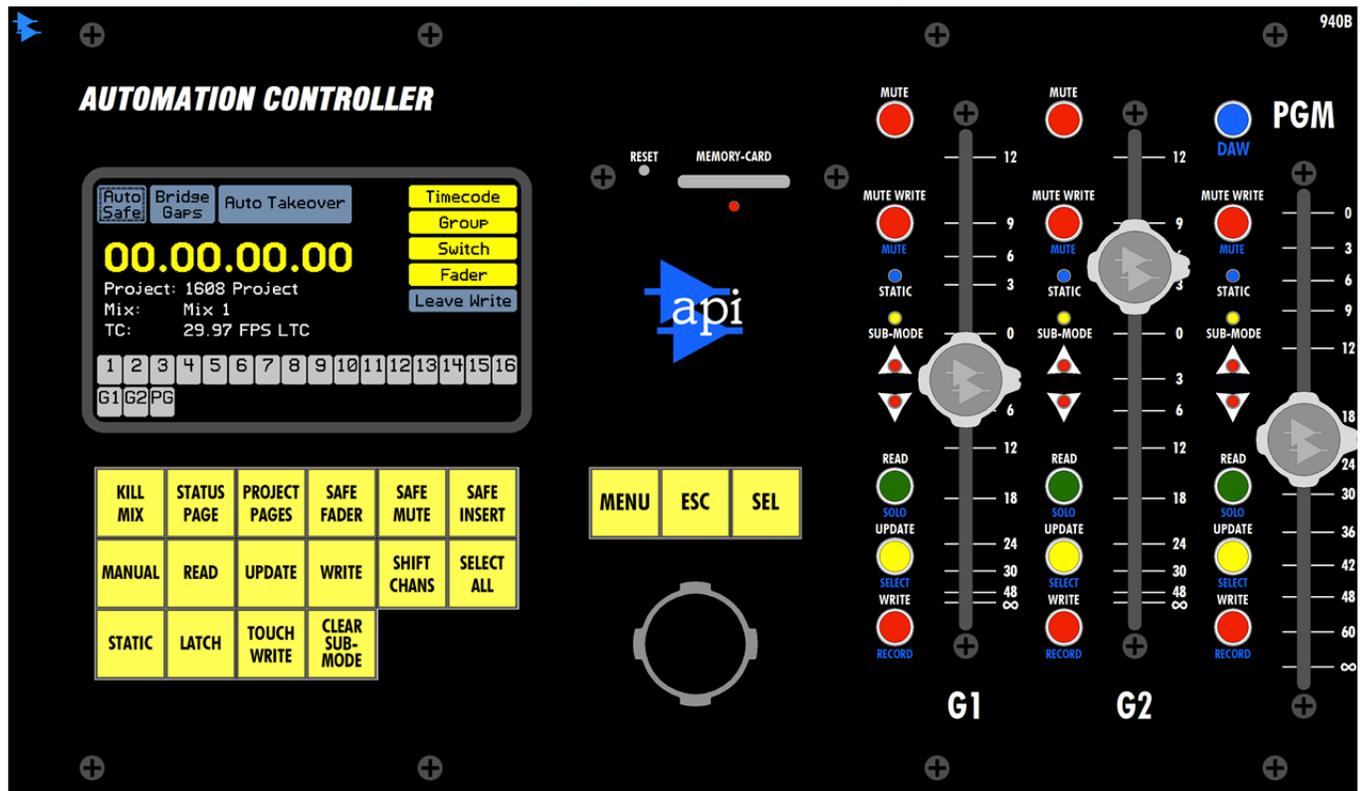


1608 Automation Operator's Manual



Automated Processes, Inc.



*Revised
5-18-12*

Written for Automated Processes Incorporated
by Daniel Pfeifer
2012

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Table of Contents

- 1.0 Overview**
 - 1.1 Introduction and Features
- 2.0 Automation System Components**
 - 2.1 940B Automation Controller (ACM)
 - 2.1.1 LCD Display
 - 2.1.2 Control Panel Buttons
 - 2.1.3 Navigation Buttons and Jog-wheel
 - 2.1.4 Memory Card Slot
 - 2.1.5 Reset Button
 - 2.1.6 Group Master Faders
 - 2.1.7 Program Master Fader
 - 2.1.8 DAW Worksurface Enable Button
 - 2.2 948B Fader Modules
 - 2.3 Fader Automation and DAW Controls
 - 2.4 548B Input Modules
 - 2.5 Rear Interface Panel
 - 2.6 System Architecture
- 3.0 Software Overview**
 - 3.1 Starting the Automation Package
 - 3.2 Software Organization
 - 3.3 Software Navigation
 - 3.3.1 Page and Navigation Buttons
 - 3.3.2 Jog-Wheel
 - 3.3.3 Navigation Procedures
 - 3.3.4 Text Entry
 - 3.3.5 Screen Capture
 - 3.4 Status Page and Main Menu
 - 3.4.1 Status Page Button
 - 3.4.2 Status Page
 - 3.4.3 Select All Button
 - 3.4.4 Main Menu
 - 3.5 Project Pages and Menus
 - 3.5.1 Project Pages Button
 - 3.5.2 Mix Tree Page and Menu
 - 3.5.3 Groups Page and Menu
 - 3.5.4 Snapshots Page and Menu
- 4.0 File Management**
 - 4.1 Project Files
 - 4.2 File Structure
 - 4.3 Memory Card
 - 4.3.1 Format A Memory Card
 - 4.4 New Project
 - 4.5 Open Project
 - 4.6 Mix Export & Import
 - 4.7 Snapshot Export & Import
 - 4.8 Card Reader
 - 4.8.1 File Back-up
 - 4.8.2 Renaming Projects and Files
 - 4.8.3 Deleting Projects and Files
 - 4.8.4 Firmware File

5.0 Automation Concepts

- 5.1 Mix Pass and Mix Tree Concepts
 - 5.1.1 Mix Passes
- 5.2 Manual Mixing
- 5.3 Initial Positions
 - 5.3.1 Setting Initial Positions
- 5.4 Creating a New Mix and Project
- 5.5 End-Of-Pass Processing
- 5.6 Timecode and Synchronization
- 5.7 Function Enables
- 5.8 Low Memory Warning

6.0 Automation Modes

- 6.1 MANUAL
- 6.2 READ
- 6.3 UPDATE
- 6.4 WRITE
- 6.5 Automation Mode Assignment
 - 6.5.1 Status Page Mode Assignment
 - 6.5.2 Fader Mode Assignment

7.0 Automation Sub-modes

- 7.1 None
- 7.2 STATIC
- 7.3 LATCH
- 7.4 TOUCH WRITE
- 7.5 MUTE WRITE
- 7.6 Automation Sub-mode Assignment
- 7.7 Online Fader Trim

8.0 Mix Tree Page

- 8.1 Mix Tree Page Display
- 8.2 Current Mix
- 8.3 Mix Menu
 - 8.3.1 Make Current
 - 8.3.2 Delete Mix
 - 8.3.3 Mix Properties
 - 8.3.3.1 Change Mix Name
 - 8.3.3.2 Change Mix Glide Rate
 - 8.3.3.3 Change Mix Color
 - 8.3.4 Copy/Swap
 - 8.3.4.1 Copy/Swap Procedure
 - 8.3.5 Clear Data
 - 8.3.5.1 Clear Data Procedure
 - 8.3.6 Offline Trim
 - 8.3.6.1 Offline Trim Procedure
 - 8.3.7 Export Mix
 - 8.3.8 Import Mix
- 8.4 Low Memory Warning

9.0 Automation Procedures

- 9.1 Starting a New Mix
 - 9.1.1 New Mix in a New Project
 - 9.1.2 New Mix in an Existing Project
 - 9.1.3 Tips for Working on a Mix
- 9.2 Make a Mix Current
- 9.3 Change the Glide Rate
- 9.4 Export a Mix
- 9.5 Import a Mix

10.0 Global Functions

- 10.1 Kill Mix
- 10.2 Auto Safe
- 10.3 Bridge Gaps
- 10.4 Auto Takeover

11.0 Automation Safe Modes

- 11.1 Safe Fader
- 11.2 Safe Mute
- 11.3 Safe Insert

12.0 Groups

- 12.1 Groups Page
- 12.2 Enable Groups
- 12.3 Group Masters
 - 12.3.1 Insert Group Masters and Members
- 12.4 Groups Menu
 - 12.4.1 New Group
 - 12.4.2 Edit Group
 - 12.4.3 Delete Group
 - 12.4.4 Disable/Enable Group
 - 12.4.5 Coalesce & Delete Group
 - 12.4.6 Coalesce & Keep Group
 - 12.4.7 Coalesce w/Audio Master
- 12.5 Default Groups
 - 12.5.1 Saving Default Groups
 - 12.5.2 Reloading Default Groups
- 12.6 Group Setup Procedures
 - 12.6.1 Enabling Groups Globally
 - 12.6.2 Create a New Group
 - 12.6.3 Edit an Existing Group
 - 12.6.4 Delete a Group
 - 12.6.5 Disable a Group
 - 12.6.6 Enable a Group
 - 12.6.7 Coalesce a Group

13.0 Snapshots

- 13.1 Snapshots Page
- 13.2 Snapshots Menu
 - 13.2.1 Project: Load Snapshot
 - 13.2.2 Project: New Snapshot
 - 13.2.3 Project: Delete Snapshot
 - 13.2.4 Project: Export Snapshot
 - 13.2.5 Project: Import Snapshot
 - 13.2.6 VSS File: Load Snapshot
 - 13.2.7 VSS File: New Snapshot
- 13.3 Default Positions
 - 13.3.1 Saving Default Positions
 - 13.3.2 Reloading Default Positions
- 13.4 Snapshot Procedures
 - 13.4.1 Create a New Snapshot (Project)
 - 13.4.2 Load an Existing Snapshot (Project)
 - 13.4.3 Delete a Snapshot (Project)
 - 13.4.4 Export a Snapshot (Project)
 - 13.4.5 Import a Snapshot (Project)
 - 13.4.6 Load a Snapshot (VSS File)
 - 13.4.7 Create a New Snapshot (VSS File)

14.0 DAW Control

- 14.1 DAW Configuration
- 14.2 DAW Enable
- 14.3 DAW Controls
- 14.4 Shift Channels
- 14.5 DAW Control Applications
- 14.6 DAW Control Procedures
 - 14.6.1 Using the console control surface to control a DAW

15.0 Ancillary Fader Functions

- 15.1 Position Faders
- 15.2 Demo Functions

16.0 System Configuration, Calibration, and Firmware

- 16.1 Automation Interfacing
 - 16.1.1 Timecode Interfacing
 - 16.1.1.1 LTC Timecode
 - 16.1.1.2 MIDI Timecode
 - 16.1.2 MIDI Interfacing
 - 16.1.3 Expander Interfacing
- 16.2 System Menu
 - 16.2.1 Software Versions
 - 16.2.2 Load Firmware
 - 16.2.2.1 FCM Firmware Programming
 - 16.2.3 Set Clock
 - 16.2.4 Calibrate Faders
 - 16.2.5 DAW Configuration
 - 16.2.6 General Configuration
- 16.3 Setup Procedures
 - 16.3.1 Format a Memory Card
 - 16.3.2 Firmware Updates
 - 16.3.2.1 View Currently Loaded Software
 - 16.3.2.2 Enable FCM Programming
 - 16.3.2.3 Load/Update Firmware
 - 16.3.3 General Configuration
 - 16.3.3.1 Number of Channels
 - 16.3.3.2 Timecode Source
 - 16.3.3.3 Freewheel Frames
 - 16.3.3.4 Default Timecode Frame Rate
 - 16.3.4 Set Date and Time
 - 16.3.5 Fader Calibration
- 16.4 Emergency Recovery

17.0 Software Revision Notes

- Version 0.39
- Version 0.40

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1.0 Overview

Leveraging our prior experience with console automation in combination with extensive customer input, API has developed a proprietary, easy-to-use Automation Package for the 1608 console and 1608EX 16-channel expander.

1.1 Introduction and Features

The 1608 Automation Package is a fully integrated, self-contained, and comprehensive moving fader, mute, and insert automation system with DAW control and snapshot capabilities. We've designed the system to enhance the operation of the console and allow for an entirely new range of mixing capabilities, while making sure the system was simple and easy to use.

The 1608 Automation Package contains features and operational control previously unheard-of in a small console of this type. The following operational functions are included:

- Automation: Moving fader, mute, and insert automation
- Groups: Fader, mute, and insert groups
- Snapshots: Capture, store, and load static "snapshots" of faders, mutes, and inserts
- DAW Control Surface: HUI DAW control
- File Management: Projects, snapshots, and mixes

Automation features include:

- Full automation of all Channel faders, Program Masters, and Group Masters
- Full-sized 100mm faders
- Channel mute automation
- Channel insert automation
- Unlimited groups with two dedicated Group Masters
- Unlimited mix restore points
- Time saving automation sub-modes
- Copy and swap mix data functions
- Clear mix data functions
- Off-line fader data trim
- Synchronization with SMPTE Timecode (LTC) or MIDI Timecode (MTC)

DAW Control features include:

- Fader control
- Mute, Solo, Select, and Record Ready control
- "Channel Shifting" for flexible channel assignment
- HUI control over MIDI
- Unity gain audio bypass in DAW control mode

Additional features include:

- Intuitive hardware and software interface ("We work the way you work!")
- Self-contained system with no external computer required
- Intuitive and user-friendly software and hardware interfaces
- Save files to standard memory cards
- Easy portability with room for hundreds of mixes
- Easily retrofits to existing 1608 consoles
- Expandable to 48 channels

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2.0 Automation System Components

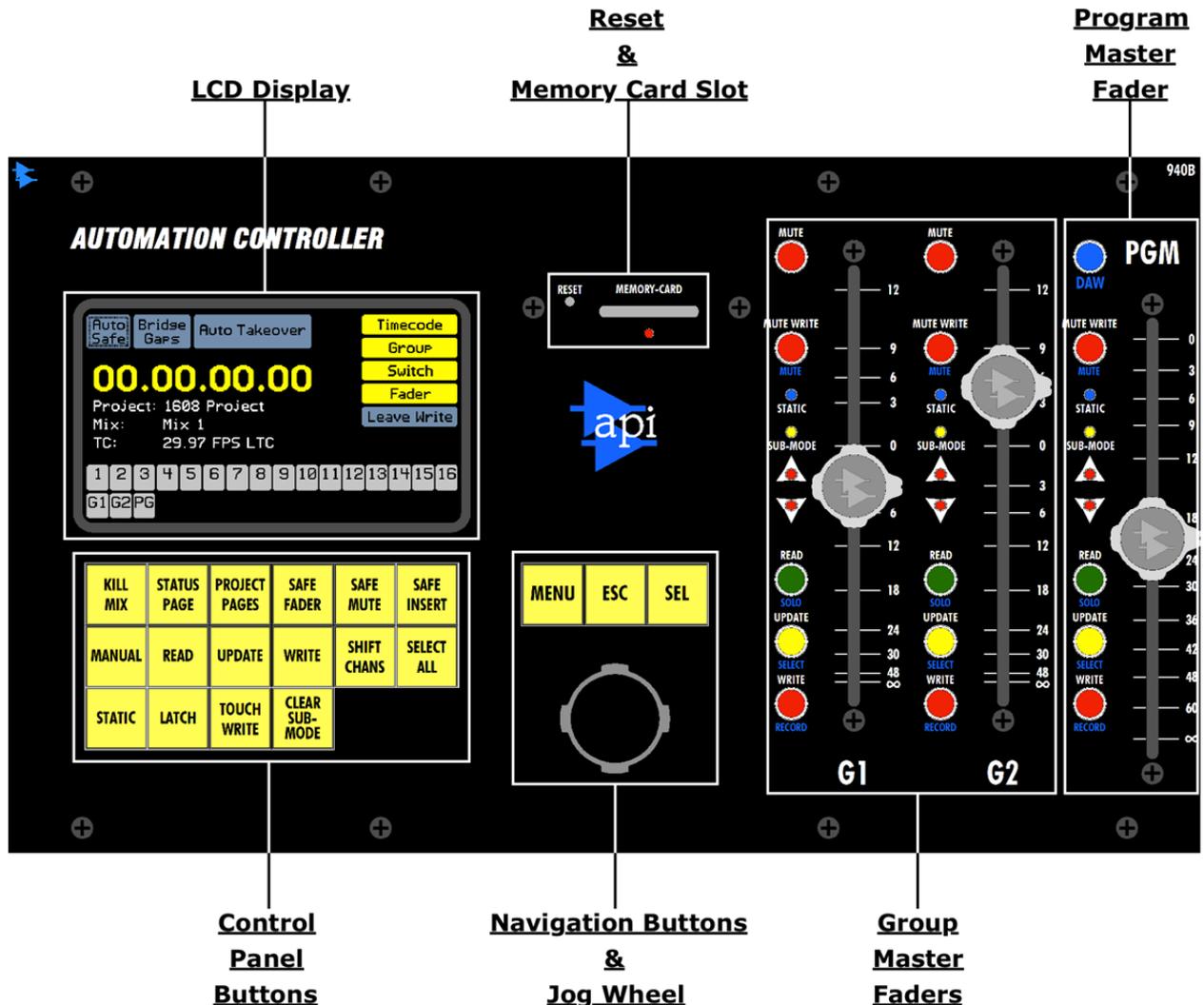
The 1608 Automation Package is made up of a series of components that work together to form an integrated system. The following components make up the Automation Package:

