain reduction. After the audio signal drops below threshold level, the gate is held open for this time before it starts the release curve.

Gate Release Time

The **Release** control adjusts the release time constant of the sidechain detector. The control range is 0.03 to 4.03mS.

Limiter/Expander/Gate Automation Enable

Press the blue enable key to add the limiter, expander and gate controls to the current automation parameter selection.

Limiter Controls

Limiter Threshold

The **Thresh** control adjusts the limiter threshold. This sets the maximum output level of the limiter section. Control range is from -50 to 0dB.

Limiter Attack Time

The **Attack** control adjusts the attack rate time constant of the sidechain detector. The control range is 0 to 100mS.

Limiter Release Time

Press the **Hold** key to toggle the **Release** control between Hold and Release. The **Release** control adjusts the release time constant of the sidechain detector. The control range is 0.03 to 4.03mS.

Limiter Hold Time

Press the **Hold** key to toggle the **Release** control between Hold and Release. Hold time controls the delay between applying gain reduction and commencing release of gain reduction.

Limiter IN/OUT

The **Lim/EXP IN/OUT** key bypasses the limiter section.

Auxiliary Sends

Each full channel in Constellation system includes twelve auxiliary bus sends. The auxiliary send signals are derived immediately before or after the feed fader. Each auxiliary bus may be configured in any of the supported surround formats. Press the **Bus Format** key and an Aux bus selection key to set an

auxiliary bus format. See "The Bus Format Menu" on page 57 for more details. To control the auxiliary bus master level, **CALL** the bus to the Master Fader by selecting it from the Channel Select screen.

Auxiliary Send Controls

The aux controls are arranged in two columns of six controls each. The columns are accessed separately using the Aux 1-6 button and the Aux 7-12 button. Each auxiliary send has the following controls:

Level

The level control adjusts the amount of signal sent from the selected feed to the auxiliary bus. The control range is OFF to +10dB.

Send ON/OFF

The send **IN/OUT** key toggles the feed to auxiliary bus assignment on or off. This control has the same effect as bus assignment via the bus assign menu.

Pan

Panning between stereo aux sends is done by selecting Faders To… and using it to control sends to an Aux bus. See Faders To… in Chapter 8 – Faders on page 80.

Pre/Post

The **Pre/Post** switch in the optional Channel Panel is used to switch aux sends pre and post fader.

Setting Aux Pan Post Feed Pan

The **Pre/Post** switch in the optional Channel Panel is used to switch aux sends pre and post channel pan. To do this, hold down the **BLUE** key and press the Pre/Post switch.

More Auxiliary Send Controls

Additional controls can be accessed in More mode. To enter this, press the More button, then double-tap on one of the aux controls in the target channel.

Pre/Post

The **Pre/Post** switch is used to switch aux sends pre and post fader.

Pre Mute

Holding down the **BLUE** key and pressing the Pre/Post switch causes the send to be Pre Mute. That means you can mute the channel's fader without stopping the aux send.

Post Pan

Holding down the **BLUE** key and pressing the IN/OUT button for an aux send causes it to be sent post pan. This is useful for stereo aux sends, where you want the positioning for the stereo aux send to match the position of the main channel in the Left-Right pan field.

User Modes

You can create your own mixture of controls on a channel, then save that mixture as a user mode. There can be one user mode for every normal mode, accessed by holding down the **BLUE** key and double-pressing that Mode key.

To create a user mode, press the Setup button, then press a Mode key, which will be used to access your user mode.

The current layout of the mode will be shown above the Mode key you pressed. One of the tiles in that layout will be flashing, indicating that it can be swapped to a different function. To choose a new target tile in the channel you are changing, touch any control in that tile.

The rest of the In Line Panel will display all the possible tiles that you can use. To copy a tile into the target tile, touch any control on the desired tile.

Once you have made all the changes you need, press the Setup key to exit.

Example

Step 1 Press the Setup button.

Step 2 Press the EQ Mode key. The channel above the EQ mode key will show the current layout of your alternative EQ mode.

Step 3 Touch a control in the EQ channel. This makes its tile the target for changing function, and causes it to flash.

Step 4 Touch a control somewhere else in the In Line Panel. This will copy its function into the flashing target tile.

Step 5 Repeat for the other tiles you want to change.

Step 6 Press the Setup button again to exit.

To use your new mode, hold down the **BLUE** key and double-press the EQ Mode key.

Note that simple pressing of the EQ Mode key will cause display of the normal EQ mode.

Chapter 10 - Recording

Introduction

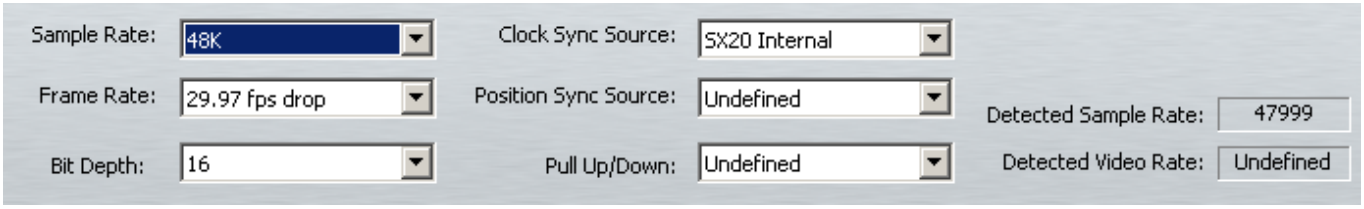
Constellation-XT can record up to 64 simultaneous tracks to disk. The following chapter describes how to configure and then record audio into the system.

Project Set Up

The steps for setting up a new project are described in Chapter 3 – Projects.

Sync Setup

The current sync setup can be changed at any time by selecting Smart Pane->Setup from the View Menu, or by pressing the Setup key on the console.



Sample rate The system supports sample rates up to 192 kHz. The number you enter here can be changed in the Sync display up to the time of your first recording, but after that it is fixed for subsequent recordings.

Frame Rate The value you place here can be changed in the Sync display at any time afterwards. It should match the incoming timecode format for correct synchronisation.

Bit Depth The system supports sample depths of 16 or 24 bits. You can change this value at any time, affecting subsequent recordings. All previously recorded audio is played back at its recorded sample depth. Note that 20-bit recording, which was supported in earlier Fairlight products, is no longer a choice.

Clock Sync Source
Choose the clock signal to be the master time reference for the system. Choices are:
SX-20 Internal – uses the internal clock of the SX-20
SX-20 Video – uses the video input signal coming into the SX-20
SX-20 WCLK – uses a WCLK signal coming into the SX-20

Project Frame Rate

The frame rate (timecode format) can be changed at any time, but should be set to the local standard, or to match the format of the video material or project currently being worked on.

Step 1 Press the **Setup** key.

Step 2 Press the TC FORMAT soft key.

Step 3 Turn the jogger wheel to select the desired timecode format.

Select Non-Drop or Drop-Frame (if applicable).

Step 4 Press Enter.

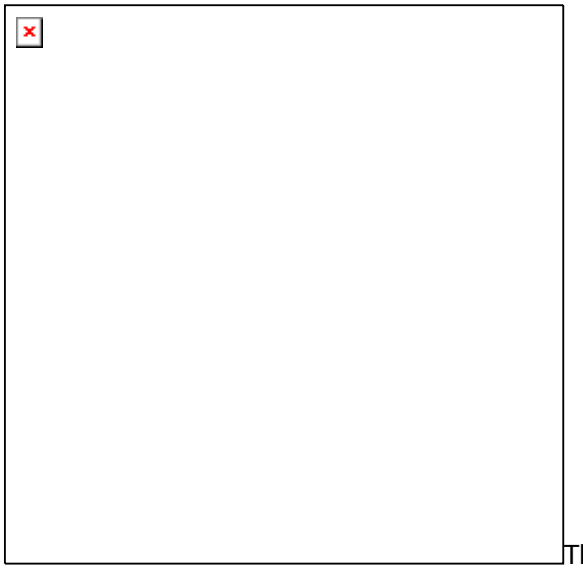
Setting Frame Rate using the mouse:

Step 1 From the View menu select Smart Pane, then Sync Setup

Step 2 Click in the Frame Rate drop list.

Step 3 Select the desired frame rate, including Non-Drop or Drop-Frame (if applicable)

NOTE:

1.  The sample rate is also fixed if an import from another Project is performed (Refer to "Import / Export" on page 215).
2. The sample rate and frame rate jogger wheel selection can also be performed using the + and - keys on the numeric keypad or the numeric keys 0 to 4.

Patching Inputs to Track Feeds

This is described in detail in Chapter 5, Patching and Assignments. See Patching Physical Inputs to Track Feeds on page 42.

Input Gain and Phase

This is described in detail in Chapter 5, Patching and Assignments. See Input Gain and Phase on page 49.

Arming Tracks

An input can only be recorded on one track at a time. If an input is patched to more than one track, arming one of these tracks will disarm any other track patched to this input.

The transport must be in STOP to monitor the inputs. To arm a track:

Step 1 Press Arm. Track selection keys flash red to indicate the available tracks.

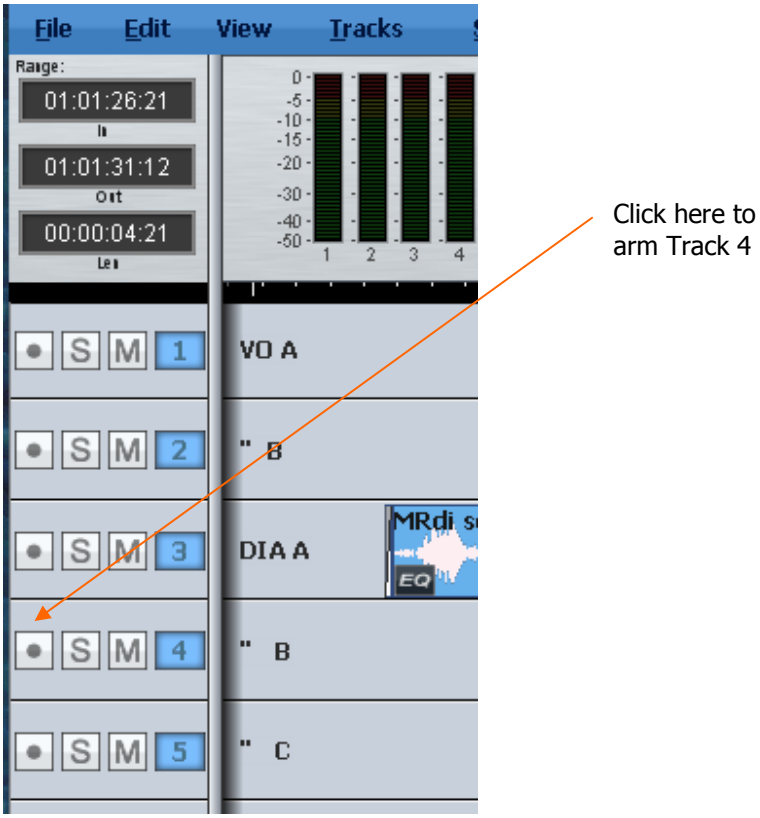
Step 2 Select track(s) to be armed by pressing the track selection keys.

Any number of tracks can be armed at the same time, as long as your system contains enough channels to play them.

The currently selected track feed can also be armed from the Path Configuration section of the Channel Panel.

Arming Tracks with the Mouse

A track may be armed by clicking on the disk at the left of the Track Selection Panel.



Arm on the Fly

Normally tracks are armed before you put the system into record, but it is possible drop in or out of record on specific tracks while the system is recording using any of the arming methods described above. If the input patching for the track is not unique (i.e. it tries to record an input that is already being recorded on another track) the first track disarms.

Metering Input Levels

The input levels to the armed tracks are shown as vertical bargraphs at the top of the screen. These are seen on the video screen as soon as you enter the Arm Menu. For tracks that are not armed for record, meters show the playback levels.

Recording

Step 1 Locate the transport to where you want to start recording, then press **PLAY** and **RECORD** together.

Step 2 Press **STOP** or **PLAY** to end the recording. It is also possible to drop tracks in and out of record using the track keys in the Arm Menu.

Recording Types

Recording is always non-destructive, creating new data and clips. Note that earlier Fairlight products included overwrite recording, but this is no longer available.

ARM Mode

The fifth soft key in the Arm Menu sets the operating mode of the arm menu. In {Ready} mode the track keys are used to arm tracks for recording. Armed {Ready} tracks play back existing clips until dropped into record. When in record the input signal is passed through to the output of the track feed. Armed tracks show the input highlighted in red on the meters display on the video screen and on the track keys.

In {Thru} mode the track keys are used to monitor the input of a track. Tracks can not be armed in {Thru} mode. {Thru} tracks show the input highlighted in green on the meters display on the video screen and on the track keys.

Monitoring Inputs

The {MONITOR} soft key in the Arm Menu determines what is monitored on armed tracks in the various transport modes. Press the {MONITOR} soft key to toggle between {INPUT} and one of the four other modes described below.

To select the alternate mode hold down a **BLUE** key and use the jog wheel or **+/-** keys and press **Enter** to select the alternative input monitor mode.

The comprehensive input monitoring options cover all recording requirements. The are five monitor modes for armed tracks are summarised below:

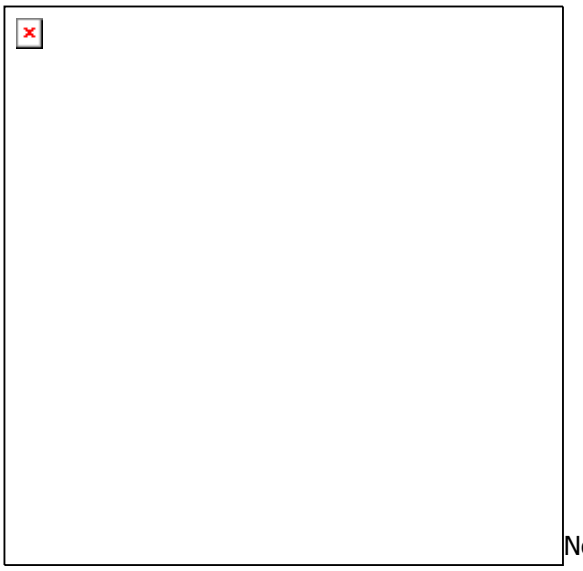
	REW	FF	STOP	PLAY	REC	JOG/SH
{INPUT}	Input	Input	Input	Input	Input	Input
{AUTO}	Input	Input	Input	Track	Input	Track
{RECORD}	Mute	Mute	Mute	Track	Input	Track
{MUTE}	Mute	Mute	Mute	Track	Mute	Track
{REPRO}	Mute	Mute	Mute	Track	Track	Track

These settings support the following example applications:

- {INPUT}: The track feed always monitors input. Use INPUT when the studio monitoring is fed through headphones, or when recording from tape and the desire is to punch in, cued from source material rather than playback material.
- {AUTO}: The track feed monitors the input on record and track on playback. Use AUTO when the studio monitoring is fed through cans for voice-over recording or over-dubs.

Choose {AUTO} to allow cueing from the track then switching to the microphone during a record drop-in.

- {RECORD}: The track feed monitors input on record only. The track is monitored on playback and mutes when stopped. Use {RECORD} when the monitor system must be muted when system is in stop to avoid feedback.
- {MUTE}: The track feed only monitors the track on play back and is muted in all other states. Use {MUTE} when the studio monitoring is fed through speakers. This can be useful for foley stages.
- {REPRO}: In {REPRO} mode the track feed monitors the track on record and playback and mutes when in other modes.



Note: When recording editor macros, number-pad digits can be used to select mode in Blue-Monitor: 0 = AUTO 1 = RECORD 2 = MUTE 3 = REPRO

Assigning Track Feeds to Buses

Track feeds must be assigned to a bus to be monitored through the studio monitors. This is described in detail in Chapter 5, Patching and Routing. See Assigning Feeds to Buses.

Selecting a Monitor Source

This is described in detail in Chapter 6, Monitoring. See Selecting a Control Room Monitor Source.

Punch In / Punch Out

It is possible to enter record while playing back from disk on Constellation.

While playing, start recording by pressing the **RECORD** and **PLAY** buttons together. To drop out of Record, press the **PLAY**, **STOP**, **JOG**, **REW** or **FF** buttons.

You can drop in or out on individual tracks whilst recording by pressing the track keys, whilst the Arm menu is active.

Each time you enter Record you will create a new clip on each armed track. These clips are placed over any other clips that they encounter on the same tracks. The monitoring switches from recorded material to live as you enter Record, exactly as though you were erasing the existing audio.

By enabling Display Layering in the View Menu, you can see the layers of clips on each track. A clip can be lifted in the layer order by clicking on it with the mouse and dragging upwards.

Automatic Drop-in

Pre-determined drop in and drop out points may be activated using the Machine Control section of the Constellation. See "Using the ADR Functions" on page 182 for further details.

Chapter 11 - Editing

Introduction

DREAM II offers a combination of hardware and mouse-based editing. The two methods are complementary and are designed to be used at the same time.

Edit Modes

Binnacle editing uses six modes, selected on the outer ring of keys:

Copy copies the selection to the clipboard (Enter pastes it into the tracks)

Cut cuts the selection to the clipboard (Enter pastes it into the tracks)

Erase erases the selection.

Trim retracts or extends the heads or tails of clips.

Slip one-step movement of clips through time (not using clipboard).

Fade fades or cross-fades the selection.

Once a Binnacle mode is selected, it remains current until another mode is selected.

Cut and Paste

Whole Clip

To cut and paste a clip:

Step 1 Select a track and move a clip under the cursor.

The clip is red because it is touching the cursor.

Step 2 Press the **Cut** key on the Binnacle (if not already selected).

Step 3 Press the **Clip** key

We see the clip's "ghost". It's a picture of the clipboard ready to be pasted in.

Step 4 Select another track (and/or move to another location)

The ghost shows where the clipboard contents can be pasted.

Step 5 Press the **Enter** key to paste the clipboard.

The clip is pasted.

Head

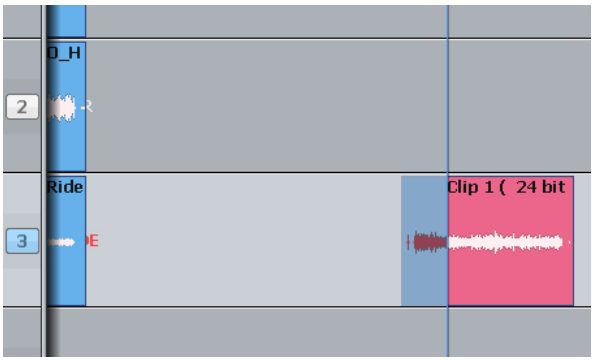
This time we'll only work with the Head of the clip. That is the part before the cursor.

Step 1 Select a track and move a clip under the cursor.

The clip is red because it is touching the cursor.

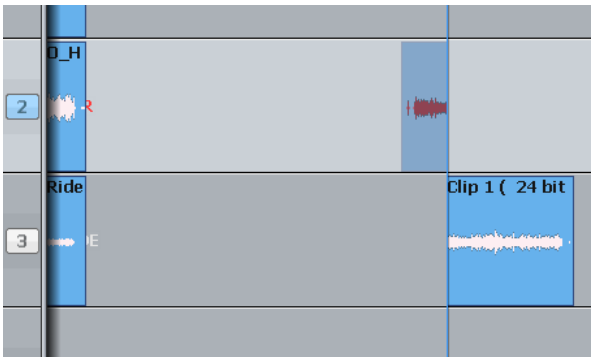
Step 2 Press the **Cut** key on the Binnacle (if not already selected).

Step 3 Press the **Head** key



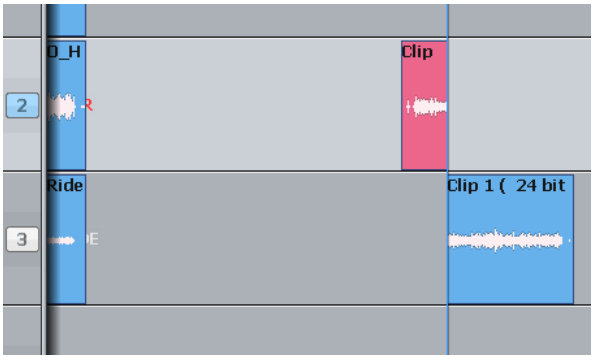
Only the head goes on to the clipboard.

Step 4 Select another track (and/or move to another location)



The ghost shows a head-shaped clipboard ready to be pasted. The original tail is now Blue, because its track is not selected.

Step 5 Press the **Enter** key to paste the clipboard.



The clipboard (former head) is pasted.

Range

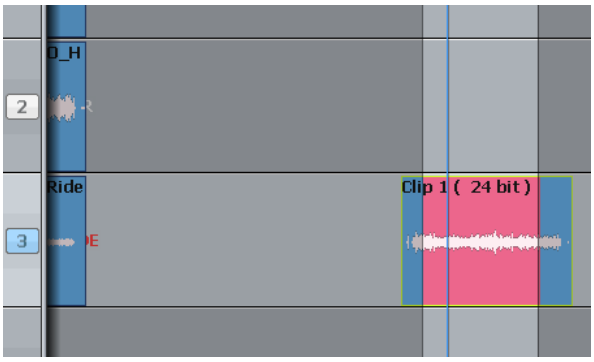
You can make a range that specifies exactly which part of the clip is affected. The easiest way is like this (more about ranges later):

Step 1 Move the transport where you'd like to start the range.

Step 2 Press the **From** key

Step 3 Move the transport where you'd like to end the range.

Step 4 Press the **To** key



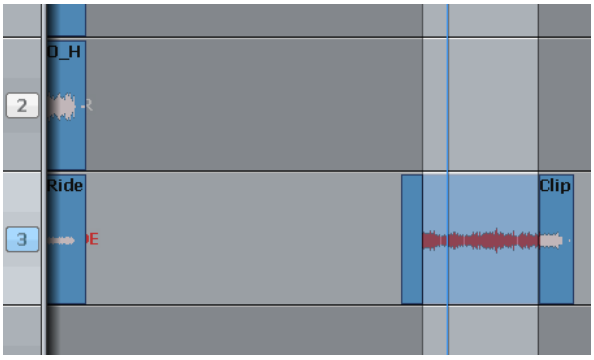
The range is marked in red.

Now we'll cut and paste the audio in the range.

Step 1 Choose the track and set the range (we've just done this)

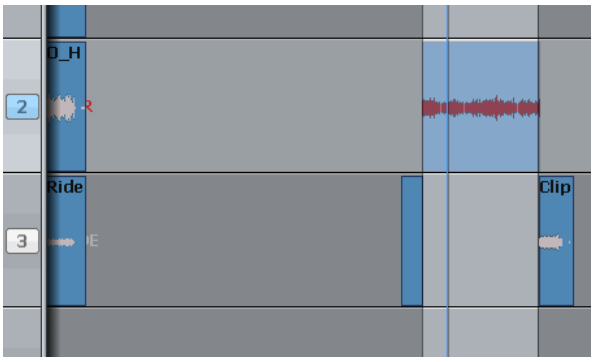
Step 2 Press the **Cut** key on the Binnacle (if not already selected)

Step 3 Press the **Range** key



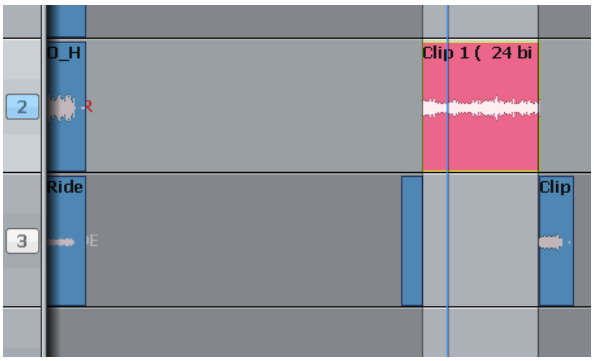
The audio in the range is moved to the clipboard. We see the ghost.

Step 4 Select another track (and/or move to another location)



The ghost moves to the new track.

Step 5 Press the **Enter** key to paste the clipboard.



The clipboard (former range) is pasted. The range persists after the edit.

Notes about Cut and Paste

Tail

Works the same way as **Head**, but cuts the later part of the clip

Range and Head

When a range is active, pressing the **Head** key cuts the audio from the start of the range to the cursor. This will not work if the cursor is not in the range.

Range and **Tail** work similarly together.

Multiple Clips and Tracks

When there is no range, the target for editing is all the clips on selected tracks that are touching the cursor. It's easy to tell which, because they are always red.

When there is a range, the target is all the clips (and parts of clips) on selected tracks that are inside the range. Again, the target clips are always red.

An exception – with a range you can use the mouse to deselect a clip. To do this, hold down the **Ctrl** key and click with the mouse. The clip will turn blue, showing that it is no longer selected.

You can also extend the selection using **Ctrl-mouse-click**. This will cause the range to expand so that it includes the newly selected clip, and it will preserve the existing selection as well.

Pasting

Pasting the clipboard (use the **Enter** key) means putting a copy of it at the current position, on whatever tracks are selected.

You can paste the clipboard contents at any time, not just after a cut operation, and as often as you like.

If there are already clips at the place where you paste, the clipboard is placed "on top" of the existing clips. Only the top layer is heard, unless there is a crossfade between layers (more about that later).

The "shape" of the clipboard's track selection is preserved when pasting, regardless of track selection at that time. For example, if you copy clips on tracks 1 and 3, then select only track 8 and press Enter, the clipboard will be pasted on tracks 8 and 10. The first track on the clipboard is always pasted on the lowest-numbered track in the selection.

Variations

There are a few extra keys which change the functions of Cut and Paste.

All Layers

Sometimes clips are stacked in layers. Of course we only hear the top layer, or crossfades between the top and second layers (more about crossfades later).

You have the choice of cutting only the top layer, or all the layers. The **All Layers** key controls this choice. When it is on, you will cut all the layers, and they'll be placed on the clipboard, ready to be pasted. When it is off, you will cut only the top layer.

Note that **All Layers** only works with a range.

Hint: if you want to see all the layers, press the **Blue-Takes** key.

Razor

Sometimes it is useful to cut the time out of a track, not just the audio. This is similar to cutting tape.

To cut time as well as audio, turn on the **Razor** button. This will automatically turn on **Range** and **All Layers**.

As soon as you cut something (Head, Tail or Range) the time they occupied is also cut, and all the following clips move earlier.

When you paste (press **Enter**) with **Razor** switched ON, the clipboard audio is inserted into the track, pushing all the following clips later. This is true even if **Razor** was not ON when the clips were cut to the clipboard. (**Cut** and **Paste** are really independent commands, each responsive to the **Razor** setting.)

Track Sel

A handy device for moving between tracks is the **Track Sel** button. If you hold it down and turn the Jogger Wheel, the whole track selection will move up or down.

Two-Handed Editing

Using two hands for cut and paste can save a lot of time. The key is to hold down the "action" key – **Head**, **Tail**, **Clip** or **Range** – then select the destination timecode and tracks – then release the action key to paste the clipboard.

Example 1

Press down the **Clip** key (don't release it yet!)

With your other hand, jog the transport forward

Release the **Clip** key – the clip you cut is now pasted where you jogged.

Example 2

Press down the **Clip** key

With the same hand, press down the **Track Sel** key

With your other hand, turn the jogger wheel to change the track selection

Release the **Clip** key – the clip you cut is now pasted on a different track.

With practice, two-handed editing can substantially increase your efficiency at repetitive editing tasks.

Copy

Copy works exactly the same way as **Cut**, except that the audio is not removed to place it on the clipboard, only copied. Pasting after **copy** is the same as after **cut**.

Erase

Erase works exactly the same way as **Cut**, except that the audio is not placed on the clipboard.

The clipboard remains unchanged, so its previous contents are ready to paste at any time.

Edit Soft Key Commands

The following soft keys are available when the **Cut**, **Copy** or **Erase** Binnacle modes are current.

`{split clip}`	Cuts the clip into two pieces at the cursor position.
`{reverse}`	Makes a new piece of media that is the reverse of the clip under the cursor.
`{reverse}`	Creates a reversed version of the audio in the selected clip(s) and replaces the original with this reversed version.

{Ghost On}	Toggles the "ghost" image on and off. Some people prefer working without it.

Range On Soft Key Functions

The following additional commands are available when the **Cut**, **Copy** or **Erase** Binnacle modes are current, if a Range is present.

{split range}	Cuts any clips lying across the ends of the range into two pieces at those range ends.
{fill}	The {fill} function is used to automatically repeat a section of audio to fill a Range on a track to create background fills or buzz tracks. The audio used for the fill is the clip currently on the clipboard from the last cut or copy function. Multiple copies of the source may be needed, in which case an overlap is used (see below).
{b/f fill}	Reverses the audio in every second copy of the clipboard used for filling. This can give a smoother effect.
{overlap}	Controls the length of overlap between pieces of audio used in the {fill} command.

To use the {fill} function:

Step 1 Copy (or Cut) the desired audio to the clipboard. The cursor's sync point will be maintained

Step 2 Create a Range encompassing the area to be filled.

Step 3 Press the {fill} soft key.

Razor Soft Key Functions

When **Razor On** is selected the LCD menu changes:

{insert fill}	The filled audio is inserted into the track, not written over the original audio in the range.
{insert b/f fill}	The backwards/forwards filled audio is inserted into the track, not written over the original audio in the range.
{overlap}	Controls the length of overlap between pieces of audio used in the {fill} command.
{split range}	Silence will be inserted from the start of a Range for the duration of the Range.

Trim

Trimming allows clips to be resized. Trim commands are used to set the head and tail of clips, to determine how much of the original recording is played by the clip.

Trimming may shorten a clip, or extend a clip if the original recording is longer than the displayed clip. This will be the case if the clip was imported with handles or if the original clip has been edited.

Head

Trim Head and Trim Tail are the most common uses of Trim

Step 1 Select a track and move a clip under the cursor.

Step 2 Press the Trim key on the Binnacle (if not already on)

Step 3 Press and release the Head key

Step 4 Move the transport forward a few frames (jog or play)

Step 5 Press Enter

The head of the clip is placed at the cursor, which is now shorter. The effect is just like erasing the head of the clip. Its sync remains as before, but it starts at a later time and a later point in the audio.

Step 4 Jog backward a few frames and press ENTER

Now the head is moved earlier, revealing more of the audio. You can keep jogging and pressing ENTER as long as you like, until you are satisfied with the position of the head.

Two Handed Trimming

This is a more powerful method, which is worth learning.

Step 1 Select a track and move a clip under the cursor.

Step 2 Press the Trim key on the Binnacle (if not already on)

Step 3 Press the Head key (and hold it down) – the head is extended to show the full extent of the original recording.

Step 4 Jog or play the transport – you can listen to the audio and choose the right position.

Step 5 Release the Head key – the head is placed at your current position.

Limit to Trim

When extending a clip, the end of the recorded audio will be reached eventually. After that it is not possible to extend the clip further.

Tail

Same as Head, but the later part of the clip is trimmed.

Clip

Trim clip changes both ends of the clip at once. Its purpose is to preserve the length of the clip, but access an earlier part of the recorded audio. Not commonly used.

Range

Ranges cannot be used with Trim.

Multiple Tracks

Works as expected. All the red clips will be trimmed to the same point in time.

Soft Keys in Trim Mode

`{sync point}` Pressing the {sync point} soft key creates a sync marker within the selected clip(s) at the cursor position. This is shown as a yellow mark in the clip, and can be used to visually locate an important moment.

To change the sync point, press `{sync point}` at the new location. There is only one sync point per clip.

Trim Edit Options

Trim is usually applied to a single clip or selections across tracks therefore, no options are available.

Range On is not supported in Trim Mode.

All Layers On is not supported in Trim Mode.

Razor On is not supported in Trim Mode.

Slip Edit Mode

Slip mode moves clips to a new time location. Slipping the head moves the head of a clip to the cursor while maintaining the position of the tail. Slipping the tail moves the tail of a clip to the cursor while maintaining the position of the head.

Slip is accessed on the same Binnacle key as Trim. Press it once for Trim, twice for Slip. You can also swap between the two modes using soft keys.

Slip Clip

Step 1 Select a track and move a clip under the cursor.

Step 2 Press the **Trim** key on the Binnacle (if not already on) then press it again so that **Slip** lights up.

Step 3 Press the **Clip** key

Step 4 Jog or play the transport

Step 5 Press **Enter** – the clip is moved by the amount you just moved the transport.

Two Handed Slipping

This is a more powerful method, which is worth learning.

Step 1 Select a track and move a clip under the cursor.

Step 2 Press the **Trim** key on the Binnacle (if not already on) then press it again so that **Slip** lights up.

Step 3 Press the **Clip** key (and hold it down)

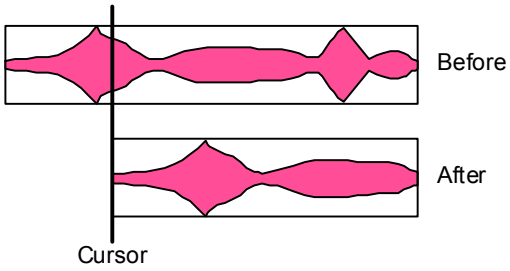
Step 4 Jog or play the transport

Step 5 Release the **Clip** key – the clip is moved by the amount you just moved the transport.

Head

Can be used one-handed or two-handed.

The result (when **Enter** is pressed or the Head key released) is that the Head of the clip is slipped to the cursor position, while the Tail position is preserved. The clip gets shorter or longer, and the sync moves by the difference in position between the Head before and after the edit.