- [940B Automation Controller](#)
- [948B Fader Modules](#)
- [548B Input Modules](#)
- [Rear Panel Interface](#)
- [Automation Power Supply](#)

2.1 940B Automation Controller (ACM)

The 940B Automation Controller (also known as the Automation Control Module or ACM) is the central component in the 1608 Automation Package. It is the primary user interface and handles all global automation operations. The Automation Controller is responsible for all real time automation features and holds the most recent mix pass (current mix) in its RAM memory. The Automation Controller contains the following components:

- [On-Board Computer](#): Stand-alone and fully integrated dedicated computer
- [LCD Display](#): 2¼" X 3¾" Color LCD display
- [Control Panel Buttons](#): Navigation, mode, safe, and control buttons
- [Navigation Buttons](#): Control buttons for computer navigation and control
- [Jog Wheel](#): Selection tool within software windows and entry fields
- [Memory-Card Slot](#): Card slot with LED activity indicator
- [Reset Button](#): Recessed system reboot button
- [Group Master Faders \(G1 & G2\)](#): Two (2) dedicated Group Master Faders
- [Program Master Fader \(PGM\)](#): Stereo Program Master Fader



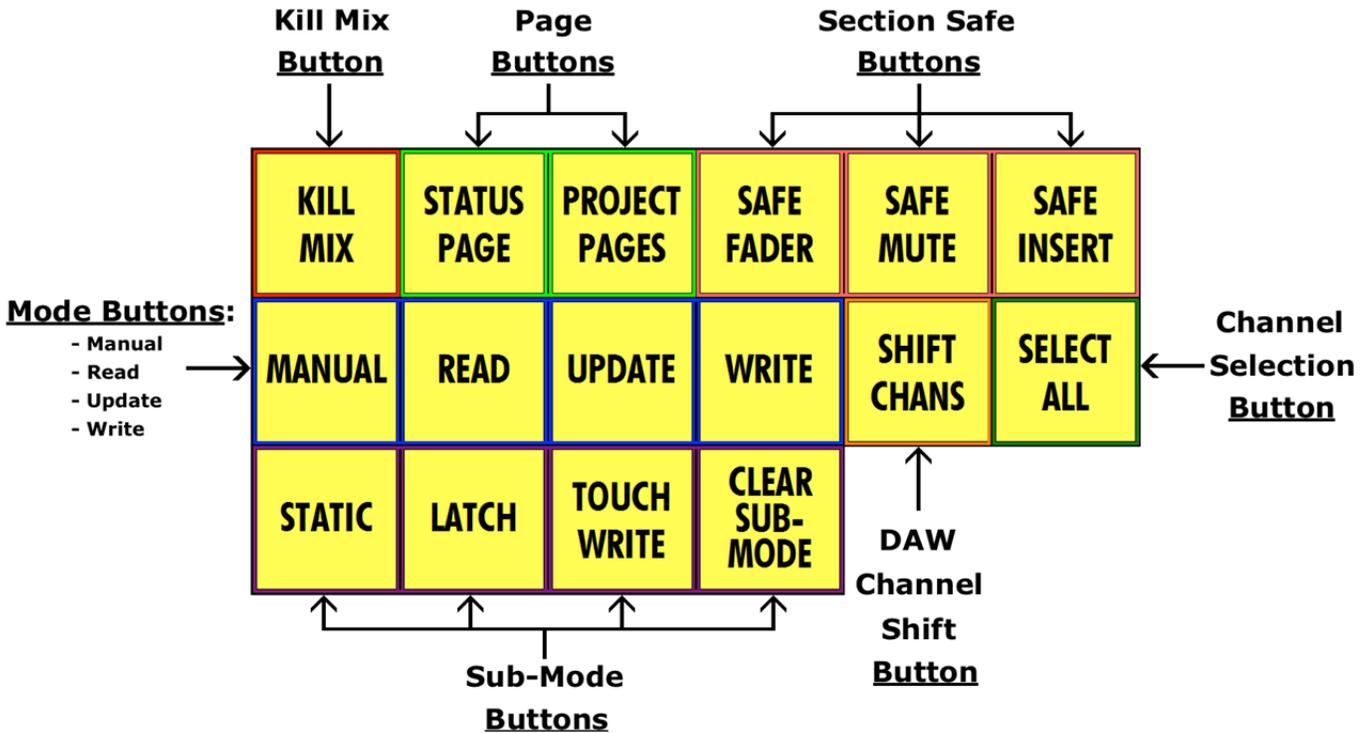
The image on the previous page illustrates the location of each control grouping of the Automation Controller. Each of these components will be explained in detail in the following sections of this manual.

2.1.1 LCD Display

The Automation Controller is equipped with a color 2¼" X 3¾" LCD Display. Together with the lights on the 948B Fader Modules, the LCD Display provides the primary visual interface with the system. It displays the status and project software pages, menus, and allows user interaction using the navigation buttons and jog wheel.

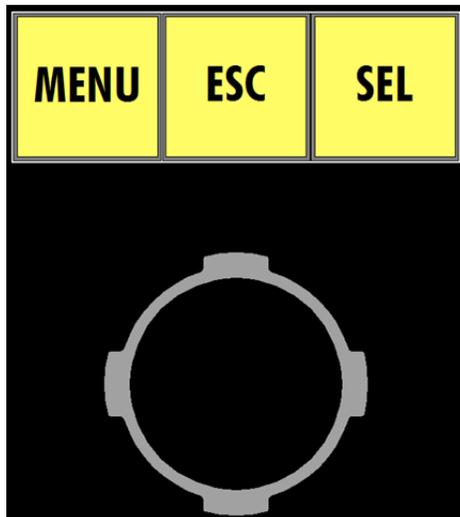
2.1.2 Control Panel Buttons

The Automation Controller contains a series of buttons that are used to operate the system. These buttons are organized as indicted in the image below.



Each of these buttons will be explained in detail in subsequent sections of this manual.

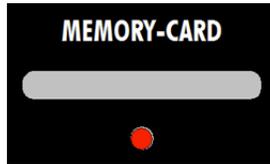
2.1.3 Navigation Buttons and Jog-wheel



The Automation Controller includes three "navigation" buttons and a "jog-wheel" that are used to operate the automation computer. These controls are used in conjunction with the STATUS PAGE, PROJECT PAGES, and SELECT ALL buttons to select pages and menus, select options, and enter information.

Use of these controls will be explained in detail in subsequent sections 3.3 Software Navigation.

2.1.4 Memory Card Slot



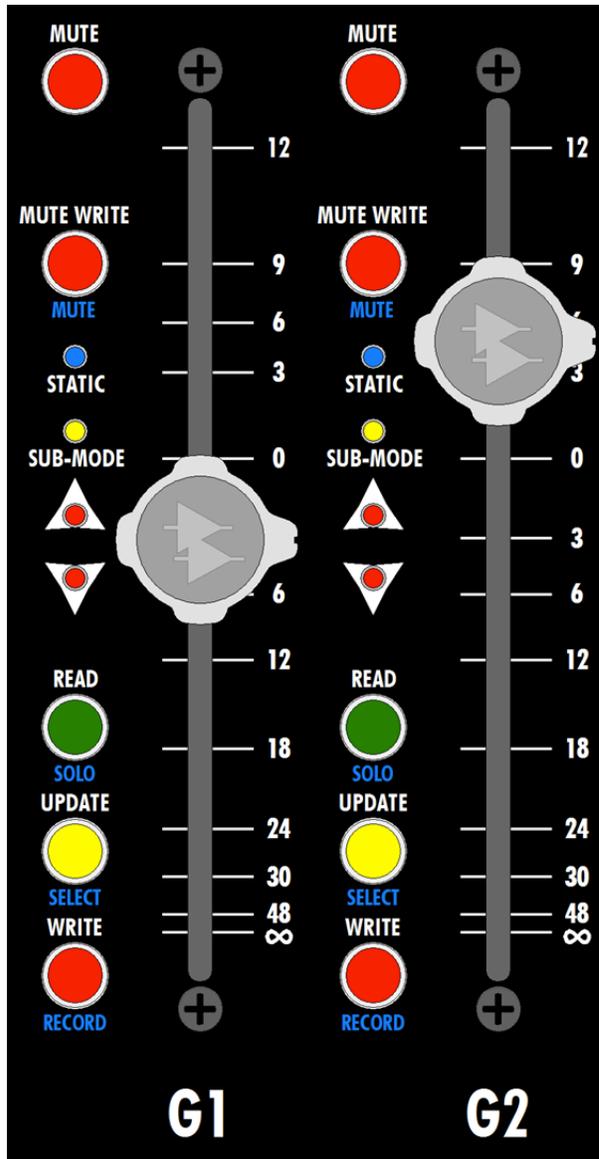
The 1608 Automation Package employs standard, commonly available memory cards for the storage of projects and their associated files. The slot for the "MEMORY-CARD" and a LED that shows when it is being accessed is included on the Automation Controller. File storage and the MEMORY CARD will be explained in detail in subsequent sections of this manual.

2.1.5 Reset Button



A recessed "RESET" button is included on the Automation Controller (next to the MEMORY-CARD slot). Pressing this button will immediately reboot the automation system.

2.1.6 Group Master Faders



Two (2) dedicated and fully automated Group Master Faders (G1 & G2) are included on the Automation Controller. These faders provide additional master faders when creating groups.

The Group Master Faders do not carry audio and are control faders only.

The Group Master Faders (G1 & G2) each have the following features:

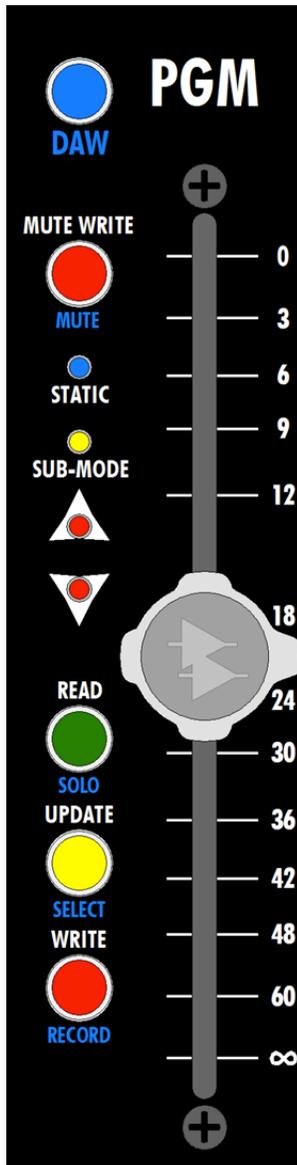
- Faders: 100mm, touch sensitive fader with classic API control cap
- Automation Controls: Buttons and indicators for automation control

The Group Master Faders will be explained in detail in section 12.0 Groups.



The Group Master Faders include a MUTE button that is used to control the mutes of group members.

2.1.7 Program Master Fader



The Automation Controller includes the Program Master Fader (PGM) for the console. This dedicated and fully automated master fader controls the level of the program (mix) output.

The Program Master Fader (PGM) has the following features:

- Faders: 100mm, touch sensitive fader with classic API control cap
- Automation Controls: Buttons and indicators for automation control

If automation has been added to a non-automated 1608, the Program Master Fader on the Automation Controller will replace the originally installed 440B Program Master Fader.

The DAW button activates the DAW workspace control for the Group Master and Program Master faders.

The Program Master Fader will be explained in detail in subsequent sections of this manual.

2.1.8 DAW Workspace Enable Button



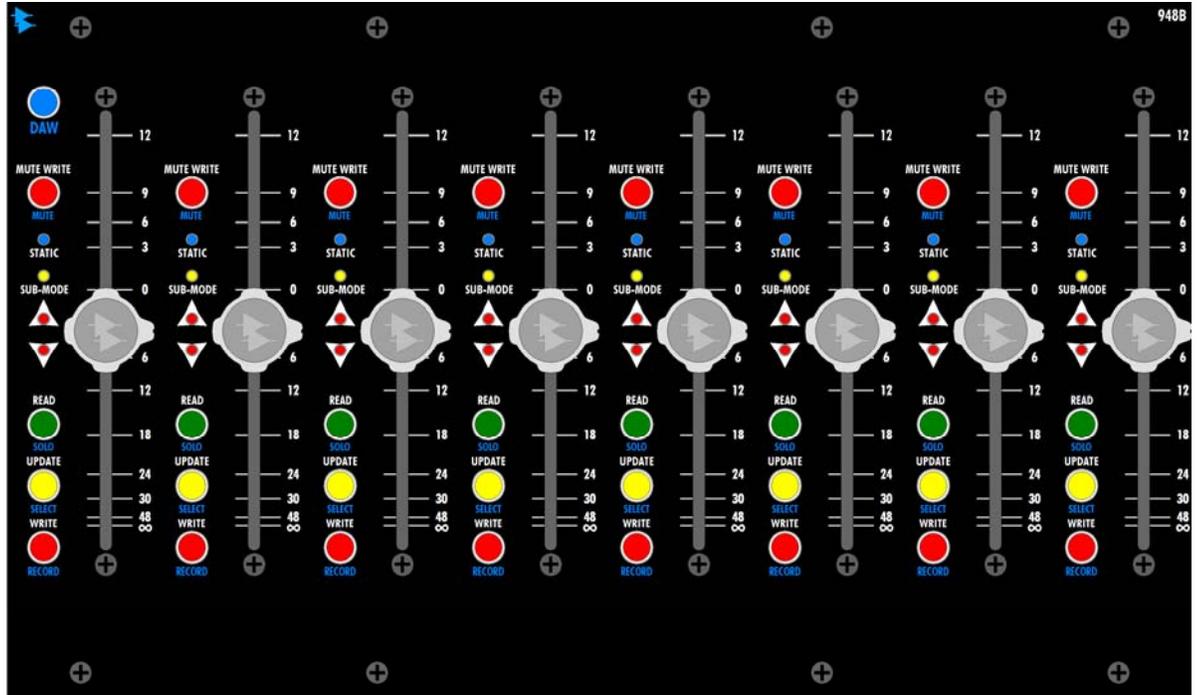
The "DAW" button included on the Automation Controller (above the Program Master Fader) activates DAW control for the Group Master Faders and Program Master Fader.

DAW control will be explained in detail in section 14.0 DAW Control.

2.2 948B Fader Modules

The 1608 Automation Package includes a 948B Fader Module (also known as Fader Control Module or FCM) for every eight (8) Input Channels installed in the console and expander. Each 8-channel Fader Module has the following features:

- Faders: Eight (8) 100mm, touch sensitive faders with classic API control cap
- Automation Controls: Buttons and indicators for automation control for each fader
- DAW Mode Button: Activates the DAW workspace for that 8-channel module



Fader modules are controlled by the Automation Controller. If a fader module fails, most parts of the fader and input modules under its control will stop working. However, the audio paths will continue to operate. No mix data is stored in the FCM, so a FCM failure will not cause any loss of data.

If automation has been added to a non-automated 1608, the 948B Fader Modules will replace the originally installed 448B Fader Pack.

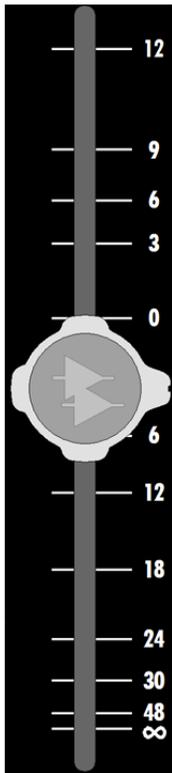
The 948B Fader Module and its controls will be explained in detail in subsequent sections of this manual.

2.3 Fader Automation & DAW Controls

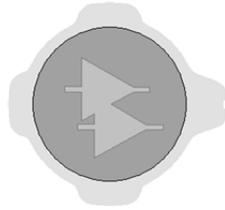
In addition to being a primary gain control, all faders (Channel, Group Master, and Program Master) have a collection of automation controls. These controls include:

- Fader: Level control
- Fader Cap: Control of touch-sensitive automation features
- Mode Selectors: READ, UPDATE, WRITE, MUTE WRITE
- Sub-mode Indicators: STATIC and SUB-MODE
- DAW Controls: MUTE, SOLO, SELECT, & RECORD
- Null Indicators: Up and down arrows

The four automation mode buttons are dual function buttons and perform different operations depending if the DAW control is enabled or not. In normal operation the READ, UPDATE, WRITE, MUTE WRITE buttons change the automation mode of the fader. When DAW control is enabled, these buttons change function and become MUTE, SOLO, SELECT, & RECORD controls for the assigned DAW tracks. The automation modes are labeled with **white** letters and the DAW controls are labeled with **blue** letters.



Fader: Primary level control for the audio path



Fader Cap: Every fader cap is touch-sensitive and can serve as a trigger for various automation functions (such as switching from playback to record in Update mode).



Fader NULL Indicators: Up and down indicators that show the offset between the written automation data and the physical fader position.

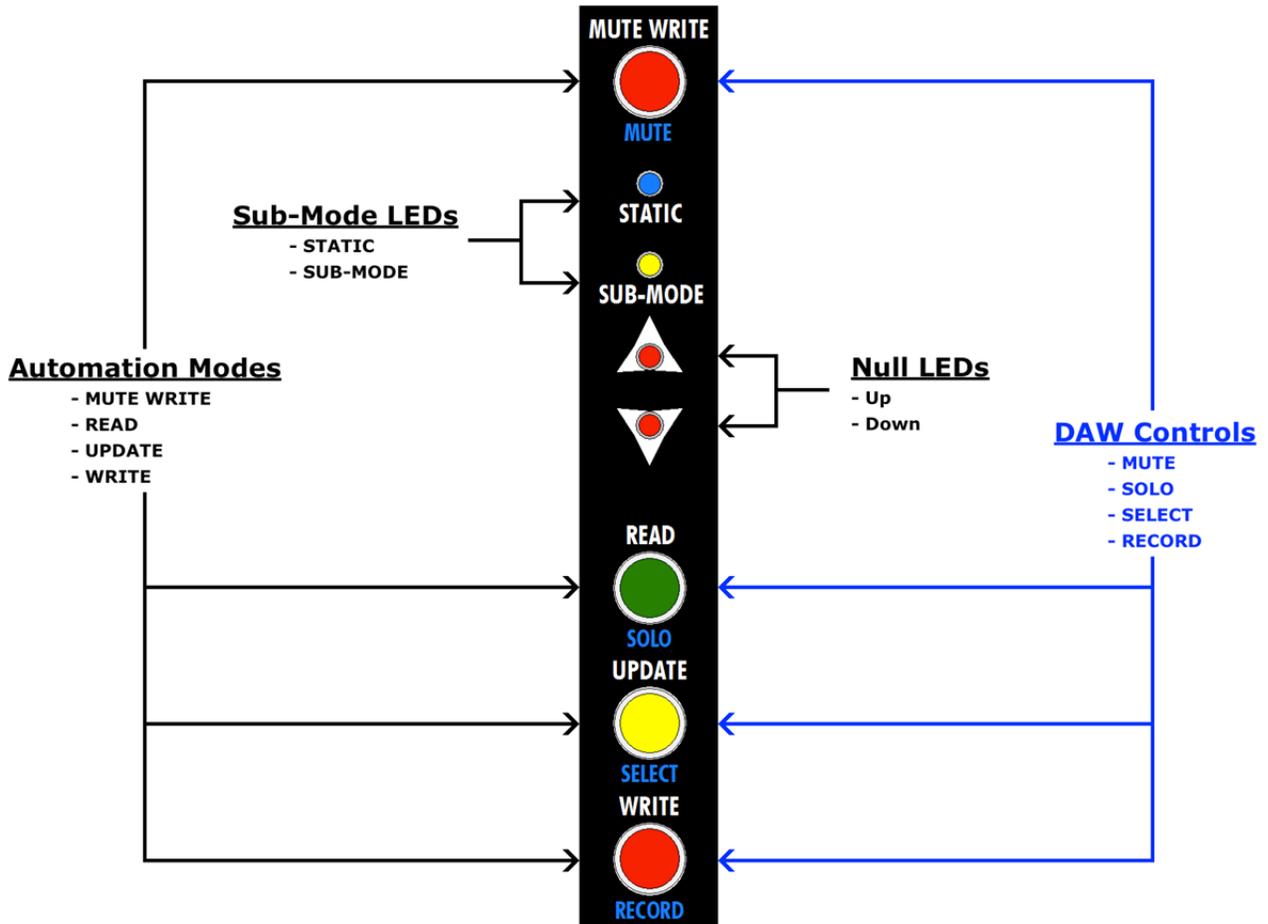


Indicates the fader is below the written data...move the fader "up" to match positions



Indicates the fader is above the written data...move the fader "down" to match positions

The image below illustrates the location of each automation/DAW control and indicator. Each of these components will be explained in detail in subsequent sections of this manual.



The automation and DAW controls included on each fader will be explained in detail in subsequent sections of this manual.

2.4 548B Input Modules



The automated channel MUTE and INSERT are part of the 548B Input Module. These controls are part of the stock 1608 channel strip, but are connected to the automation system via the Fader Control Module.

If automation has been added to a non-automated 1608, connections to the 548B will be made.



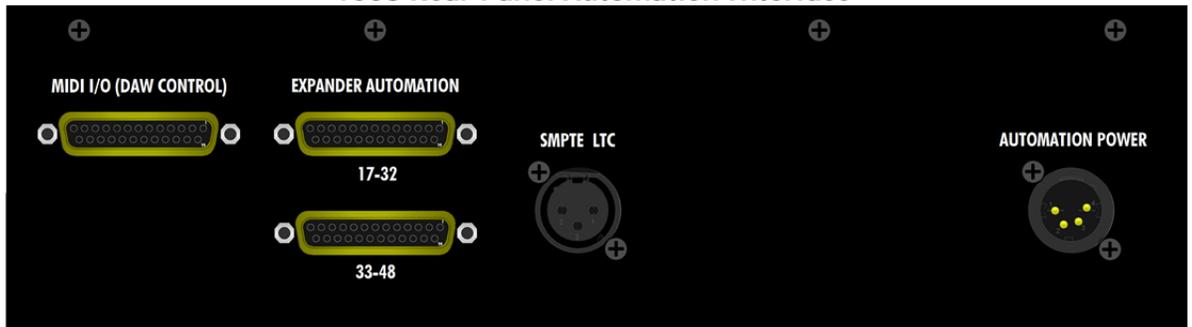
Automating the channel MUTE and INSERT will be explained in detail in subsequent sections of this manual.

2.5 Rear Panel Interface

The rear panel of the 1608 supports the interfacing of the Automation Package with a DAW, multitrack tape machine, video, or any other time code source. The rear panel also provides automation connections for interfacing a 1608EX Expander console and the Automation Power Supply. The automation connections on a 1608 console are as follows:

- MIDI I/O (DAW CONTROL): 5 In and 5 Out MIDI ports on a female 25-pin D-sub connector (MIDI Out 5 is not currently used)
- EXPANDER AUTOMATION 17-32: Automation data interface for 1608EX Expander, channels 17-32 on a female 25-pin D-sub connector
- EXPANDER AUTOMATION 33-48: Automation data interface for 1608EX Expander, channels 33-48 on a female 25-pin D-sub connector
- SMPTE LTC: Balanced, line-level input for SMPTE Longitudinal Time Code (LTC) on a female 3-pin XLR connector
- AUTOMATION POWER: Connection to the Automation Power Supply on a male 4-pin XLR connector

1608 Rear Panel Automation Interface



The automation connections on a 1608EX Expander console are as follows:

- EXPANDER AUTOMATION 17-32: Automation data interface for 1608EX Expander, channels 17-32
- AUTOMATION POWER: Connection to the Automation Power Supply

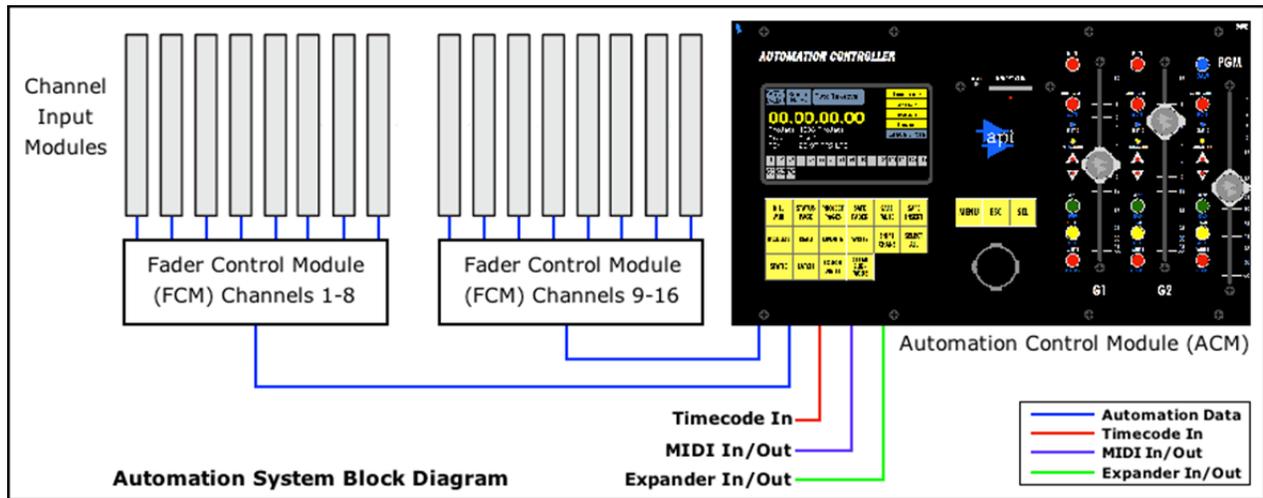
1608EX Expander Rear Panel Automation Interface



2.6 System Architecture

The hardware and processing for the automation package is distributed among four subsystems:

- 940B Automation Controller (ACM): System computer and primary control panel
- 948B Fader Control Module (FCM): 8-channel fader control module, fader, and mute
- 548B Input Module: Channel input module (automated insert)
- Rear Panel: Interface with DAW, Timecode, Automation Power Supply, and Expander(s)



3.0 Software Overview

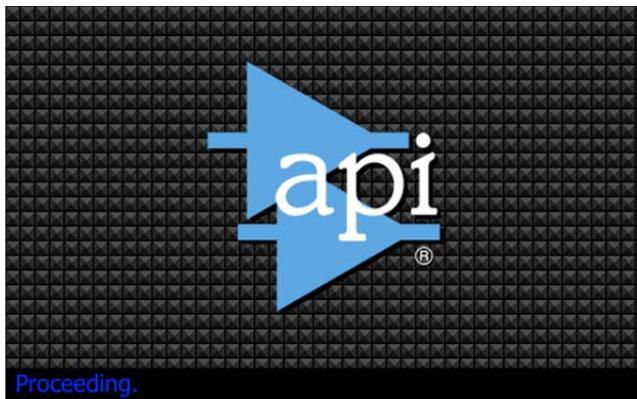
3.1 Starting the Automation Package

The Automation Package will boot up when the Automation Power Supply is switched on.



After initialization screen the “emergency recovery” screen will appear for a brief period and the KILL MIX button will start flashing.

Pressing the KILL MIX button while it’s flashing and this screen is displayed, will cause the system to reload the firmware file stored on the Memory card. For details regarding emergency recovery, See section 16.3 Emergency Recovery.



After the “emergency recovery” screen times out, the KILL MIX button will stop flashing and system will load the software stored in the Automation Controller firmware. The loading and startup process is indicated by the “Proceeding.” prompt.



Once the firmware is loaded the default Status page will be displayed and the system is ready to create a new Project file or load and existing one.

A Project file must be open in order to create, save, and edit mixes and snapshots.

3.2 Software Organization

The operational aspects of the automation system are organized within four (4) primary software “pages,” each with its own menu. Each page facilitates the operations of the related area of the system. These primary pages and menus are as follows:

- Status Page & Main Menu: System status and global operations
- Mix Tree Page & Mix Menu: Mix pass storage, recall, and editing
- Groups Page & Groups Menu: Group creation and editing
- Snapshots Page & Snapshots Menu: Snapshot creation, recall, and editing

Many menu items open dialog boxes that contain the parameters, selection fields, and entry fields related to that function.

3.3 Software Navigation

To facilitate navigation of software pages, menus, and dialogs the Automation Controller employs a jog-wheel and button system. This easy to use system eliminates the need for an external keyboard and mouse, but does require knowledge of how the system works. This section will explain how to navigate the 1608 automation software.

3.3.1 Page and Navigation Buttons

There are several buttons associated with the navigation of the automation software. These buttons fall into one of two categories: "page" buttons and "navigation" buttons.

The two page buttons open the four primary software windows. The functions of the page buttons are outlined as follows:



STATUS PAGE: Pressing this button opens the Status Page.

- Provides access to the Main Menu
- Illuminates when the Status Page is open

IMPORTANT NOTE: Pressing the STATUS PAGE button will immediately close any open page, menu, or dialog box and open the Status Page. In addition to its normal function, this serves as a "panic button" that will return the user to Status Page no matter what.



PROJECT PAGES: Pressing this button will cycle through the Project Pages

- The first press of this button opens the Mix Tree
- A second press of this button will open the Groups page
- A third press will open the Snapshots page
- Subsequent presses will start the cycle over
- Each page provides access to the its related menu
- Illuminates when a Project Page is open

IMPORTANT NOTE: Pressing the PROJECT PAGES button will immediately close any open page, menu, or dialog box and open the Mix Tree Page. In addition to its normal function, this serves as a "panic button" that will return the user to Mix Tree Page no matter what.

The three navigation buttons are used to move within the software pages. The functions of the navigation buttons are outlined as follows:



MENU: Pressing this button opens the menu for the current page.

- Pressing this button will close an open menu
- The MENU button works as a "back-space" key in text-entry fields
- Illuminates when a menu is open



ESC (Escape): Pressing this button will exit from the current menu, list, pull-down menu, or text-entry field.

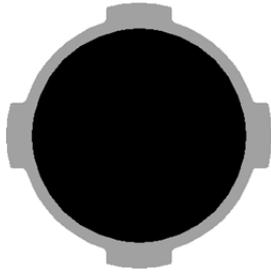
- Pressing this button will close an open menu
- Pressing this button will *not* exit a dialog box. Only selecting CANCEL or OK will exit a dialog box.



SEL (Select): Pressing this button will select the highlighted item on a page, in menu, dialog box, list, or text-entry field.

- Pressing this button is equivalent to a mouse click on the highlighted item

3.3.2 Jog-Wheel



Jog-Wheel: The Jog-Wheel is used highlight items within a page, menu, dialog box, or list.

- Rotating the Jog-Wheel clockwise or counter-clockwise will move the "highlight cursor" from item to item in consecutive order.
- The Jog-Wheel is used to move the cursor and select text characters in a text-entry field.
- When the Jog-Wheel is being turned slowly, the "highlight cursor" will move one position for each click of the wheel. When the Jog-Wheel is being turned rapidly, however, the cursor will move much faster, allowing the user to scroll through long lists quickly.

3.3.3 Navigation Procedures

Page Navigation: Use the following procedures to navigate software pages:

1. Open the page with the operations to be performed using the STATUS PAGE or PROJECT PAGES buttons.
2. Use the Jog-Wheel to highlight the needed item within the page.
3. Press the SEL (Select) button to select or activate the highlighted item

Menu Navigation: Use the following procedures to navigate software menus:

1. Open the page with the needed menu.
2. Press the MENU button to open the menu for that page.
3. Use the Jog-Wheel to scroll through the list of menu items and highlight the needed item.
4. Press the SEL (Select) button to select the highlighted menu item.
5. To close a menu, press MENU or ESC (Escape).

NOTE: A Project must be open for the Mix Tree Menu and Snapshots Menu and their associated dialog boxes to be available.