Tail

Same as **Head**, but the tail is slipped to the cursor position.

Range

Ranges cannot be used with **Slip**.

Multiple Tracks

Works as expected. All the red clips will be slipped by the same amount.

Soft Keys in Slip Mode

`{sync point}` Pressing the Slip Sync soft key allows the audio within the clip to be slipped, without changing the positions of the head and tail.

To do this, press the Slip Sync soft key, move the transport, and press ENTER. The audio within the clip will move by the amount you just moved the transport.

There are limits to slipping sync. Eventually the end of the recorded audio reaches the end of the clip, and after that it can go no further.

Slip Edit Options

Trim is usually applied to a single clip or selections across tracks therefore, no options are available.

Range On is not supported in Slip Mode.

All Layers On is not supported in Slip Mode.

Razor On is not supported in Slip Mode.

Nudge

Although not a Binnacle editing function, the **Nudge** function is closely related to **Slip**. The **Nudge** function slips clips by a predetermined amount of time. **Nudge** can operate on one or many tracks affecting clips that lie under the cursor, or within a Range. **Nudge** can operate in fixed steps of plus or minus one frame, or in `{Variable}` steps from 1 to 99 sub-frames (a sub-frame is 1/80th of a frame). The **Nudge** key is located to the left of the LCD display.

Using Nudge

Step 1 Press the **Nudge** key, to the left of the LCD.

Step 2 Locate the cursor over the clips and select the appropriate track(s).

Step 3 Press the `{- var}`, `{+ var}`, `{- 1 fr}` or `{+ 1 fr}` soft keys to slip the clip(s) by the selected amount.

When there is no Range, only the top layer of clips highlighted under the cursor is nudged.

The `{- var}` and `{- var}` keys move selected clips by an amount controlled by the `{Variable}` soft key. It is usually set to a small amount e.g. a few subframes, for very fine control of clip position.

Nudge with A Range

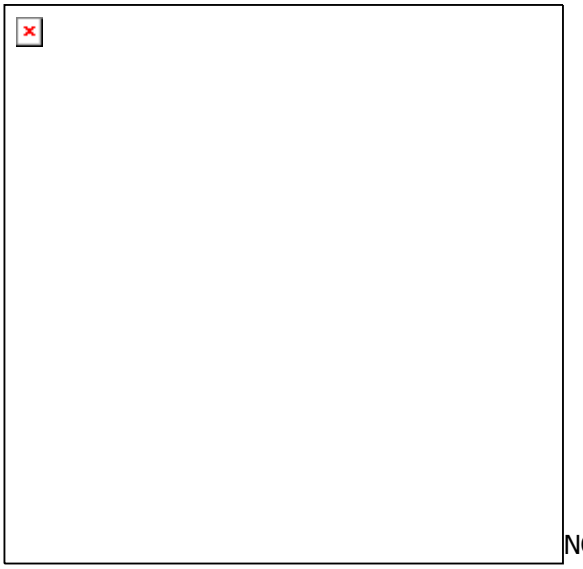
Follow these steps to perform a NUDGE with a range selected:

Step 1 Press the **Nudge** key, to the left of the LCD.

Step 2 Use the **From** and **To** keys to select a Range that includes all clips to be nudged.

Step 3 Press the `{- var}` `{+ var}` `{- 1 fr}` `{+ 1 fr}` soft keys to slip the clip(s) by the selected amount.

When a Range is selected, all layers of clips within the Range are nudged, including those which are completely buried.



NOTES:

Nudging is possible while the transport is in play.

When nudging a Range, clips not wholly within the Range are not affected. However, the Range itself is also nudged, so it is possible to keep nudging the Range without resetting the From and To points. This can be used, for example, to "phase" the audio with a guide track, using Variable nudge with a small value.

Fade Mode

The **Fade** key on the Binnacle allows fades to be applied non-destructively to the heads and tails of clips. The fades are performed by the system in real time as the audio is output from the machine. Fades can be created "on the fly" relative to the playhead, or they can be created and/or modified on multiple clips at once.

Fades are applied from the Binnacle Keys, Soft keys, and from the PC screen.

The Editing screen displays fade information in the Smart Pane at the top of the monitor. This is used to issue commands as well as illustrate fade shapes (curves).

Using Binnacle Keys

Fade Head

One of the simplest fades can be achieved as follows:

Step 1 Select a track and move a clip under the cursor.

Step 2 Press the Binnacle **Fade** button (if not already on).

Step 3 Press the **Head** button.

This creates a fade from the start of the clip to the cursor position. The shape of the fade can be seen above (this will be described later), but the Duration is not used. Instead, the duration is set by the cursor position.

If you are happy with your current fade shape, using Fade Head is a fast and simple way to get a lot of work done.

NOTES:

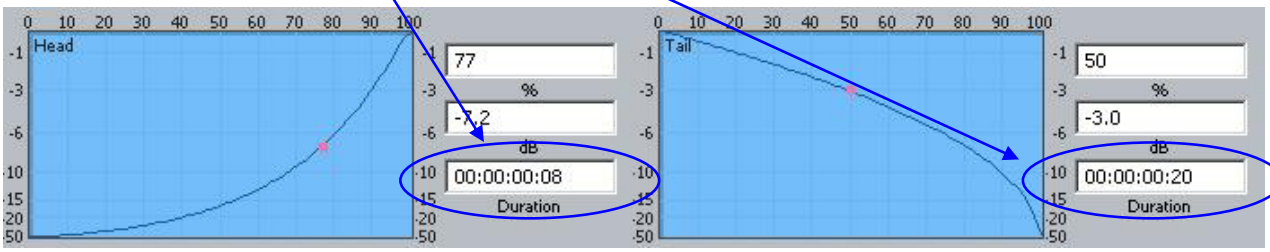
- If you do not want to apply the Smart Panel shape shown above to the Head, turn off the `{shape}` soft key.
- If you ONLY want to apply the shape, and not to change the length of the head fade, turn off the `{length}` soft key.

Fade Tail

Same as Fade Head, but it fades from the cursor to the end of the clip.

Fade Clip

Applies the numbers in the Head Duration and Tail Duration fields, shown in the Smart Pane.



Using Multiple Tracks

If multiple tracks are selected, the simple Fade Head and Fade Tail commands will apply to all clips touching the cursor on selected tracks.

Using a Range

If a Range is present, the Fade Head command applies the Head Duration field value, and the Fade Tail command applies the Tail Duration field value, to all red clips (those wholly inside the range on selected tracks).

Using Soft Keys

Advanced fade editing can easily be performed using the soft keys.

Setting Fade Duration

Fade duration can be set numerically as follows:

Step 1 Press the `{set dur}` soft key. Turn off the `{shape}` soft key if you do not wish to apply the Smart Panel fade shape to the selected clips.

Step 2 Press the Binnacle **Head**, **Tail** or **Clip** key. This determines whether the duration you set will apply to the head, the tail or both.

Step 3 Set the Duration value using the Jogger Wheel (press Stop if it is jogging the transport), by typing numbers in the Numeric keypad, or using the QWERTY keyboard.

Step 4 Press the Enter key to apply the fade duration(s).

Trimming Fade Duration

Fade durations can be trimmed from their current values. This is particularly useful because it can be applied to a range of clips with one command.

Step 1 Press the `{trim dur}` soft key. Turn off the `{shape}` soft key if you do not wish to apply the Smart Panel fade shape to the selected clips.

Step 2 Press the Binnacle **Head**, **Tail** or **Clip** key. This determines whether the duration you trim will apply to the head, the tail or both.

Step 3 Set the Trim value using the Jogger Wheel (press Stop if it is jogging the transport), by typing numbers in the Numeric keypad, or using the QWERTY keyboard. Trim values can be positive or negative.

Step 4 Press the Enter key to apply the fade duration(s).

NOTE: Trim values can be positive or negative. To type in a value like minus twelve frames, you can use the Numeric Keypad – type Minus, then 12 (or the other way round) then press Enter. Using the QWERTY keyboard, you can use the Down Arrow to go from zero to -1 frame, then type in a value to be used negatively.

Fade Shape

A fade's shape includes the following parameters:

X-Point – this controls the percentage of the fade's duration when it reaches the Crossover Point.

X-Level – controls how loud the fade is (compared to the full Level of the clip) at the Crossover point.

Duration – the total length of the fade, in frames. (Duration is not really part of the shape, but its control is close by).

Example: Percentage = 30%, Attenuation = -3 dB, Duration = 20

This means that the fade will last for 20 frames. The crossover point will be 6 frames into the fade, at which time the level will be -3 dB compared with full Level.

Adjusting Fade Shape

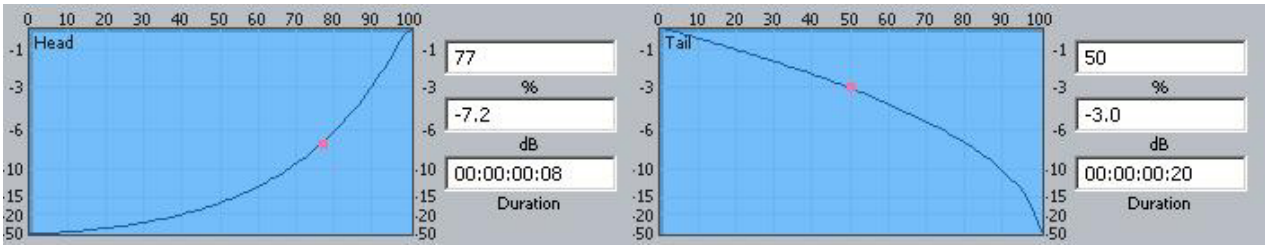
To adjust the fade shape of the currently selected clip(s):

Step 1 Press the `{X-Level}` soft key or the `{X-Point}` soft key

Step 2 Press the Binnacle **Head**, **Tail** or **Clip** key to choose which end(s) of the clip you wish to change.

Step 3 Use the jogger wheel to adjust the X-Level or X-Point.

You can see the change in the shape, as well as the value you are jogging, by looking at the Fade Panel in the upper part of the Editing Screen.



You can also type values into the X-Level or X-Point field using the Numeric Keypad or the QWERTY key numbers. Always start with a minus when typing X-Level values, as they are always negative.

Step 2 Turn off the `{length}` soft key if you do not wish to apply the Smart Panel fade durations to the selected clips.

Step 3 Press the Binnacle **Enter** key to apply the fade shape as specified.

Capturing Fade Shapes

To capture a fade means to extract all of its parameters, making them available to apply to other clips.

Step 1 Press the `{capture}` soft key. This will cause the Binnacle **Clip**, **Head** or **Tail** key to flash, inviting you to select one of them.

Step 2 Select one of the Binnacle **Clip**, **Head** or **Tail** key to capture the fade length and shape from the current clip. The current clip is the clip currently touching the play head on the active track.

Having captured those values, you can apply them to any other red clip by pressing the **Clip** key. Turn off shape or length if you don't want to apply it.

Deleting Fades

Step 1 Press the `{delete}` soft key, then press the Binnacle **Clip**, **Head** or **Tail** key to delete fades. Pressing the **Clip** key affects fades at both the Head and Tail of each selected (red) clip, while pressing **Head** affects only fades at the head and **Tail** affects only fades at the tail.

Presets

Presets are used to save fade shapes only, not lengths. The system provides a number of Fade Presets, and you can also save your own Custom presets.

To recall a system preset:

Step 1 Press the `{Preset}` soft key, then press keys 1-9 on the numeric keypad to choose one of the 9 factory fade presets.

Step 2 To apply the recalled shape to a clip, turn off the `{length}` soft key and press the **Clip**, **Head** or **Tail** key, depending which part(s) you wish to apply.

To recall a custom preset:

Step 1 Press the {Preset} soft key, then press the {custom preset} soft key, then use the jogger wheel to scroll through the list of custom presets.

Each of the custom presets (if any exist) will be shown in turn, and its shape displayed in the Fade panel.

Stop scrolling when you have loaded the preset you want.

To save the current shape to a new custom preset:

Step 1 Press the {Preset} soft key, then press the {save preset} soft key.

Step 2 Type a name for the new custom preset, then press the **Enter** key on your console (not on the QWERTY keyboard).

To change the shape stored in a custom preset:

Step 1 Recall the custom preset as described above.

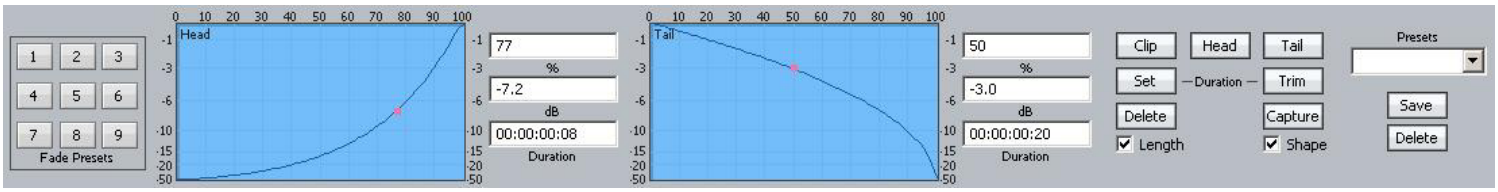
Step 2 Adjust the shape at the head or tail of the clip, or capture new ones from a clip.

Step 3 Press the {Preset} soft key, then press the {save preset} soft key.

Step 4 Now immediately press the Binnacle **Enter** key to save the current values over the selected preset. This will overwrite the preset, and the software will give no warning.

Using the Mouse and Screen

While the Fade mode is active, the screen displays shapes and controls for creating and editing fades.



Fade Head

Step 1 Select a track and move a clip under the cursor.

Step 2 Press the Binnacle Fade button (if not already on).

Step 3 Click the Head button in the screen display (it's near the upper right).

Step 4 Adjust the shape of the Head fade (described below).

Step 5 Click the Apply button. The fade described in the shape is applied to the head of the clip.

Note that the fade duration is set numerically, not by the cursor position. The opposite is true when using the Binnacle keys.

Length and Shape

The Length and Shape tickboxes allow you to choose what to apply. You can untick the Length tickbox if you only want to apply the shape, and vice versa.

Fade Shape

Using the mouse and screen method allows you to set the fade shape before applying it. The shape includes the following parameters:

Percentage (X-Point) – this controls the percentage of the fade's duration when it reaches the Crossover Point.

Attenuation (X-Level) – controls how loud the fade is (compared to the full Level of the clip) at the Crossover point.

Duration – the total length of the fade, in frames. (Duration is not really part of the shape, but its control is close by).

Example: Percentage = 30%, Attenuation = -3 dB, Duration = 20

This means that the fade will last for 20 frames. The crossover point will be 6 frames into the fade, at which time the level will be -3 dB compared with full Level.

Fade Tail

Same as Fade Head, but the fade is applied to the end of the clip.

Fade Clip

If both Head and Tail are selected when you click Apply, both ends of the clip can be faded at the same time.

Using a Range

If a range is present when the Apply key is clicked, all clips that are wholly inside the range will be affected by it.

Fade Presets

The system provides nine convenient fade shapes as presets. These can be recalled instantly by clicking on the keypad at the left. Having recalled a preset, it can be applied to the Head and/or Tail of the currently selected clips using the Apply button.

Saved (Custom) Presets

You can save named shapes in DREAM IIs storage, and recall them at will. To save the current shape settings, as seen in the graphical displays, type a new name into the text box above Save and Copy, then click Save.

To recall a custom preset, click on the down arrow at the right of the text field, and select an item by name from the list. This shape can then be applied to any clip's head and/or tail using the Apply button.

Any custom preset can be deleted by clicking the delete button when the shape's name is displayed.

A custom preset can be updated to the current shape settings by clicking Save while its name is displayed.

Capturing Shapes

To capture a fade means to extract all of its parameters, making them available to apply to other clips.

Step 1 Click the capture button. This will cause it to flash.

Step 2 Click the Clip, Head or Tail button to capture the fade length and shape from the current clip. The current clip is the one currently touching the play head on the active track.

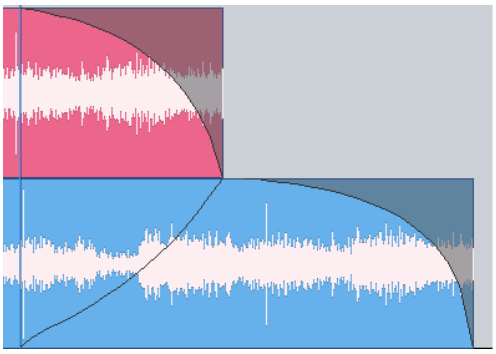
Having captured those values, you can apply them to any other red clip by clicking the Clip button. Untick shape or length if you don't want to apply it.

Cross-Fades

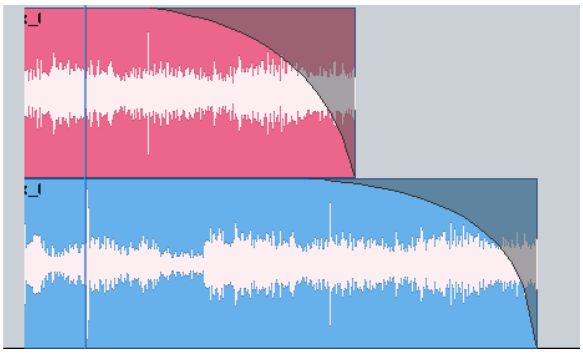
If a fade is placed on a clip and there is another clip layered underneath, a cross-fade between the two will automatically be "induced". Cross-fade parameters can be modified with the soft key menu functions.

Induced crossfades are complementary – that is to say, the clip underneath is faded with exactly the opposite shape to the clip on top.

If the clip underneath already has its own fade, overlapping the time of the upper clip's crossfade, then no induced fade occurs. In the following illustration, clip layering has been turned on (using **BLUE** Track or View>Display Layering).



Induced crossfade – note lower curve



No induced fade – lower fade overlaps

Fade Options

Layers On

ALL LAYERS ON is not supported in Fade Mode.

Razor On

RAZOR ON is not supported in Fade Mode.

Soft Edit

Every clip has a small fade at the head or tail to make it sound smoother. This is called a Soft Edit, and you can control its length. To do this, click the Setup Menu on the Track screen and select General Preferences. In the dialog that is displayed, click the Playback tab.

Step 1 Click the Setup Menu on the Track screen

Step 2 Select General Preferences.

Step 3 Click the Playback tab.

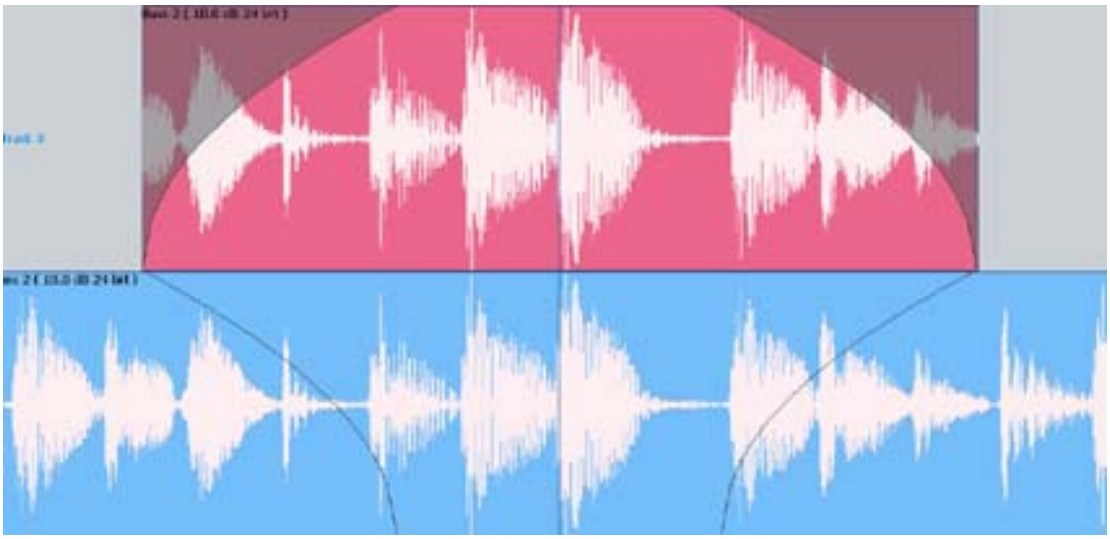
Step 4 Change the value for Soft Edits

The current value for Soft edits is shown in the Audio Options group. A value of 72 samples is generally useful when the Project sample rate is 48 kHz, but you may set this according to your own taste.

Creating Smooth Level Changes

By pasting a copy of a section of a clip onto itself, you are able to change the level of the copy to create a level change. If the copy is cross-faded with the original, a smooth level transition results. When using the COPY and PASTE functions, be sure to be in STOP otherwise a slight movement of the jogger wheel may result in phasing during the fades.

The same technique can be used to fade one clip EQ setting to another, within the same piece of audio.



In the above illustration, the top layer plays the same audio as the bottom layer, but may have different level or EQ settings. During the fade-in and fade-out, the settings will effectively crossfade.

Gating Clips

A rough but useful and quick way to remove unwanted silence or near silence from clips is with the Gate Clips function.

Using the Gate Clips Function

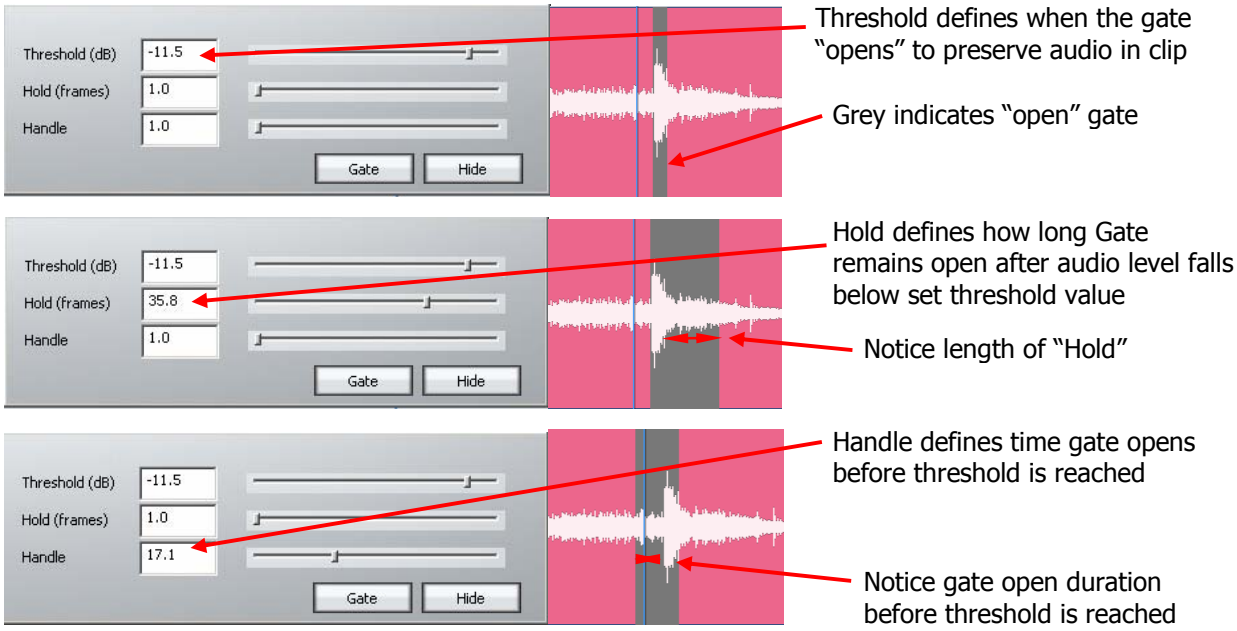
First you will need to select the track(s) using the track feed keys and select the clip(s) either by selecting a range or by parking the playback head over the desired clips. You are now ready to perform the Gate Clips function. To do this:

Step 1 Navigate to the Process menu and select Gate Threshold Preview.

Step 2 Your selected clips will now be shaded in grey. The grey areas mark the audio that will be retained after the Gate Clips operation is performed. Start by moving the "Threshold" slider slowly to the right.

Step 3 Depending on the type of audio contained in the clip, areas will begin to be shaded in pink. This indicates the areas that will be removed when the Gate Clips function is performed.

Step 4 Once you have adjusted the threshold so that the undesired portions of the clip are highlighted in pink, adjust the hold time and pre handle time to fine tune the gating process(see below).



Step 5 When you are happy with the amount retained versus the amount removed from the graphic representation, press the "Apply" button to process your settings. All pink areas in the clip will be removed, retaining the grey areas.

NOTE: As with many other editing functions in Dream II, the original audio is not affected by clip gating, only the clips that reference it. Any audio removed by gating can be recovered using the Trim function. See Trim Function, on page 132

Mouse-Based Editing

The mouse can be used to select clips, make ranges and move clips in time and across tracks. This can be done irrespective of which editing or mixing mode is selected.

Selecting Clips

As explained previously, the mouse can be used to select and deselect individual clips within the range, by Ctrl-clicking on them. If no range is present this can still be done. When you Ctrl-click a clip when no range is present, a range will be created which includes all the previously selected

clips, plus the one just added. If the track containing the clip was not selected, it becomes selected automatically.

Mouse-Based Ranges

The mouse can be used at any time to create a range. Simply click an empty space (one where there is no clip) and drag an area on the Track display, and a range will be created.

At the same time, any clips or parts of clips ***on already selected tracks***, that are inside the area you dragged, will be selected. All other clips will be deselected.

Selecting clips when creating a range with the mouse does not select tracks, but selecting clips by directly Ctrl-clicking them does select tracks.

To remove the current range, click (but don't drag) anywhere with the mouse.

Moving Clips

Clips can be dragged horizontally and vertically with the mouse. This changes the clip timecode and track respectively.

When there is no range, simply click and drag any single clip to another time or track.

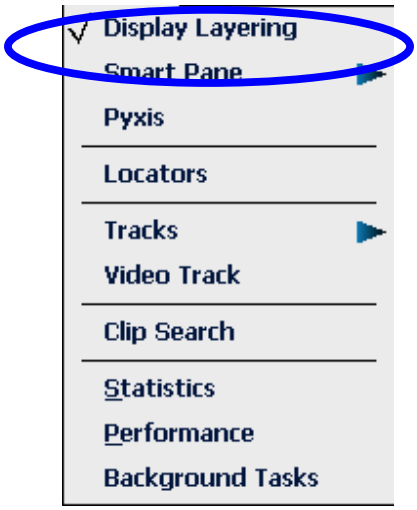
When there is a range, click on any selected (red) clip and drag it – all other red clips will also be dragged along with the one you clicked.

Summary of Mouse Editing Actions

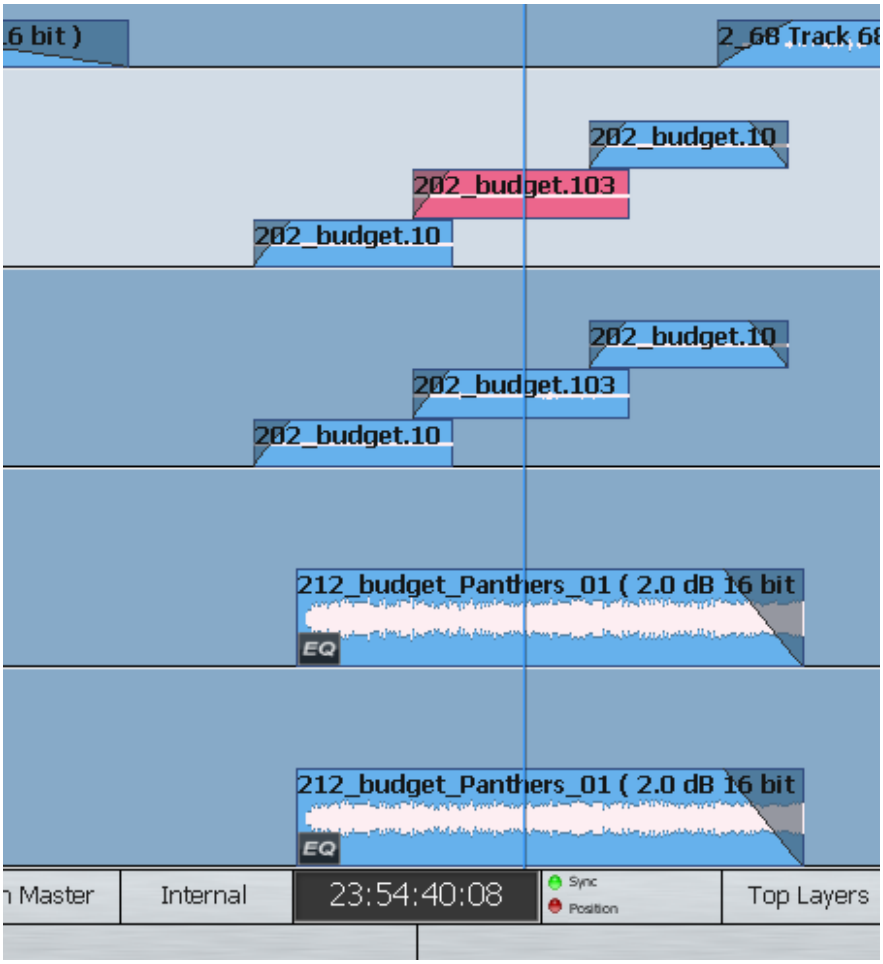
Action	Result
Click on unused trackspace	Removes range
Ctrl-Click on a clip	If unselected, adds it to the selection (makes it red). Also selects its track, if not already selected. If already selected, removes it from the selection (makes it blue)
With no range, click on a clip and drag it	The clip moves to any track and time where you drag it
With a range, click on a ***selected*** clip and drag it	All selected clips move across tracks and time as you drag them.

Display Layering

When clips are placed "on top" of each other, only the uppermost is heard, or at most a crossfade between the top and second layers. The software allows you to see all the layers by selecting Display Layering using **BLUE**+Takes or via the onscreen View menu.



The layers of clips are shown on all tracks, with the clips becoming thinner as needed to fit the available space.



The mouse can be used to change the order of clips. To do this, simply click and drag a clip from one level to a higher or lower level. Changing levels in this way can be combined with dragging a clip to a different track or timecode.

Note that there is always a space at the top of each track, equal to the width of one clip. This is to allow room for you to drag a clip into the top position.

Mouse Edit Menu

The screen Edit Menu provides many commands that are available elsewhere in the system. The mouse can be used to access these commands.

Cuts the selected clip or range to the clipboard
Cuts the head of the clip at the cursor position
Cuts the tail of the clip at the cursor position
Copies the selected clip or range to the clipboard
Copies the head of the clip at the cursor position
Copies the tail of the clip at the cursor position
Pastes a copy of the clipboard at the current position
Erases the selected clip or range
Erases the head of the clip at the cursor position
Erases the tail of the clip at the cursor position
Extends the clip head to use all the recorded audio
Extends the clip tail to use all the recorded audio

Cuts the selected clips into two at the cursor
Allows the level of selected clips to be set
Allows the selected clips to be renamed
Syncs the selected clips to their record timecode
Reverses the audio in the clips
Cycles clip layers around when in **BLUE Takes** mode
Positions the Sync point in the clip. Can be used for Jumping

Undoes the last edit
Redoes the last edit that was undone
Shows a list of the edits that can be undone

Fade to the nearest end
Fades from the head to the cursor
Fades from the cursor to the tail

Controls the number of layers affected by edits
Controls Range On/Off and sets head and tail of range.

Chapter 12 - Grouping

Introduction

Grouping is a fast and convenient method of controlling more than one signal path from a single fader or parameter control. There are two types of groups: Link Groups and Edit Groups.

Link groups are designed for controlling groups of feeds in multichannel formats. Link groups simplify many tasks associated with working in surround formats and share many of the operational features of surround format buses. Link groups can include up to eight members. The simplest link group has two members and fulfils the function of a stereo channel.

Fader Groups are similar to other VCA or DCA grouping schemes and allow one fader or parameter control to control a group of signal paths. Fader Groups can include any number of members.

Summary of Groups

Type	Member Type	Master Fader	Selection to Channel Panel	Stem Structure	Fold on Creation
Link Group	Live Feed or Track Feed	Link Group Master - level equal to first member.	Select Master	Yes	Yes
Fader Group	Live Feed or Track Feed	Fader Group Master	Fader Group menu key and soft Speaker Set key	No	No

Link Groups

Link groups allow the control of up to eight feeds with one fader. Link groups can only include track feeds or live feeds, not a mixture of both. Link groups can be created in any standard multichannel format.

Link Group Format

When a link group is created, the number of members determines the format of the link group. When a link group is created, you have the option of retaining the current pan setting of each member or using default pan settings for the chosen format.

If default pans are selected each member of the group is panned to one element of the bus in the following order:

If 2 Feeds are linked, they are panned L R.

If 3 Feeds are linked they are panned L C R.

If 4 Feeds are linked they are panned L C R S.

If 5 Feeds are linked they are panned L C R LS RS.

If 6 Feeds are linked they are panned L C R LS RS B.

If 7 Feeds are linked they are panned L C R LS CS RS B.

If 8 Feeds are linked they are panned L LC C RC R LS RS B

Normally each member is panned hard to one Bus Element position, spread is set to maximum, divergence is set to minimum and rotation is set to zero. This fixed pan configuration is optionally chosen when the Link Group is created, and cannot be changed afterwards.

If fixed panning is chosen, and the link group format contains a Boom channel, the assignment of the corresponding member is achieved by Stem Assignment to the Boom element only, of the destination Bus. See "Stem Assign" on page 59.

If you are using a link group to control a premixed stem which is delivered in a different channel order, it may be necessary to edit the track order on the disk recorder or to change the input patching of the feeds if the stem is played in off an external device.

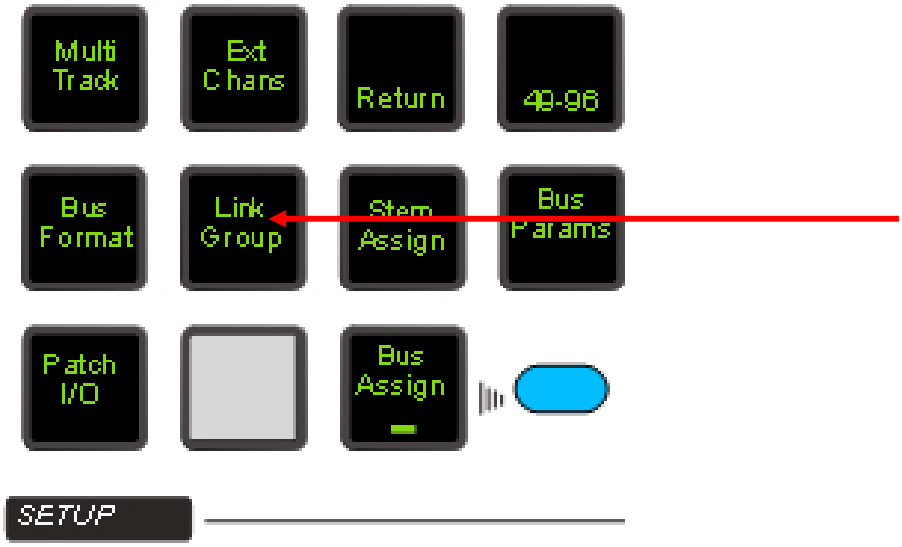
Link Group Features

Linking feeds in link groups has the following effects:

1. Selecting one member selects the entire link group.
2. There is only one fader for the group. When the group is created, the group master fader adopts the level of the first fader in the group. When the fader is adjusted, the member's fader levels are offset by the amount the master fader is moved in dBs.
3. It is possible to control the individual members' independently. This is done in the Mixer Screen channel tile, and applies only to the controls shown there i.e. Fader, Mute, Solo, EQ In/Out button and Insert In/Out. But whatever these settings are, they will be overridden by any change to the Master tile.
4. When a group is created the master pan control is centred. The Spread and Rotate controls become active when the link group master is called to the Master Fader. These pan parameters offer unique and flexible panning controls to multichannel link groups. See "The Surround Panner" on page 87 for a complete description of these functions.
5. When the group is created, the In-Line Panel and Channel Panel controls adopt the position of the first feed in the group. When a rotary control is adjusted, the controls of the members are offset by the amount the master control is moved. Switch controlled parameters display the current setting of the first member in the group. Pressing a switch with a toggled value will set all members off. Double pressing will set all member parameters on. For switches which cycle through a number of values, pressing the switch will set all members to the next value of the Group Master.
6. The MUTE and SOLO keys on the Master Fader section indicate the mute and solo status of all the members.
7. When the group is created the channel Soft Pot is set to the position of the first feed in the group. When it is adjusted the values of the Soft Pot parameters of all the members of the group are offset. The channel Soft Key displays the setting of the Soft Key parameter of the first member of the group
8. The AUTO key on the Master Fader section enables automation recording for the link group master which will control all the members.

9. When selected, a link group is displayed in the channel display at the bottom of the mixer display. The display shows input patching and destinations for the entire group.
10. When using dynamics across a link group, the side chain signal for each member is derived from the maximum signal level for the entire group thus maintaining the integrity of the signal image.

Creating a Link Group



Link groups are created from the Link Group menu:

Step 1 Press the **Link Group** Key.

The feeds that currently belong to link groups flash red. Feeds available for selection are dimly lit.

Step 2 Press the feed selection key of the first feed of the group. Its key lights up, and so do the keys of the next seven feeds, which are the other possible members of the new link group.

Step 3 Press one of the illuminated feed selection keys to make it the last feed of the group.

Link groups can only include track feeds or live feeds, not a mixture of both. Link groups can only include up to eight members, which must have contiguous number e.g. 3 to 10.

Step 4 Select a menu item from the `{Apply Defaults}` soft key menu.

`{all defaults}` applies pan settings to each member to set the link group into a surround format as described above under "Link Group Format". All defaults also applies the feed parameter values of the first member of the group to all the members. Parameters modified are fader level, pan, EQ, dynamics, aux sends, inserts and direct out state.

`{default pans}` applies pan settings to each member to set the link group into a surround

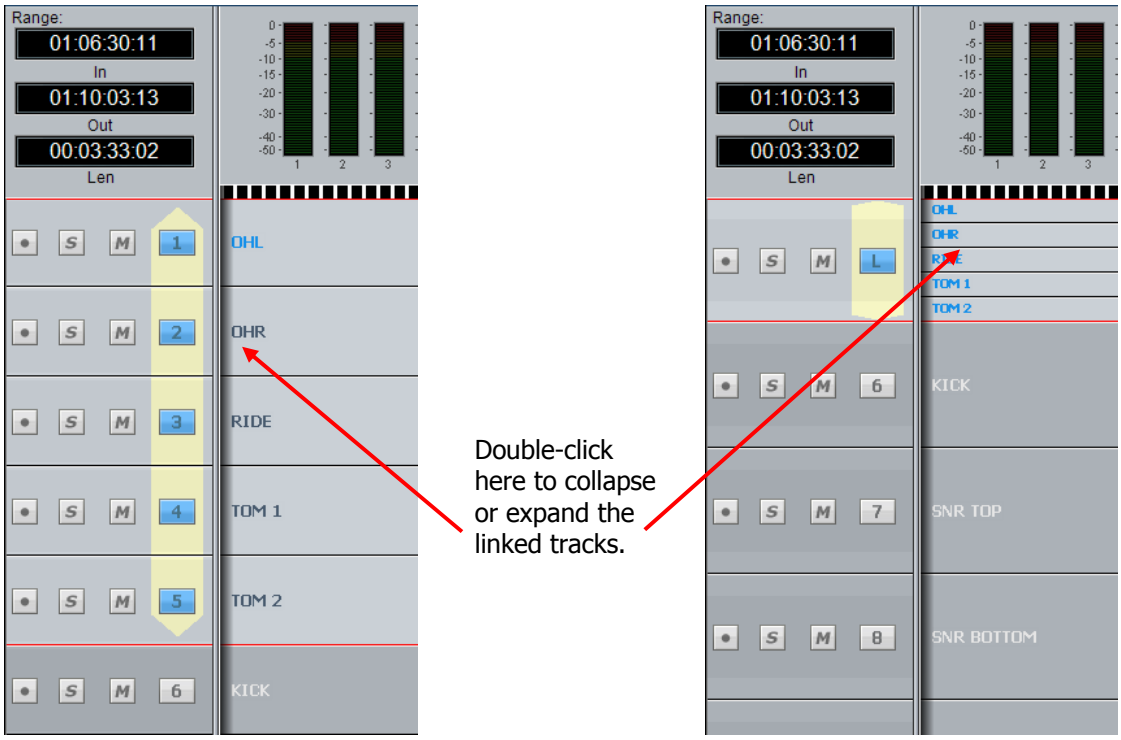
format as described above under "Link Group Format". Default pans affects the pan parameter only.

`{feed params}` applies the feed parameter values of the first member of the group to all the members, excluding pan. Parameters modified are fader level, EQ, dynamics, aux sends, inserts and direct outs.

`{no defaults}` no feed parameters are modified.

Step 5 Press the **Link Group** key to return to the previous mode or press another mode key to continue mixing or editing.

The link group is displayed in the channel display at the bottom of the mixer display. If composed of Track Feeds, it is also shown in the Editing Screen.



You can collapse the linked tracks down to the width of one track by double-clicking any of the linked tracks, close to its left side. Do the same thing to expand them.

Destroying a Link Group

Link groups are destroyed from the Link Group menu:

Step 1 Press the **Link Group** Key.

The feeds that currently belong to link groups flash red.

Step 2 Press the feed selection key of a feed belonging to a group.

Step 3 Select `{unlink}` on the LCD soft key menu item.

Press the **Link Group** key to complete the operation and return to the previous mode or

press another key to continue mixing or editing.

NOTE: You can also create and destroy Link Groups from the Tracks Menu under **Link Tracks** and **UnLink Tracks** respectively. Note that this method does not offer the flexibility as does using the control surface.

Fader Groups

There are 10 VCA-style Fader groups on Constellation. Members of a Fader Group have their fader levels controlled by a Master, and can also be accessed individually to set relative levels within the group.

To add/remove tracks and lives to/from a fader group:

Step 1 Call the desired feed

Step 2 Press & hold the FADER GROUP key (top right corner of the Channel Panel panel)

Step 3 Toggle the feed in/out of a group using the fader set keys 1-9.

Faders in a group can be controlled by the Group Master fader. To do this, you must either CALL the Group Master to the Channel Panel, or add to a fader set.

To CALL a group master

Step 1 Press the CALL key (on the editor panel)

Step 2 Press & hold FADER- GROUP (in the fader set section), and select the group master using the fader set keys 1-9.

To add a group master to a fader set:

Step 1 Press the MAP key

Step 2 Select the fader where you want the group master by hitting its CALL key

Step 3 Press & hold FADER-GROUP (in the fader set section), and select the group master using the fader set keys 1-9.

Members of a Fader Group are indicated on the Main Screen graphics with the inclusion of fader group indicator, located immediately below the Track/Live channel number.

A "Fader Grouping" indicator is displayed in the fader strip LCDs.

Link Groups can now be included in a Fader Group.

Naming a Group

Fader groups and link groups are named using the Call Menu.

Step 1 Press the **Call** key

Step 2 Select the group you wish to name as follows:

For a Link Group, select any member of the group

For a Fader Group, hold down the Fader Group button and press a Fader Set key.

Step 3 Press the `{name}` soft key in the **Call** menu.

The LCD will show the current name of the group. If it is a Link Group, it will initially have the name of its first member. If it is a fader group, it will initially be called, for example, Gp 3.

Step 4 Press the Del key in the QWERTY keyboard. This will remove the current name.

Step 5 Type a new name and press Enter.

Multi Trim

Multi Trim is a convenient method for controlling the parameters of any selection of signal paths.

In Multi Trim the Channel Panel, including fader, act as master controls for all the selected signal paths, in either relative or absolute mode. The values for these controls are initialised to zero or unity on power up, after which they remember their last settings.

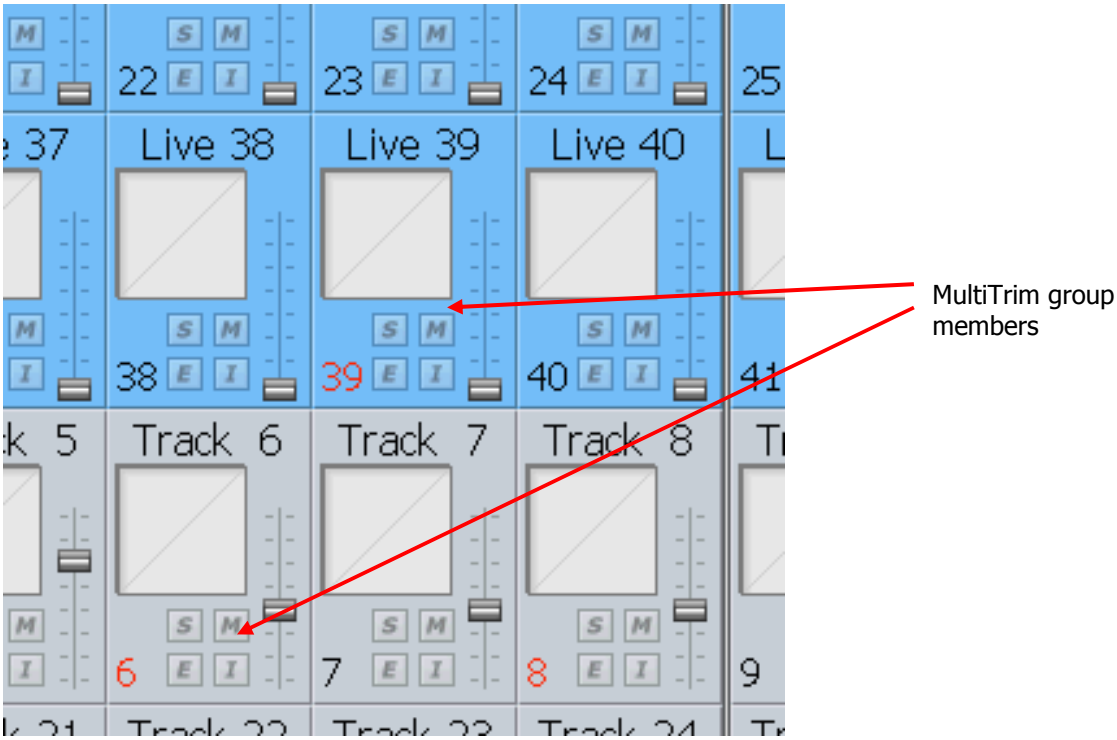
The selection of channels can be changed at any time using the Selection Panel.

It is also possible to have no selection in Multi Trim mode, which allows for the virtual master values to be adjusted to suitable positions before making a selection and applying values.

Using Multi Trim

Step 1 Press the **Multi Trim** key.

Step 2 Press feed, bus or fader group selection keys to toggle them in or out of the selection. This can also be done by clicking the mouse on the number of a feed in the Mixer Screen. In either case, the number goes red.



Step 3 Select Absolute or Relative mode by pressing the `Abs` or `Rel` soft keys in the LCD menu.

Step 4 Adjust the Master Fader or any controls in the Channel Panel to control the group. The mixer display will be updated to show the changes as they occur.

Step 5 Press the **Multi Trim** key to return to the previous mode or press another key to exit Multi Trim and continue mixing or editing normally.

Relative and Absolute

Multi Trim may act in relative or absolute mode. In relative mode, all selected signal paths parameters' will be changed by the amount the master control is moved. In absolute mode, the parameters change to the absolute value of any control that is moved.

Pressing the `{apply values}` soft key will cause all Channel Panel values, whether you have moved them or not, to be applied to the selected signal paths.

Using the Mouse

Multi Trim can also be operated with the mouse. It can be used even after the Multi Trim button has been turned off, if channels are still in the group.

Mouse operations with a MultiTrim group include the following:

1. Click and drag any member's fader to move all the group's faders relatively (in proportion to their current value).
2. Ctrl-Click and drag any member's fader to move all the group's faders absolutely (they are all set to the same value).

3. Click any toggle switch on any member's tile (Mute, Solo, EQ In/Out, Insert In/Out) to toggle all members' switches.
4. Ctrl-Click any toggle switch on any member's tile (Mute, Solo, EQ In/Out, Insert In/Out) to set the value of that toggle to be the same for all members.

Link Groups can be included in the MultiTrim group. When any of the MultiTrim members' faders are moved, the whole Link Group adopts the fader value of the first member, removing any offsets between them that might have existed earlier.

To clear the MultiTrim Group, double click on one of the red channel numbers.

Chapter 13 - Library

Introduction

The Library menu provides storage for Equaliser, Dynamics, Channel presets or complete Constellation snap shots. Up to 100 of each type of preset can be stored. These presets can be recalled and applied to any signal path in any project.

To access the Library menu, press the **Lib** key.

Select the preset type by pressing the `{chan EQ}`, `{chan dyn}`, `{all chan}` or `{all console}` soft key. Select the library function by pressing the `{Save}`, `{Load}` or `{Delete}` keys. The presets and functions are described below. `{all chan}` means all the parameters in the currently selected signal path.

Presets

Equaliser

A library of 100 equaliser settings is provided. Each equaliser preset stores all the parameter settings of the equaliser section on the signal path currently called to the Master fader.

Press the `EQ` soft key in the Library menu to select equaliser presets.

Dynamics

A library of 100 dynamics settings is provided. Each dynamics preset stores all the parameter settings of the dynamics section on the signal path currently called to the Master fader.

Press the `DYN` soft key in the Library menu to select dynamics presets.

Channel

A library of 100 channel settings is provided. Each channel preset stores all the parameter settings on the signal path currently called to the Master fader, excluding I/O patching.

ALL Constellation

A library of 100 Constellation settings is provided. Each Constellation preset stores all mixer parameters for all feeds and buses. All patching, routing and name settings are also stored.

Default Constellation Template

A special Constellation library file named `default` is used to store the default setup of the Constellation on power up. You may overwrite this file with any setup that suits your requirements.

Saving a Preset

Follow these steps to save a preset:

Step 1 Call a signal path to the Master fader by pressing the **Call** key and then pressing one of the feed or bus selection keys, or in any of the other ways.

Step 2 Adjust the parameters you wish to store.

Step 3 Press the **Lib** key to display the library menu.

Step 4 Press the `{chan EQ}`, `{chan dyn}`, `{all chan}` or `{all console}` soft key to select the type of preset you wish to store.

Step 5 Press the `{Save}` soft key and type a new name for the library preset. The previously entered name is displayed by default and will be overwritten if you do not change it.

Step 6 Press **Enter** to save the preset or press the `{Cancel}` soft key to cancel the operation.

Loading a Preset

Follow these steps to load a preset:

Step 1 Call the destination signal path to the Master fader.

Step 2 Press the **Lib** key to display the library menu.

Step 3 Press the `{chan EQ}`, `{chan dyn}`, `{all chan}` or `{all console}` soft key to select the type of preset you wish to load.

Step 4 Turn the jog wheel to scroll through the list of available library presets for the selected type.

Step 5 Press the `{Load}` soft key then press the `{Yes}` soft key to confirm the operation.

If you choose an `{all console}` preset, it doesn't matter which signal path is selected, because the whole console will be loaded.

Deleting a Preset

Unwanted library presets can be deleted by following these steps:

Step 6 Press the **Lib** key to display the library menu.

Step 7 Press the `{chan EQ}`, `{chan dyn}`, `{all chan}` or `{all console}` soft key to select the type of preset you wish to delete.

Step 8 Turn the jog wheel to scroll through the list of available library presets for the selected type.

Step 9 Press the `{Delete}` soft key then press the `{Yes}` soft key to confirm the operation.

Chapter 14 - Meters

Introduction

Signal level metering is available within the mixer video display and with optional external hardware meters.

A meter set is an assignment of signal paths across the meters, which may or may not be the same as the signal paths controlled by the faders just below. Up to 15 meter sets may be defined and called up using the Number keys in the Fader Sets section.

Constellation Main Meter Panel

The DMP2 Main Meter Panel includes eight, 79mm multi-segment bargraph LED signal level meters, plus eight LED meter legend windows. The DMP2 also includes two high quality analogue VU level meters which may be connected to external analogue sources.

The Main Meter Panel displays the signal level of each element of the Main bus. The name of each element is displayed in the LCD window below each bargraph. The number of active bargraphs is determined by the user-defined format of the Main bus. For example, if the Main bus format is stereo, only LEFT and RIGHT bus element meters are displayed. If the Main bus format is 7.1, all eight elements are displayed. These are: LEFT, INNER LEFT, CENTRE, INNER RIGHT, RIGHT, LEFT SURROUND, RIGHT SURROUND, BOOM.

Peak Hold Reset

Signal levels in excess of 0dB full scale are indicated by a fixed orange peak hold display. To reset the peak hold display, press the **Meter Sets** key in the Fader Sets section of the DREAM II Channel Select Panel. The over hold time can be set in the *C:\Program Files\ Fairlight\FMC\Data\System_Variables.txt* file. Edit the following line in the file, enter the hold time in ten milliseconds increments:

```
Overload_display_time,1000
```

Constellation Channel Meter Panel

The DMP1 Channel Meter Panel includes twelve, 55mm multi-segment bargraph LED signal level meters. The Channel Meter Panel displays the signal level of the feeds associated with the faders in the current fader set. Each meter is associated with a single fader panel. Meters display feed levels only. If a bus or link group is included in a fader set, those meters will show no signal.

Use the fader set keys to display the feeds you wish to meter.

Peak Hold

The numeric peak levels displayed on the mixer display bus meters have a variable threshold. The level at which these values are displayed can be set in the *C:\Program Files\ Fairlight\FMC\Data\System_Variables.txt* file. Edit the following line in the file:

PEAK_DISPLAY_LIMIT,950

The value is from 0 to 1000 in 0.1dB steps where 1000 = full scale level. In the example above the value of 950 will cause the numeric display to first be shown when the signal level reaches -5dB below full scale. 970 will set the threshold to -3dB, 990 will set the threshold to -1dB, and so on.

Chapter 15 - Talkback and Oscillator

Introduction

Constellation-XT provides two talkback paths and one physical microphone preamplifier. An external microphone preamplifier must be used for the second talkback circuit. Alternatively, use the same microphone and input and use the two talkback paths to feed separate buses, for example for talkback and slate. Each talkback path uses a physical input and can be routed via a dedicated Live Feed. The talkback signals can be sent to one or more buses for slate or communications purposes.

The talkback microphone can be connected to the XLR socket on the assignment panel. Once physically connected, it can be assigned to an analog input. See below for details.

Using Talkback

Press the **Talk 1** and **Talk 2** keys to unmute the talkback microphones.

The talkback keys provides momentary or latching operation.

Press the key briefly to latch talkback on. Press again to toggle it off.

Press and hold the key for momentary operation, then release the key to switch it off.

Setting up the Talkback Paths

To control the talkback configuration, hold down a **BLUE** key and press a **Talk** key. An LCD menu will appear with options for configuring talkback.

Selecting a Talkback Destination

The talkback signals can be routed to any bus or combination of buses.

Step 1 Hold down a **BLUE** key and press a **Talk** key.

Buses currently selected for the talkback signal are illuminated, other buses are dimly lit.

Step 2 Press any bus selection key to toggle it in or out of the selection to which the talkback signal is assigned.

Select a Talkback Source

To select the physical input for a talkback microphone:

Step 1 Hold down a **BLUE** key and press the **Talk** key.

Step 2 Press the `{Patch Source}` soft key in the LCD menu. The track feed keys are now used to select analog inputs.

The input, if any, that is currently patched to the talkback channel is brightly lit. Inputs that are patched to other paths are flashing. Inputs that available to patch to this talkback channel are dimly illuminated.

Step 3 Press a feed selection key to patch a physical input to the talkback channel. This replaces the previously selected patch.

Setting the Talkback Level

Follow these steps to set the level of the talkback mic:

Step 1 Hold down a **BLUE** key and press the **Talk** key.

Step 2 Press the `Gain` soft key in the LCD menu to adjust the input gain.

Step 3 Turn the jog wheel or use the numeric keys to set the gain.

Step 4 Press **Enter** to complete the operation.

Dim

The level of the monitor speakers is dimmed automatically when Talkback is engaged. To set the dim attenuation, hold down the **DIM** key and turn the jog wheel to set the amount of attenuation.

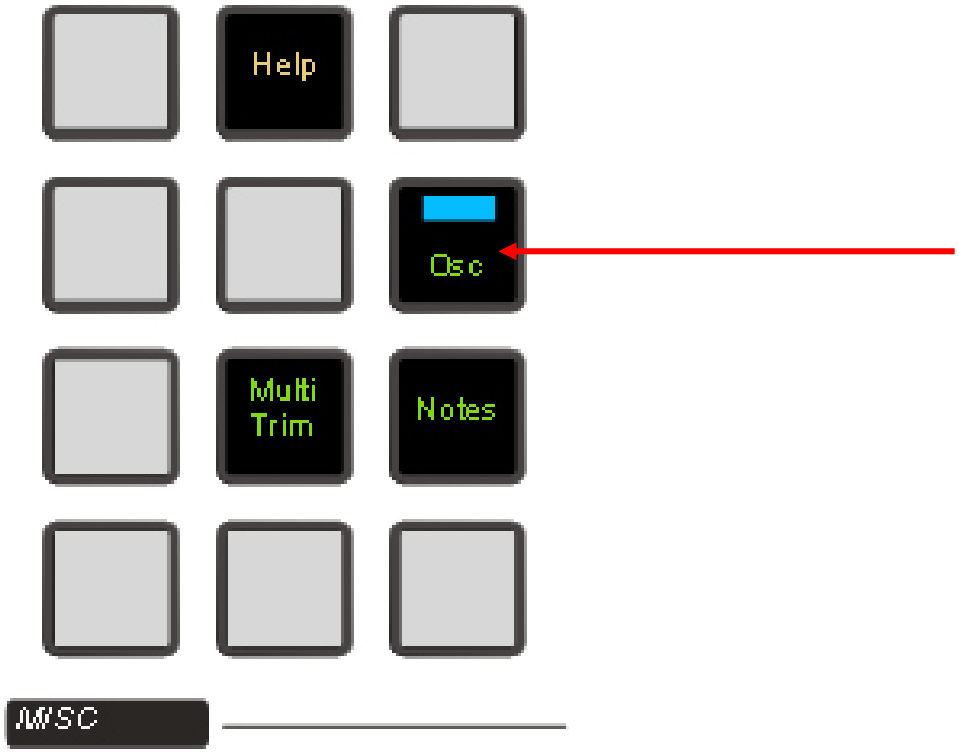
Auto Cue

The Auto Cue feature enables automatic dimming of the control room monitors when the transport is stopped or not locked to timecode. This is achieved by automatically turning on one of the talkback circuits. This feature ensures that the faders are controlled by valid automation data before playing back an automated mix at full level. To use Auto Cue without affecting normal studio communications use the second talkback circuit and de-assign it from all destination buses.

To enable Auto Cue hold down a **BLUE** key and press a **Talkback** key. Press the `{Auto Cue}` soft key to toggle Auto Cue on and off.

Oscillator

Constellation provides an on-board digital oscillator for system calibration, slate line up tones, and path identification. The oscillator shares the second talkback channel and may be fed to any bus.



Using the Oscillator

Step 1 Press the **Osc** key to turn the oscillator on or off.

Routing the Oscillator

The oscillator may be routed to any bus. The oscillator shares the second talkback channel and will be routed to the same destination.

Step 1 Hold down a **BLUE** key and press the **Talk 2** key.

Step 2 The bus selection keys are used to select the destination bus for the oscillator. Buses to which the oscillator is already assigned are brightly lit.

Press any bus selection key to add it to the oscillator destinations. Once the oscillator is assigned to a bus, the bus may then be routed to any physical output or track feed for recording to an external device or the disk recorder.

Oscillator Frequency and Level.

Step 1 Hold down the **BLUE** key and press the **Utils** key to display the Utils menu.

Step 2 Press the `{Osc-Freq}` soft key in the LCD menu and turn the jog wheel or use the numeric keys and press Enter to enter the oscillator frequency.

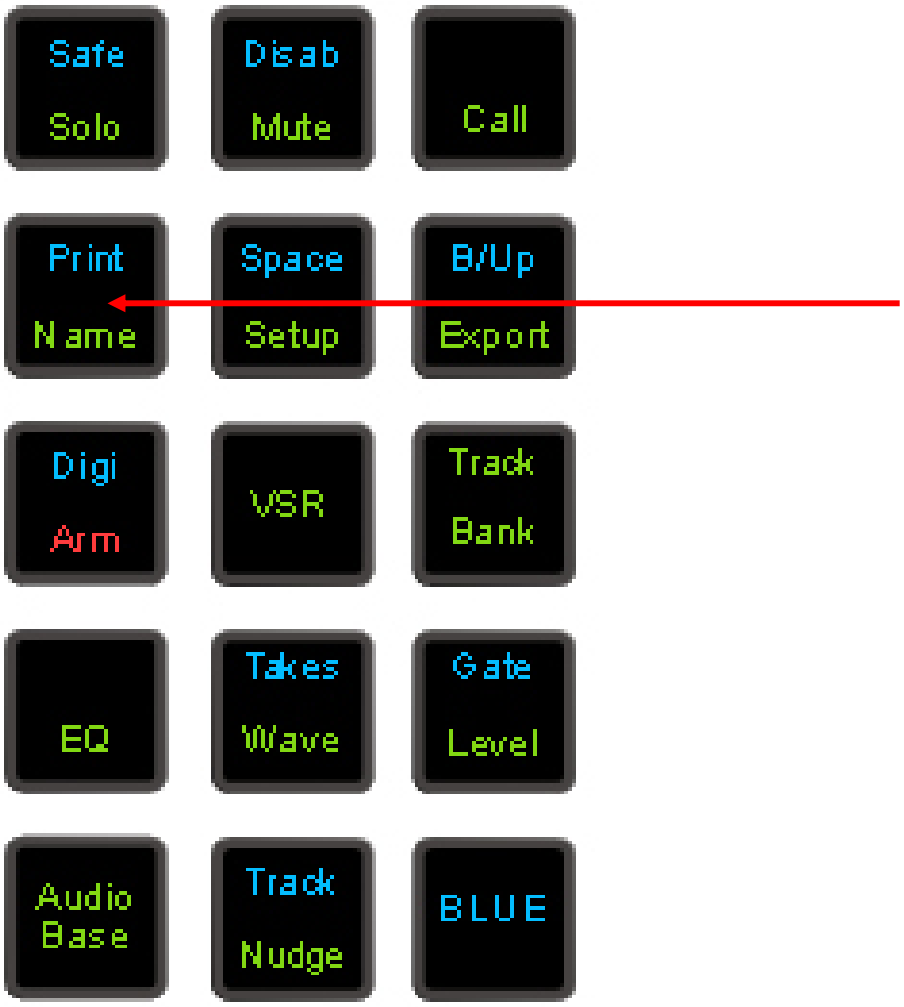
Step 3 Press the `{Osc-Gain}` soft key and turn the jog wheel or use the numeric keys and press **Enter** to adjust the level of the oscillator.

The level can be set from -99 to 0dBFS.

Chapter 16 - Name

Introduction

The Name Menu allows you to rename tracks and clips, and to setup 'seed names' for recording. When a name function is selected, the original name appears in the DREAM II LCD display and in the popup window. You can then use the **BACKSPACE** key to edit the original name.



Step 1 Press the **NAME** key.

Step 2 Select the `{clip}` or `{track}` soft key.

Pressing `{clip}` allows you to enter a name for the clip under the cursor (the system will complain if there isn't one).

Pressing `{track}` allows you to enter a name for the currently selected track.

Step 3 Edit the name in the popup window that appears on the PC screen.

Step 4 Press **Enter** on the QWERTY keyboard, or click OK.

Naming Tracks

The track names of a Project can be changed to help organise Projects. Select the required track and press the {track} soft key in the Name Menu. Enter the new name.

Naming Clips

All clips in a Project can be given an individual name. A clip can be copied and given a different name to the original. Different clips can also be given the same name. To name a clip, locate the transport so the cursor lies over the clip, selecting the appropriate track if necessary, then press the CLIP soft key in the Name Menu. Enter the new name using the PC keyboard.

Alternative – Naming from the PC Edit Screen

To rename a clip, select the Rename command in the onscreen Edit menu, then type the new name for the clip and press Enter on the QWERTY keyboard or click OK.

To rename a track, select the Rename Track command in the Track menu on the PC screen, then type the new name for the track and press Enter on the QWERTY keyboard or click OK.

Seed Names

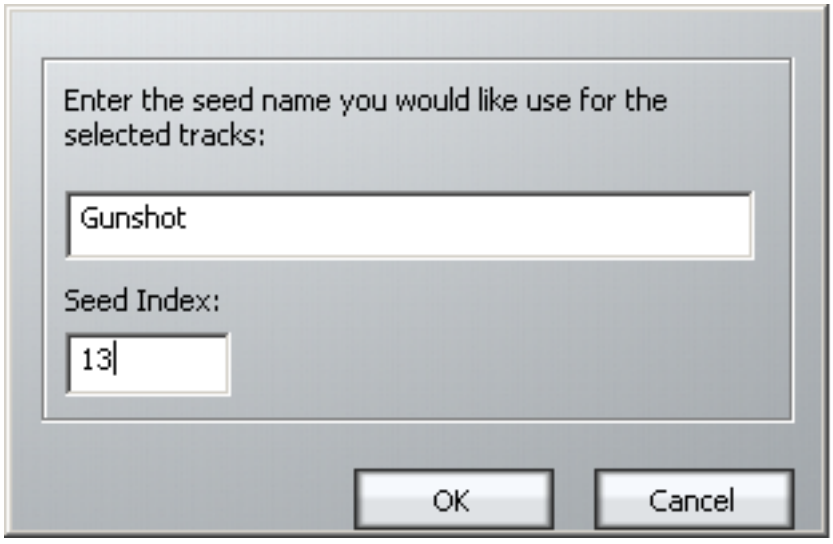
Names are given to all new recordings in a Project. You will notice that recordings are given an incrementing number for each new clip. Seed names allow you to enter a name prefix that will be given to each new recording, to which an incrementing number will be appended.

Each track has its own Seed Name, but you may apply the same one to many tracks.

To set the seed name for one or more tracks, do the following:

Step 1 Select one or more tracks

Step 2 Select the Tracks Menu above the Editing screen, and select Set Record Seed Name.



The system displays a dialog box.

Step 3 Enter the Seed Name you wish to use on the selected track(s).

Step 4 Enter the Seed Index

This is the number that will be used on the next recording made on any of the selected tracks. You may set this to any value you like, even if it has already been used.