Dialog Box Navigation: Use the following procedures to navigate software dialog boxes:

1. Open the page with the needed menu.
2. Press the MENU button to open the menu for that page.
3. Use the Jog-Wheel to highlight the needed menu item.
4. Press the SEL (Select) button to select the highlighted menu item and open its dialog box.
5. Use the Jog-Wheel to highlight the needed item in the dialog box.
6. Press the SEL (Select) button to:
 - Select an item
 - Put a check in a check box
 - Activate a list or pull-down menu
 - Activate the cursor in a text-entry field (see section 3.3.4 Text Entry)

7. For lists and pull-down menus, use the following procedure
 - i. Use the Jog-Wheel to highlight the list or pull-down menu and press SEL (Select) to activate it. The Jog-Wheel will now scroll and highlight within the available options.
 - ii. Use the Jog-Wheel to highlight the needed item within the list or pull-down menu.
 - iii. Press the SEL (Select) button to select the highlighted item.
 - iv. Press ESC (Escape) to exit a list or pull-down menu.
8. To close a dialog box highlight either "Ok" or "Cancel" and press SEL (Select):
 - OK: Selecting "Ok" will apply the changes made within the dialog box and then close the box.
 - Cancel: Selecting "Cancel" will close the dialog box without applying any changes made within it.

NOTE: Pressing ESC (Escape) will not close a dialog box. Only highlighting "Cancel" or "Ok" and pressing SEL (Select) will close a dialog box.

3.3.4 Text Entry

Text is used to name Projects (Title and File Name), Mixes, Groups, and Snapshots. Accordingly, text can only be entered in the text-entry fields in dialog boxes.

Since the Automation Controller does not have a keyboard, text is entered using the Jog-Wheel and navigation buttons.

The following steps will outline the procedures needed to enter a name or label in a text-entry field:

1. Navigate to the page, menu and dialog box with an operation that contains text-entry fields. Entering a Title in the "New Project" dialog box will be used for this example.

The New Project dialog box to the left was opened by selecting "New Project" from the Main Menu from the Status Page.

The New Project default text is shown in the "Title" and "Filename" text-entry fields.

2. Use the Jog-Wheel to highlight the desired text-entry field and press the SEL (Select) button. A flashing cursor will appear at the beginning of the text-entry field.

Text can be entered at this point, but it might be desirable to start with a blank text-entry field.

3. Rotate the Jog-Wheel clockwise to move the cursor to the end of the existing text.

4. Press the MENU button repeatedly to "back-space" through the existing text, deleting the last character with each press.



5. Press the SEL (Select) button to open the character selection tool. A blinking letter "A" will appear in the text-entry field.



6. Rotate the Jog-Wheel to scroll through the available characters to arrive at the needed character.



7. Press SEL (Select) to accept the character shown. The selected character will be entered and the text-entry field will be ready for the next character.



8. Press SEL (Select) again to reopen the character selection tool to enter the next character.



9. Select the next needed character and press SEL (Select)



10. Repeat steps 1-9 until the complete text has been entered.



11. Press ESC (Escape) to exit the cursor.



12. Press ESC (Escape) to exit the text-entry field. The Jog-Wheel will return to highlighting the different items within the dialog box.

When the text selection tool is open, the characters will appear in this order when the Jog-Wheel is rotated:

Clockwise:

Upper-case Letters
Lower-case Letters
Numbers
Punctuation & Symbols
Blank Space

Counter-Clockwise:

Blank Space
Punctuation & Symbols
Numbers
Lower-case Letters
Upper-case Letters

NOTE: Only upper-case letters and numbers can be entered in the "Filename" text-entry field in the New Project dialog box.

3.3.5 Screen Capture

At any time, the image of currently displayed page, menu, or dialog box can be captured as a bitmap (.BMP) file.

Pressing KILL MIX and STATIC simultaneously will capture the currently displayed image.



The image will be stored as a .BMP file in the SCRNSHOT folder on the memory card.

3.4 Status Page and Main Menu

Along with the fader modules and channel strips, the Status Page and Main Menu are the primary means for performing automation operations. The Status Page is the default page that opens after the software has started.

3.4.1 Status Page Button



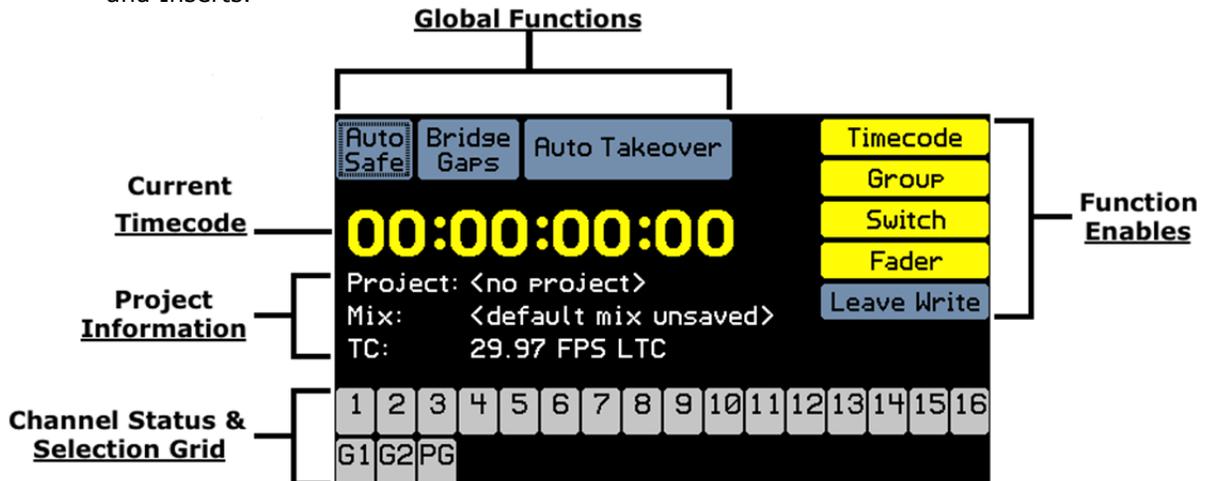
STATUS PAGE: Pressing this button opens the Status Page.

- Provides access to the Main Menu
- Illuminates when the Status Page is open

IMPORTANT NOTE: Pressing the STATUS PAGE button will immediately close any open page, menu, or dialog box and open the Status Page. In addition to its normal function, this serves as a "panic button" that will return the user to Status Page no matter what.

3.4.2 Status Page

The Status Page is the primary software interface for automation operation. It provides the information and controls needed for easy and efficient automation of channel Faders, Mutes, and Inserts.

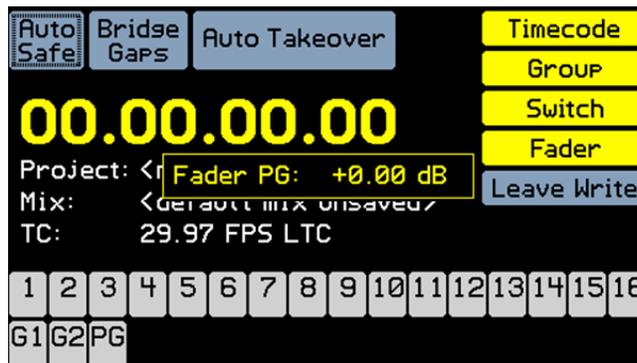


The Status Page provides information and operational functions as follows:

- Current Time Code: Current or last time code location
- Project Information:
 - Project: Name of currently loaded project file
 - Mix: Name of currently loaded mix (current mix)
 - TC: Time Code information:
 - Frame rate for the current project in Frames-Per-Second (FPS)
 - Time code source (LTC = SMPTE time code, MTC: MIDI time code)

- Channel Status and Selection Grid:
 - Indicates the current automation mode and sub-mode for each fader
 - Works with the navigation tools to allow selection of channels to which modes and sub-modes will be assigned
- Global Automation Functions:
 - Auto Safe: Sets all channels in WRITE to UPDATE when timecode is stopped.
 - Bridge Gaps: Applies automation data over a span of time code addresses
 - Auto Takeover: Automatic change of automation mode at a user defined time code address
- Function Enables:
 - Timecode: Enables the Automation Controller to chase Timecode
 - Group: Enables Group functions through automation
 - Switch: Enables automation control of mutes and inserts
 - Fader: Enables automation control of faders
 - Leave Write: Enables the position-data matching mode

When a fader is touched, its level is displayed on the Status Page.



The fader level display indicates the fader being touched and its level in decibels.

The display above shows that the Program Master Fader is set to 0.00dB (unity gain).

The various areas of the Status Page will be explained in detail in the following sections of this manual.

3.4.3 Select All Button

The SELECT ALL button is used to select or deselect all channels when selecting channels in the Status Page channel grid. This feature is useful when applying automation modes and sub-modes on a console wide basis. Similarly, all channels can be deselected so individual channels can be selected.

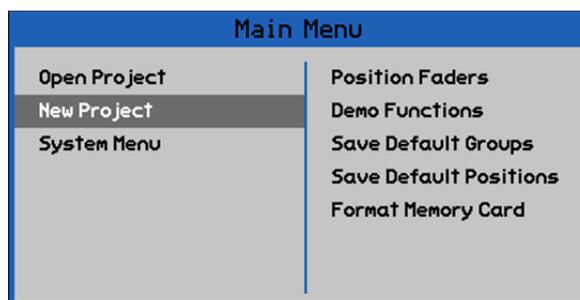


SELECT ALL: Pressing this button will select all channels in the channel grid on the Status Page.

- If all channels are already selected, pressing SELECT ALL will deselect all channels
- This button only applies to the channel grid on the Status Page

Channel selection from the Status Page is covered in detail in section 6.5.1 Status Page Mode Assignment.

3.4.4 Main Menu



To open the Main Menu, open the Status Page and press the MENU button.

Use the Jog-Wheel to highlight the needed menu item.

Press SEL (Select) to open the dialog box for that item.

The Main Menu facilitates the following operations:

- File Management: Creation, storage, and recall of Project files
 - Open Project: Opens existing Projects
 - New Project: Creates a new Project
 - Format Memory Card: Formats storage media for use
- System Setup: System configuration, calibration, and firmware updates
 - System Menu: System configurations, fader calibration, and firmware
- Fader Operations:
 - Position Faders: Set faders to a defined decibel level
 - Demo Functions: Operation of the three fader demonstrations
- Mix Setup: System configuration, calibration, and firmware updates
 - Save Default Groups: Default Groups stored in the ACM memory
 - Save Default Positions: A default Snapshot of Fader, Mute, and Insert positions stored in the ACM memory

These areas will be explained in detail in the following sections of this manual.

3.5 Project Pages and Menus

The three (3) "Project Pages" and their associated menus facilitate the three primary automation system functions:

- Mix Tree: Management and editing of automation mix passes
- Groups: Management and editing of Fader, Mute, and Insert Groups
- Snapshots: Management and editing of Fader, Mute, and Insert Snapshots

3.5.1 Project Pages Button



PROJECT PAGES: Pressing this button will cycle through the Project Pages starting with the Mix Tree Page.

- Subsequent presses will open the Groups Page, Snapshots Page, and back to the Mix Tree Page
- Each page provides access to the its related menu
- Illuminates when a Project Page is open

IMPORTANT NOTE: Pressing the PROJECT PAGES button will immediately close any open page, menu, or dialog box and open the Mix Tree Page. In addition to its normal function, this serves as a "panic button" that will return the user to Mix Tree Page no matter what.

3.5.2 Mix Tree Page and Menu

Mix Tree Groups Snapshots				
	Name	Size	Grps	Change
▶	Mix 3	0	5	Groups Created
	Mix 2	0	2	Groups Created
	Mix 1	0	0	
Project: 1608 Project Filename: PRJ0001UPJ				

The Mix Tree Page displays the mix passes (mixes) that were created in the current project. This includes the mixes created while mixing and mixes created from performing an edit. Information for each mix is displayed.

Use the Jog-Wheel and SEL (Select) button to select mixes for editing.

Pressing the MENU button will open the Mix Menu for the selected mix.



The Mix Menu facilitates the management and editing of the mix passes in the Mix Tree.

Use the Jog-Wheel and SEL (Select) button to select the needed menu item.

NOTE: A project must be open for the Mix Menu to be available.

The Mix Menu facilitates the following operations:

- **Mix Management:** Apply the selected operation to the mix selected in the Mix Tree
 - **Make Current:** Make the selected mix the current mix
 - **Delete Mix:** Delete the selected mix from the Mix Tree
 - **Export Mix:** Save the selected mix as a mix file
 - **Import Mix:** Add an existing mix file to the Mix Tree
- **Mix Editing:** Apply the selected operation to the mix selected in the Mix Tree
 - **Mix Properties:** Change the mix name, glide rate, and color
 - **Copy/Swap:** Copy or swap automation data between channels
 - **Clear Data:** Clear automation data within a mix
 - **Offline Trim:** Apply a level offset to fader data

The Mix Tree Page and Mix Menu will be explained in detail in section 8.0 Mix Tree Page.

3.5.3 Groups Page and Menu

Mix Tree GROUPS Snapshots				
Name	Type	Null	Mstr	Members
Vocals	Fader	+0.00	16	14-15
Vocals	Mute		16	14-15
Vocals	Insert		16	14-15
Drums	Fader	+0.00	G1	1-6
Drums	Mute		G1	1-6
Project: 1608 Project Mix: Mix 3				

The Groups Page displays the groups that were created in the current project or the groups created without a project open. Information for each group is displayed.

Use the Jog-Wheel and SEL (Select) button to select groups for editing.

Pressing the MENU button will open the Groups Menu.



The Groups Menu facilitates the management and editing of the groups on the Groups Page.

Use the Jog-Wheel and SEL (Select) button to select the needed menu item.

NOTE: Groups can be created and edited without a project being open. However, these groups cannot be saved to a project.

The Groups Menu facilitates the following operations:

- **Group Management:** Apply the selected operation to the group selected on the Groups Page
 - **New Group:** Create a new group
 - **Delete Group:** Delete the selected group from the Groups Page
 - **Disable/Enable:** Disable or enable the selected group

- **Coalesce Groups:** Coalesce the group selected on the Groups Page
 - **Coalesce & Delete:** Writes the relative automation data for all Group Members to a new mix pass and deletes the group
 - **Coalesce & Keep:** Writes the relative automation data for all Group Members to a new mix pass and retains the Group Master and Members, but deletes the Master Fader moves
 - **Coalesce w/ Audio Master:** Writes the relative automation data for all Group Members to a new mix pass and retains the Group Master and Members, but keeps the Master Fader moves
- **Group Editing:** Edit the group selected on the Groups Page
 - **Edit Group:** Make changes to group name, master, members, and controls.

3.5.4 Snapshots Page and Menu

Mix Tree Groups Snapshots	
Name	Channels
Mix Start	1-16, G1-PG
Mix End	1-16, G1-PG
Project: 1608 Project	

The Snapshots Page displays the snapshots that were created in the current project. Information for each snapshot is displayed.

Use the Jog-Wheel and SEL (Select) button to select snapshots for editing.

Pressing the MENU button will open the Snapshots Menu.



The Snapshots Menu facilitates the management of the snapshots on the Snapshots Page.

Use the Jog-Wheel and SEL (Select) button to select the needed menu item.

NOTE: A project must be open for the Snapshots Menu to be available.

The Snapshots Menu facilitates the following operations:

- **Snapshot Management:** Apply the selected operation to the snapshot selected on the Snapshots Page
 - **Load Snapshot:** Load an existing snapshot
 - **New Snapshot:** Create a new snapshot
 - **Delete Snapshot:** Delete the selected snapshot from the Snapshots Page
 - **Export Snapshot:** Save the selected snapshot as a snapshot file
 - **Import Snapshot:** Add an existing Snapshot file to the Snapshot Page

4.0 File Management

The 1608 automation software is designed for easy management of the various files generated by the system during use. The Main Menu, Mix Tree, and Snapshot Page are the primary tools for file management. Projects are stored on commonly available memory cards.

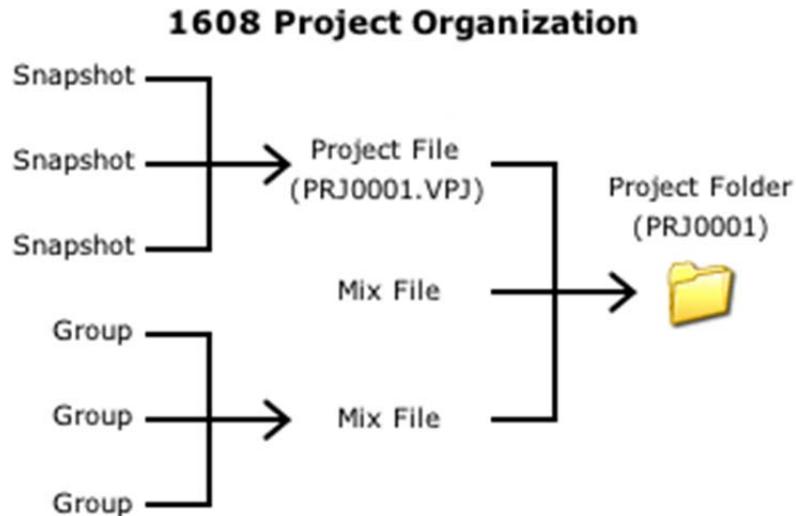
4.1 Project Files

A “project” is intended to support one or more individual audio recordings that are part of a larger work, like a CD or movie. For each individual recording, a collection of mixes, groups, and snapshots are generated and stored within a project. For music recordings, individual songs would be saved as individual projects. For film/video projects, individual scenes could be stored as individual projects. This concept is not enforced, so when working with a concert or other lengthy source material, it might be desirable to mix multiple compositions or scenes as a single project or whatever method is appropriate.

Projects, mixes, groups, and snapshots are organized as follows:

- Groups are created and stored within mixes
- The Mix Tree contains mixes
- Snapshots are created and stored within projects
- The project file contains a Mix Tree and Snapshots

The various components of a project (mixes, groups, and snapshots) are organized as illustrated in the diagram below. Example file and folder names are shown in parentheses.



4.2 File Structure

There are several files and folders that support the 1608 automation package:

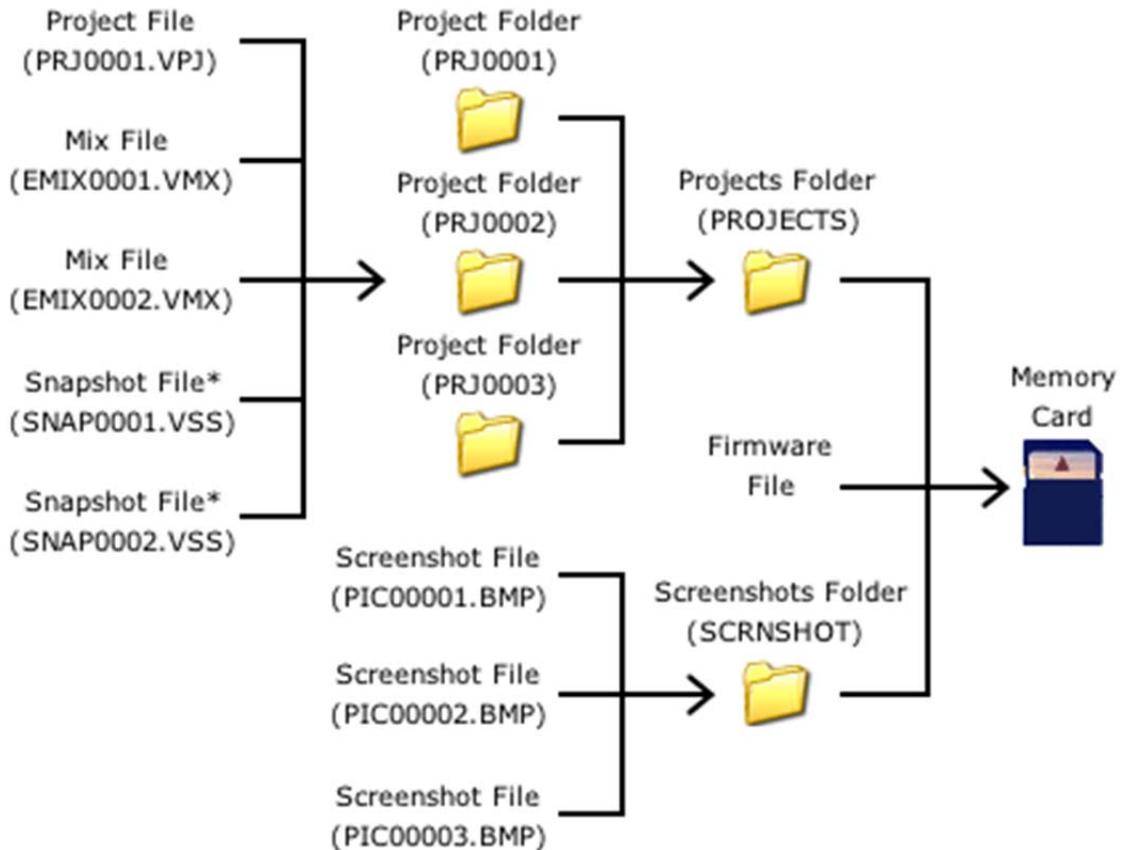
- **Project File (.VPJ):** The primary software file that is generated by the system for each recording. It contains the Mix Tree (mixes), Groups, and Snapshots that are associated with the recording.
- **Mix Files (.VMX):** Mix files are the data files that are created and used by the automation package. Every time a new mix is generated by the system, a new mix file is created. Mix files are stored in the open project's folder and are displayed in the Mix Tree. Mix files can be exported and imported for use with other projects. Groups are stored as part of the mix files.
- **Snapshot Files (.VSS):** Snapshot files store static fader, mute, and insert positions, that can be recalled for later use. Snapshot files are stored virtually within the Snapshots Page within the Project file, but actual files are not created unless the export function is used. Snapshot files can be exported and imported for use with other projects.
- **Firmware File (.bin):** The firmware file contains the application programs that the Automation Controller (ACM) and Fader Control Modules (FCM) use for operation. It is stored in the root directory of the memory card.
- **Screenshots (.BMP):** Bitmap screenshot files contain images of the display screen captured by the system.

1608 files and folders are organized as follows:

- The project file contains the Mix Tree and snapshots
- Mix files are generated automatically and stored within the open project folder
- Mixes and snapshots can be exported as separate files and stored anywhere on the memory card*
- The "PROJECTS" folder contains project folders
- The "SCRNSHOT" folder contains screenshot files
- The root directory of the memory card contains the "PROJECTS" folder, "SCRNSHOT" folder, and the firmware file.

The project files and folders are typically organized as illustrated in the diagram below. Example file and folder names are shown in parentheses.

1608 File Directory Structure



* Exported snapshot and mix files can be saved anywhere on the memory card, but project folders are recommended for efficient organization.

When a new project is created, a project folder that contains the project file and the initial mix file is created. Subsequent mix files will be stored in this folder as they are created by the system. Exported mix and snapshot files may be stored in this folder as well.

Individual projects folders are stored in the "PROJECTS" folder by default. This folder is stored in the root directory of the memory card. Backing up the "PROJECTS" folder will backup all the projects within it.

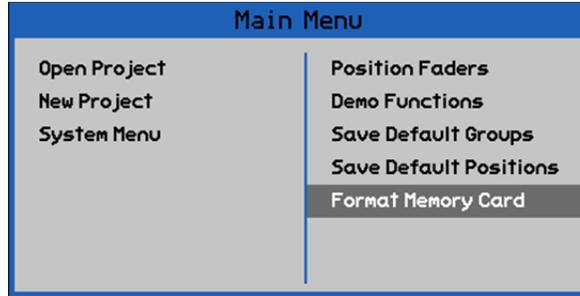
4.3 Memory Card

The Automation Controller uses commonly available memory cards of at least 2 gigabytes in size for file storage.

A 2GB memory card is included with the system. Additional memory cards may be used in with the system.

4.3.1 Format A Memory Card

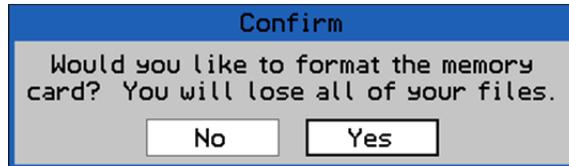
Before a memory card can be used, it must first be formatted.



To format a memory card, insert the card in the MEMORY-CARD slot.

Highlight "Format Memory Card" from the Main Menu from the Status Page and press SEL (Select).

A confirmation dialog box will open.



Highlight "Yes" and press SEL (Select) to proceed to format the memory card.



Since this operation will erase all files on the memory card, a second prompt is provided to make sure you really want to format the memory card. This feature is designed to help prevent accidental erasure.

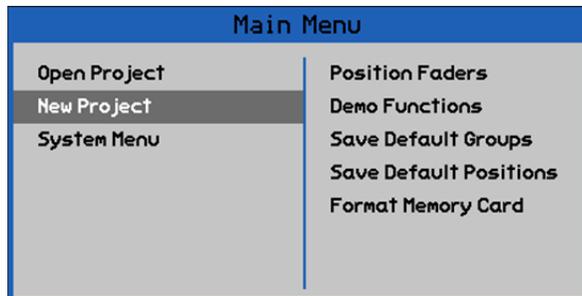
Highlight "Yes" and press SEL (Select) to format the inserted memory card.

Highlight "No" and press SEL (Select) to cancel.

NOTE: The memory card can also be formatted using an external computer and the card reader. Make sure to use the FAT32 format.

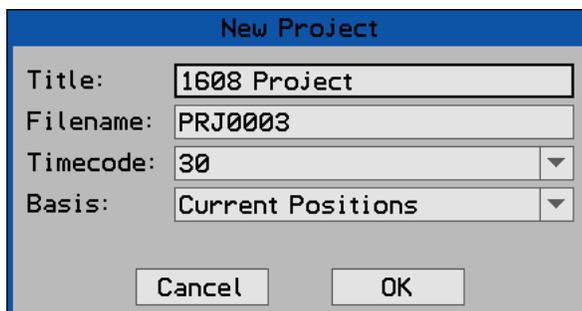
4.4 New Project

For the automation package to be fully functional, a Project file must be open.



To create a new project, highlight "New Project" from the Main Menu from the Status Page.

Press SEL (Select) the "New Project" dialog box.



The New Project dialog box will allow the following selections to be made:

- **Title:** Name of the new project folder
- **Filename:** Name of the new project file
- **Timecode:** Frame rate for the project
- **Basis:** Gives three options for what data to use in the first mix in the Mix Tree of the new project: "Current Positions", "Current Mix", and "Default Positions."

Enter the name of the new project folder in the "Title:" text-entry field.

Title:

Enter the name of the new project file in the "Filename:" text-entry field.

Filename:

Select a frame rate from the "Timecode:" pull-down menu.

Timecode: ▼

- 29.97
- 29.97 Drop**
- 30

The following frame rates are available:

- 23.976
- 24
- 25
- 29.97 (default)
- 29.97 drop
- 30

Choose the "Basis" for the new project.

Basis: ▼

- Current Positions
- Current Mix**
- Default Positions

- Current Positions: Creates a new default mix in the Mix Tree (Mix 1) and uses the current positions of the faders, mute and insert switches as the "initial positions."
- Current Mix: Uses the current mix in the ACM as the first mix in the Mix Tree of the new project.
- Default Positions: Creates a new default mix in the Mix Tree (Mix 1) and uses the Default Positions as the "initial positions" and includes the Default Groups.

Highlight "OK" and press the SEL (Select) button to create the new project.

Success
Project Created

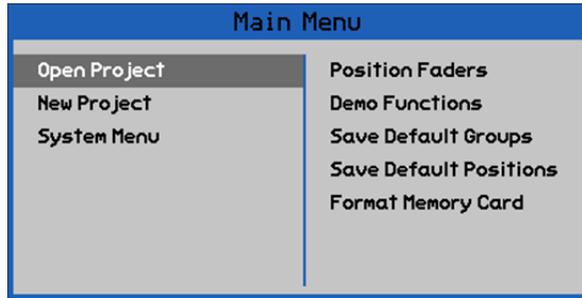
A "Project Created" message will be displayed and the new project will become the current project

The dialog box will close and the display will return to the Status Page. A new project folder with the entered name will be created in the PROJECTS folder on the memory card. The new folder will contain the new project file with the entered name and selected parameters. The default mix (Mix 1) for the new project will be the current mix.

Highlight "Cancel" and press the SEL (Select) to cancel the new project and close the dialog box.

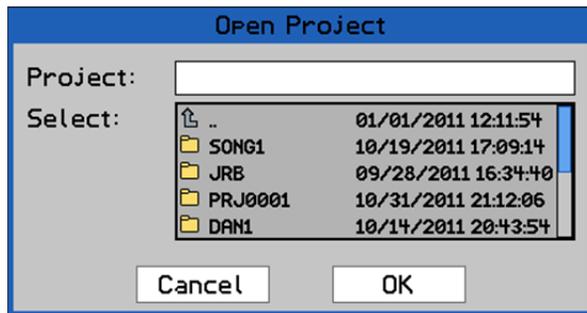
NOTE: Pressing ESC (Escape) will not close the dialog box. Only highlighting "Cancel" or "OK" and pressing SEL (Select) will close the dialog box.

4.5 Open Project



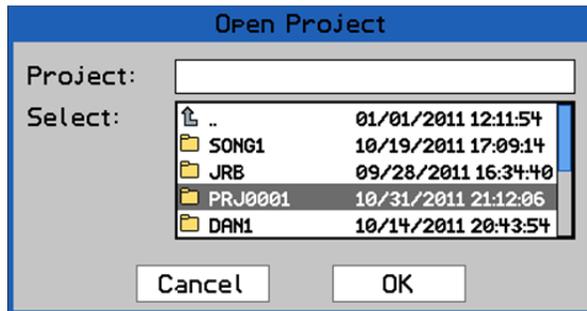
To open an existing project, highlight "Open Project" from the Main Menu from the Status Page.

Press SEL (Select) to open the "Open Project" dialog box.



The "Open Project" dialog box will display a list of the project folders in the PROJECTS folder on the memory card.

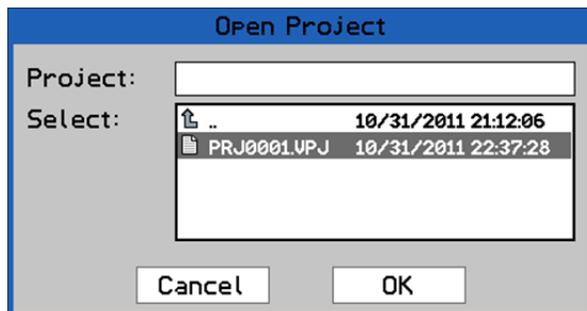
Press SEL (Select) to activate access to the list of folders.



Use the Jog-Wheel to scroll through the list and highlight the needed project folder.

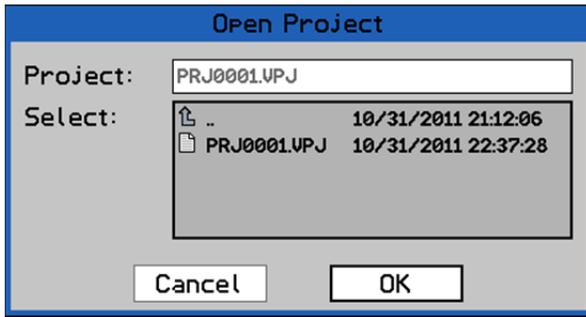
Press SEL (Select) to select the highlighted project folder.

The folder will open, revealing its contents.



Use the Jog-Wheel to highlight the needed project file (.VPJ). (There is usually only one project file in the folder.)

Press SEL (Select) to select the project file.



The name of the project folder will appear in the "Project:" text box.

Use the Jog-Wheel to highlight "OK."

Press SEL (Select) to open the selected project file.



A "Project Opened" message will be displayed and the selected project will become the current project

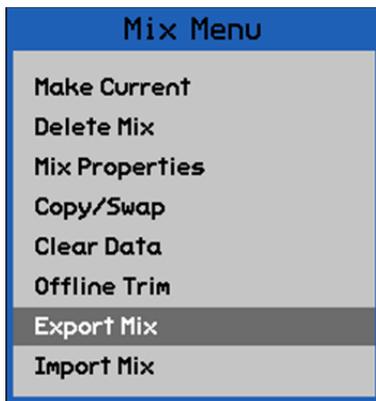
The dialog box will close and the display will return to the Status Page.

4.6 Mix Export & Import

Mixes can be "exported" from an open project for use in other projects. Accordingly, exported mixes can be "imported" into other 1608 projects.

Mix files are exported as .VMX files.

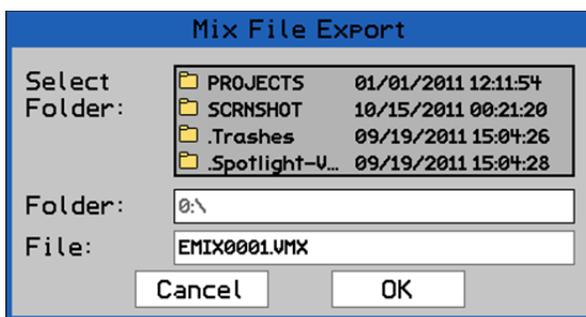
4.6.1 Export Mix



The "Export Mix" menu item facilitates the export of the highlighted mix as a .VMX mix file.