1. The system defaults to the Seed Name "Recorded Audio" on all tracks. This results in lots of clips called Recorded Audio N.
2. Use only the following characters in names: A - Z, a - z, 0 - 9, _ (underscore)
3. When multiple tracks with the same Seed Name are recorded, the resulting clips have a range of numbers, increasing by one with each increasing track number. So for example, if:
    - The Seed Name is Clip
    - The next number is 5
    - Tracks 1, 2 and 12 are in record

    Track 1 will get Clip 5

    Track 2 will get Clip 6

    Track 12 will get Clip 7

Naming Feeds and Buses

Feeds and Buses can be named from the **Call** menu. Names appear in the mixer display on each channel or bus tile.

Step 1 Press the **Call** key to enter the Call menu.

Step 2 Press a feed or bus selection key to call the path to the master fader.

Step 3 Press the `{name}` soft key.

Step 4 Type a name for the signal path and press **Enter**.

Press the Tab key to enter the name and step to the next feed. Hold down the Shift key and press Tab to move to the previous feed.

Notes

Project notes can be captured in a text field, using the following steps:

Step 1 Press the **Notes** key. A text window appears on the Mixer screen.

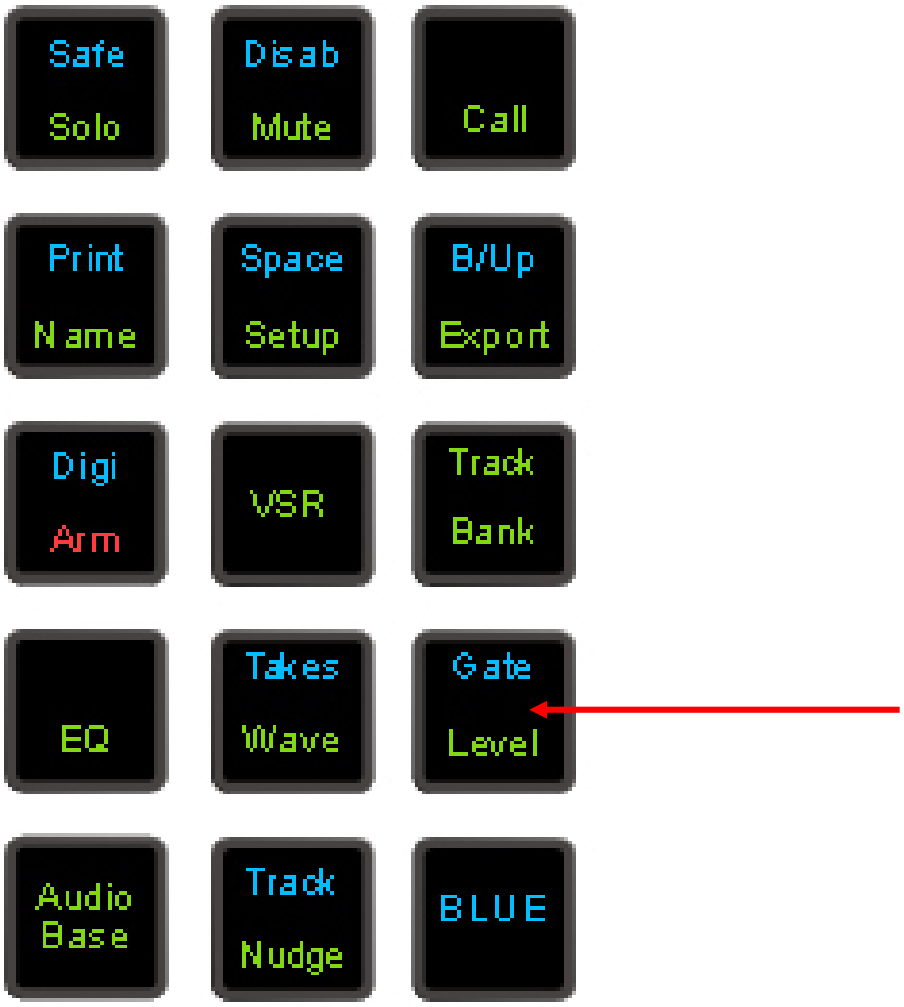
Step 2 Use the computer keyboard to add text to the window. When complete, press OK to save your notes (or press **Notes** again).

Step 3 At any time you may return to the Notes window by pressing the **Notes** key again, and can edit the text in the window.

Chapter 17 - Clip Level

Introduction

The **Level** Menu allows clips to be amplified and attenuated by up to 99dB. The gain changes are performed by the system in real time as the audio is played out from the system. Applying a level to a clip does not affect the waveform on disk. The level function can operate on multiple tracks, on clips that lie beneath the cursor and also within a Range.



Applying a Level Change

Step 1 Press the **Level** key.

Step 2 Select the track or tracks containing the clips you wish to modify.

Step 3 Locate the cursor over the clip(s) or define a Range that wholly contains the clips.

Step 4 Press the `{Clip}` soft key.

Step 5 Change the level by typing in a value or using the Jogger Wheel.

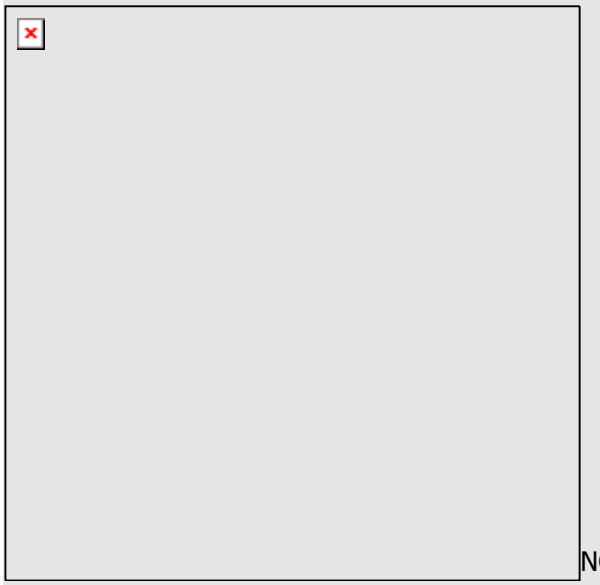
Step 6 Press **Enter** or click OK to make the change permanent.

The output of each track is displayed on the level meters.

Range

A number of clips can be altered at the same time using a Range and track selection. A range is created using the **From** and **To** keys, as described in"Selecting a Range" on page 4-12.

When using a Range, only clips that are entirely within the Range are affected.



NOTES:

It is possible, when using the Level Menu, to push the level of a clip over digital full scale. Check the meters, to set the level for just part of a clip, then use the SPLIT command to break it into the right sized pieces, then set the appropriate levels.

To create a ramp between different levels in one clip, first copy the section whose level is to be changed (using the Edit Menu), then paste it back on top of its source. Change its level as desired, then use the Fade Menu to create fades at either end of the clip. This will cause it to crossfade with the source clip underneath, which will be playing at the original level.

Chapter 18 - Clip Equalisation

Introduction

Constellation-XT provides clip based, four band parametric Equalisation (plus shelving) which can be applied to a single clip or range of clips within a Project. EQ is performed by the system in real time as the audio is output from Constellation , therefore applying an EQ change does not affect the audio data on disk. The clip-based EQ is independent of the track feed mixer EQ.

Applying EQ

Step 1 Press the **EQ** key.

Step 2 Locate the cursor over the clip or define a Range of clips.

Step 3 Press the `{edit}` soft key.

Step 4 Select the appropriate EQ parameter.

This can be done using the Numeric keypad, as shown in Choosing a Parameter below, or by clicking in the appropriate field in the EQ display above.

Step 5 Adjust the parameter, using the Jogger Wheel or by typing a value on the QWERTY keyboard and pressing its Enter key. Changes are heard in real time.

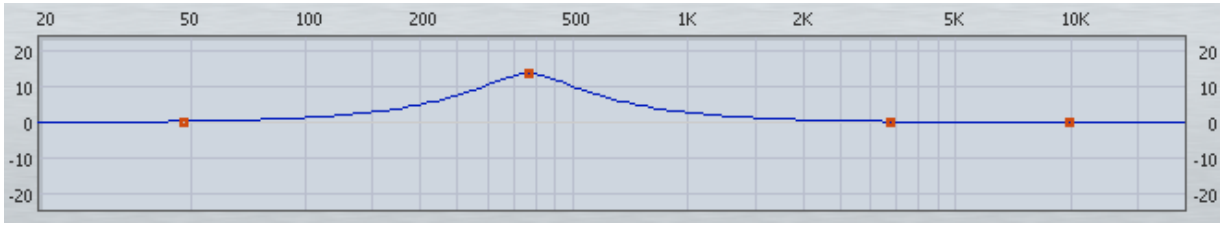
Step 6 Repeat steps 4 and 5 as often as needed.

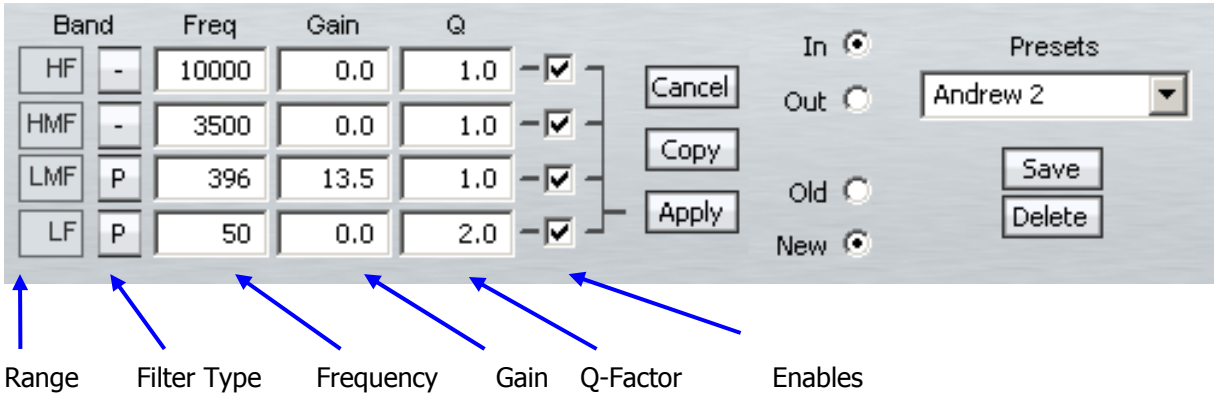
Step 7 Apply the changes by pressing the Console Enter key, or by clicking the Apply button.

Each equalisation band has three parameters you can change. They are: centre frequency of the band, gain (cut or boost) at that frequency, and Q-factor (sharpness of the band) or whether it is a high or low shelf.

EQ display

Left side of display. When a clip's EQ is being edited, the dots change from black to red (as shown here). They can be moved with the mouse, changing frequency and gain values. These values are updated in the value grid as you move the mouse. You can also hear the changes in the audio if it is playing, after a short delay.





Right side of display. The value grid shows the parameters of the EQ being applied to the clip (or range of clips).

`Band` There are four EQ bands that you can apply. They are given the names commonly used on mixing consoles, but actually they are not in fixed ranges – you have the full frequency range available on each of them.

`Filter Type` Choices are:

P Band pass filter

>- High pass filter

-< Low pass filter

Each band can be set to any filter type. Mouse-click on the button to cycle amongst the choices.

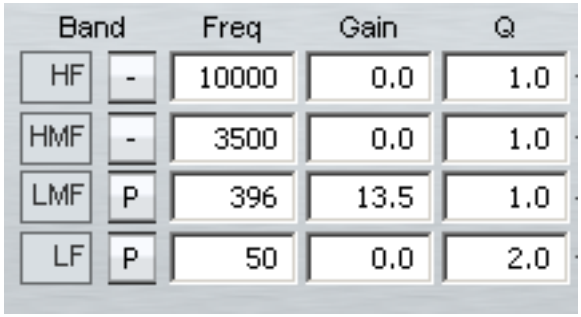
`Frequency` The centre frequency of each band.

`Gain` The gain of the band. Range -99 to +20dB.

`Q` This displays the Q of the band or indicates the type of shelf. Range 0-99.

`Enables` Used with the Apply command. Only the Enabled bands are applied to the selected clips.

Value Grid



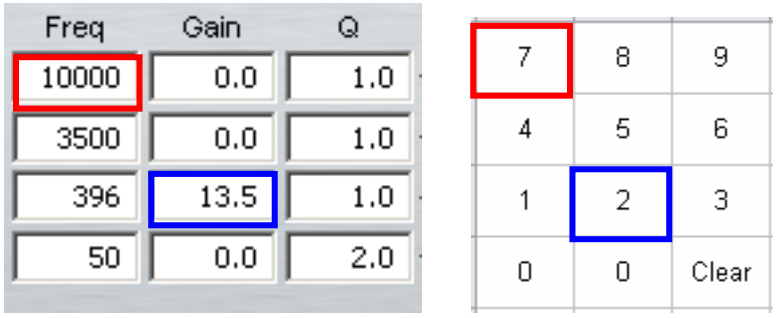
The Value Grid shows all the current parameters of the EQ being changed.

Choosing a Parameter

There are two ways to choose a parameter in the grid:

Click with the mouse in the cell you would like to change

Use the Numeric Keypad on your console – the rectangle formed by the 7,8,9 keys at the top and the 0,00,Clear keys at the bottom corresponds with the cells in the Value Grid.



In addition, the Frequency and Gain values can directly be chosen and changed using the mouse on the graph area.

Changing a Parameter Value

There are several ways to change the value of a parameter once chosen:

- Use the Jogger Wheel – make sure the transport is not in Jog mode at that time.
- Type in the value using the numbers on the QWERTY keyboard.
- Use the up and down arrows on the QWERTY keyboard
- Use the + and – buttons in the Numeric Keypad of your console
- Press the NUMBER soft key and use the numeric keypad – not recommended.
- With the mouse, by dragging the red squares in the EQ graph.

Applying the Changes

To apply your changes, click the Apply button or press the apply soft key. Only the bands whose Enable checkboxes are selected will be applied.

To escape without applying your changes, click the Cancel button or press the edit soft key to deselect it.

New or Old

Whilst adjusting an EQ parameter it is possible to toggle between the new and old settings using the `NEW/OLD` soft key, or clicking the New / Old radio buttons, until you apply the changes.

In or Out

Toggle the EQ on and off with the `IN/OUT` soft key, or the In / Out radio buttons.

Copying an EQ

The EQ parameters of a clip can be copied to another clip or Range of clips.

Step 1 Press the **EQ** key.

Step 2 Locate the cursor over the source clip.

Step 3 Press the `{copy}` soft key or click the Copy button on the screen.

Step 4: The enable checkboxes allow you to choose which of the bands are pasted into your

target clip(s)

Step 5 Locate the cursor over the destination clip or define a Range of clips.

Step 6 Click the Apply button or press the {apply} soft key.

Parameter Display

Current EQ parameters are always shown at the top of the screen when the EQ menu is active, helping to see what is active and what values are current. The layout of the parameter values is exactly the same as the layout on the numeric keypad. A graph helps you to see what is going on.

EQ In/Out

Use the {EQ In/Out} Soft key to toggle the EQ on or off at any time. This action will affect the clip under the cursor, or all clips in the Range, if any. The on/off position of this switch is stored in the clip along with the settings of the EQ parameters.

4. While you are changing parameter values with the jogger wheel, the actual sound is updated after a short delay.
5. Turning the wheel faster increases the steps between values.
6. There is no limit to the frequency Range for each band, so you can have your low frequency higher than your high frequency if you want.
7. When you are using a Range, it is possible to change one or more bands for the entire Range, while leaving other bands as they were. So, for example, the clips might have different settings for LOW EQ but the same setting for HIGH EQ.

Saving EQ Settings

The system allows you to save the current EQ settings and later retrieve and apply them.

To save an EQ setting, do the following:

Step 1 Type a new name into the Presets field (or use an old name if you want to change its settings)

Step 2 Set the EQ values to the ones you want to save, by editing, or simply by "picking up" the values by touching an existing clip.

Click the Save button, or press the {save} soft key.

To retrieve an EQ setting, select it from the Preset drop list. It can then be applied immediately to the currently selected clip or range of clips.

A saved EQ setting can be deleted by first selecting it from the drop list, then clicking the Delete button.

Chapter 19 - Time Domain Processing

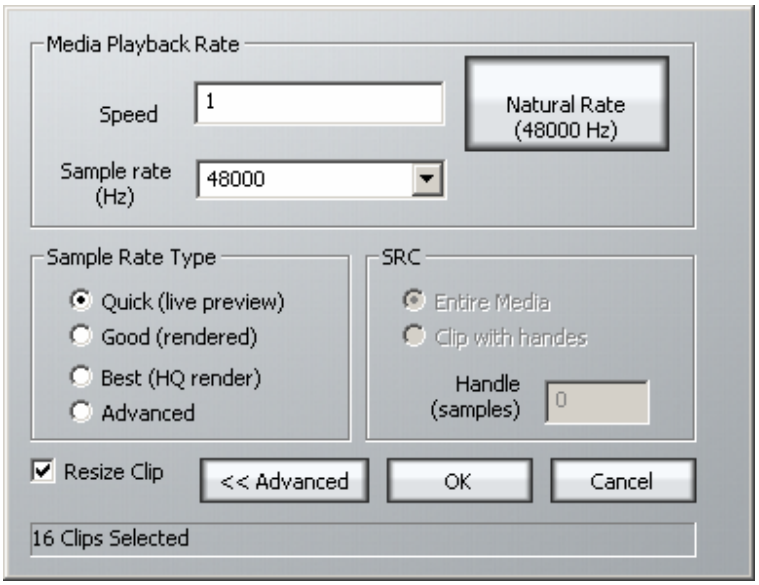
Introduction

Constellation-XT provides Sample Rate Conversion, Powerful Time Compression and Expansion via Serato's Pitch 'N Time FE (Fairlight Edition), and automated dialog alignment via Synchro Arts Vocalign Project.

Sample Rate Conversion

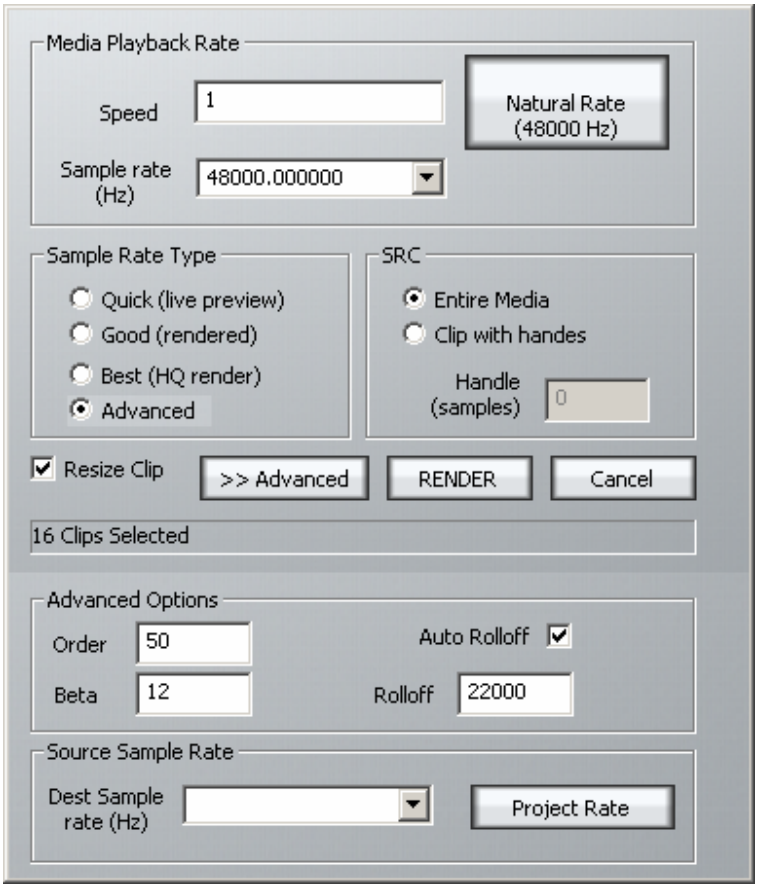
Step 1 To enter the Wave Menu, press the **WAVE** key.

Step 2 Press the `{SRC}` soft key. The SRC popup appears



Use the keyboard and mouse to adjust parameters:

- Adjust speed, eg 0.8 =80% of natural rate (slower), 1.3 = 130% of natural rate (faster).
- Click Natural Rate to reset speed.
- Alternatively, select a target sample rate from the popup.
- Select a Sample Rate Type
- Select "Entire Media" or "Clip With Handles" to convert the entire source clip or only the visible portion with handles. Handles must be specified in samples.
- Check "Resize Clip" to match the clip boundaries to the converted length. Uncheck "Resize Clip" to maintain the existing clip boundaries.
- Click "Advanced" to open the Advanced Options pane.



- Order:Set FIR order (number of taps is 2 * order + 1). Calculation time is proportional to 'order'.
- Beta:Beta values of 2 to 12 are reasonable. For a given order, larger 'beta' reduces pass band ripple, but widens the rolloff transition band, so a lower roll off frequency is required to avoid aliasing.
- Rolloff:Roll off frequency must be less than 1/2 of both sample rates.
- Auto Rolloff:Means Dream II will calculate the required rolloff for you.

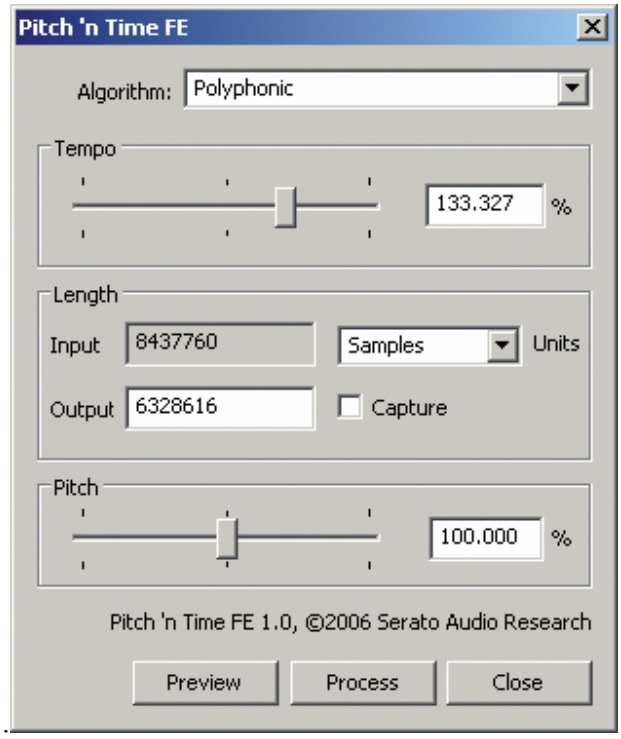
Performing Time Compression/Expansion

Serato Pitch 'n Time FE provides the industry's finest time compression and expansion. Change length without changing pitch, or pitch without changing length, and hear the result in real time as you jump from clip to clip. Pitch 'n Time FE is fully integrated with Dream II's Binnacle controller, allowing for fast, intuitive operation.

** Note: Pitch 'N Time FE requires an iLok USB Security Key and a valid license. Licenses can be purchased at http://www.serato.com

Step 1 To enter the Wave Menu, press the **WAVE** key.

Step 2 Press the `Pitch 'N Time` soft key. The Pitch 'N Time FE popup appears.



Use the keyboard and mouse to adjust parameters:

- Select an Algorithm
    - Polyphonic – best suited for music
    - Vocal – best suited for voice
    - Varispeed – varispeed mode
- Press the `preview` soft key or "Preview" button to audition your settings in real time.
- Tempo changes speed without changing pitch. Use the tempo slider to set the desired tempo *or* press the `fit range` soft key to capture the current range length *or* press the `edit` soft key to edit the output duration or type a value in the "Output" box.
- Pitch changes pitch without changing tempo. Use the pitch slider to set the desired pitch.

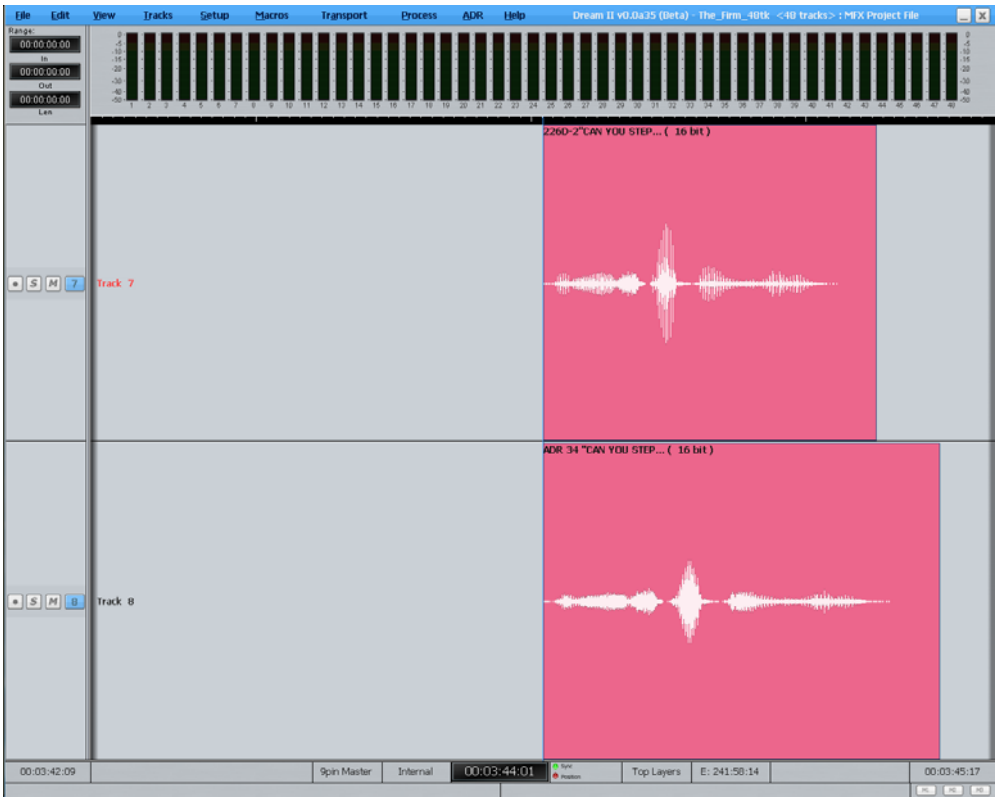
- Press the `process` soft key or "Process" button to render your changes back to the timeline. A new clip will be created, and the original clip will be muted and preserved in the layer underneath.

Using VocAlign Processing

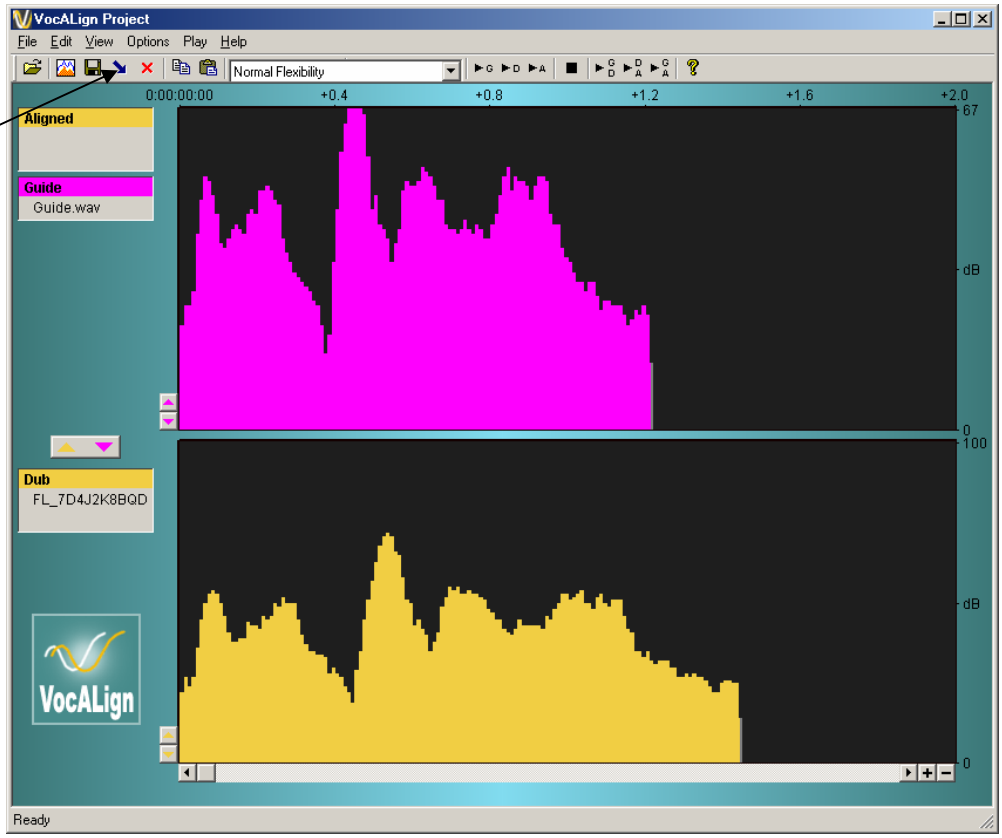
** Note: Vocalign Project can be purchased at http://www.synchroarts.co.uk/. Dream II systems will recognize Vocalign Project after it has been installed and run at least once.

Step 1 To enter the Wave Menu, press the **WAVE** key.

Step 2 Select two tracks for VocAlign Processing. The first selected track serves as the guide track. VocAlign will attempt to match the second track to the guide track. Note that VocAlign cannot process clips longer than 120 seconds



Step 3 Press the `{VocAlign}` soft key. The VocAlign popup will appear.



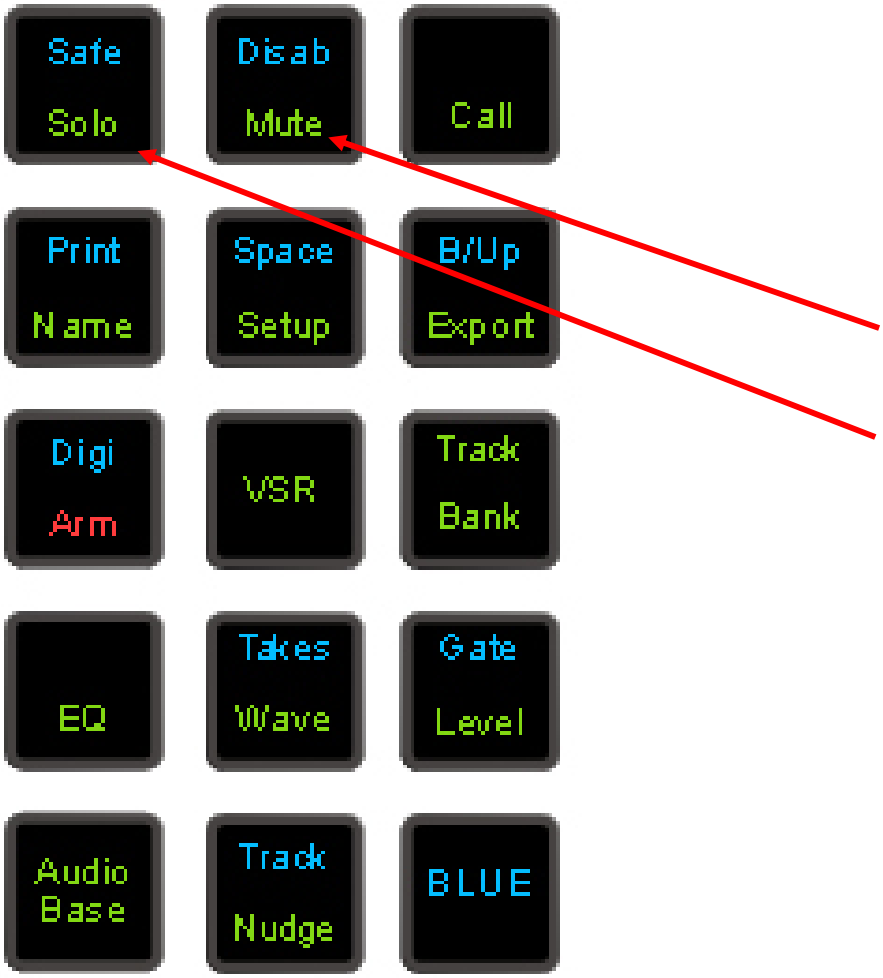
Step 4 Adjust VocAlign parameters or use defaults (see the VocAlign manual for details). When you are ready, press the "Align" button or the `align` soft key. A new clip will be created on the Dream II timeline, and the original clip will be muted and preserved in the layer underneath

Chapter 20 - Solo and Mute

Introduction

DREAM II provides two independent solo and mute systems. The solo and mute features described in this chapter are integrated into the disk recorder system. These offer a fast method of controlling which track feeds are monitored. The solo and mute functions described in this chapter can be used in conjunction with mixer solo and mute features which are described in "Mixer Solo" on page 74 and "Mute" on page 76.

The onscreen SOLO and MUTE functions mirror the solo and mute buttons on the DREAM II controller. SOLO mutes all tracks except for soloed tracks, MUTE silences only the selected tracks. Both the SOLO and MUTE functions can be activated by pressing the **Solo** or **Mute** key then selecting the desired tracks, or by using the Mouse and onscreen 'M' and 'S' buttons.



There is also a useful feature where you can hold down the **Solo** or **Mute** key while selecting the tracks. This will automatically return you to the previous menu when you release the keys.

Soloing Tracks

Step 1 Press or hold the **Solo** key.