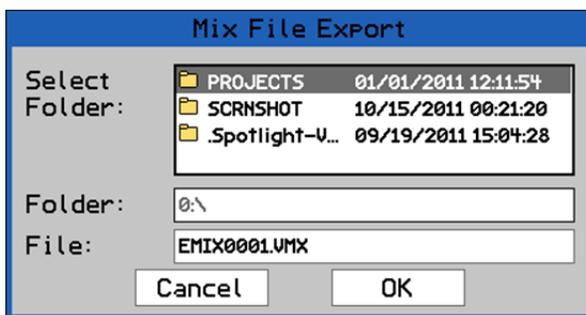
An exported mix remains in the Mix Tree and is not deleted as a result of using this function.

To export a mix from a project, highlight it in the Mix Tree and select "Export Mix" from the Mix Menu.



The "Mix File Export" dialog box will appear, displaying a list of folders and files on the memory card and a text-entry box.

Select a location for the mix file to be exported. The default location is the root directory of the memory card.



If a different location is needed (such as another project folder), press the SEL (Select) button while the directory list is highlighted to activate access to it.

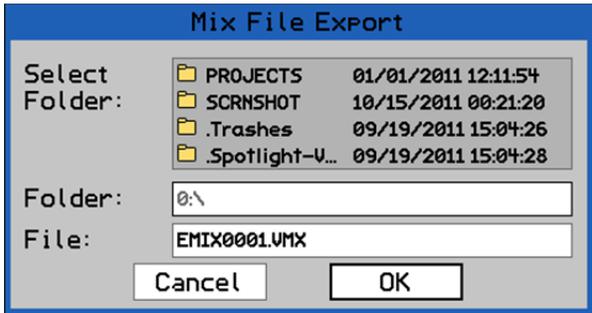
Use the Jog-Wheel and SEL (Select) button to navigate to the needed location, highlight it, and press the SEL (Select) button to select it.



Once the needed location is selected, use the Jog-Wheel to highlight the "File:" text-entry field.

Press SEL (Select) to enter a name for the mix file.

Press ESC (Escape) when finished.



Once the mix file name has been entered, use the Jog-Wheel to highlight "OK."

Press the SEL (Select) button to save the mix file in the selected location.

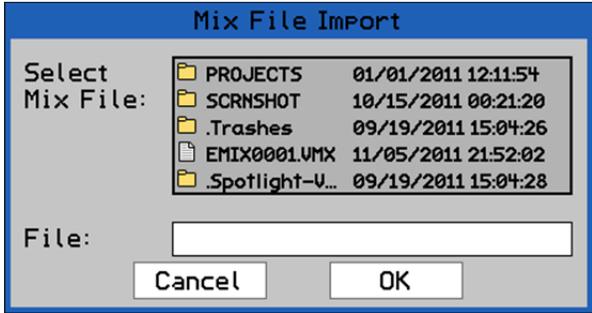
Highlight "Cancel" and press SEL (Select) to cancel.

4.6.2 Import Mix



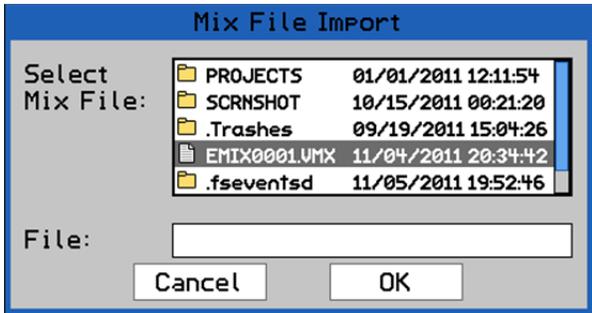
The "Import Mix" menu item facilitates the importing of .VMX mix files into the currently open project and Mix Tree.

To import a mix into a project, open the Mix Tree and select "Import Mix" from the Mix Menu.



The "Mix File Import" dialog box will appear, displaying a list of folders and files on the memory card and a text-entry box.

The list will open in the root directory of the memory card.



Press the SEL (Select) button while the directory list is highlighted to activate access to it.

Use the Jog-Wheel to locate and highlight the mix file to be imported.

Press the SEL (Select) button to select the highlighted mix file.



Once the mix file has been selected, the name of the mix file to be imported will appear in the "File:" text box

Use the Jog-Wheel to highlight "OK."

Press the SEL (Select) button to import the selected mix file in the current Mix Tree and project.

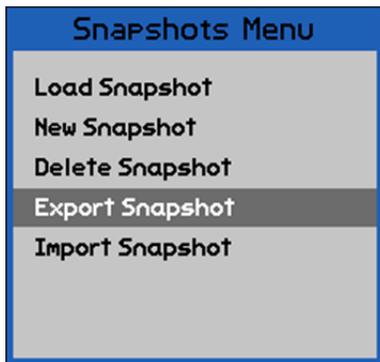
4.7 Snapshot Export & Import

Snapshots can be "exported" from an open project for use in other projects. Accordingly, exported snapshots can be "imported" into other 1608 projects.

Snapshot files are exported as .VSS files.

4.7.1 Export Snapshot

Snapshots can be exported from the Snapshots Page for use in other projects.



The "Export Snapshot" menu item facilitates the export of the highlighted snapshot as a .VSS snapshot file.

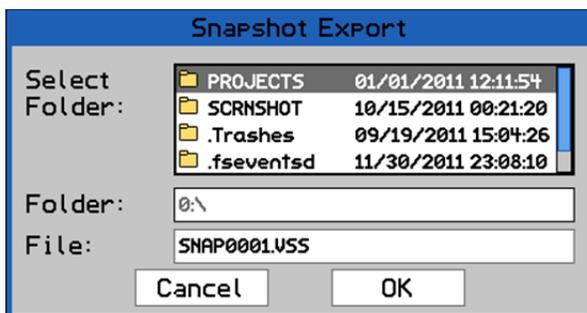
An exported snapshot remains on the Snapshot Page and is not deleted as a result of using this function.

To export a snapshot as a .VSS file, highlight it on the Snapshots Page and select "Export Snapshot" from the Snapshots Menu.



The "Snapshot Export" dialog box will open, displaying a list of folders and files on the memory card and a text-entry box.

Select a location for the snapshot file to be exported. The default location is the root directory of the memory card.

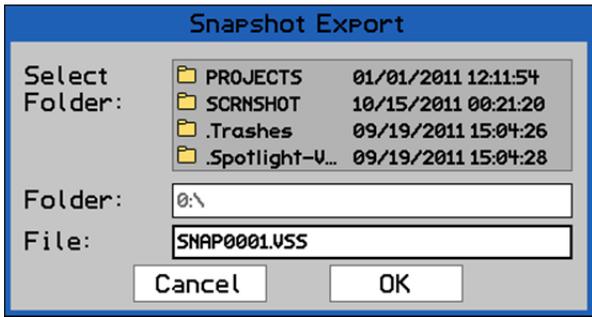


If a different location is needed (such as another project folder), press the SEL (Select) button while the directory list is highlighted to activate access to it.

Use the Jog-Wheel and SEL (Select) button to navigate to the needed location, highlight it, and press the SEL (Select) button to select it.

Once the needed location is selected, use the Jog-Wheel to highlight the "File:" text-entry field.

Press SEL (Select) to enter a name for the snapshot file.



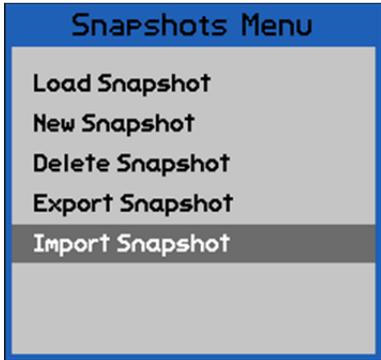
Once the snapshot file name has been entered, use the Jog-Wheel to highlight "OK."

Press the SEL (Select) button to save the snapshot file in the selected location.

Highlight "Cancel" and press SEL (Select) to cancel.

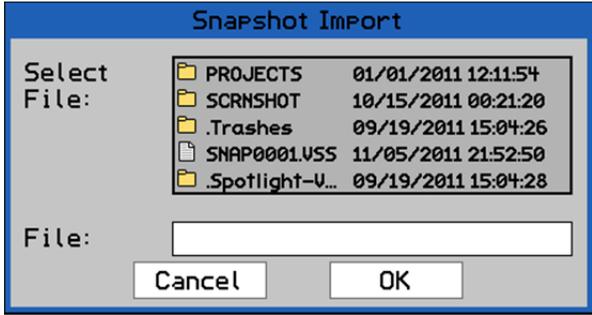
4.7.2 Import Snapshot

Snapshots can be imported to the Snapshots Page of an open project.



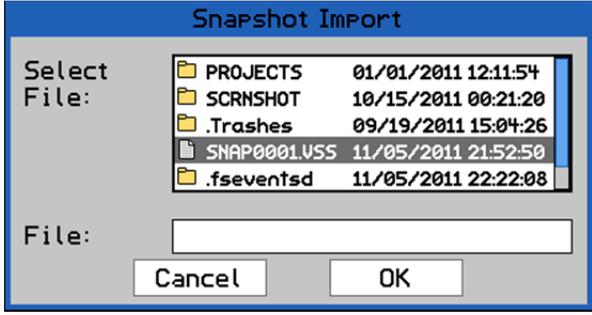
The "Import Snapshot" menu item facilitates the importing of .VSS snapshot files into the currently open project and Snapshots Page.

To import a snapshot into a project, open the Snapshots Page and select "Import Snapshot" from the Snapshots Menu.



The "Snapshot Import" dialog box will open, displaying a list of folders and files on the memory card and a text-entry box.

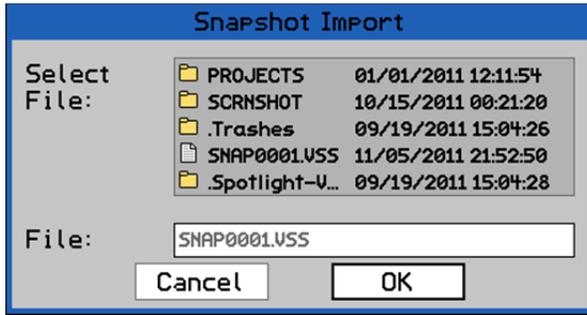
The list will open in the root directory of the memory card.



Press the SEL (Select) button while the directory list is highlighted to activate access to it.

Use the Jog-Wheel to locate and highlight the snapshot file to be imported.

Press the SEL (Select) button to select the highlighted snapshot file.



Once the snapshot file has been selected, the name of the snapshot file to be imported will appear in the "File:" text box

Use the Jog-Wheel to highlight "OK."

Press the SEL (Select) button to import the selected snapshot file in the current project and Snapshot Page. Highlight "Cancel" and press SEL (Select) to cancel.

4.8 Card Reader

A card reader is included with the 1608 Automation Package to provide an easy means of backing up the project folders and files on the memory card. It also allows folders and files to be deleted or renamed.

The card reader has a common interface that allows easy connection to any modern computer. Once connected and the memory card is inserted, the card will appear as an external storage device in the computer's directory system.

4.8.1 File Backup

To make a backup of the project folders and files on the memory card, connect the card reader to an external computer and insert the card.

Open the memory card on the computer and copy the project folders and files to the computer hard drive or other connected storage device.

When a new project is created, a project folder that contains the project file and the initial mix file is created. Subsequent mix files will be stored in this folder as they are created by the system. Exported mix and snapshot files may be stored in this folder as well.

Individual projects folders are stored in the "PROJECTS" folder by default. This folder is stored in the root directory of the memory card. Backing up the "PROJECTS" folder will backup all the projects within it.

Stored files can be reloaded to the memory card by copying the needed project folder(s) and/or files from the storage device to the memory card.

4.8.2 Renaming Projects and Files

To rename a project folder or project file, connect the card reader to an external computer and insert the memory card.

Open the memory card and click on the name of the project folder to be changed, enter a new name or edit the existing one, and press the "return" key on the computer keyboard.

NOTE: Only the name of the project folder should be changed. The files within a project folder should NOT be changed. If the names of the files generated within a project are changed, they will not be recognized when the project is reopened.

4.8.3 Deleting Projects and Files

Individual project folders and files on the memory card can be deleted using the card reader and computer.

To delete an individual project folder or file, connect the card reader to an external computer and insert the memory card.

Open the memory card and delete the unwanted folder or file.

*NOTE: Deleting the "PROJECTS" folder will delete **all** the projects within it.*

4.8.4 Firmware File

The most current software file will be available to 1608 automation package owners from api. The included card reader should be used to transfer the software file from your computer to a memory card. The software file is loaded into the firmware from the memory card. Once the firmware is loaded the file is only used as a backup in the unlikely event the loaded software gets corrupted.

The memory card can have more than one software file, but the system will only load the latest one. The system relies on file name recognition, so never rename the software file.

NOTE: Do NOT delete the firmware file from the memory card.

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5.0 Automation Concepts

To operate the automation system and make full use of its features, the engineer must first understand some basic automation concepts and how the system components interact with one another. This section will explore these concepts and how to prepare the system for use. It is important for new users to read this entire section.

NOTE: This and subsequent manual sections assume that the automation package and console have been properly set up and interfaced. For automation package setup, refer to section 16.0 System Configuration, Calibration, and Firmware.

5.1 Mix Pass and Mix Tree Concepts

The Automation Controller provides a suite of automation controls and a display. The 948B Fader Modules and 548B Input Modules provide additional automation controls. Used as a system, the console hardware and software components allow the creation and modification of an automated mix.

The 940B Automation Controller (ACM) provides enough memory for one "mix pass" (also called "mix file" or just "mix"). Only one "mix" can be stored in the volatile memory at a time. This mix is known as the "current mix."

The mix pass in memory can be modified at any time using hardware or software interfaces. When changes are made, the altered mix pass becomes the current mix and is automatically saved to the Mix Tree. The Mix Menu provides an additional suite of tools for editing and working with mixes and mix data.

Performing additional moves and/or edits to an existing mix will add a new mix to the Mix Tree without deleting the original. Because of this method, the manipulation of mixes can be performed in a nondestructive manner and numerous levels of "undo" are provided among the mix passes stored in the Mix Tree.

A project file must be open to work with the mix in memory and the mixes in the Mix Tree. The project file (and therefore the Mix Tree) is stored to the memory card and is considered to be non-volatile.

5.1.1 Mix Passes

A "mix pass" or "mix" is simply a file containing time-stamped fader, mute, and insert changes throughout the entire length of the recording. Whenever timecode is played back and changes are made, a new mix pass is created. When playback is stopped, the new moves are processed, the new pass becomes the "current mix," and the mix is added to the Mix Tree.

The ACM can hold only one active pass at a time in its operational memory. This mix is known as the "current" mix and it is the one that will be played back in READ mode. Any recorded changes will be added to the data in the current mix and a new mix pass will be generated. The resulting mix will become the new current mix.

Whenever a new mix pass is generated, it is added to the Mix Tree. A new "mix file" is also created and added to the project folder for the current project as a .VMX file.

Any mix pass in the Mix Tree can be "made current" at any time.

Mix files can be exported for use in other projects. Accordingly, mixes can be imported into the Mix Tree in an open project, adding it to the project folder as a .VMX file.

As an aside, group assignments are stored in mix passes. This means that when an existing mix is loaded from the Mix Tree, all of the groups are exactly as they were when the mix was saved. If you change to a different mix, those groups are restored. If groups were created in later mixes, they will not be included in earlier mixes.

5.2 Manual Mixing

When tracking, overdubbing, and/or rough mixing, the program mix is often created without automation. When working in this manner, put all of the channels into MANUAL mode.

MANUAL mode disables the automation on each channel. It allows you to experiment with levels and build a basic, unchanging mix to use as a starting point for your automated mix.

To put the entire console in MANUAL mode, press the SELECT ALL button to select all channels and MANUAL to engage MANUAL mode.



SELECT ALL: Selects all channels in the channel grid for mode or sub-mode assignment.



MANUAL: Assigns MANUAL mode to the selected channels in the channel grid.

With all channels in MANUAL, you can mix and experiment as much as you like without recording your changes or interference from the automation system.

Once you've arrived at a good starting point for your mix, a snapshot can be made to save the static positions of the faders, mutes, and inserts. This snapshot will be available for use at any time, for example at the start of an overdub or final mix session.

As noted above, this unchanging mix can also be used as a starting point for automation. If you are ready to start a final mix, the automation system may be engaged at this time.

Note: A rough mix should be established before creating a new mix.

5.3 Initial Positions

When a new project is created, the "initial positions" of all faders, mutes, and inserts must be established. These positions serve as a starting point for an automated mix.

When a new project is created, a new Mix Tree is created that includes a default mix (Mix 1). This mix will contain the currently stored "initial positions" for all faders, mutes, and inserts. If "With Existing Mix" is checked in the New Project dialog box when the project was created, the default mix will be the same as the current mix in the ACM. If "With Existing Mix" is not checked, the Default Positions stored in the ACM will become the "initial positions" for the default mix (Mix 1).