Step 2 Select tracks to SOLO. The SOLO function can be toggled on or off with the first soft key in the LCD menu. This will switch between soloing the selected tracks and monitoring all tracks.

Indicators next to the track numbers show orange for soloed tracks and blue for remaining silent tracks.

Muting Tracks

Step 1 Press or hold the **Mute** key.

Step 2 Select tracks to mute. The MUTE function can be toggled on or off with the first soft key. This will switch between muting the selected tracks and monitoring all tracks.

Indicators next to the track numbers show blue for muted tracks.

Chapter 21 - Go To

Introduction

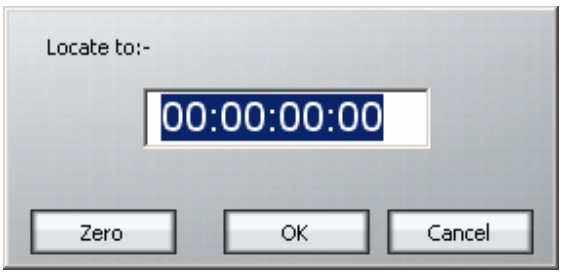
The Go To Menu is used to locate to timecode locations or named clips. After the transport has located to the target, you will be returned to the mode you were in before the GO TO command.

Go To a Timecode location

Step 1 Press the **GO TO** key. The `{time}` soft key is already selected.

Step 2 Enter the timecode location using the numeric keypad or the QWERTY keyboard.

Step 3 Press **Enter** or click OK to move to the new timecode location.



Go To Clip Name

The Go to Clip function locates the transport to the head of the desired clip. It also incorporates an alphanumeric search function to help sort through clips by name.

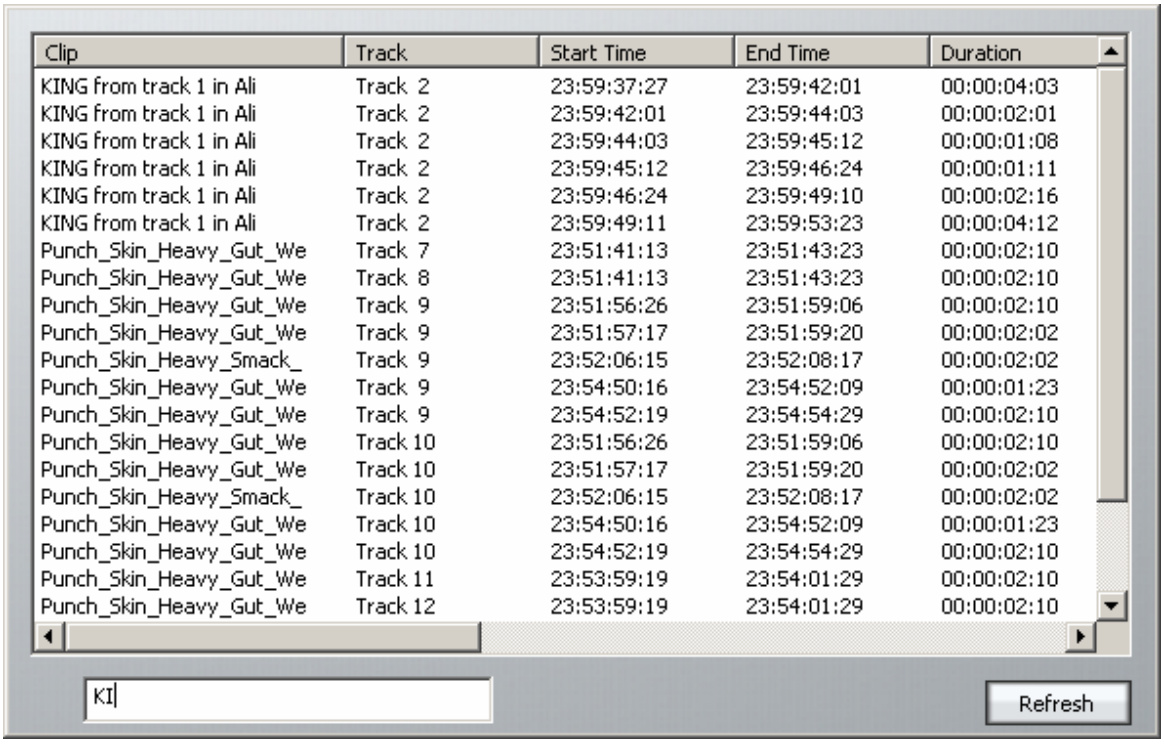
Step 1 Select **GO TO**

Step 2 Select `{clip}`.

Step 3 Clip names are listed on the video display. Select the desired clip using the mouse.

You can shorten the list by typing a sequence of characters. Only clip names containing that sequence will be shown, so as you type more characters, the list will get shorter and shorter.

Step 4 Press **Enter**.



The clips can be sorted in track order, start order, end order or duration, by clicking on the column header. Clicking a header item a second time reverses the sort order.

Go To Mark

The Go to Clip function locates the transport to the head of the desired clip. It also incorporates an alphanumeric search function to help sort through clips by name.

Step 1 Select **GO TO**

Step 2 Select `{mark}`.

Step 3 Marks are listed on the video display. Use the Jogger Wheel to scroll up and down the list of marks, or use the mouse to click on the desired mark.

Step 4 Press **Enter**.

While viewing the list of marks, you can also select and edit them, changing their names and timecode locations.

Chapter 22 - ADR

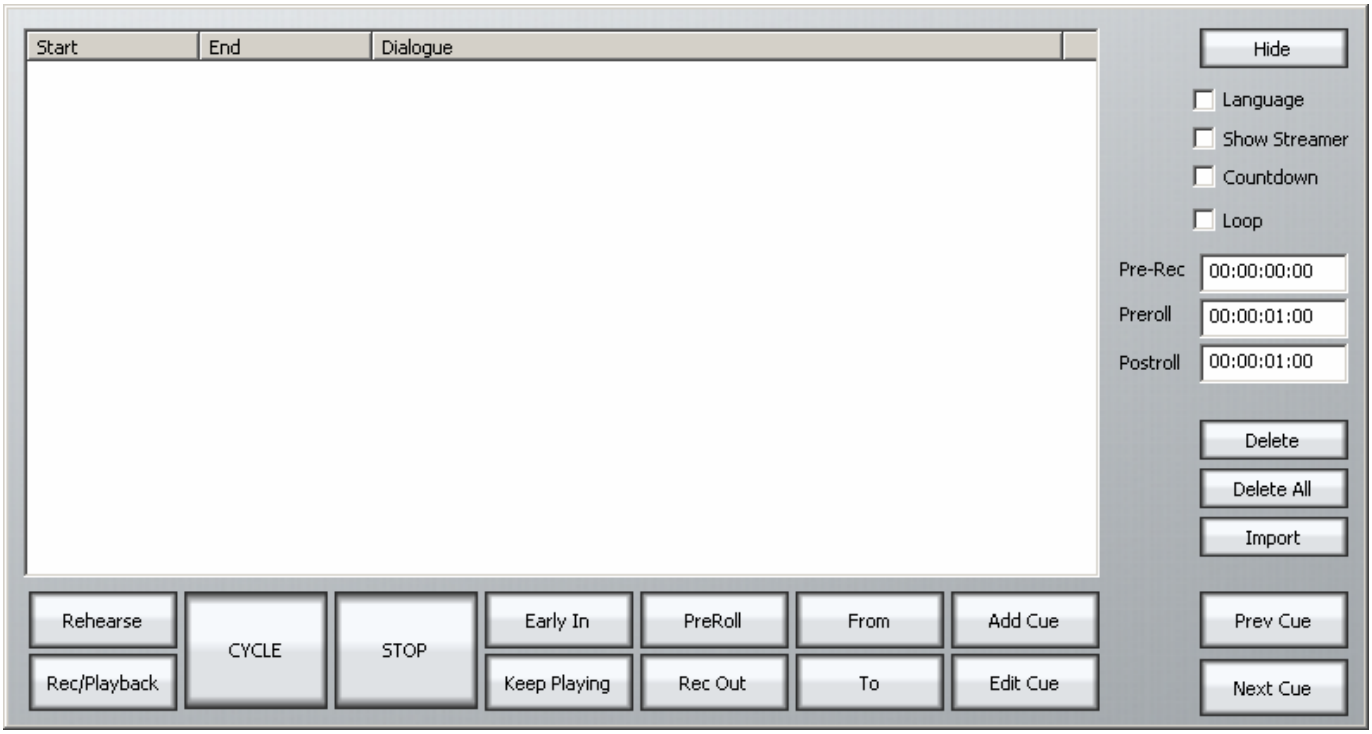
Introduction

Constellation-XT provides the ability to automate recording using a list of In and Out points with a simple interface. The ADR menu includes functions for setting pre and post-roll and features for automatic dialogue replacement.

The ADR List

The ADR List allows you to set up a list of recordings – cues – that you want to take. Each one has a controlled In and Out point, and text that can be displayed on the screen.

To open the ADR List, press the **ADR** button (recommended), or click the ADR Menu above the Track display, and select ADR List.



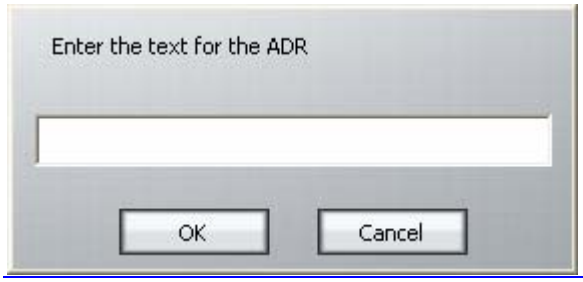
When it is first opened, the list is empty of cues.

Adding a Cue

Step 0 Optionally, create a range covering the cue you want to add. This is probably the quickest way to set the In and Out times for your cue. (If there is no range, the cue will be created with the transport position as its In time, and 5 seconds duration.)

Step 1 Click Add or press the `{add cue}` soft key

A dialog appears for writing the text of your cue.



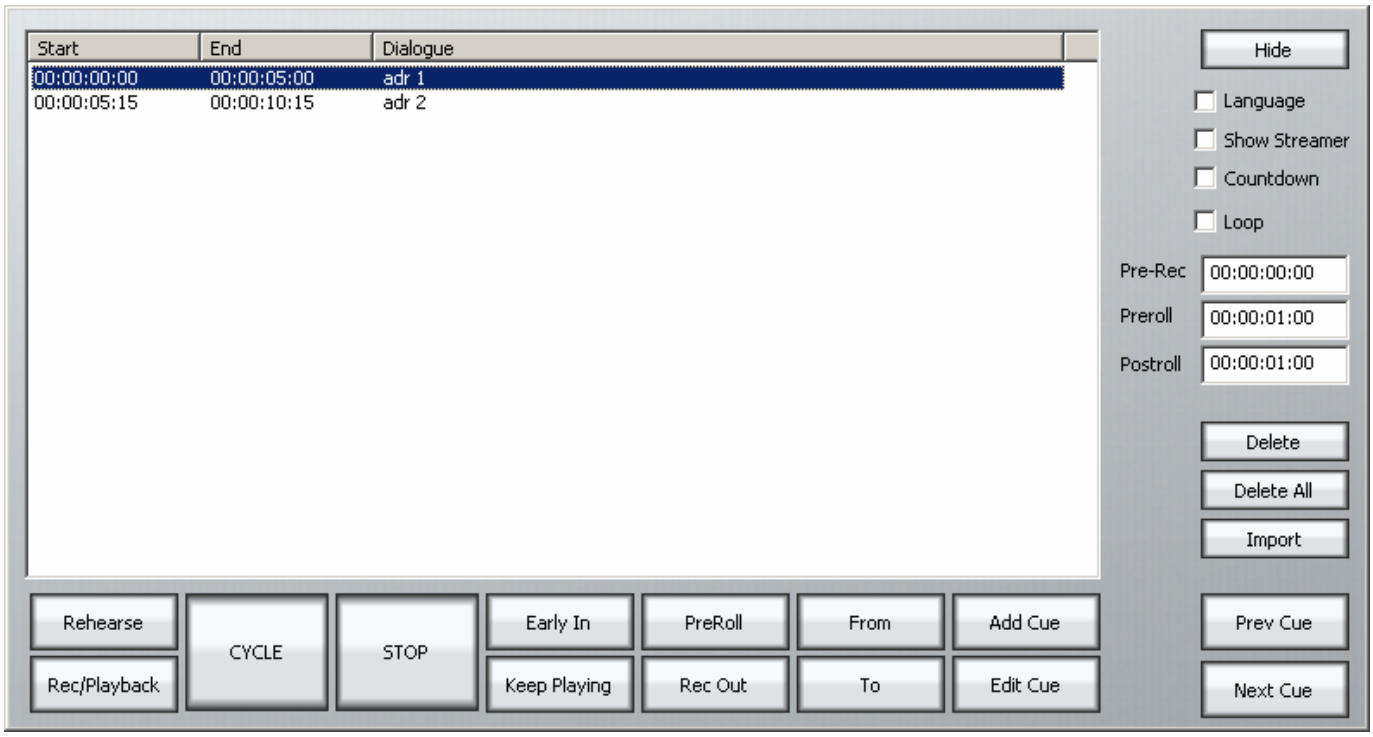
Step 2 Enter the text and click OK

Step 3 If necessary set the In Point of the cue: locate the transport to that point and click From. Your current position will be shown in a dialog. You may accept this by clicking OK.

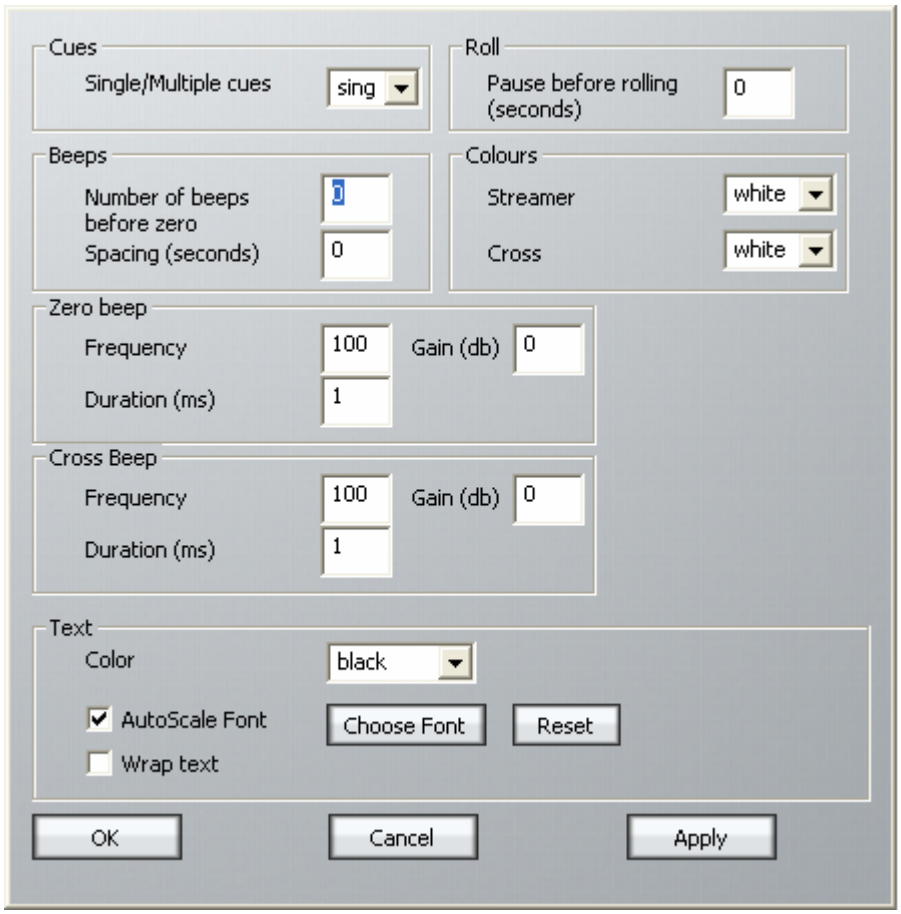
OR

Click From, type the timecode you want, and click OK.

Step 4 If necessary set the Out Point of the ADR cue in the same way. The cue is shown as below.



Once you have entered all the cues that you want to use, you may set up your preferences by clicking the ADR Menu and selecting ADR Preferences. The following screen is displayed.



The main purpose of this dialog is to control beeps and the streamer. The streamer is a band across the screen which displays the ADR text, and also gives an indication of the start point for the cue. An example of the streamer is shown below.

The text is shown, and the indicators converge on the centre of the screen, arriving at precisely the In time of the cue.

To turn on the Streamer, click the ADR Menu above the Track display, and select ADR Display.

Cycle

The Cycle command is used to initiate ADR actions. It will execute rehearsal, recording and playback, depending on the mode of the ADR system. See below for details.

Preroll and Postroll

It's usually necessary to set a preroll for recording. This allows the recording artist to get ready for the start.

Postroll is useful for hearing how the new recording fits into the track.

Set preroll and postroll using the appropriate fields in the ADR List.

Rehearsing a cue

You may rehearse cues before recording them. Is this needed in a system where all recording is non-destructive? Your call.

Step 1 Click the Rehearse button or press the {REHEARSE} soft key. This puts the ADR system

in Rehearse mode.

Step 2 Select a cue. The transport will locate to its In Time.

Step 3 Click Cycle or press the {cycle} soft key. This will cause the transport to drive through the In and Out points once, switching the track from repro to input, simulating the record experience.

Click the Stop button at any time to stop the take (or use the Stop button in the transport controls).

Note: When the ADR is in Rehearse mode, double-clicking a cue will select it and initiate a rehearsal Cycle.

Recording a cue

Step 1 Click the Rec/Playback button or press the {RECORD / PLAYBACK} soft key until its label is RECORD. This puts the ADR system in Record mode.

Step 2 Select a cue. The transport will locate to its In Time.

Step 3 Click Cycle. This will cause the transport to drive through the In and Out points, recording a take, then cycle through again for playback.

Click the Stop button at any time to stop the take (or use the Stop button in the transport controls).

Note: When the ADR is in Record mode, double-clicking a cue will select it and initiate a recording Cycle.

Playing Back a cue

Step 1 Turn off the Rec/Playback or Rehearse button if on, or press the {RECORD / PLAYBACK} soft key until its label is PLAYBACK. This puts the ADR system in Playback mode.

Step 2 Select a cue. The transport will locate to its In Time.

Step 3 Click Cycle. This will cause the transport to drive through the In and Out points once, playing back the audio.

Note: When the ADR is in Playback mode, double-clicking a cue will select it and initiate a playback Cycle.

Pre-Record

Pre-Record allows you to enter record a little earlier than the time of the cue. This is useful when recording artists that tend to anticipate the entrance. The streamer will still indicate the cue in time, but you are able to capture the audio a little earlier.

Early In

Early In can be clicked during the preroll of a record cycle. It causes recording to start immediately.

There is also an {early in} soft key.

Rec Out

If desired, the system can ignore the Out time of the cue, and just keep recording until you exit manually (using Stop, Jog, Rewind etc).

The {Rec Out} soft key can be set to PROG (programmed exit) or OPEN (keep recording until manual exit).

The Rec Out screen button does the same. When selected (blue) the record Out time will be obeyed. When unselected (grey) manual exit will be used.

Keep Playing

At the end of a cycle you may wish to keep playing, in order to hear the next section of track.

Pressing the {keep playing} soft key at any time during a cycle will cause the postroll to be ignored, and the system will enter normal Play mode after the cue's Out time.

Importing ADR cue lists from a text file

You may import an entire script through the use of the **Import** button. This can import a short script that has been written in a word processor.

Each line of text in the file is treated as a separate line of ADR cue text.

Each line of text can optionally have one or more timecode numbers at the start of the line:

> 00:00:00:00 This line has one timecode number
>
> or
>
> 00:00:00:00 00:00:01:12This line has two timecode numbers

The first timecode number becomes the cue-in point and the second, if present, the cue out point. Timecodes must contain 4 individual numbers separated by colons: 01:00:23:12 or semicolons if the timecode is drop-frame based: 01;01;00;02

Here is an example of a text file in the correct syntax with timecode numbers at the start of each line:

> 00:02:19.19 Her eyes shined bright and true
>
> 00:04:57.07 00:09:42.18 Do not look now, but....
>
> 23:58:39.03 00:02:58.19 Haven't I seen you before.

The format described above is the native format used by Pyxis NLV for storing ADR cue lists. You can edit the stored ADR cue lists directly in any word processor or text editor, as long as you make sure you save the file as a text file.

Chapter 23 - Automation

Introduction

The Constellation automation system provides simple, flexible and comprehensive facilities for recording and editing mix automation data. All feed and bus mix parameters can be automated and played back in perfect synchronisation with the project audio. In addition to the channel parameters, bus assignments, inserts and direct outs may also be recorded.

The Constellation automation system is designed to allow the operator to record all the static and dynamic parameter changes involved in balancing the mix of tracks played back from the disk recorder and live feeds from external sources. Mix moves may be recorded on one or more parameters or channels at a time. More moves may be added with each pass, resulting in complex and detailed mixes that can be played back identically every time the project and mix are loaded.

This chapter does not cover basic operation of the mixer. Refer to the chapters on "Patching and Routing", "Faders" and "The Channel Panel" for a complete overview of mixer operation. "Automation Basics" below provides an in depth discussion on the fundamentals of the automation system. Example procedures are detailed later in the chapter.

Automation Basics

Write, Trim and Read

In Automation, we use the terms Write, Trim and Read.

- Write means to record absolute values of parameters.
- Trim means to record changes to stored values of parameters.
- Read means to play back the parameter values that have been written.

The word "record" is used in this chapter to mean "Write or Trim".

The Mix Item

A mix item is one parameter for one signal path. Examples are:

Track 47	–	Main Bus Fader Level
Live 11	–	EQ Band 1 Q-factor
Sub Bus 2	–	Mute

There are literally thousands of mix items in the Constellation-XT console. The automation system can write the changing values or states of every mix item over the duration of your project, and read it starting at any position. These written values and states are called mix automation data.

Mix ON

When the **Mix ON** key is OFF, all mixing and routing functions are manually operated and the mixer will not write or read automation.

When the **Mix ON** key is ON, all mix items for which automation data is written will read that data, and the user has no manual control of them. Mix items with no written automation data can be manually controlled by the user.

Mix Duration

The automation data for a project starts at a timecode location one frame after timecode midnight and finishes one frame before midnight. However, the system requires a minimum preroll of at least one second and it is advisable to start projects at a location of at least one minute after midnight to provide adequate preroll.

Static Snapshots

Project Snapshot

Every project contains a snapshot of the state of the mixer when the project was last closed. When a project is opened, the mixer state is updated and all parameters are recalled.

Mix Snapshot

Every saved mix contains a snapshot of the state of the mixer when the mix was saved. When a mix is loaded the mixer state is updated and all mix items are recalled. So it is not necessary to write automation data for non-critical items – they will be reset to their correct static values when the mix is loaded. See "Data Storage" on page 203 for more details.

Many complete mixes can be saved within a project.

How to Use Constellation Automation

Here is a set of general methods for using the automation. Details will follow.

Using the Auto Buttons

Step 1 Enable parameter(s) – see Enable Parameters below

Step 2 Press **Auto** on one or more Faders – this puts them into WRITE (or TRIM – see below)

Step 3 Press **Play** to move the transport – automation data starts writing

Step 4 Press **Stop** – automation stops writing and Auto buttons are extinguished

The mix items that will be recorded are those for the enabled parameters/signal paths.

Notes:

- You can press **Auto** before or after pressing **Play**.
- You can take a signal path out of record by pressing **Auto** again, while play continues, or take everything out of record by pressing the `{all read}` soft key.
- See Leaving Automation Record below, for other ways to exit record.

Using the In Button

Step 1 Enable parameter(s) – see Enable Parameters below

Step 2 Enable signal paths – see Enable Signal Paths below.

Step 3 Press **Play** to move transport

Step 4 Press **In** – automation enters record and starts writing

Step 5 Press **Out** – automation stops writing

The mix items that will be recorded are those for the enabled parameters/signal paths.

Notes:

- You can press **In** before or after pressing play.
- You can take a signal path out of record by pressing **Auto** again, while play continues, or take everything out of record by pressing the `{all read}` soft key.
- The enabled signal paths and parameters remain enabled, so you can enter automation record again at any time by pressing the **In** key.

Using Touch - Snap

Step 1 Press the **Touch** button until Snap is illuminated

Step 2 Enable parameter(s) – see Enable Parameters below.

Step 3 Enable signal paths – see Enable Signal Paths below.

Step 4 Press **Play** to move transport

Step 5 Touch and move the control of any enabled mix item – it enters record and starts writing automation.

Step 6 Release the control – it leaves record.

The mix items that will be recorded are only those you have touched, and only while you were touching them.

Notes:

- Only enabled mix items can be written by this method.
- See Touch – Auto Enable below for a more powerful version.

Using Touch - Latch

This is the same as Touch – Snap, except once a control is touched, it stays in record even after you release it.

Use **Stop** or other standard methods to exit all recording, or press **Auto** to take the current signal path out of record.

Using Touch – Auto Enable

In this mode you enable parameters, but not signal paths. Touching the control of any enabled parameter will do it automatically.

1. Press the **Touch** button until Snap or Latch is illuminated
2. Enable parameter(s) – see Parameter Enables below
3. Press the **Mix** button to open the Mix menu, and press the `{Touch AutoEn}` soft key until its light comes on.
4. Press **Play** to move transport
5. Touch the control of any enabled parameter, on any signal path. It enters record and starts writing automation.

You can touch a control and put it into record before or after pressing play.

The rest is the same as the normal Touch modes.

Enabling Mix Items

Typically mix items are recorded a few at a time, often only one. To put a mix item into automation record, we must first enable it, then put it into write or trim (this is just like arming tracks before recording audio on to them.)

Enabling mix items requires enabling their parameters and their signal paths, as outlined below.

Enable Parameters

Parameters can be enabled by pressing any of the blue oval **Enable** keys. Enable keys appear in the Master Enable section, in each section of the Channel Panel, in each strip of the In-Line Panel, next to the Master Fader, and next to the **Bus Assign** key.

The enable keys provide a hierarchy allowing the operator to enable specific groups of parameters, like one band of the equaliser; or all parameters of a given type, like the whole dynamics section; or all parameters on the console (press the **ALL** enable key).

Enable Signal Paths

Enabling signal paths for automation allows the operator to limit the range of paths on which automation may be recorded.

To enable Signal paths:

Step 1 Press the **Mix** key to activate the Mix menu.

Step 2 Use the Selection Panel to enable signal paths.

This includes Track Feeds, Live Feeds, Main Bus, Sub-Buses, Aux Buses, Multi Track Buses (press Multi Track and use Live Feed keys).

OR

Press the Soft key on faders whose signal paths you want to enable.

OR

Use Mix Menu soft key items to choose specific groups of signal paths.

This selection of enabled signal paths is also referred to as the "mix mask".

Press the **ALL CHANS** key to quickly enable all signal paths. This feature should be used with caution!!

Automation for Reduction Bus Mode in "Faders To" …

Channels in "Reduction Bus" mode while in "Faders To" can be automated independently. Please use the Blue "Enable" keys to switch mutes and faders in and out of automation as indicated below:

Mix Item Status

Mix items can be in one of five states: Read, Write, Trim, Isolate and Preview. The current state of each parameter is displayed by coloured illumination surrounding all rotary encoders, illumination in the bottom half of all switches, and text indicators next to each fader. Note that the text indicators next to the faders display the status of the fader level parameter, not the status of the entire signal path.

The five parameter states are described below.

Read

When mix items are in Read the automation system takes control of their values and the physical position of their controls. Controls are illuminated **green**.

A mix item can be in Read whenever any automation data has been recorded for it, anywhere in the project.

Write/Trim

Mix items must be explicitly placed in Write or Trim. The **Write/Trim** key is toggled to the Write or Trim position, for the whole console.

WRITE: automation is armed for record and absolute values are written for the selected mix items. Indicators are illuminated **red**.

TRIM: automation is armed for record and relative values are written for the selected mix items. Indicators are illuminated **amber**.

In trim mode, moving a control applies an offset to the values already recorded for that mix item. For example, in trim mode, increasing a fader level by 10dB will add 10dB to the previously recorded fader levels retaining all the relative changes in the previously recorded data.

In Trim mode the control continues to move as it follows the previously recorded data. As soon as the control is touched it becomes stationary, and any changes made to the control's position are written as offsets to the underlying data. If the control is touched but not moved no changes are made. If the control is moved then released, when not in Touch Snap, the system continues to playback the original moves at the offset or trimmed level. If the system is in Touch Snap, the system drops back into Read.

Isolate

When mix items are Isolated the user can manually control them, and the automation system does not affect them. The controls have no illumination.

All mix items are effectively isolated until data is written for them.

To isolate Signal paths:

Step 1 Press the **Isolate** key.

Step 2 Use the Selection Panel to choose signal paths for isolation.

Note that all parameters on the isolated signal paths become isolated. There is no way to pick specific parameters for isolation.

Preview

Preview is a combination of isolation and enablement. The mix items that are in preview are not controlled by the automation system, so they respond manually to their controls. But when the console enters automation record, they all go into Write (or Trim).

Typically, preview is used to audition new mix settings for one section of the project, while other sections already have automation data. It prevents the automation system from moving the controls that the user is trying to balance for the new section. As soon as the user is happy with the new balance, it can be written to the new section.

Preview state is engaged on enabled mix items by first pressing the **Preview** key and then enabling mix items using Touch Latch for individual parameters, or the **AUTO** key next to a fader to enable the mix items for all parameters on the selected feed.

When enabled in Preview, mix items are illuminated in flashing **red**. Once in preview mode the mix items can be placed into Write (or Trim) by dropping in manually with the **In** key or automatically using the **Active** In and Out points (see Programmed Automation).

Once enabled for Preview, mix items remain in that state regardless of transport starts and stops. This is different from putting mix items into automation record, which must be done again after each transport stop.

Safe

When mix items are in Safe mode they cannot enter automation record. They are always in READ.

To put Signal paths into Safe mode:

Step 1 Press the Safe key.

Step 2 Use the Selection Panel to set signal paths Safe.

In addition, the Safe menu defines an Active Zone, outside of which no automation data can be written for ANY signal path..

Recording Mix Data

The **AUTO** key next to any fader is illuminated whenever any mix item on that signal path is recording automation data in Write or Trim, or if any mix item on the signal path is in Preview.

Mix Events

Mix data is recorded as discrete events. Each event occurs at a specific timecode location and relates to a specific mix item. When a new mix is started there are no events recorded and all controls will remain static as the project is played. Once mix data is recorded, it is played back or read when the transport runs past the timecode at which the event is recorded. If the

transport is located to any point in the project, the mixer state will reflect the result of all the events that have occurred from the start of the project to the current timecode.

The static snapshot recorded with every mix preserves the basic setup and balance of the mix. Dynamic move events are added to this to create the final complete mix.

Entering Automation Record

There are four methods of entering automation record:

1. Press the AUTO key next to any fader. Enabled parameters on the channel are put into record irrespective of which signal paths are enabled.
2. Use Touch mode and move any fader, pot or switch. The mix item it controls is put into Write or Trim if it is enabled. If Touch Auto Enable is OFF, the signal path and parameter must both be enabled for mix items to enter record. If Touch Auto Enable is ON, the signal path need not be enabled, but the parameter must be.
3. Punch in manually on enabled tracks with the IN key, or punch in automatically at the Active In point using PUNCH or the PLAY key. (Details in Programmed Automation below.) All enabled mix items are put into record.
4. Use Prime mode and the transport Recording or ADR functions to record automation on selected signal paths. (Details in Programmed Automation below.) All enabled mix items are put into record.

Leaving Automation Record

There are seven methods of leaving automation record:

1. Press any illuminated AUTO key to take its signal path out of record.
2. Cause the transport to leave PLAY (or REC) using any transport command.
3. When in Touch Snap mode, release any fader, pot or switch.
4. Punch out manually with the Out key, or punch out automatically at the Active Out point after pressing PUNCH or the PLAY key (see Programmed Automation). This works for enabled signal paths, but not for ones where the AUTO key was used to put it in record.
5. In Prime mode, use ADR or the PLAY key to punch out.
6. Press the All Read soft key in the Mix menu to instantly place all mix items in Read.
7. Press the Mix ON key to disable the mix automation system (desperate measure, but it works).

Transitions – Using Glide

When the automation system makes a transition from Write or Trim to Read, Glide out data will be written to smooth the parameter transition as described below. The Glide Out transition starts at the point where the system leaves record and finishes at the Out point plus the Glide Out time.

When a transition is made from Preview to Write, Glide In data will be written. The Glide In transition starts before the point that the system entered record (In point minus Glide In time) and finishes at the point where the system entered record.

Glide times are set in the **Utils** menu.

On Stop

Mix items currently in Write or Trim return to Read when the system leaves automation record. The data that is written after the mix item returns to Read is determined by the `{On Stop}` menu item in the Mix menu.

If `{On Stop Hold}` is selected, all the following mix events are deleted, so the last written value remains in force for the rest of the project.

If `{On Stop Return}` is selected, the parameter ramps to the previously recorded value over the Glide Out time.

If `{On Stop Event}` is selected, the last written value remains in force until a previously recorded event is encountered. At this point the parameter value ramps to the new value over the Glide Out time.

Read to Write/Trim

When a parameter is punched in to Write from Preview, the mix item ramps to the newly recorded value prior to the drop in point over the Glide In time set in the **Utils** menu.