"Initial positions" are written for the entire duration of timecode, from 00:00:00:00 to 23:59:59:2X, and essentially becomes an "initial mix snapshot." These positions will be the starting point for subsequent fader, mute, and insert moves. Channels in READ or UPDATE will play back the "initial positions" in the default mix (Mix 1) no matter where timecode is started.

If these positions are changed with any channels in MANUAL mode, the faders, mutes, and inserts will move to the "initial positions" of Mix 1 when switched back to READ or UPDATE. Any changes will be lost and there is no "undo" when this happens. So, the changed positions must be saved as the "initial positions" if they are to be used as a starting point for subsequent automated mixes. As noted above, this must be done before channels are changed from MANUAL mode. The procedures for saving new "initial positions" are described in the following sections, 5.3.1 Setting Initial Positions.

5.3.1 Setting Initial Positions

When starting a new mix (or starting over with an existing mix), it's common to put all channels in MANUAL mode and create a preliminary mix that will serve as the starting point for subsequent automated mixes.

A new project will be needed for the new mix, so at a convenient time, create a new project. This new project can be created before starting the preliminary mix or after it's been established.

The "initial positions" in the default mix (Mix 1) will differ from the fader, mute, and insert positions of the preliminary mix, so the "initial positions" need to be reset using the current positions of the preliminary mix. Be sure to keep all channels in MANUAL, since changing to READ or UPDATE will result in the loss of the preliminary mix positions.



Once the new project is open and the preliminary mix is ready, select all channels in the channel grid on the Status Page by pressing the SELECT ALL button on the Automation Controller.



Press the STATIC button to engage the STATIC sub-mode on all channels. This will allow WRITE mode to be engaged from the Automation Controller (ACM) without being in UPDATE first.



With STATIC engaged, press the WRITE button to engage WRITE mode on all channels.

Making sure that timecode is properly configured and enabled, start timecode play back. Let timecode run for a few seconds and then stop playback. The positions of the faders, mutes, and inserts when the timecode was stopped will become the "initial positions" in a new mix. The new mix will appear in the Mix Tree (Mix 2) and a new mix file will be created in the project folder that contains the new "initial positions." It will also become the active mix.

Once the new mix with "initial positions" from the preliminary mix has been created, channels can be changed to READ or UPDATE. Channels in these modes will play back the "initial positions" in the new mix (Mix 2) no matter where timecode is started.

5.4 Creating a New Mix and Project

When starting a new automated mix, a preliminary mix should be created with the initial positions of faders, mutes, and inserts, as well as any groups. This should be done with all channels/faders in MANUAL mode.

After the preliminary mix is ready for automated moves, create a new project by selecting "New Project" from the Main Menu and setting the parameters needed for new mix. Make sure to select the proper timecode frame rate to match the media to be mixed.

Mix 1 (the default mix) in the Mix Tree will be the "current mix." It will contain either the existing mix from the ACM or the Default Positions stored in the ACM, depending if "With Existing Mix" was checked in the New Project dialog box when the new project was created.

Since the fader, mute, and insert positions of the preliminary mix will be different than the "initial positions" in the default mix (Mix 1), it will be necessary to save the current positions as the "initial positions" in a new mix. Use the procedures outlined in section 5.3.1 Setting Initial Positions to create a new mix with "initial positions" that match the preliminary mix.

The resultant mix (Mix 2) will become the current mix. Since it contains the "initial positions" of the preliminary mix, the entire console can be set to READ or UPDATE mode. Timecode can be started from any location and all faders, mutes, and inserts will hold their positions.

If no changes are written to automation, the "initial positions" will be used throughout the mix. If changes to faders, mutes, and/or inserts are written to automation, they will be played back at the timecode locations at which they were recorded. If playback is started at before any recorded moves, the "initial positions" will be replayed by the automation system and held until the first recorded move is played back.

5.5 End-Of-Pass Processes

When any changes are written, “end-of-pass” processes are performed when timecode playback is stopped. These processes include:

- Processing of all data transitions
- Updating the current mix pass with the new data
- Creating a new mix in the Mix Tree and making it the current mix
- “Auto Safe” functions (if engaged)
- “Bridge Gaps” functions (if engaged)
- “Auto Takeover” functions (if engaged)

Nothing is written to memory until timecode is stopped.

The behavior of the data transitions or “reverts” between newly recorded moves and previously recorded moves (i.e. WRITE to READ) is determined by the active mode, sub-mode, global function, and glide rate.

End-of-pass processes may be modified using the following global functions:



KILL MIX: Suppresses end-of-pass processes when timecode is stopped. It activates a flag to discard any changes made during the current automation pass.

- The “KILL MIX” function can be engaged anytime before timecode is stopped, by pressing the KILL MIX button.
- The KILL MIX button can be toggled on and off anytime while timecode is running. If the button is engaged when timecode is stopped, the “KILL MIX” function will apply.



Auto Safe: Sets all channels in WRITE to UPDATE when timecode is stopped.

- “Auto Safe” can be engaged at any time, by clicking its button on the Status Page.



Bridge Gaps: Allows positions and modes at the point when timecode is stopped to be applied to a later timecode location

- Transport must be stopped and restarted at a later location without rewinding.
- “Bridge Gaps” can be engaged at any time, by clicking its button on the Status Page.



Auto Takeover: Keeps track of the channels that are in UPDATE or WRITE at the point where timecode is stopped and restores those modes when that point in timecode is reached on a subsequent pass.

- “Auto Takeover” can be engaged at any time, by clicking its button on the Status Page.

Watch out when looping! Many engineers will want to loop the transport over a certain portion of the media, updating moves until you get it exactly right. Be aware that the Automation Controller requires a small amount of time at the end of each pass to process the moves that have been made. This time is typically a few seconds, but it can grow with larger mix files. During this time, the Automation Controller will not chase Timecode and will not record moves.

When using a DAW with instant locates and looping, be sure to build in enough pre-roll to allow the Automation Controller time to lock to the incoming timecode.

For more information, refer to section 10.0 Global Functions

5.6 Timecode and Synchronization

The recorded media to be mixed (typically on DAW) must be synchronized with the 1608 automation package. SMPTE Timecode (LTC) or MIDI Timecode (MTC) is used for synchronization.



The current timecode address, frame rate, and source are displayed on the Status Page.



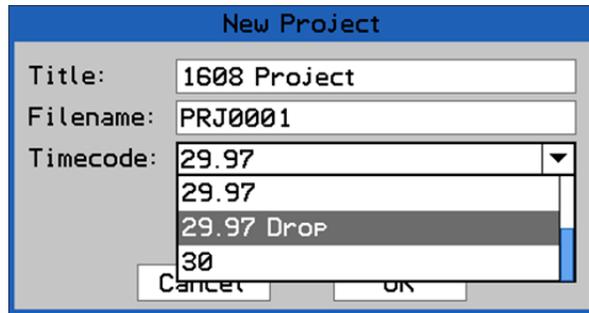
Timecode Display:
Hours:Minutes:Seconds:Frames



The timecode frame rate is determined by the frame rate of the open project.

The timecode source is set in the General Configuration dialog box in the System Menu.

The project frame rate is set at the time a new project is created.



The system can use six (6) SMPTE timecode frame rates:

- 23.976
- 24
- 25
- 29.97 (default)
- 29.97 drop
- 30



Timecode must be "enabled" in order to be used by the Automation Controller. To enable timecode, engage the "Timecode" button on the Status Page.

In addition to synchronization, the automation system uses timecode in other ways:

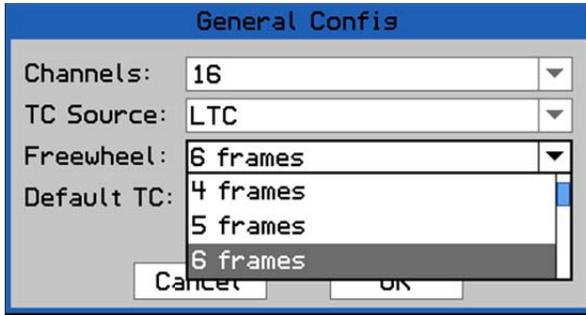
- Stopping timecode causes the automation system to perform its end-of-pass processes
- "Auto Takeover" uses a timecode address to restore the previous automation mode
- "Bridge Gaps" uses timecode to know the transport has been moved forward
- Setting timecode ranges for offline data trimming
- Setting timecode ranges for copy and swap mix data functions
- Setting timecode ranges for clear mix data functions

SMPTE timecode (LTC) is received via the line-level XLR input on the back of the console.

MIDI timecode (MTC) is received via a MIDI IN port on the back of the console. A MIDI port must be configured for MTC communication.

To improve synchronization accuracy, the number of "freewheel frames" needs to be set. This is set using the "Freewheel" pull-down menu in the General Config dialog box, available from the System Menu. The number of frames will determine the tolerance the system will use when

chasing timecode. More precisely, it sets the number of frames the system will “freewheel” if the timecode source briefly drops out or has other minor errors. 1 to 15 frames can be selected.



To set the number of freewheel frames, highlight the “Freewheel” pull-down menu and press the SEL (Select) button to activate the menu.

Use the Jog-Wheel to highlight the needed number of frames and press the SEL (Select) button to select it.

Please refer to section 16.0 System Configuration, Calibration, and Firmware for details regarding setting-up the console to use timecode.

5.7 Function Enables

Several functions of the automation package must be “enabled” in order to operate as part of the system.

The “Function Enables” are found on the Status Page.



There are five (5) functions that can be enabled:

- Timecode: Enables timecode to be read and chased
- Group: Enables group functions
- Switch: Enables automation control of mutes and inserts
- Fader: Enables automation control of faders
- Leave Write: Enables the “Leave Write” data matching function

Each function can be enabled or disabled independently of the others. Each function must be enabled to access the automation system.

A function can be disabled whenever necessary. Disabled controls will not be controlled by the automation system. During a tracking or overdub session, disabling functions prevents any interaction with the automation system. During an automated mix, it allows the engineer to quickly “suspend” automation control over any disabled functions so different settings can be explored without interference from automation.

All of the enable buttons are found on the Status Page.



Timecode: Enables the ACM to chase incoming timecode

- When timecode is enabled, the “Timecode” button on the Status Page turns yellow.

GROUP

Group: Enables group functions to operate

- When groups are enabled, the "Group" button on the Status Page turns yellow.

Switch

Switch: Enables automation control over mute and insert switches

- When inserts are enabled, the "Switch" button on the Status Page turns yellow.

Fader

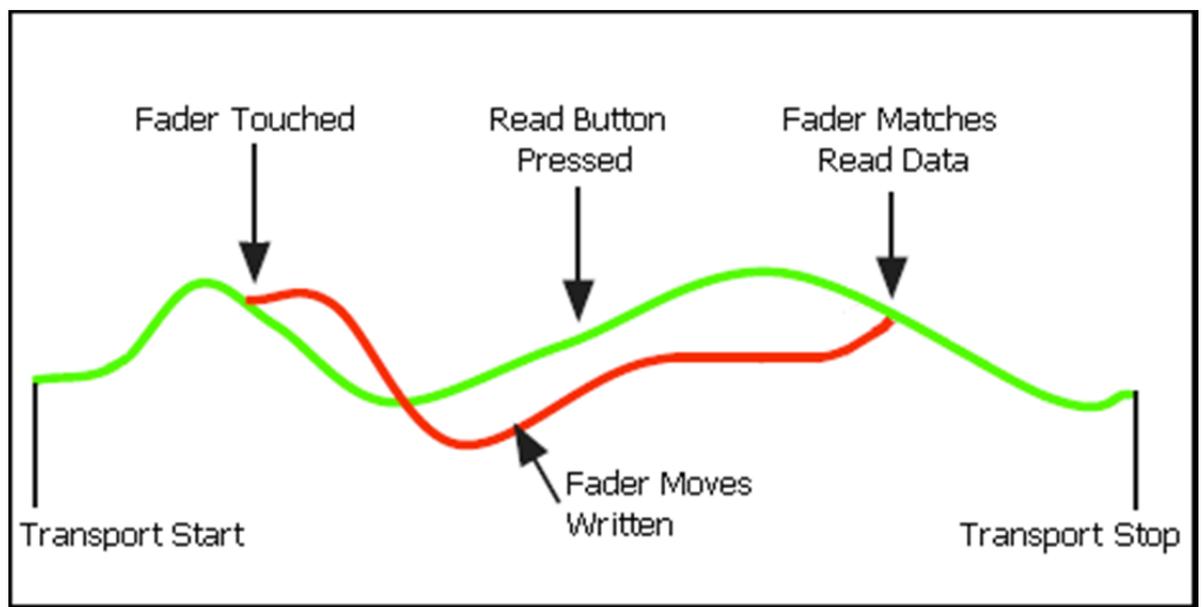
Fader: Enables automation control over faders

- When Faders are enabled, the "Fader" button on the Status Page turns yellow

Leave Write

Leave Write: Enables the automation system to automatically switch from record to playback (UPDATE or WRITE to READ) when the position of the fader matches the previously recorded position

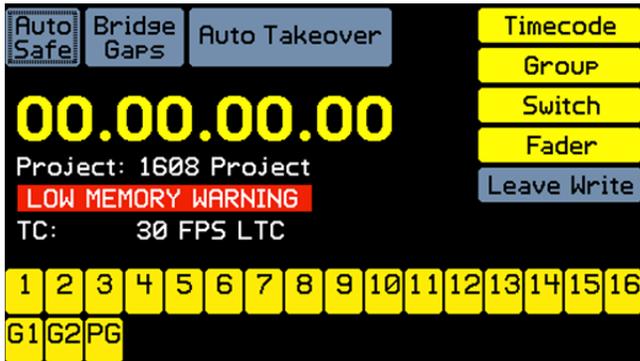
- Enable "Leave Write" and put the desired fader(s) in UPDATE or WRITE
- Start timecode playback and move the fader away from its recorded position
- While the fader is away from its recorded position, press the READ button on the fader module once
- The mode LED will "shimmer" to indicate the fader is in "Leave Write"
- One of the fader "null indicators" (up or down arrows) will illuminate to indicate which direction to move the fader to match the previously recorded level
- When the fader is moved to match the previously recorded position or the previously recorded moves catch up to the current position, the fader will automatically switch to READ
- When the fader is released, it will stay in READ
- "Leave Write" can be enabled and disabled at any time
- When "Leave Write" is enabled, the "Leave Write" button on the Status Page turns yellow



"Leave Write" is useful for editing fader moves when it's desired to change a recorded move and match seamlessly back up with the existing data. This will avoid possible jumps in fader position and the related jumps in level and helps assure smooth fader movement.

5.8 Low Memory Warning

The Automation Controller (ACM) has a limited amount of memory for the current mix. If a mix is loaded that exceeds 350,000 records (about 4 megabytes), a warning prompt will appear on the Status Page.



This warning indicates the onboard memory is approaching capacity and only a few more changes can be safely made to the mix.

The system will lockup if it runs out of memory. A dialog box will appear indicating you have run out of memory and must reboot. The mix files will not be corrupted, but the current mix pass will be lost.

6.0 Automation Modes

Automation “modes” and “sub-modes” determine how the automation system records and plays back control moves. Modes dictate basic functionality. Sub-modes allow the value of a control position to be applied to the mix in a variety of ways.

There are four (4) primary automation modes:

- **MANUAL**: No automation control
- **READ**: Playback of recorded moves
- **UPDATE**: Records fader moves only when touched. Records mutes and inserts when engaged.
- **WRITE**: Records moves whenever engaged, replacing existing data

Automation modes govern how and when moves made to faders, mutes, and inserts are recorded and played back. These modes may be assigned to any channel at any time. Channels may be in different modes at the same time.

MANUAL, READ, UPDATE, and WRITE can be assigned to channels on a global basis using the buttons on the Automation Controller. READ, UPDATE, and WRITE can be assigned on individual channels using the corresponding mode buttons on the faders. MANUAL can be engaged from the fader by holding down the READ button for 2 seconds. MUTE WRITE is only available on individual faders.

The function and operation of each automation mode is described below. The buttons on the Automation Controller (ACM) and Status Page channel grid are shown for each mode. The buttons and LED indicators on the fader modules are also shown.

6.1 MANUAL



MANUAL: The channel is disconnected from automation

- Channels will not record moves
- Channels will not play back recorded moves
- MANUAL can be engaged at any time
- MANUAL can be engaged from the fader by holding down the READ button for 2 seconds
- When MANUAL is engaged on at least one channel:
 - The MANUAL button on the Automation Controller illuminates
 - Channels are grey in the Status Page channel grid
 - READ, UPDATE, and WRITE LEDs on the fader are not illuminated

Use MANUAL mode for tracking, manual mixing, or suspending automation control for experimentation during an automated mix.