For all other methods of entering automation record, the mix item value is always the current Read value, so there is no transition.

Automation Playback

The DREAM II automation system ensures that your mix will always play back exactly as recorded. There are two main forms of automation data recorded in a project. The first is the static snapshot of all parameters which is recorded whenever a mix is saved. The second type of data are the dynamic automation events that are recorded every time a parameter is modified while the system is writing or trimming automation.

Once a dynamic event has been recorded on a feed or bus, that parameter will be in READ whenever **Mix ON** is engaged and the transport is in **PLAY**.

When the system detects that a parameter control has changed while in Write or Trim, a dynamic event is recorded that stores the previous value and the new value (FROM value and TO value) of that specific parameter at a specific timecode location.

When **Mix ON** is engaged and the transport is located to any position on the time line, the automation system looks back and forward in time to find any events previously recorded for the parameter. If no dynamic events have been recorded for the parameter, the parameter is set to the value recorded in the mix snapshot.

The current value for any parameter is determined in the following order:

1. The parameter is set to the TO value of the most recent previous event.
2. If no previous event exists, the parameter is set to the FROM value of the next future event.
3. If no future or previous event exists, the parameter is set to the value recorded in the mix snapshot.

Programmed Automation

The entire automation system can be punched into record, at which time all enabled mix items will start to write automation data. This can be done manually or automatically.

Manual Punch In

The **In** and **Out** keys can be used to enter and leave automation record. The keys can be pressed while the transport is in **STOP** or **PLAY** to manually drop in or out of Write (or Trim if selected) on the enabled mix items.

Automatic Punch In

You can punch in and out of automation record at pre-defined In and Out points. The basic steps are:

Step 1 Set the In and Out points.

Step 2 Make them active.

Step 3 Perform the punch, explicitly (using Punch) or implicitly (by playing over the active points.)

To set In and Out points:

Step 1 Press the **Mix** key to enter the mix menu.

Step 2 Move the transport to the required In point and press the **From** key to capture the In point. The In point timecode location is displayed in the Mix menu.

Step 3 Move the transport to the required Out point and press the **To** key to capture the Out point. The Out point is displayed below the In point in the Mix menu.

Note: If you would like to use the existing editing range for your In and Out points, hold down a **BLUE** key and press the **Range** key.

To make the In and Out points active.

Step 1 Hold down a **BLUE** key and press the **Active In** key to make the automation In point active. The **In** key flashes blue when active.

Step 2 Hold down a **BLUE** key and press the **Active Out** key to make the automation Out point active. The **Out** key flashes blue when active.

Note that you do not need to activate both In and Out points. See below for consequences.

To enter record explicitly:

Step 1 Press the **Punch** Key.

The transport will preroll the In Point, go into automation record when it reaches the In Point (if active), then exit record at the Out Point (if active).

If the In Point is not active, the transport will still preroll and pass it, allowing you to punch in when ready, by pressing the **In** key.

If the Out Point is not active, the transport will go into record at the In Point, then stay in record until you manually exit.

The transport continues to play after the Out point. The punch preroll time is set in the System_Variables file, see "Setting the Automation Punch Preroll" on page 236.

To enter record implicitly:

Step 1 Move the transport to a location before the In point and press **PLAY**. The automation system will enter **WRITE** or **TRIM** when the transport moves past the In point (if active), and return to **READ** when the transport moves past the Out point (if active).

Note: The Active In and Out points become inactive once the system has dropped in or out.

Once the transport has moved over the In or Out point, they are made inactive. This means you can quickly audition the changes you have just recorded by pressing **Play Menu** `{Again}` key sequence without having to first disable automation. To perform another automation pass, the In and Out points must be made active again by holding down a **BLUE** key and pressing the **In** and **Out** keys.

Link Audio and Mix Recording with PRIME

The PRIME function links the automation to the audio recording controls. This means that, whenever you enter normal recording on the transport controls, the automation system also enters recording.

This is particularly useful if your working method is to record your mix progressively as you go through a project, because you will automatically be recording the automation moves at the same time. It's also useful if you gain some facility with the recording controls, including the ADR menu, which offers some very sophisticated rehearsal and automatic recording features.

To use the PRIME function, press the **Prime** key. While it is on:

Press the **PLAY** and **REC** transport keys to drop in to record. Note that the enabled Mix Items enter Write, and armed tracks enter record.

Press **STOP** or **PLAY** to drop out of record. The enabled tracks return to Read.

NOTE: It is not necessary to have any tracks armed for recording, in order to use PRIME.

Saving and Loading Mixes

Up to 256 complete mixes may be saved in each project and recalled later. Mixes must be saved before closing a project, or any unsaved mix data will be lost. The available space left in the project file for new mixes or mix data is displayed in the Mix menu. When the space left falls below 2% the `Save` soft key becomes disabled.

Saving a Mix

Step 1 Hold down a **BLUE** key and press the **Mix/File** key.

Step 2 Press the `Save` soft key in the LCD menu.

Step 3 Type a unique name for the mix on the PC keyboard and press **Enter**.

Alternatively, type a name with a numeric suffix, (e.g. `Demo Mix 1)`. The next time you press `Save`, a new name will automatically be generated with an incremented suffix (e.g. `Demo Mix 2`). Press **Enter**, to save the mix with the new name.

Loading a Mix

Step 1 Hold down a **BLUE** key and press the **Mix/File** key.

Step 2 Turn the jog wheel to scroll through the previously saved mixes.

Press the `Sort:` soft key to select `TIME` or `ALPHA`. ALPHA sorts the saved mixes in alpha-numeric order. TIME sorts the saved mixes in the order in which they were saved, with the most recently saved mix at the end of the list.

Step 3 Press the `Load` soft key in the LCD menu to load the selected mix.

Step 4 Confirm by pressing the `Yes` or `No` soft key.

Deleting a Mix

Step 1 Hold down a **BLUE** key and press the **Mix/File** key.

Step 2 Turn the jog wheel to scroll through the previously saved mixes.

Step 3 Press the `Delete` soft key in the LCD menu to delete the selected mix.

Creating a New Mix

Follow these steps to create new empty mix with no automation data:

Step 1 Hold down a **BLUE** key and press the **Mix/File** key.

Step 2 Press the `New Mix` soft key in the LCD menu.

This new mix must be saved once new data has been written.

Copy a Mix Between Projects

Mix Carry Over allows the static snapshot and dynamic mix data from a single mix to be copied from one project to another.

Step 1 Hold down a **BLUE** key and press the **File** key and use the `Save` or `Load` soft key to save your current mix or load a previously saved mix.

Step 2 Press the `Carry over` soft key in the File menu. The Carry over key flashes when carry over is active.

Step 3 Close the current project.

Step 4 Open the destination project.

Step 5 Hold down a **BLUE** key and press **File** key and use the `Save` soft key to save the mix in the new project.

Mix Undo

The automation system supports one level of mix undo.

Step 1 Hold down a **BLUE** key and press the **Mix/File** key.

Step 2 Press the `UNDO PASS` soft key in the LCD menu.

`UNDO PASS` deletes all mix automation data written between entering **PLAY** and **STOP** during the last mix pass. `UNDO PASS` can be used until new automation data is written. If `UNDO PASS` is pressed during a mix pass the soft key flashes to indicate that all data written during that pass will be ignored.

'System Mix' - Save function

The 'System Mix' function is available from the FILE menu. When switched on, the current mix pass will automatically be saved when the project is closed, and will likewise automatically be loaded when the project is opened.

Step 1 Hold down a **BLUE** key and press the **Mix/File** key.

Step 2 Press the `SYSTEM MIX ON` soft key in the LCD menu.

AutoSave

Also from the FILE menu, there is an "AutoSave" feature available, with user-definable timing from 5 to 60 minutes.

The Mix Menu

Only mix menu items that are dimly lit are available in DREAM II software release 2.0

Press the **Mix** key to display the Mix menu. When the mix menu is active, the feed and bus selection keys are used to enable specific paths for automation. The **From** and **To** keys can be used to set the In and Out points for automation punch In and Out points which are displayed at the left of the LCD. The available mix memory is displayed in percent. The current mix name is displayed at the right of the LCD.

all Read — All parameters are instantly dropped in to Read.

On STOP — Determines what data is written after leaving automation record by pressing the **STOP** key or pressing the **Mix ON**.

`Hold` - erases all events from the current position to the end of the project.

`Return` - returns to the previously recorded value at the current location.

`Event` - holds the current value until the next event is encountered.

Touch Auto Enable

ON - When a Touch mode is engaged (SNAP or LATCH), any enabled parameters that are touched are automatically put into Write or Trim. It is not necessary to first enable the feed or bus.

`OFF` - When a Touch mode is engaged (SNAP or LATCH), only feeds or buses that have been enabled in the mix menu will be put into Write or Trim when their enabled parameters are touched.

Fill Range — Used in conjunction with Preview. Causes the current values of previewed parameters to be written through the range.

The Blue Utils Menu

Glide In — When a parameter transitions from one READ value to a new RECORD value discontinuously, as when dropping in from PREVIEW to RECORD or when merging one mix into another, this value is used to define a ramp from the previous data to the new data.

Press the `Glide In` soft key and use the jog wheel, numeric keys or +/- keys and press **Enter** to change the Glide In value.

Glide Out — When a parameter transitions from one RECORD value to a new READ value discontinuously, as when dropping out of RECORD or when merging one mix into another, this value is used to define a ramp from the previous data to the new data

Press the `Glide Out` soft key and use the jog wheel, numeric keys or +/- keys and press **Enter** to change the Glide Out value.

Update Sys-File

Saves the following system settings to the following files:

Monitor_Sources.TXT - patching and formats of external monitor sources.

Speaker_Sets.TXT - patching and formats of all speaker sets.

Setup_Variables.TXT - Call Follow state and Constellation brightness.

Multi Trim

Multi Trim can be used to adjust a group of parameters while recording automation. Multi Trim groups are temporary groups of feeds which are controlled from a single virtual master. Individual members of the temporary Multi Trim group must be enabled for automation while the Mix menu is active, prior to entering Multi Trim mode or from the **AUTO** keys next to each member fader. No automation is recorded for the virtual Multi Trim master itself.

Follow these general steps for using Multi Trim:

Step 1 Press the **Multi Trim** key.

Step 2 Use the Channel Select screen to select signal paths and toggle them in or out of the Multi Trim selection.

Step 3 Select Absolute or Relative mode by pressing the `Abs` or `Rel` soft keys in the LCD menu. In absolute mode the values of the individual member's parameters are set to the position of the virtual master control. In relative mode, changes made to the virtual master controls are applied as offsets to the values of the member's parameters.

Step 4 Adjust the Master Fader or any controls in the Channel Panel, or controls in the In-Line Panel (when operating in Channel Mode) to control the group. The mixer display will be updated to show the changes as they occur. No changes are made until the master controls are changed.

To update all parameters for all channels selected when in Absolute mode, press the `apply values` soft key. This causes the current values of all controls to be applied to all signal paths selected for Multi Trim.

Step 5 Press the **Multi Trim** key to return to the previous mode or press another key to continue mixing or editing.

Multi Trim can be used in conjunction with the automation record modes in the following ways.

ABS - WRITE

With Multi Trim in absolute mode and automation in Write mode, Multi Trim is useful for establishing static presets of fader levels and other parameters across a range of feeds.

ABS -TRIM

With Multi Trim in absolute mode and automation in Trim mode, the members of the Multi Trim Group will all move to the level of the virtual master. Depending on the initial position of each member control this will cause the automation values to be trimmed or offset by differing amounts. This may cause unpredictable results and it is therefore NOT advised to use this combination.

REL - WRITE

With Multi Trim in relative mode and automation in Write mode, Multi Trim is useful for reducing the level across an established static mix, or for performing fades on a static mix.

REL - TRIM

Multi Trim in relative mode with automation in Trim mode is the most useful combination. This combination allows the level of an existing dynamic mix to be trimmed across a whole section of the mix. Changes in the virtual Multi Trim master apply relative offsets to all the members while retaining the dynamic changes in the existing mix automation.

Trimming a Mix with Multi Trim

Follow these steps to change the level of a section of a previously recorded mix.

Step 1 Press the **Mix ON** key to enable automation.

Step 2 Press the blue **Fader Enable** key in the Master Enables section.

Step 3 Press the **Mix** key to display the Mix menu.

Step 4 Use the Channel Select screen to select the signal paths you wish to adjust, or press the soft switch keys next to the faders.

Step 5 Press the **Write/Trim** key to select **Trim**.

Step 6 Press the **Multi Trim** key to enter Multi Trim mode.

Step 7 Press the `Rel` soft key in the Multi Trim menu to enter relative mode.

Step 8 Make sure that no signal paths are selected in the Channel Select screen and move the Master Fader to the 0dB mark.

Step 9 Use the Channel Select screen to select the signal paths you wish to adjust to place them under control of the Multi Trim master.

Step 10 Move the transport to a location prior to the section you wish to adjust and press **PLAY**.

Step 11 Press the **In** key to drop in to automation Trim on the selected feeds.

Step 12 Move the Master Fader to adjust the level of the selected feeds.

Step 13 Press the **Out** key to stop recording automation data and drop the selected feeds back in to Read.

Step 14 Press the **Multi Trim** key to leave Multi Trim mode.

Automation with Link Groups

Link groups are useful for dealing with groups of feeds carrying audio in a multi-channel format such as stereo or 5.1. See "Grouping" on page 150 for an overview of link groups.

Link groups should be established before any automation is written. If members are added to a group when automation data is present on either the master or the members, the data on the members is erased. If the link group is destroyed or unlinked after automation is recorded for the group, the automation data remains on the group master but not the slaves.

Only the parameters on the link group master can be automated – the slave member's parameters follow the master.

Mix Editing

Mix Copy

Mix Copy allows a selection of automated mix parameters to be copied from one time location to another.

Step 1 Press the **MIX ON** key to enable mix automation.

Step 2 Select the mix items you wish to copy by selecting parameters and signal paths in the usual way.

Step 3 Use the **From** and **To** keys to select the range from which you want to copy, or hold down a **BLUE** key and use the **Range** automation key to copy the existing editor range. The `IN` and `OUT` points are displayed on the LCD.

Step 4 Press the `Mix Edit` soft key in the Mix menu.

Step 5 Locate the cursor to the destination where you want to paste the mix automation data.

Step 6 Press the `Copy Mix` soft key to perform the mix copy operation.

Step 7 Press the `Back to Mix` soft key to return to the Mix menu.

Automation-follows-Clips editing

In addition to the 'Mix Edit' functions, it is also possible to edit automation data whilst editing the audio. For Clips, or Ranges of Clips, their corresponding mix data can be "Copied" or "Cut" to another position if Data is included on the Edit Target key.

Step 1 Press the **Edit Target** until both AUDIO and DATA are illuminated.

Step 2 Edit audio in the usual ways, and all automation data for the sections of track you are editing will also be edited.

Data Storage

All the mix data of the current mix is stored in system memory. This data must be explicitly saved to disk as a named mix. If a new project is loaded, the previous mix data is retained in memory and may be saved as a mix in the new project.

Mix "Thinning"

Constellation offers a Mix "thinning" algorithm that "ignores" identical static mix data, This is especially useful for large amounts of mix data as it can largely reduce the actual number of mix events. When automation is written, there can be events that are nothing more than a block of "static" information e.g. nothing more than an "in and out" point with no "dynamic" information in between. These neutral events can nonetheless add up to a lot of data. With Mix Thinning turned on, multiple identical events of this nature are only identified once therefore creating less events data in the global mix. The feature operates transparently.

If desired, this functionality needs to be turned on:

Instructions:

Step 1 Hold down a **BLUE** key and press the **Utils** key to enter the Utils menu.

Step 2 Update your Sys file by pressing the `Update Sys File` soft key.

Step 3 Type <Shift-Pause-Q-Y> on the keyboard to quit out of the FMC console software program.

Step 4 Navigate in Windows to \Fairlight\FMC\Data and open the file System_Variables.TXT

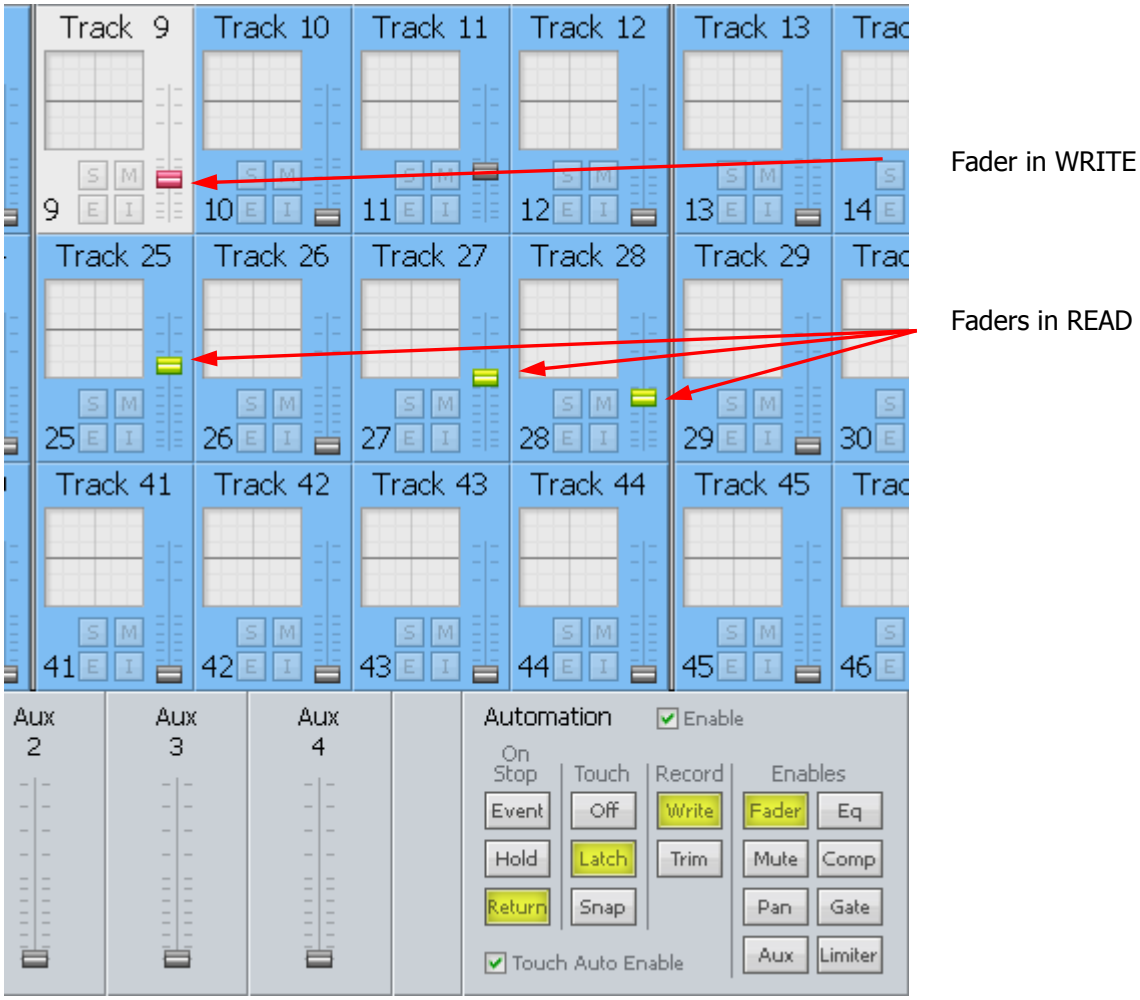
Step 5 There is a line in that file:

MIX_THINNING_ENABLED, 0

Set the 0 to a 1 and save the file.

Restart the system, and Mix Thinning will be operating.

On-Screen Mix Controls



The controls in the lower right of the screen correspond with controls in the menus and on the console surface.

The Automation Enable checkbox is equivalent to the Mix On button.

Chapter 24 – Project and File Management

Introduction

To further enhance Project Management within Constellation-XT , the following features within the Project Menu are available.

Save As

In DREAM II, all the audio is stored in large container files, while projects contain "references" to those files. So a clip in a project has instructions to access portions of audio recordings in a container file.

Saving a Project under another name creates a new Project with all the same clips as the original. It also inherits all the track names and marks, mix and setup information.

Step 1 Click the File menu button above the Track display.

Step 2 Choose Save As

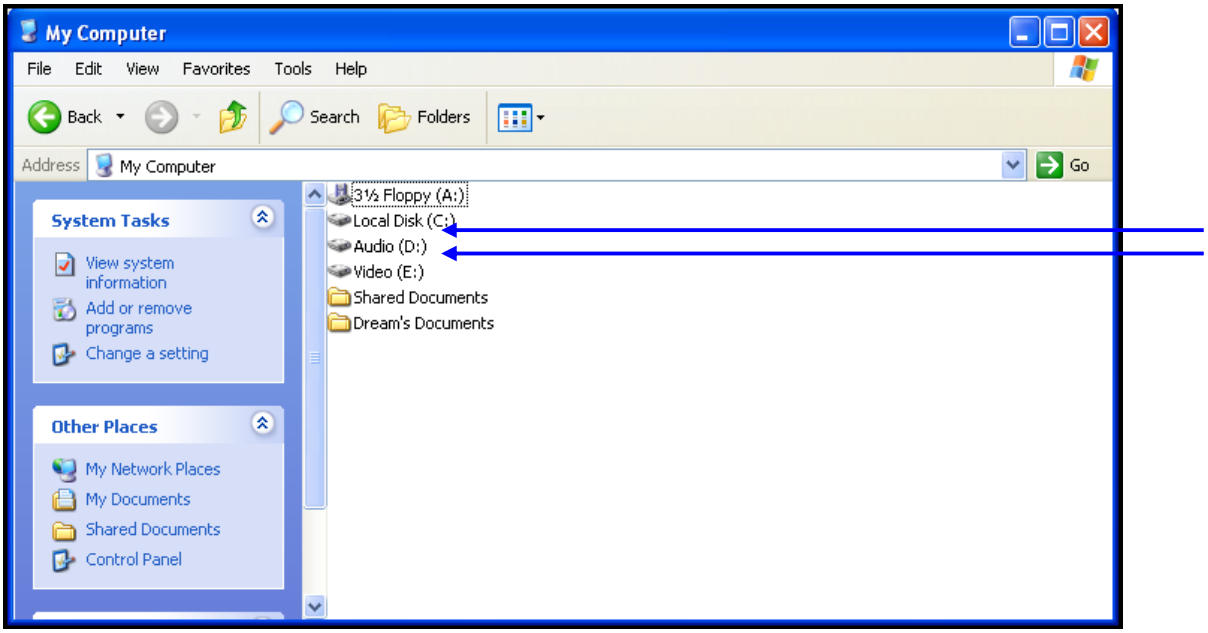
Step 3 Select the desired destination and type the new name.

Step 4 Click Save

File Management

File management is always a necessary "evil" associated with all computers, and is always a topic for discussion. We have done our best to make DREAM II file administration flexible and intuitive.

Audio and Video Devices

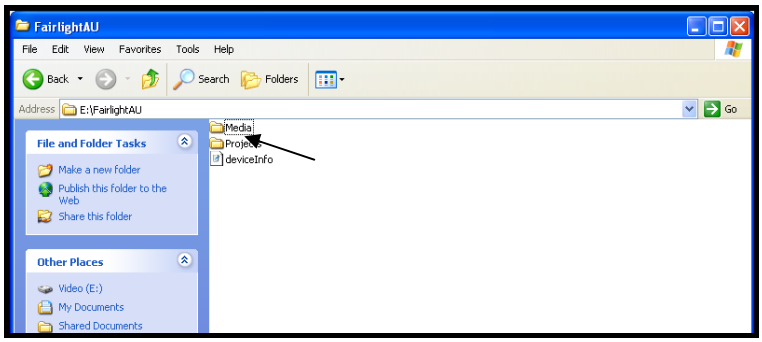


These are nothing more than 2 separate logical devices, and could be one or more physical drives, that DREAM II uses independently for **Audio** and **Video**.

Audio and video have different data transaction requirements, and therefore each have their own storage needs. Because of the relatively small size and large number of files used in **audio**, processing becomes very transaction intensive. By comparison, **video** applications usually require extremely high bandwidth due to the constant demand for a smaller number of larger files. Therefore we use these 2 dedicated devices in order to optimize disk bandwidth and performance for each application. These devices are simply NTFS formatted.

Media and Projects

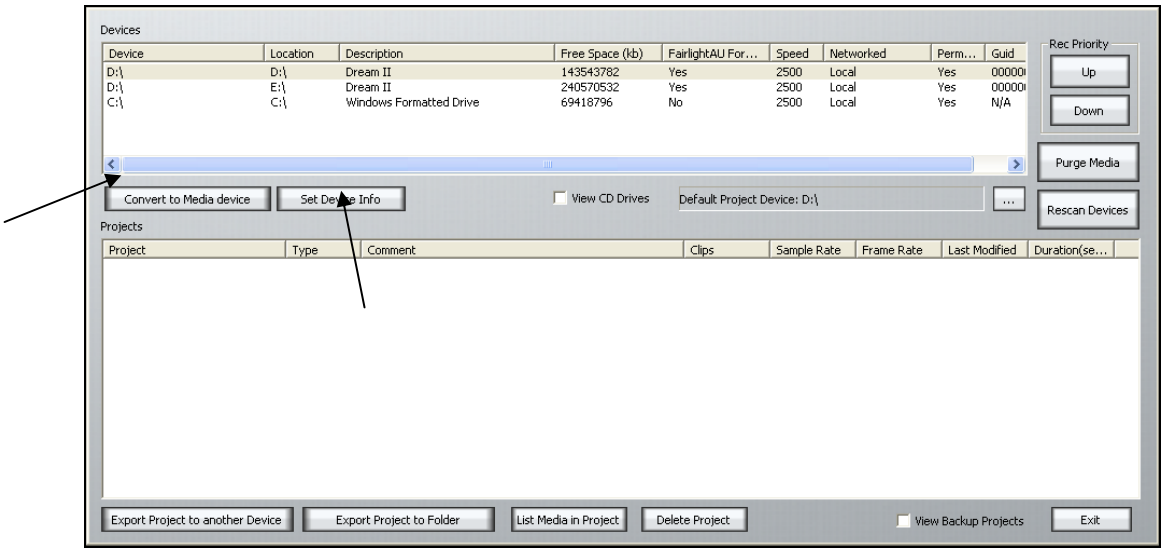
DREAM II uses separate directories to store **projects** and **media** for each device (Audio & Video.) DREAM II may also store data on a mapped network drive.

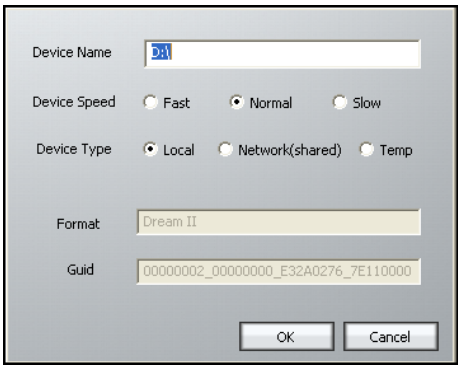


Default Media Device

When DREAM II is first started it displays a dialogue box requesting that a default project device be selected. Select the devices (Audio and Video) you wish to use from the list of available drives.

To prepare the drive for use with DREAM II, select ***Setup*** > ***Media and Project Management*** from the DREAM II main menu. Select the device from the devices list and click on ***Convert to Media device***. Please also set the ***Device Info*** accordingly.





To use a network connected device, first create a mapped network drive or folder in Windows Explorer. This can now be selected in the device panel and converted to a DREAM II Media device as above.

For those of you out there already using Pyxis … this interface should all be familiar.

.MT Projects

INTRODUCTION

DREAM II, as its Fairlight predecessors, uses the concept of Projects (.MT files) to store work performed on the disk recorder.

All audio recordings, editing and file imports are administrated within **Projects**. A project can contain all the audio data and edit information or references to such.

Edits performed on the audio data are non-destructive and are represented by clips which refer to pieces of audio data within the project. Projects are continually updated and written to an undo file on disk while recording and editing is being performed as a security measure.

Existing .MT projects coming from MFX3+s, or QDC engines can **all be opened** on DREAM II. Extensions and attached files will be entirely compatible and easily opened.

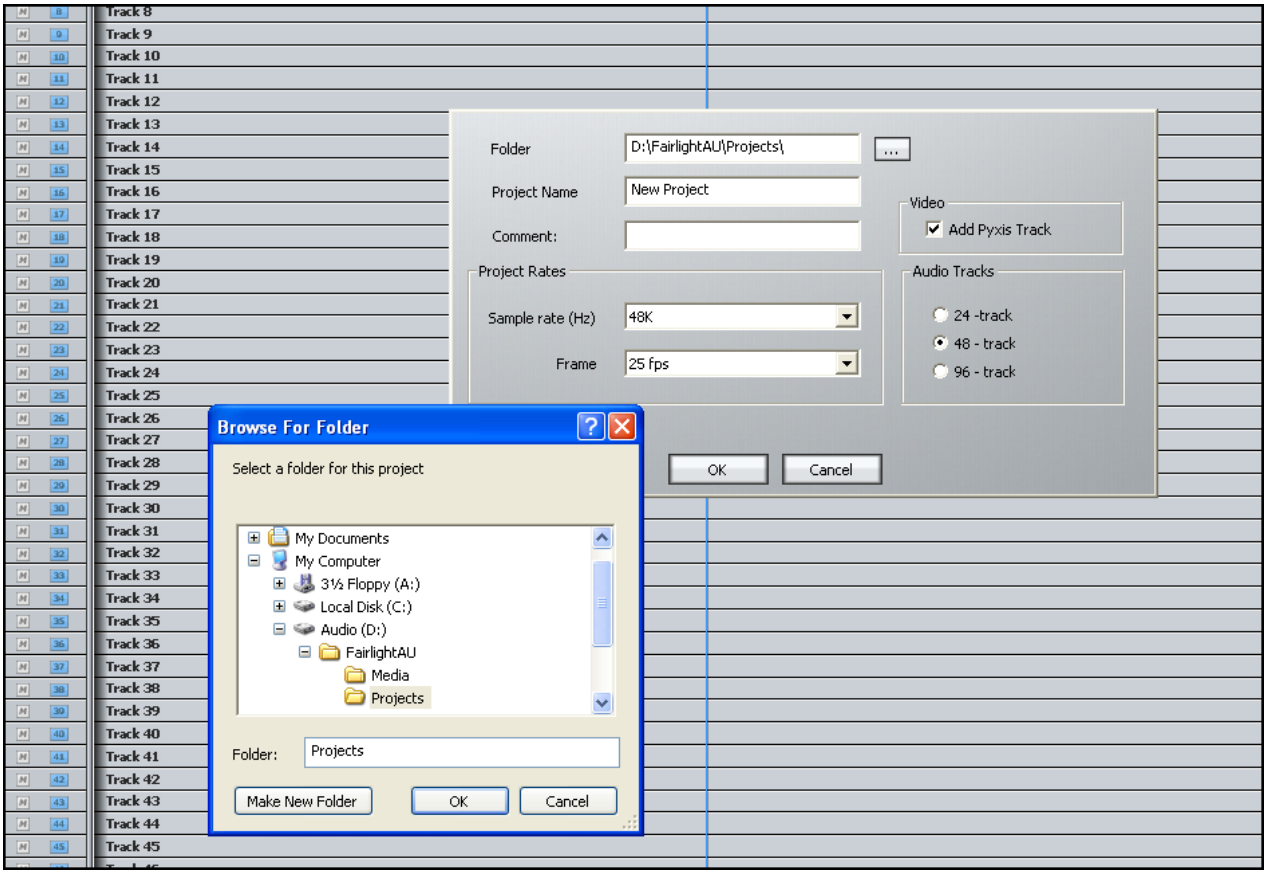
FUF Files

Fairlight Universal Format file.

This is now, in DREAM II, a unique file type that is used to write, store and append data. In other words, this is now the file type that contains all of the audio data. Let us look now at a working and real example to understand how it is used.

We will create a new project:

Step 1 Click on the <File> menu and you will see a pop-up window appear.



Step 2 Choose or create a specific folder for your project,

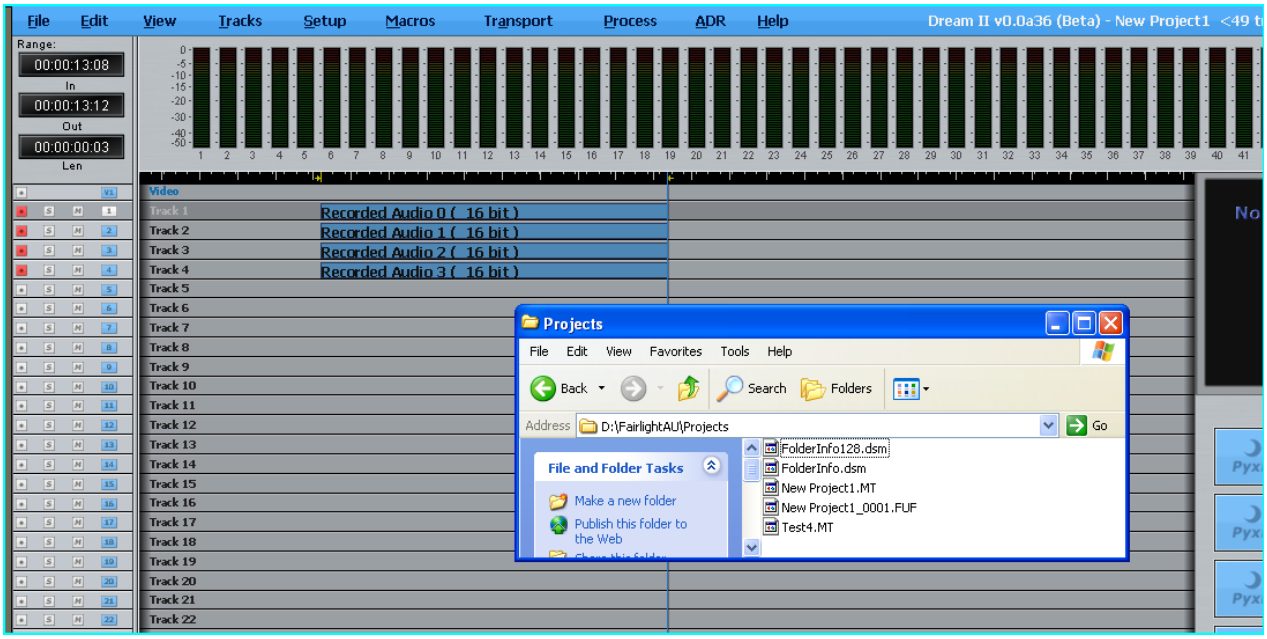
Step 3 Enter the project name.

Note: Fairlight projects use a 28 character filename limit to ensure compatibility with previous Fairlight systems.

Step 4 You can add comments, choose the sample rate, frame rate, number of audio tracks required, and last but not least, choose to add a Pyxis track.

As an illustration, record some tracks into your project (please see Recording if this is new)

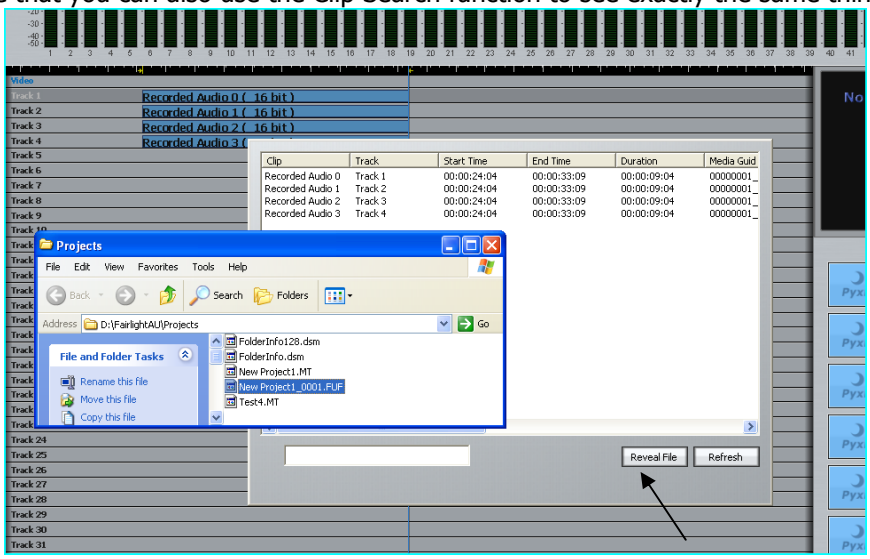
Browse to the folder where you have created the project (in this example – **New Project1.MT**) and have a look:



You will see the project … and you will also see the FUF file **NewProject1_001.FUF**

The .MT file contains all the EDL information. The FUF file actually contains all the audio data.

Please note that you can also use the Clip Search function to see exactly the same thing:



Step 1 Open the View menu and Click on <Clip Search>. You will see all the clips that belong to the currently open project. Now click on <Reveal File>. This will bring up a Windows pop-up window that points to this FUF file.

Important

A FUF file has a size limitation of 4Gb. When the audio data contained in an .MT project reaches this limit, another FUF file is instantly created in the background, allowing you to continue recording or entering audio data. This new file is "attached" to the original.

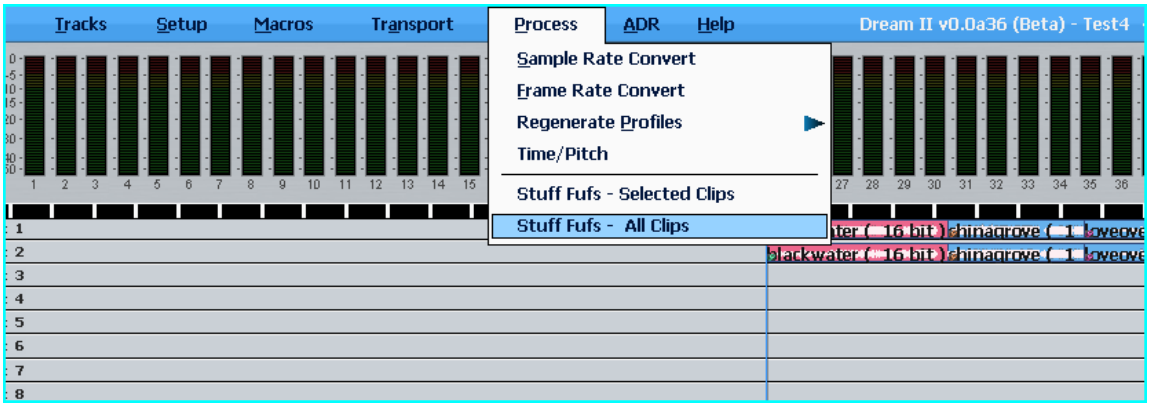
This can happen up to 250 times, giving a project limit of around 1 terabyte.

.WAV files and .AIF

.Wav files, .BWF files, and .AIF can be imported (drag and dropped) into an existing .MT project. These file types must be sourced from a DREAM II media device. The files are played in real time within the current .MT project and are considered "attachments" or "borrowed" files.

These borrowed files contribute to the count of 250 attachments that are allowed, so it is good to consolidate them into the main file if many are to be used. This is described in the next section.

Stuff the FUF



To consolidate all attached files (.Wavs, .BWFs, .AIFs) directly into the .MT project

In the Process menu there is a feature called <Stuff Fufs> as see above. This will append data coming from the "attached" files into the FUF, thereby consolidating them. This can be done on several different levels:

1. One clip
2. A range of clips and tracks. *individual clips can now be selected or de-selected within this range using <Ctrl-Click>*
3. All clips - This is the equivalent of a <Keep Borrowed> on previous Fairlight systems.

Save As

<Save As> can be used to make multiple versions of the same .MT project. If <Save As> is used, the actual audio data will still remain in the original project, whose FUF file will be "attached" to the second one.

If new recordings are made into the second file, they will be written into a new associated FUF file.

To consolidate all of the audio into the new version, use the function <Stuff Fufs – All Clips>.

Chapter 25 - Marks

Introduction

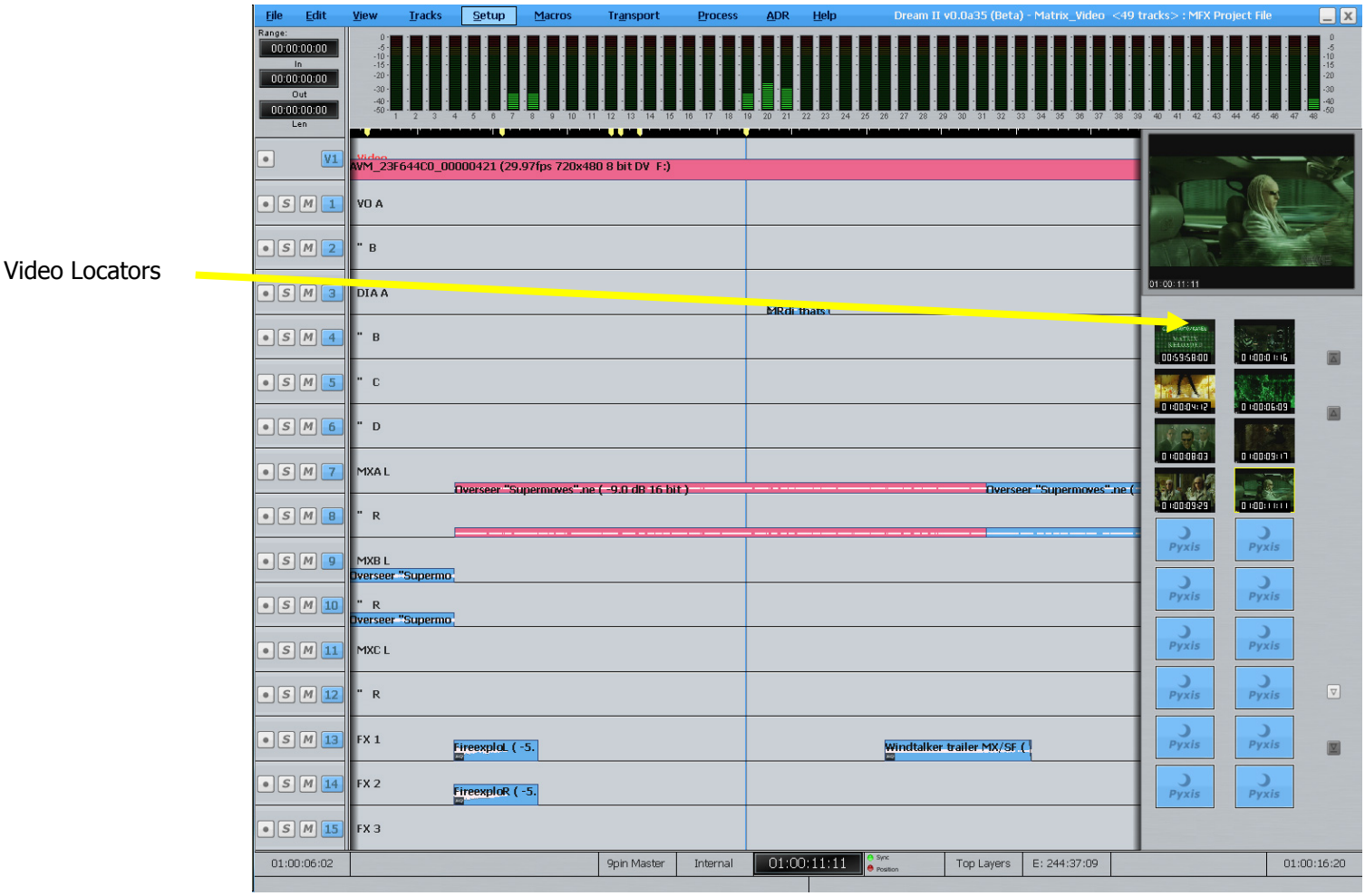
Marks

A mark is a stored time location in a Project, indicated by a yellow pointer on the timescale. Constellation-XT can store 1000 marks with each Project.

Marks can be given names and can be used as location points.

Video Locators

Video Locators are a special class of Marks that are created by dragging video frames to the Locator thumbnails in the Dream II Pyxis track:



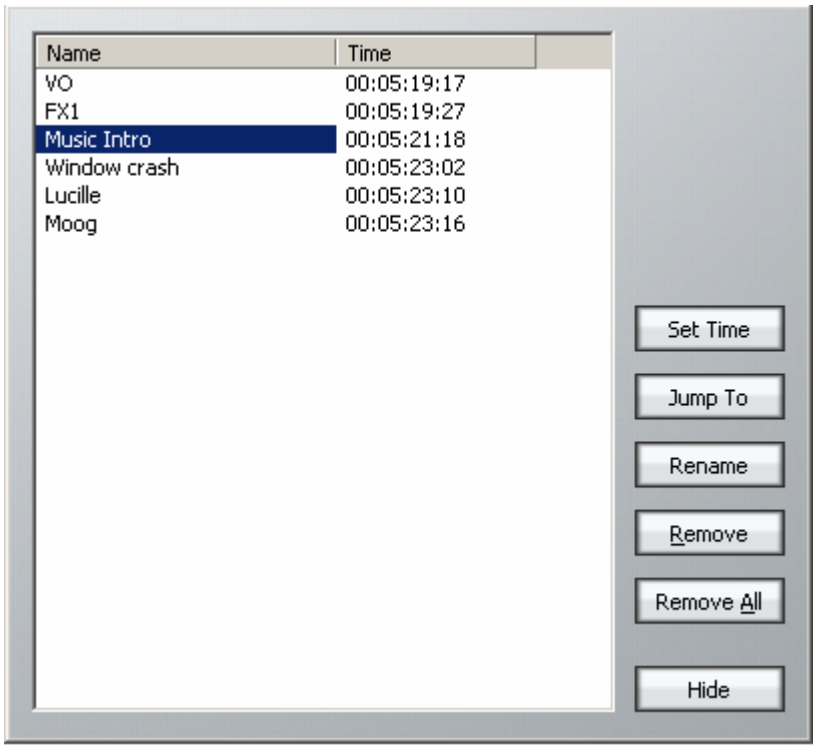
Video locators are also indicated by yellow pointers on the timescale, and are simply marks that reference a specific frame of video.

Creating a Mark

To create a mark, locate the transport to the desired point and press the **Mark** button. Marks are shown as yellow indicators on the timescale.

Editing Marks

To edit marks, select View/Locators from the onscreen menu, or press **BLUE**-**Mark**.



Click the appropriate button to set the Mark time, rename the Mark or remove it.

GOTO Mark

The GOTO menu allow the transport to jump to any named mark including the head and tail of the project. Press the **GOTO** key, press the `Mark` soft key and turn the jog wheel to select a mark. Press **Enter** to locate to the mark point.

Chapter 26 - AudioBase

Introduction

AudioBase3 is a library database which allows you to search for WAV files on your Medialink2 server via a standard Windows network. Once a WAV file has been found, it may be auditioned, and then imported into the current open Project.

Creating and Maintaining Databases

Refer to the AudioBase3 User Guide for details on creating and maintaining clip databases.

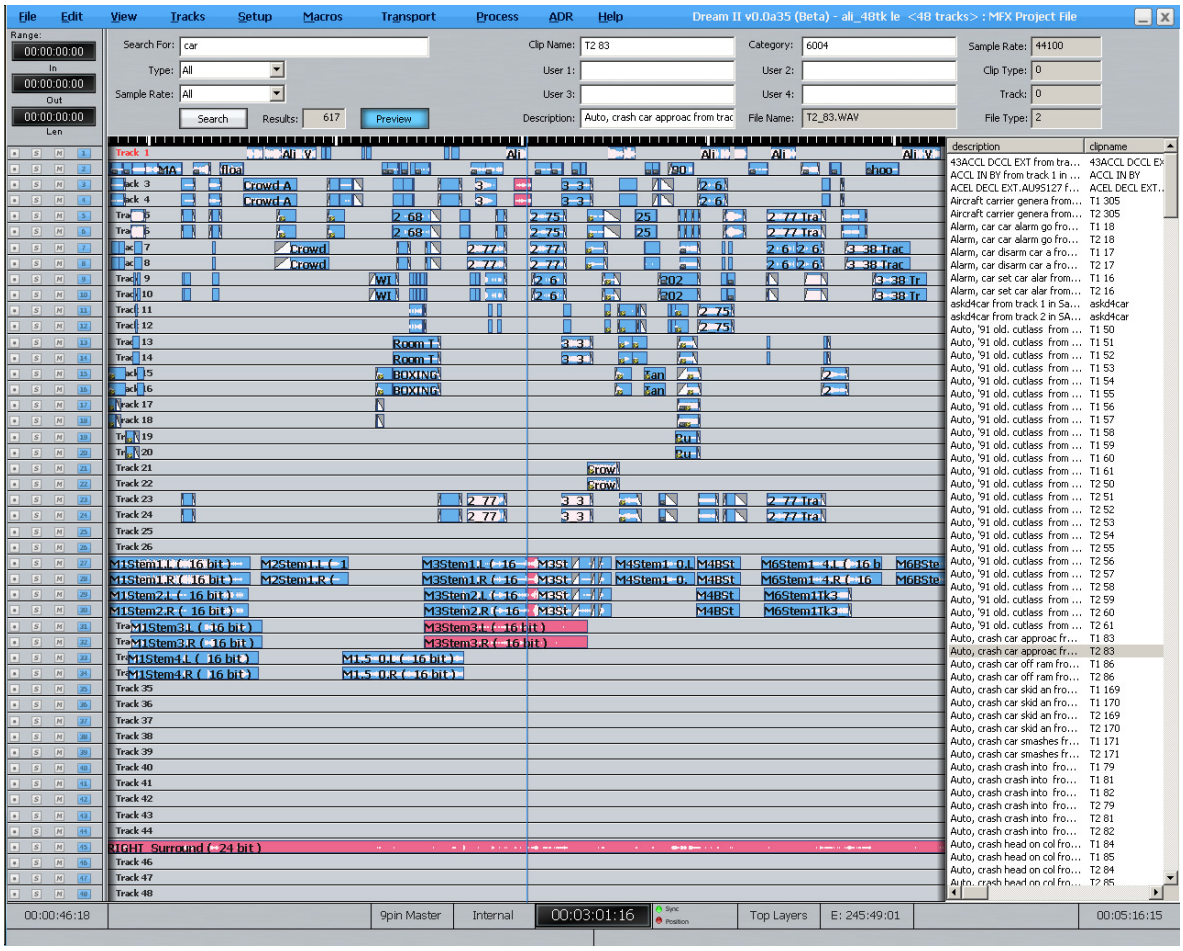
Searching for Sounds

AudioBase3 uses a simple search interface to find clips:

Step 1 Press the **AudioBase** key. The search field becomes active.

Step 2 Enter the text you wish to find. All relevant database fields will be searched. Use quotes to find matching phrases.

Placing Sounds In A Project



Step 1 After searching the database, a list of matching clips is displayed. Ensure the transport is in STOP, then use the jogger wheel, + and – keys or up and down arrow keys to highlight the clip you want.

Step 2 Click the Preview button in the Smart Pane or the {Preview} soft key. If Preview is lit,

the highlighted WAV file in the list will loop repeatedly.

You can use the Jogger wheel, the + and – keys in the

Step 3 Double-Click the selected WAV file to paste it at the playhead on the active track, or drag and drop a clip to any track at any point on the timeline.

Notes:

- The AudioBase3 results pane can be displayed underneath the Pyxis Track, allowing easy placement of sounds to picture.
- To hide the AudioBase3 results list, simply enter another mode (e.g. Cut).
- Set up your AudioBase3 Server in Setup/General Preferences. Example: http://192.168.1.100/AudioBase/MFX/search.php (Where 192.168.2.100 is the IP Address of your MediaLink2 Server)

Chapter 27 - Import / Export

Introduction

Constellation-XT has a number of features to allow the import and export of audio clips and Projects.

Importing Files

DREAM II can import the following file types:

Video Files – these can be displayed on the Pyxis track

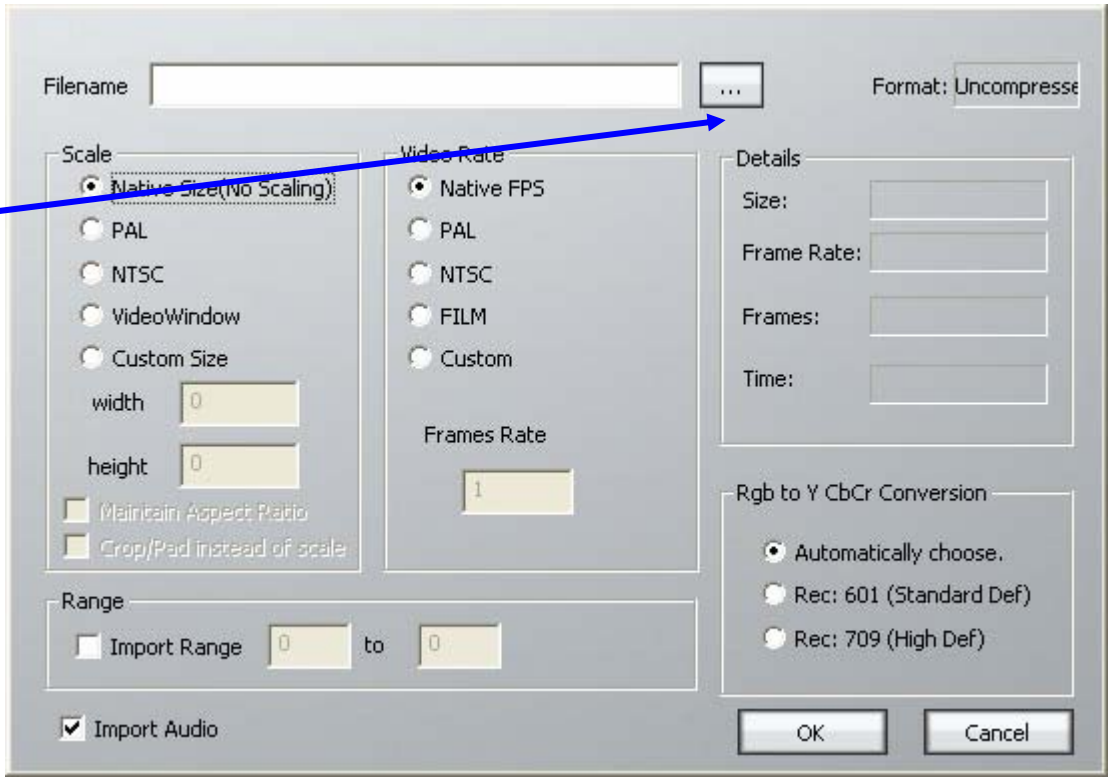
OMF Files – these are files from other manufacturers

ML Files – these are files from older Fairlight products.

Importing a Video File

Step 1	Make sure that a Pyxis track is displayed. If it is not displayed, click the Tracks menu above the track display, then click Add Pyxis track.
Step 2	Click the File menu above the track display, and select Import, then select Video File.
Step 3	The following dialog box is displayed

Click here to search for the file you want to import



This dialog box allows many complex conversion

Export

The Export Menu is used to allow audio to be exported from a Project in the following formats:

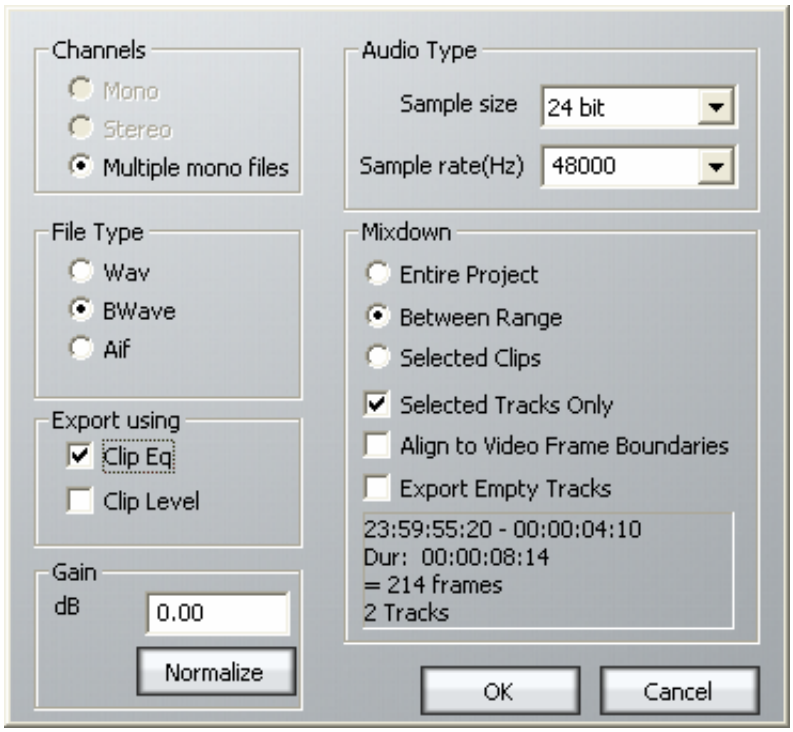
- WAV
- Broadcast WAV
- Aif

› 1 ct the clip or clips to be exported. Ranges of clips can also be selected.

› 2 ‹ the File menu command above the Track display.

› 3 ose Export, then Audio Track(s)

› 4 following dialog box appears.



Make your selections and click OK.

Channels

If Mono is selected a single Mono file will be exported. If Stereo is selected a single Stereo file will be exported. If Multiple Mono Files is selected one mono file will be exported for each selected clip on each selected track.

File Type

Select Wav, BWave or AIF files. BWave files will be exported with the timecode stamp from the Dream II timeline.

Export Using

Select Clip EQ and/or Clip Level to render Clip EQ and/or Clip Level into the exported file(s).

Audio Type

Select bit depth and Sample Rate for exported file(s). Defaults to Project sample rate and bit depth.

Mixdown

Select 'Entire Project' to export the entire project (one file per track in Multiple Mono Mode). Select 'Between Range' to export all audio in the current range (one file per track in Multiple Mono Mode). Select 'Selected Clips' to only export selected (red) clips (always one file per clip, regardless of selected Channels).

Check 'Selected Tracks Only' to only export selected tracks. Check 'Align to Video Frame Boundaries' to align exported file(s) with the video frame edges. Check 'Export Empty Tracks' to export blank files for empty tracks (if Multiple Mono files have been selected).

Normalize

Normalize will examine the level in every clip you have selected, find the maximum level of all the clips, then show the gain increase needed to bring it up to 0 dB. Then all the clips will be amplified by this amount, giving you the loudest (best quality) signal possible while maintaining correct balance.

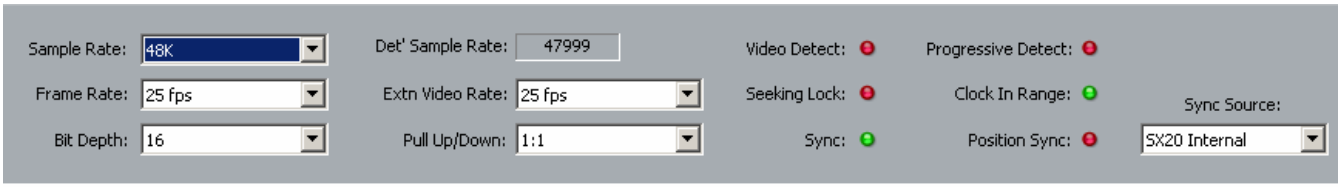
Chapter 28 - Timecode Setup

Introduction

The Setup Menu is used to configure the Project's synchronisation setup.

Step 1 Press the **Setup** key or click View>Smart Pane> Sync Setup

Step 2 The following dialog is displayed



Sample Rate

This value can only be changed before there is any audio in the Project. Once it is set, the first recording will lock that value into the project.

Frame Rate

Can be changed at any time. Normally it is best to choose the frame rate of the Master video device in your system, or of the timecode being chased, if any.

Bit Depth

Can be changed at any time. All subsequent recordings will have this depth.

Extn Video Rate

This is the rate of the external video reference applied to the SX-20. This must be set properly for correct operation!

Pull Up/Down

Allows setting of Pull Up and Pull Down, often used in NTSC video setups. Detailed explanation below.

Sync Source

The system sample rate is synchronised to its clock source. There are many choices, but normally you will use the SX20 as a sync source, and lock it to whichever sync signal your studio is running.

Synchronization Indicators

Det' Sample Rate

Detected Sample Rate indicates the speed that the Dream II is running at. This value is determined by the relationship between the External Video Rate, the project Frame Rate, the Pull Up/Down setting and the project Sample Rate..

Video Detect

The Video Clock Detected indicator is green when a valid Video Clock reference is detected and red when Video Clock is missing or invalid.

Seeking Lock

The Seeking Lock indicator is green when seeking lock, and red when not in use.

Sync

The Sync indicator is green when a valid Clock Sync Source reference is detected, and red when the Clock Sync Source is missing or invalid.

Progressive Detect

SX-20 supports both Progressive and Interlaced clocks. If the Progressive Clock Detect indicator is green, a Progressive Clock reference has been detected and is being used as the primary sync reference.

Clock In Range

The Clock In Range indicator is green when the Clock reference is in range and red when the clock reference is out of range.

Position Sync

When synchronising with an external machine such as a video machine, audio recorder or digital audio workstation, a positional source allows the machines to "tell" each other where they are. The Position Sync Source indicator is green when a valid Position Sync Source reference is detected, and red when the Position Sync Source is missing or invalid.

Synchronization Details

Constellation-XT can track the position and motion of external transports such as a video tape recorder, timecode-striped audio tape or a timecode generator. The disk recorder will play in time with the Master Timecode source so that sound and picture coincide.

Position

This is an absolute location reference to a sequence of pictures or audio. It is used to determine whether the disk recorder is playing the right part of its Project. For video, position reference is usually provided by 9 pin (Sony protocol from an RS-422 port). For audio tapes LTC is normally used (though 9 pin is also a possibility).

Motion

The motion of an external machine is a measure of its speed, and the disk recorder must move at the same speed to remain in sync. This translates into producing the correct number of samples every second, which is called the Master Clock rate. This can be locked to a Digital

Word Clock, a video signal, an AES/EBU signal, by the internal crystal, a timecode source, or a digital audio source which is being recorded.

If the Position Reference and Motion References are not the same, it is possible that they will drift apart over time. This will be shown by a warning at the top of Constellation 's video screen which indicates when an inconsistent timecode frame was encountered.

How DREAM II Synchronises

DREAM II goes through a number of steps in achieving synchronization in play mode:

1. Read the position reference and start loading up the corresponding audio on all active tracks.
2. When ready, start playing, but with the outputs muted. Use variable speed to reduce the error between the Constellation position and the Position Reference until it is very small.
3. Switch to the Motion Reference for continued playback. The system is said to be locked once this switch is made, and the audio is unmuted.
4. Warn of error status if the sync error increases, if a reference signal is lost etc.

Synchronization Conflicts

When you are recording a digital source, it must be synchronised to the same Master Clock Reference as Constellation, or an overflow (too many samples) or underflow (too few samples) may occur at the input. This causes a characteristic, periodic form of digital distortion called a whisper. A whisper sounds like a brief, glassy or metallic buzz, and occurs about once every few seconds, depending how fast the samples are overflowing or underflowing.

The best solution to digital sync conflicts is to drive all digital devices from a single, studio-wide word clock signal. Then all devices will have identical word rates, so whispers never occur and digital interconnections may made with ease. In this instance, the sync HOUSE option is always used.

Pull-Up and Pull-Down

The normal sample rates used by the digital audio industry are 32,000, 44,056. 44,100, 48,000 and 96,000 samples per second. The normal frame rates are 24, 25, 29.97 and 30. These last two may cause confusion when used together.

Constellation-XT can alter its sample rates far enough to accommodate the small speed change caused by going from 30 to 29.97 frames per second and back again.

In other words, if you slow down the frame rate from 30 to 29.97, Constellation can slow its internal sample rate to match. This is called Pull-up or Pull-down, depending in which direction you are taking the speed.

When you choose a frame rate you are telling Constellation-XT what frame rate to expect. To put it more accurately, you are telling it the frame rate at which the chosen sample rate will be accurately reproduced. For example, if you tell Constellation that the NTSC frame rate is 30 (in the Setup Menu) and the sample rate is 44,100, it will pull down the sample rate to 44,056 if you feed in timecode at 29.97.

If, however, you change the NTSC field to 29.97, Constellation will play at 44,100 at 29.97 frames per second, and will pull up to a sample rate of 44,144 when timecode runs at 30 frames per second.

It is advisable to choose a sample rate at which you want to make the final transfer of the Project. Then record your material at whichever frame rate is going to be used during that final transfer. The importance of this choice is that you do not want to compromise the quality of

your final product by using sample rate conversion at the moment it leaves Constellation-XT for the last time.

You should make these choices at the very beginning of the Project, and then you may use any other combination that suits your purposes temporarily during the recording and editing process.

Chapter 29 - Machine Control

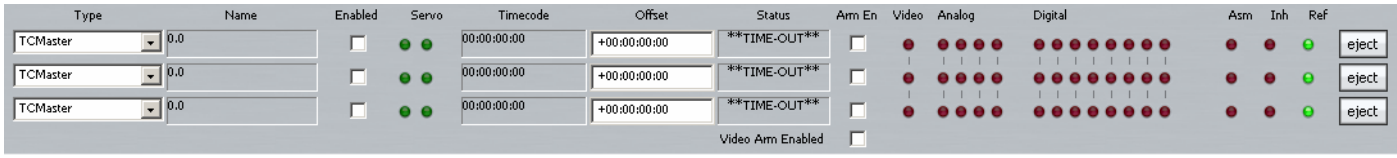
Introduction

Constellation-XT can communicate with industry standard Sony 9 pin serial controlled machines (with a timecode reader installed) providing control over external video (or audio) machines, directly from the Constellation.

Constellation-XT can control up to three machines: M1, M2 and M3.

Step 1 Press the **BLUE** key plus M1 key, the **BLUE** key plus M2 key or click View>Smart Pane> Machine Control

Step 2 The following dialog is displayed



Use the type soft key or 'Type' popup to select one of the following machine types:

- TC Master – the selected machine is the 9 Pin timecode master.
- Chase (slave) - the selected machine is in 9 Pin chase mode.
- Remote (slave) – Dream II will resond to 9 Pin remote commands like a "virtual VTR".
- LTC Master – the selected machine is set to chase external Longitudinal Time Code.
- MTC Master – the selected machine is set to chase external MIDI Time Code.
- No Port – No port selected

Note: You can have only one Master machine at a time, but you can have as many slave machines as you like (limited only by available ports). Master and Slave machines can be used concurrently.

Press M1 and/or M2 keys or use the 'Enabled' checkbox to place machines online.

Enter an Offset if desired.

Use the red Video, Analog and Digital LEDs to arm tracks on your remote devide as required.

Note: The master 'Video Arm Enabled' box must be checked and each video 'Arm En' box must also be checked on the desired device before the Video arm LED can be used to arm the video track.

Click the 'Eject' button to eject tape from the desired device.

Note that controls will only appear if they are relevant to the selected device type.

Machine Control Indicators

Name

Name of the 9 Pin Device.

Servo LEDs

The left Servo LED is green when the 9 Pin device has servo lock. The right Servo LED is green when the 9 Pin device has sync lock. For correct operation with 9 Pin devices, both LEDs should be green.

Timecode

Displays the current timecode position of the external device.

Status

Displays the device status.

Asm

Indicates the 9 Pin device is in Assembly Edit Mode.

Inh

Indicates the 9 Pin device is in Record Inhibit mode.

Ref

Indicates the 9 Pin device is receiving a valid external sync reference.

Editing with Machine Control

All the transport controls and locating methods operate with a 9 pin remote machine online. The following procedure is used to place new recordings or previously used clips to picture.

Press the M1 key to toggle the 9 pin machine on or off. Constellation s transport will locate to the timecode from the 9 pin machine. The system defaults to M1 controlling 9 pin Port A.

Placing Sound to Picture

Step 1	With M1 online, locate the video at the desired frame.
Step 2	Take M1 offline.
Step 3	Locate the transport so the cursor lies on the sync point of the clip.
Step 4	CUT or COPY the clip to the clipboard.
Step 5	Place M1 online, the transport will relocate to the video at the desired frame.
Step 6	Press **<Enter>** to paste the clip.

It is also possible to CUT or COPY the clip before locating to the desired frame.

Chapter 30 – Plugins and ReWire

Introduction

Dream II provides powerful support for 3rd party hardware and software plugins via the industry standard VST, VSTi and ReWire protocols. Dream II's open architecture provides access to a vast array of 3rd party products, giving users incredible freedom of choice.

VST and VSTi

About VST

VST (Virtual Studio Technology) is an audio plug-in standard created by Steinberg. The VST standard allows third party developers to create VST plug-ins for use within VST host applications, or to create VST host applications themselves. The VSTplug-in standard is the most widespread plug-in standard in use today, with thousands of available plug-ins.

The VST Host

A VST host is a software application or hardware device that allows VST plug-ins to be used in a logical context, interacting with digital audio and MIDI elements. Dream II is a VST host, enabling VST plug-ins to interact with the Dream II mix environment. As of this writing, Dream II uses version 2.4 of the VST SDK (Software Development Kit).

VST Effects versus VST Instruments (VSTi)

A VST effect is a type of VST plug-in that is used to process audio. A VST effect might be a Reverb, Compressor, Flanger or EQ.

A VST Instrument is typically used to synthesize sound or play back sampled audio. VSTi's have rapidly replaced hardware synthesizers and dedicated samplers due to their flexibility, repeatability and low cost.

Using VST Effects in Dream II

Setup and installation

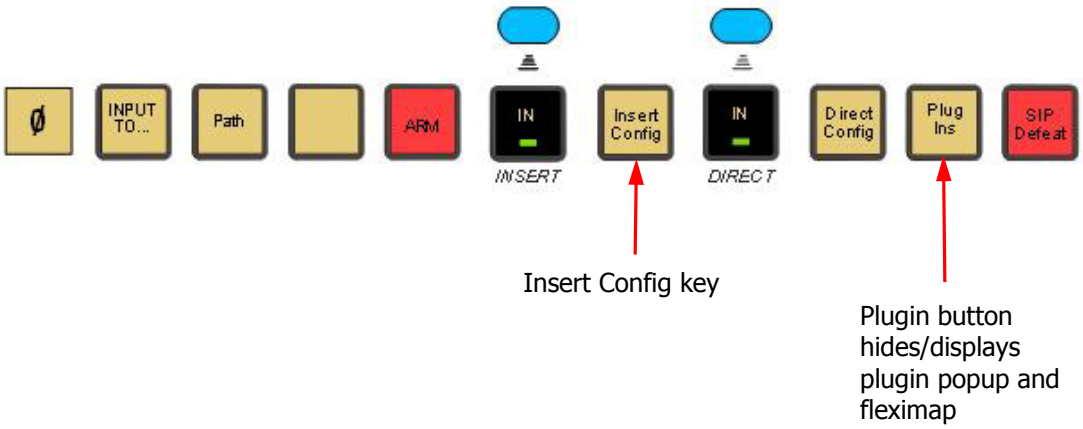
Step 1	Install your plugins as outlined by your plugin manufacturer. The plugin will generate a file with extension 'DLL' in the folder that your plugin has been installed (most commonly located in C:\Program Files\VSTPlugins).
Step 2	Copy the DLL file and paste into C:\Program Files\Fairlight\Dream II\Effects\VSTPlugins.
Step 3	Restart the Dream II PC.

Fleximaps

Dream II supports 'Fleximap' files, which map VST plugin controls to the Dream II surface, providing real-time automated control over plugin parameters. Dream II ships with several Fleximaps for popular plugins, and Dream II can also generate Fleximaps automatically. You can even edit your own Fleximaps. Refer to the Fleximap Developers Guide for more information.

Inserting a Plugin on a Track Feed

Step 1	Call the track using the Call key located on the Track fader.
Step 2	Press the Insert Config key located on the top of the Channel Panel panel. The main LCD will now display the list of plugins that you have installed.
Step 3	Using the jog wheel, scroll through the list of plugins on the main LCD screen (main LCD screen is located above the transport keys on the console).
Step 4	When the desired plugin is displayed, press the Add Plugin soft key. The plugin popup will now appear on the Dream II Editor display. Its fleximap will now be mapped to faders (typically 1 to 12).
Step 5	Press the Plugin key located on the top of the Channel Panel panel to toggle the plugin popup and fleximap on/off.
Step 6	To remove the plugin, press the Remove Plugin soft key located on the main LCD screen.



Inserting a Plugin on a Live Feed

You can also insert a plugin on a live feed by repeating the steps above. Using this approach, you can patch an Aux Output to the Live Input using the Patch I/O page. Now all channels feeding the Aux will be routed through the VST Effect.

Using VST Instruments in Dream II

While Dream II does not include a MIDI sequencer, VST Instruments can still be played "live" through the system. This can be useful for:

- Foley, using a VSTi sampler.
- Live musical performance.
- Tuning vocals with a VSTi sampler and MIDI controller with pitch wheel.
- Live effects triggering with a VSTi sampler.

VSTi's can easily be recorded to tracks or inserted on Lives depending on your needs.

ReWire

About ReWire

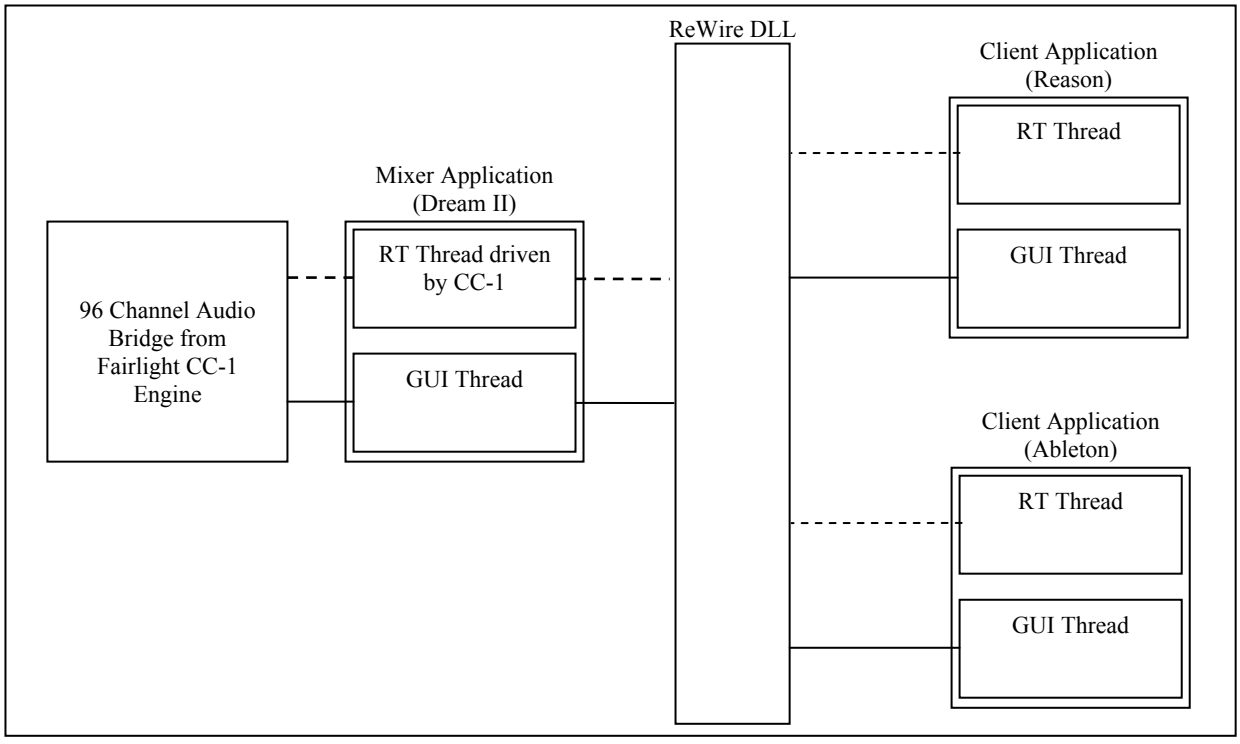
ReWire is a software protocol jointly developed by Propellerhead and Steinberg. ReWire enables remote control and data transfer among digital audio editing and related software. Originally appearing in the ReBirth software synthesizer in 1998, the protocol has since evolved into an industry standard.

The ReWire Mixer

The ReWire protocol is designed to allow a number of ReWire *Clients* to communicate with a single ReWire *Mixer*. Only one ReWire mixer can be active at a time. Dream II is always the ReWire Mixer.

The ReWire Mixer can accept up to 256 inputs from each of the connected ReWire clients. Dream II currently supports 96 of these ReWire inputs. When a ReWire Mixer and ReWire Client are connected together, transport controls and position information are automatically transmitted in both directions between the Mixer and Client(s).

Diagram of a running ReWire session



Using ReWire Devices in Dream II

Setup and installation

Step 1	Install your software as outlined by your the manufacturer.
Step 2	Run the software at least once in standalone mode.
Step 3	The software should now appear in the list of available ReWire devices.

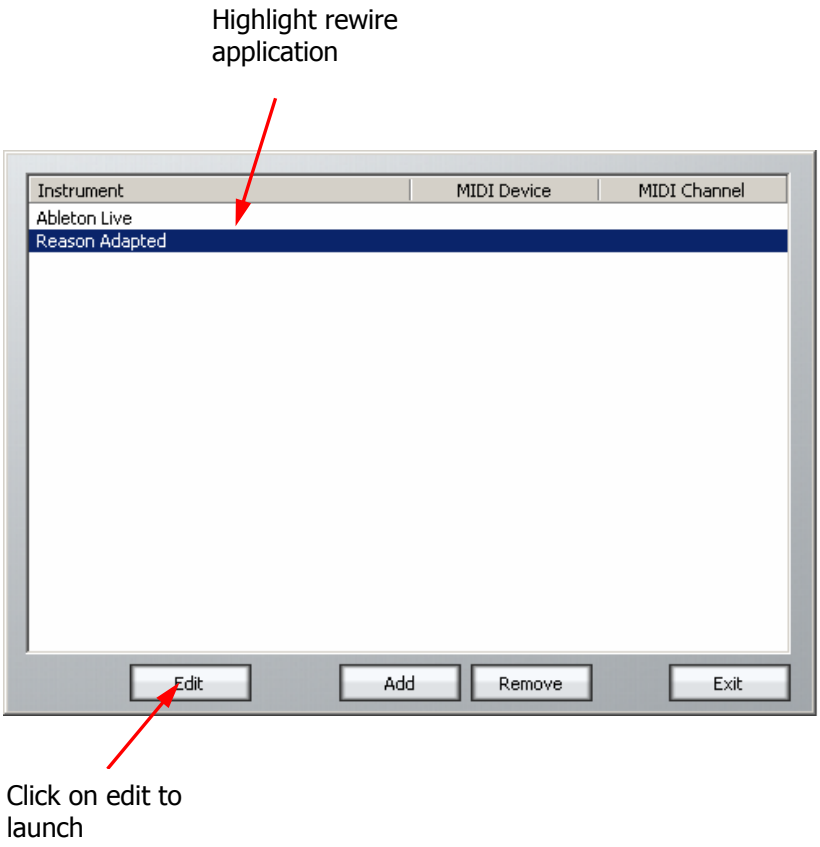
Launching a Rewire Application

In order to patch a Rewire device, a Rewire application must be installed first (e.g. Reason, Ableton Live).

Step 1 Click on 'Setup' in the Dream II toolbar.

Step 2 Select 'Setup Instruments' to launch the dialogue box. Your Rewire application should appear in this list.

Step 3 Click on the name of the desired Rewire application so it is highlighted.



Step 4 Click on 'Edit' at the bottom of the dialogue box. Note: Some programs (eg – Reason) will launch automatically. Others (eg - Ableton Live) need to be launched manually.

Step 5 Open or create a project within your Rewire application (demo projects that accompany the application are a good starting point).

Patching a Rewire Application

Once your Rewire Application is launched, it's time to patch Rewire inputs to track or live feeds.

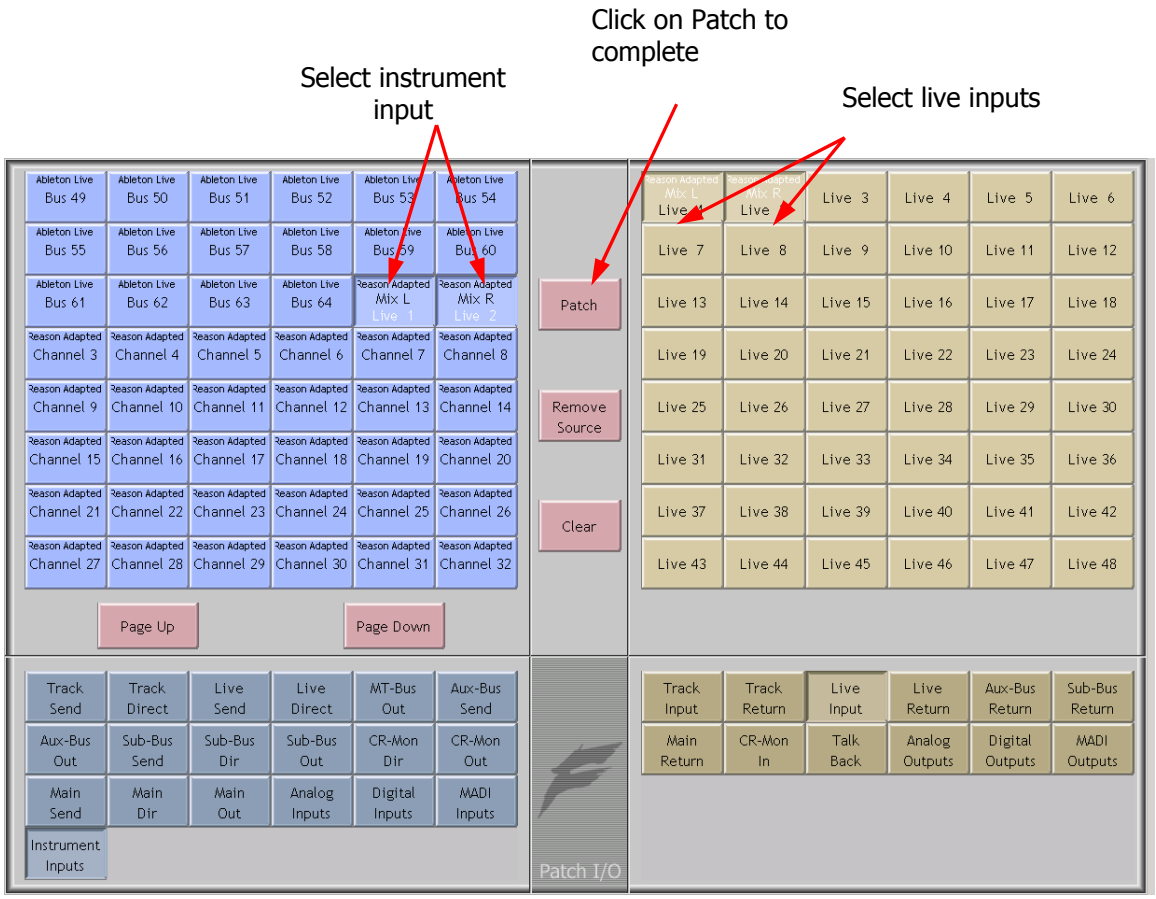
Step 1 Open the Patch I/O page by pressing the Patch I/O key on the channel panel.

Step 2 Click on Instrument Inputs located on the left hand side of the Patch I/O page. You see inputs labeled according to the Rewire applications you have installed. If you have installed more than one application, click 'Page Down' on the patch I/O page until you find the input for your Rewire application.

Step 3 Select the desired instrument input (e.g. If using Reason, select the inputs labeled Mix L and Mix R for a stereo mix).

Step 4 Select Track, Live or other patch destinations located on the lower right hand side of the Patch I/O page.

Step 5 Select destinations to patch in the upper right, and click the Patch button to complete the patch.



You should now be able to hear a stereo signal generated by your Rewire application on Live feeds 1 and 2. Alternatively, you can patch instrument inputs to track feeds, but make sure the track is record enabled in order to hear your Rewire device (see Chapter 10 - Recording).

Chapter 31 - System Files

Introduction

Constellation-XT uses a number of files to store setup information. These are normally set to sensible values at the factory, but in some cases you may need to change them.

Working with Constellation System Files

System files are stored in the *C:\Program Files\Fairlight\FMC\Data* directory. Use Windows explorer or use the trackball to click on **My Computer**, on the desktop, to navigate through the file system. Use the **Notepad** text editor to edit files by double clicking on the file name.

The I-O Config.TXT File15

The I-O Config.txt file specifies what I/O hardware is fitted with your CC-1 engine. This file must be edited to allow the Constellation to properly address the physical I/O hardware. The I-O Config.txt file is stored in *C:\Program Files\Fairlight\FMC\Data* directory. Open the file with the Notepad text editor, define the physical I/O as described in the file. You can also name individual I/Os which will then bring their names up on the FAT channel when you patch them.

System Ports

System output ports can only be accessed from the Monitor Setup Patch Outputs menu. Using system ports for control room monitors prevents the operator from inadvertently patching signals direct to the power amplifier inputs. To define a system port enter an attribute value of 1 as described in the I-O Config file.

The file contents are similar to the following:

```
# ------------------------------------------------------

# I/O configuration

# There are three types of I/O:

# 1 is Analog

# 2 is AES

# 3 is MADI

# ------------------------------------------------------

# First define the number of different types of I/O:

# IO_CONFIG,type,inputs,outputs

# where

# IO_CONFIG,1,16,8

# IO_CONFIG,2,32,16

# IO_CONFIG,3,0,0

# would configure the system with 16 analog IPs, 8 analog

# outputs, 32 digital IPs, 16 digital OPs and no MADI

# ------------------------------------------------------
```

```
# These ports are then define one by one using a number
# of statements like these:
# INPUT,type,index,name,attibutes
# OUTPUT,type,index,name,attibutes
# Note, that the index counts from 1, and that the name
# must be less than 12 characters long.
# The attribute can be omitted; a value of 1 specifies the
# port to be a system port.
# ------------------------------------------------------
# This system has 32 analog IPs, 32 analog
# outputs, 32 digital IPs, 32 digital OPs and no MADI.
# Digital Inputs 1&2 are named DAT L&R respectively
# Analog Outputs 25&26 are named Main Mon L&R respectively
IO_CONFIG,1,32,32
IO_CONFIG,2,32,32
IO_CONFIG,3,0,0
INPUT,2,1,DAT L
INPUT,2,2,DAT R
OUTPUT,1,25,Main Mon L,1
OUTPUT,1,26,Main Mon R,1
```

The Monitor_Matrix.TXT File

The monitor matrix file is a text file which contains a complete set of upmix and downmix matrix coefficients. These are used when monitoring a larger format bus on a smaller format speaker set, or when selecting a larger or smaller monitoring format than the current monitor source bus.

Monitor Downmix Matrix Defaults

The monitoring downmix matrix allows any source format to be monitored on any format speaker system. The elements of the source signal path are distributed or summed and attenuated as necessary to maintain the soundfield image in the target format.

When monitoring a source format with less elements than the current monitor format, the elements in the source format that also appear in the monitoring format are passed through to their respective loudspeakers unmodified. For example, when monitoring a stereo bus through a 5.1 speaker system, the left and right bus elements appear in the left and right speakers and the centre and surround speakers are ignored. The exception to this where the source format contains a centre or centre surround element and the target format does not. In these cases the centre channel is distributed between left and right elements

Bass Management

The default monitor matrix eliminates the boom or LFE channel when downmixing to a format that does not include a boom channel. If it is desired to add the boom signal

into the front monitors this may be done by adding the appropriate entries to the monitor matrix file as described below.

Editing the Monitor_Matrix File

The monitor matrix data is contained in a readable text file on the Constellation computer. The file specifies both downmix and upmix combinations. This file can be opened and edited to conform to your specific monitoring requirements.

The file is laid out as a comma delimited table. Each downmix entry begins with a description prefixed with a `#` (e.g. #Stereo to Mono). Each subsequent row describes a node in the matrix and has the following elements:

`SET_NODE` command, source format (e.g. Stereo), destination format (e.g. Mono), source element (e.g. Left), destination element (e.g. Centre), Gain in dB.

For example, here is the entry for Stereo to Mono downmix:

```
# Stereo to Mono
SET_NODE,Stereo,Mono,Left,Centre,-3
SET_NODE,Stereo,Mono,Right,Centre,-3
```

Source elements that are not passed through to the destination do not appear in the downmix entry.

Follow these steps to edit the monitor_matrix file:

Step 1 Quit FMC by holding down the **Shift** key and pressing the **Pause/Break** key on the PC keyboard and typing `Q` then `Y`.

Step 2 Use the trackball to double-click on the **Start** button on the task bar at the bottom left of the mixer screen.

Step 3 Use the trackball to select **Programs** > **Accessories** > **Notepad**. Notepad is a basic text editor application.

Step 4 In Notepad select **Open** from the **File** menu at the top of the screen. Navigate to the following file and click **Open**
C:|Program Files| Fairlight|FMC|Data|monitor_matrix.txt

Step 5 Select **File** > **Save As** and type `monitor_matrix.bak` to save a back up copy, then **File** > **Open** *C:|Program Files| Fair-light|FMC|Data|monitor_matrix.txt* to re-open the original file for editing.

Step 6 Use the arrow keys to scroll down the file to the entry you wish to modify. Edit the gain value at the end of a line or type a new line to add an element (e.g. Boom).

Step 7 When you have finished making changes click **File** > **Save**, then **File** > **Exit** to save the file and exit Notepad.

Step 8 Click on the DREAM II Start Icon on the desktop to restart FMC and the disk recorder.

Your modified monitor matrix settings are now active.

Removing Boom from a Monitor Downmix

The following setting sends the boom channel from a 5.1. bus to left and right speakers of a stereo monitor set:

```
# 5.1 to Stereo
```

SET_NODE,5.1,Stereo,Left,Left,0

SET_NODE,5.1,Stereo,Right,Right,0

SET_NODE,5.1,Stereo,Centre,Left,-3

SET_NODE,5.1,Stereo,Centre,Right,-3

SET_NODE,5.1,Stereo,S-left,Left,0

SET_NODE,5.1,Stereo,S-Right,Right,0

SET_NODE,5.1,Stereo,Boom,Left,-3

SET_NODE,5.1,Stereo,Boom,Right,-3

Remove the last two lines to eliminate the boom element from the monitors as shown below:

5.1 to Stereo

#SET_NODE,5.1,Stereo,Left,Left,0

#SET_NODE,5.1,Stereo,Right,Right,0

#SET_NODE,5.1,Stereo,Centre,Left,-3

#SET_NODE,5.1,Stereo,Centre,Right,-3

#SET_NODE,5.1,Stereo,S-left,Left,0

#SET_NODE,5.1,Stereo,S-Right,Right,0

The DPC_Pan File

The DPC_Pan file contains a table of pan gain values that is applied by the surround panner. The file contains three pan tables: LR, LCR, and 7.1. The LR table contains two columns and is used when panning between two speakers left to right or front to back. The LCR table contains three columns and is used for panning across the front speakers in LCR, LCRS, LCRSS, 6.1 and 5.1 surround formats, and the surround speakers in 6.1. The 7.1 table contains five columns and is used for panning across the five front speakers in 7.1.

Each column contains 101 values which represent the gain in dB x 100 +1000. This results in a resolution of 0.1dB. The default pan law is a quadrant sine law.

The System_Variables File

The System_Variables file contains user configured setup parameters plus automatically generated system variables. Only modify the parameters described below. The file is located at *C:\Program Files\Fairlight\FMC\Data\System_Variables.txt.* To edit the file open it in Windows notepad as described above.

Setting the Automation Lock Window

The timecode lock window specifies the number of consecutive contiguous timecode frames that the automation system must read from the disk recorder before entering automation record. This prevents the system from dropping out of **WRITE** mode when locking to an external video transport.

Edit the following line in *System_Variables.txt*:

```
TC_LOCK_WINDOW,10
```

Change the number at the end of the line to specify the number of frames. This number will also determine the amount of pre-roll required prior to performing an automation mix pass.

Typical values are:

`TC_LOCK_WINDOW,1` for Vmotion.

`TC_LOCK_WINDOW,5` for Betacam.

`TC_LOCK_WINDOW,10` for U-matic.

Setting the Automation Punch Preroll21

The automation punch preroll sets the transport preroll time applied when using punch to enter automation record. Edit the following line to specify the preroll time in seconds.

```
TC_PUNCH_PREROLL,5
```

Setting Momentary Talkback Time Threshold21

The Momentary Talkback Time Threshold defines the amount of time the talkback key must be held down to prevent the switch from latching. The default value is 500 milliseconds.

Edit the following line in *System_Variables.txt.* Change the numerical value at the end of the line to specify the time threshold in milliseconds:

```
MOMENTARY_TB_TIME_THRESHOLD,500
```

Enabling AFL and PFL Modes

AFL and PFL solo modes require two of the available buses. Disable AFL and PFL to free these buses.

Edit the following line in *System_Variables.txt.* Change the numerical value at the end of the line to 1 for enabled or 0 to disable:

```
AFL_PFL_ENABLED,1
```

Joystick Snap

The joystick snap setting defines the minimum distance in pixels, between the joystick bracket and the pan target in the channel display, required to capture the current pan position with the joystick. To alter the value edit the following line:

```
JOYSTICK_SNAP,2
```

Metering Numeric Peak Level

The numeric peak levels displayed on the mixer display bus meters have a variable threshold. The level at which these values are displayed can be set in the *System_Variables.txt* file. Edit the following line in the file:

```
PEAK_DISPLAY_LIMIT,950
```

The value is from 0 to 1000 in 0.1dB steps where 1000 = full scale level. In the example above the value of 950 will cause the numeric display to first be shown when the signal level reaches -5dB below full scale. 970 will set the threshold to -3dB, 990 will set the threshold to -1dB, and so on.

Overload Display Time

Signal levels exceeding 0dBFS on the main meters are indicated by a overload hold display where all segments of the meter are illuminated orange. To clear this display press the **Meter** Sets key. The over hold time can be set by editing the following line in the file, enter the hold time in ten millisecond increments:

```
Overload_display_time,1000
```

Overload Peak Hold

The main meters can display digital overloads by holding the entire bar. The amount of time this display remains after the overload has passed can be set. Edit the following line to enter the hold time in milliseconds.

```
Overload_display_time,1000
```

GPIO Enable

The GPIO port on the rear of the Constellation must be enabled for use by a GPIO macro. Replace the 0 with 1 in the following line to enable GPIOs.

```
GPIO_ENABLED,0
```

Plug-Ins I/O

The physical digital I/O used by the optional plug-ins system must be specified. The I/O must be a block of 16 or 32 starting at 1, 17 or 33. Edit the following lines to specify the first channel and the range of the I/O block.

```
PLUGINS_IO_START,17

PLUGINS_IO_RANGE,16
```

Plug-in Name Display

The name of the plug-in may be displayed in the channel display. Edit the following line to turn this feature on or off.

```
SHOW_PLUGIN_NAME,1
```

Remote Mic amps

To configure the Constellation to control a UP4 mic pre, add the following statement to the FMC.INI file:

UP4,ip_address,x

where ip_address is the address of the UP4 unit, and x is the number of the first analogue input that it connects to (Note, that it MUST be connected to 4 consecutive inputs).

FMC.ini and Command Line Options26

FMC is launched automatically when you start DREAM II.

FMC offers a number of additional command line options as listed below. These options may be used in a batch file for special applications. All start up options can also be set in the FMC initialisation file located at *C:\Program Files\Fairlight\FMC\FMC.ini* which overides the commandline options. If necessary, use the **Notepad** editor to edit the file. Click on the **Start** menu and select

Programs>**Accessories**>**Notepad** and open the *FMC.ini* file. Note that the DREAM II Start Setup page will overwrite the *FMC.ini* file.

FMC.ini

FMC Commandline Options

Option	Description
-c	Run MSAT on the same machine as FMC ignoring the -p setting.
-g	Run without graphics.
-h	Hi-res mode (1600 x 1200) otherwise runs 1280 x 1024.
-l	Lo-res mode (1024 x 768).
-m	Enable mix automation.
-p<###.###.###.###>	Specify the IP address for a network connected machine running MSAT for testing.
-s<#>	Specify mixer type, where # = 0 for satellite, 1 for station48, 2 for Constellation , 3 for station24.
-u	Disables "stop on wrong USB driver" message. FMC will still check the drivers, still report out of date drivers and will still say that it can't continue - but it will continue anyway.

BLUE Utils Menu

The **BLUE Utils** menu offers the Update Sys-File item for storage of system settings. System Files are stored in the *C:\Program Files\Fairlight\FMC\Data* directory.

Step 1 Hold down the **BLUE** key and press the **Utils** key to enter the Utils menu.

Step 2 Press the `Update Sys-File` soft key to store the system settings. This information is stored in the following files:

Monitor_Sources.TXT - patching and formats of external monitor sources.

Speaker_Sets.TXT - patching and formats of all speaker sets.

Setup_Variables.TXT - Call Follow state and Constellation brightness.

Chapter 31 - Specifications

Audio I/O Configuration

See SX-20 and SX-48 installation guides for details.

Constellation-XT Wiring and Connection Details

The following information contains all the wiring details necessary for specifying studio cabling installations. Connector sex described is the panel mount connector on the rear of the Satellite-AV.

Meter USB

Description: USB and DC Power connection for external meters. Note that Sidecars do not require DC power. Cable must be shielded and less than 3 meters in length.

Connector: 5 Pin XLR Female

XLR5	SIGNAL	PAIR
PIN 1	USB +	1
PIN 2	0 VDC	
PIN 3	12 VDC	
PIN 4	0 VDC	
PIN 5	USB -	1
SHELL	SHIELD	1

Talkback

Description: Mic level input and line level output for studio talkback microphone. Mic input may be configured to carry +8VDC phantom power for electret and condenser microphones.

Connector: D 9 Female

9 Pin D Type Connector	Signal	Pair
PIN 1	TB Out +	1
PIN 2	TB Out GND/Shield	1
PIN 3	TB In GND/Shield	2
PIN 4	NC	
PIN 5	TB In +	2
PIN 6	TB Out -	1
PIN 7	NC	
PIN 8	NC	
PIN 9	TB In -	2

USB

Description: Standard USB port. Cable must be shielded and less than 3 meters in length.

Connector: USB Type A Female

USB Type A Connector	Signal
PIN 1	+5VDC
PIN 2	USBDO-
PIN 3	USBDO+
PIN 4	GND

GPIO

Description: General Purpose I/O

Connector: D 15 Female

Input:low < 0.8 volts
high > 3.5volts < 5 volts
Input voltages higher than 5 volts may cause damage to internal circuitry.

Output:low < 0.8 volts
high >= 3.5 volts

15 Pin D Type Connector	Signal	15 Pin D Type Connector	Signal
PIN 1	GP In 1	PIN 9	GND
PIN 2	GP In 2	PIN 10	GND
PIN 3	GP In 3	PIN 11	GND
PIN 4	GP In 4	PIN 12	GND
PIN 5	GP Out 1	PIN 13	GND
PIN 6	GP Out 2	PIN 14	GND
PIN 7	GP Out 3	PIN 15	GND
PIN 8	GP Out 4		

Ethernet23

Description: 100BaseT ethernet interface to Satellite-AV or network. Use CAT5 shielded twisted pair cable and shielded RJ45 connectors.

Connector: RJ45

PIN 1	Rx +
PIN 2	Rx -
PIN 3	Tx +
PIN 6	Tx -

Cross-over Cable

Required for direct connection between Satellite-AV and engine. Not required if hub is present.

RJ45-1	Signal	RJ45-2
PIN 1	Rx +	PIN 3
PIN 2	Rx -	PIN 6
PIN 3	Tx +	PIN 1
PIN 6	Tx -	PIN 2

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