Note: Groups will remain active when MANUAL mode is selected. Channels in MANUAL will still function as Group Masters or Group Members if so assigned.

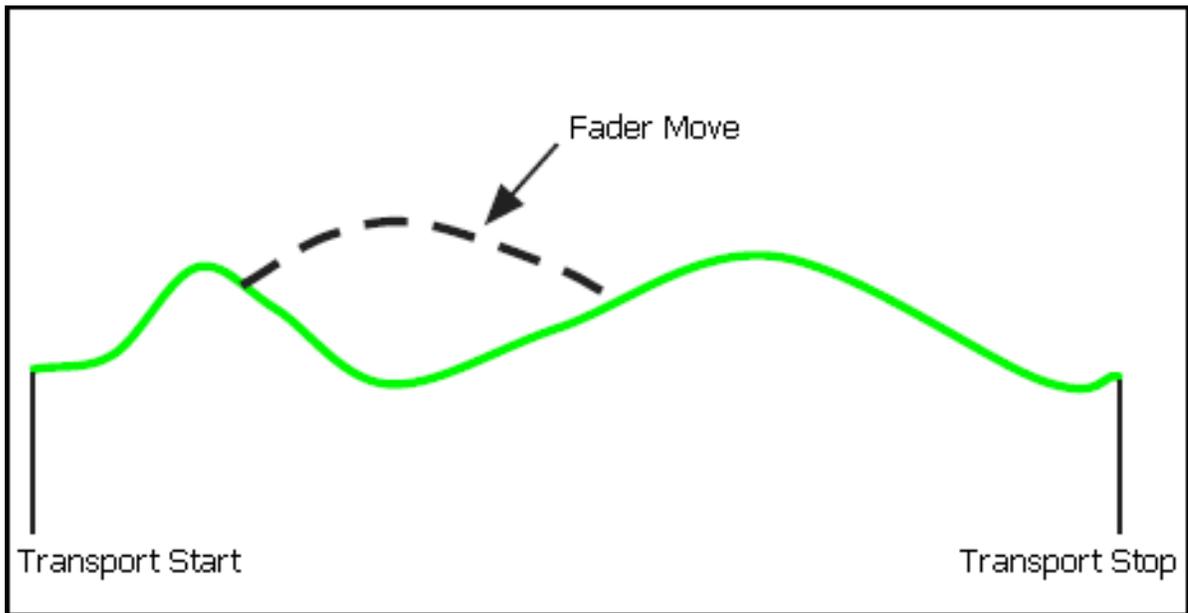
6.2 READ



READ: Recorded moves are played back

- When entering READ mode, faders, mutes, and inserts will move to their correct position for the current timecode
- Channels without recorded moves will move to their initial positions
- Faders may be moved to audition different levels, but moves will not be recorded.
- Faders will snap back to their recorded positions when moved and then released
- Mutes and inserts may be changed, but will not be recorded
- Mutes and inserts will continue to playback recorded moves after any changes have been made
- READ can be engaged at any time
- When READ is engaged on at least one channel:
 - The READ button on the Automation Controller illuminates
 - Channels are green in the Status Page channel grid
 - The green READ LED on the fader will illuminate

Use READ to play back existing moves while building an automated mix. READ should also be used when printing a final mix.

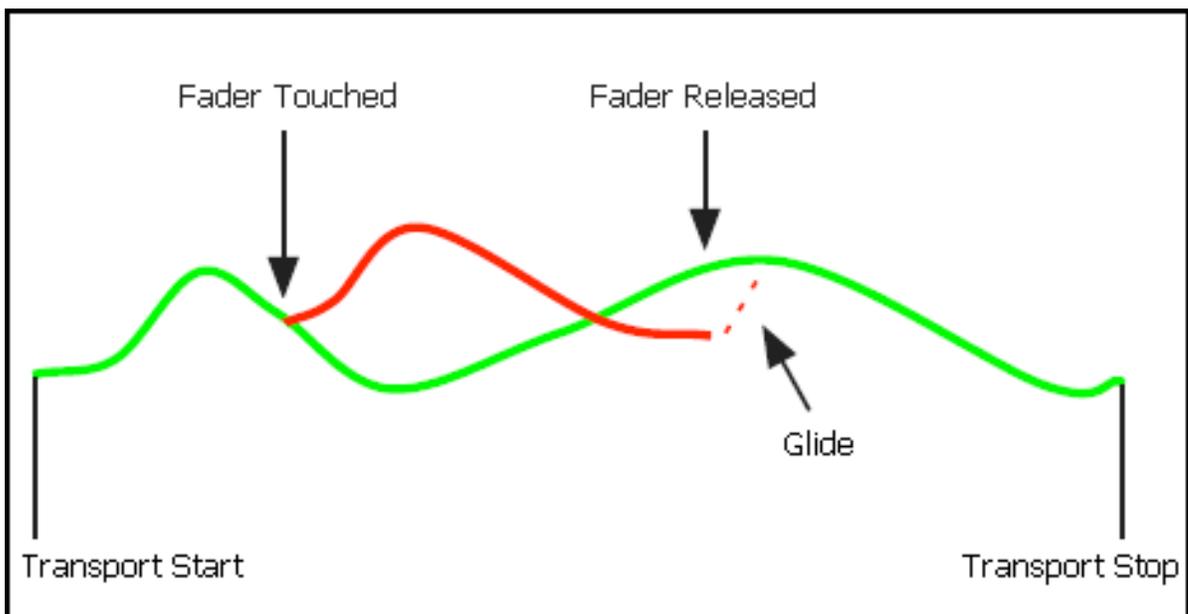


6.3 UPDATE



UPDATE: Recorded moves are played back until a change is made. When a change is made, any moves will be recorded, but playback will resume after the change is made.

- Playback is exactly as if in READ until changes are made
- When a fader is touched, it will start recording moves as if in WRITE and will keep recording as long as it is being touched
- When a touched fader is released, it will glide back to its recorded position and resume playback of previously recorded moves
- Mutes and inserts will record any changes and will also playback any previously recorded changes
- UPDATE can also function as a “record ready” state for the WRITE mode
- UPDATE can be engaged at any time
- When UPDATE is engaged on at least one channel:
 - The UPDATE button on the Automation Controller illuminates
 - Channels are yellow in the Status Page channel grid
 - The yellow (orange) UPDATE LED on the fader will illuminate



Use UPDATE to record changes over a short period of time or to touch-up existing moves. UPDATE can also be used as a "Record Ready" mode to prepare selected channels to enter WRITE mode.

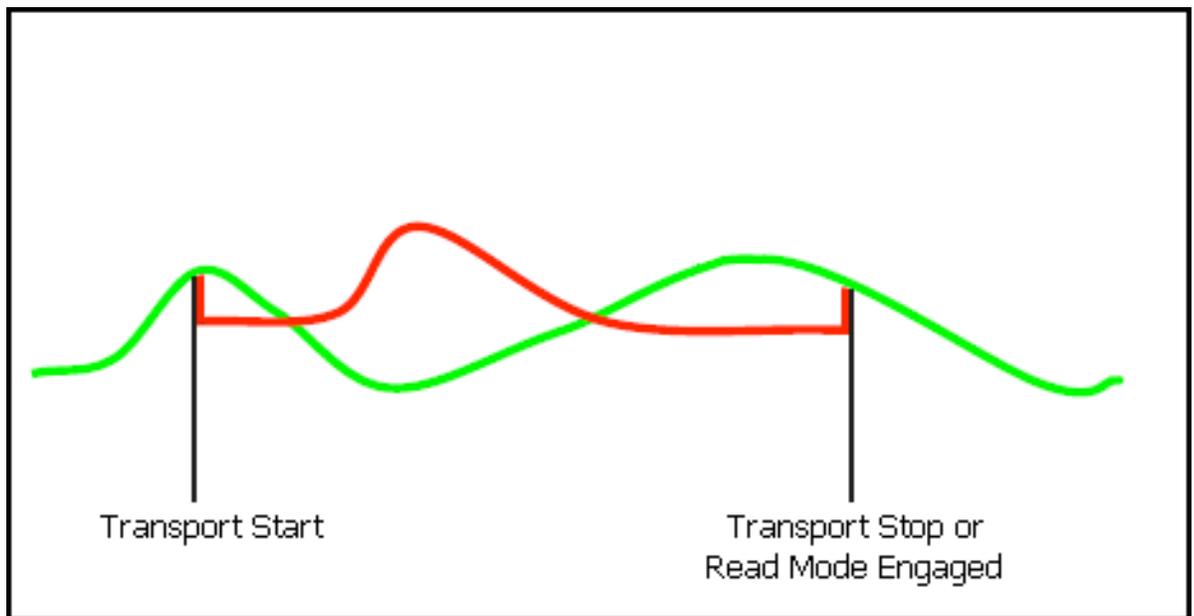
6.4 WRITE



WRITE: Current positions and moves will be recorded over any existing moves:

- Previously recorded moves are not played back
- Existing moves overwritten
- Fader and switch positions are recorded at all times, even when faders are not touched
- Recording will continue until timecode is stopped or the mode/sub-mode is changed
- WRITE can be engaged at any time
- WRITE can be engaged from the Automation Controller only if UPDATE or STATIC is engaged first
- WRITE can be engaged from MANUAL or READ without being in UPDATE using the WRITE button on the fader
- When WRITE is engaged on at least one channel:
 - The WRITE button on the Automation Controller illuminates
 - Channels are red in the Status Page channel grid
 - The red WRITE LED on the fader will illuminate

Use WRITE mode to write initial moves and record new positions over longer periods of time. It also provides an easy way to erase unwanted moves during a certain time window.



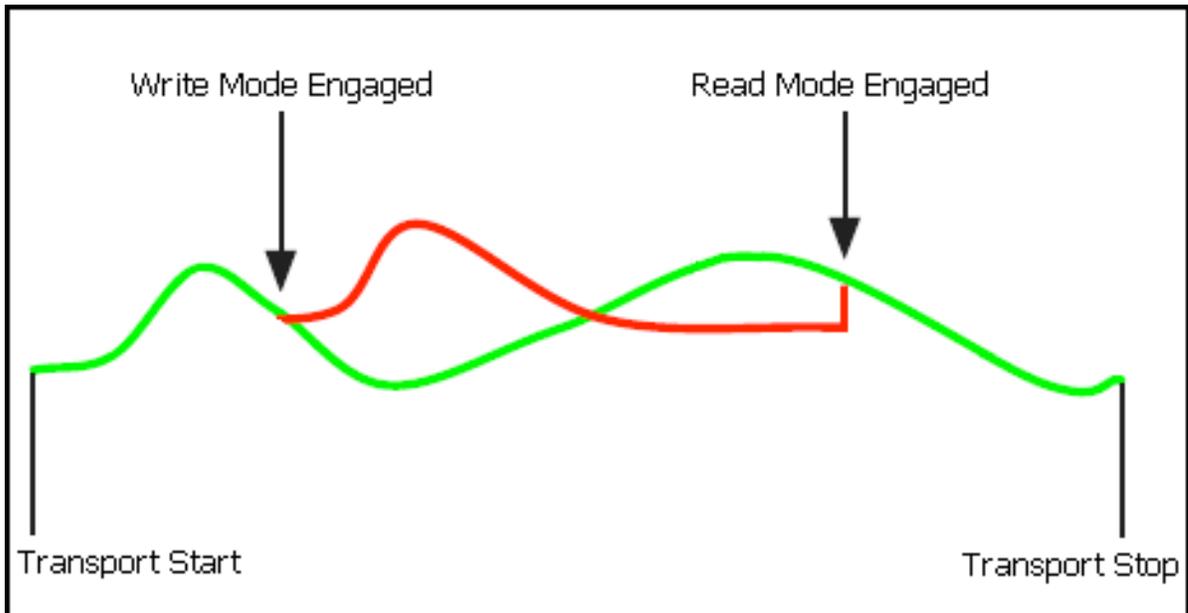
Whenever a channel is in WRITE while timecode is running, existing data is being erased and new data is being recorded. Changing modes from UPDATE to WRITE allows the operator to "punch-in" to the automation data on the selected channels. Changing modes from WRITE to READ allows the operator to "punch-out" and stop recording new automation data on the selected channels.

WRITE mode can be very destructive to your mix, so there is a safety interlock for entering WRITE globally from the Automation Controller. Any channels commanded to enter WRITE via the Automation Controller will not do so unless they are already in UPDATE mode. This allows you to "record-enable" a selection of channels using UPDATE, start playback, and punch the selected channels into WRITE mode using the global WRITE button on the Automation Controller.



Pressing the WRITE button will put individual channels directly in WRITE mode from any other mode.

It is occasionally useful to go directly from MANUAL or READ directly to WRITE mode, without being in UPDATE. This can be accomplished on individual channels using the WRITE button on the fader. As mentioned above, this cannot be done on the Automation Controller without being in UPDATE first.



6.5 Automation Mode Assignment

Automation modes can be assigned to channels in two ways:

- Using the Status Page and the mode buttons on Automation Controller
- Using the fader mode buttons

6.5.1 Status Page Mode Assignment

Automation modes can be assigned to channels using the channel grid on the Status Page, the mode buttons, and navigation tools on the Automation Controller. Using this method, modes can be assigned to individual channels, a subset of channels, or all channels.

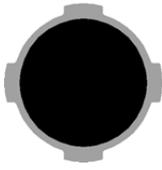
Press the STATUS PAGE button to open the Status Page.



The channel grid displays the current mode of each channel and its selection status. It also provides the means for mode assignment.



The numbered channels are associated with the input channels. G1 and G2 are the two Control Group Master Faders and PG is the Program Master Fader.



Use the Jog-Wheel to highlight the desired channel and press the SEL (Select) button. This will select that channel, making it ready for mode assignment.

The grid below shows all channels in MANUAL mode and channel 1 selected.



A subset of channels can be selected by highlighting and selecting multiple channels before assigning an automation mode.



Press the SELECT ALL button to select all channels for mode and sub-mode assignment.

If all channels are selected, they will all be deselected when the SELECT ALL button is pressed.



Once the channels have been selected, use the mode buttons to assign the needed automation mode.



The grid below shows channel 1 selected and in READ with all other channels in MANUAL.



The selected channels will change colors to reflect the assigned mode as follows:



MANUAL



UPDATE



READ

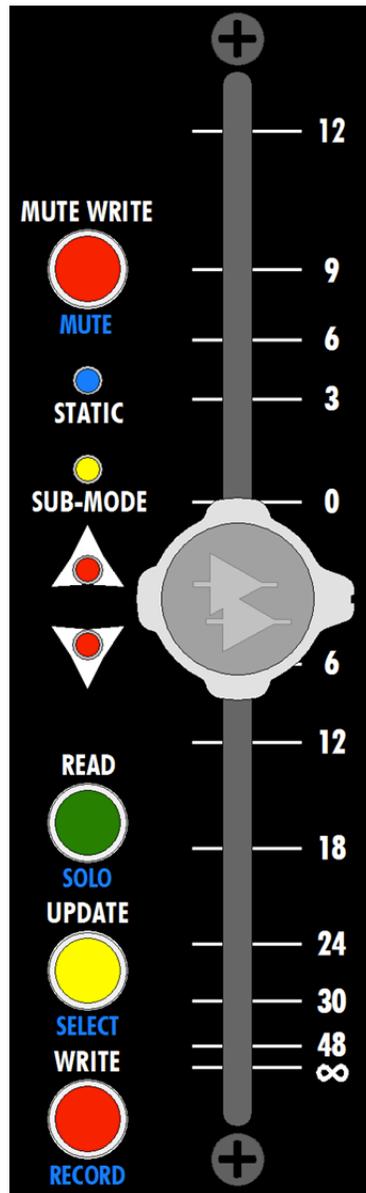


WRITE

The associated buttons on the faders will also illuminate to indicate the mode they are in.

MUTE WRITE cannot be assigned from the Status Page.

6.5.2 Fader Mode Assignment



Automation modes can be assigned to individual channels by pressing the needed mode button on the fader module.



The mode button will illuminate to indicate that mode is assigned and the corresponding channel in the Status Page channel grid will change color.

MANUAL mode can be assigned on individual faders by pressing and holding the READ button for at least 2 seconds.

7.0 Automation Sub-modes

Automation sub-modes further defines the behavior of the automation system in specific ways. The mode continues to govern when channels record and when they playback, the sub-mode changes the exact nature of what is recorded and how.

There are four (4) automation sub-modes:

- None: No sub-modes assigned
- STATIC: Resets initial positions
- LATCH: Writes the last recorded position to the end of timecode
- TOUCH WRITE: Channels in UPDATE will change to WRITE when its fader is touched
- MUTE WRITE: Overwrites mute and insert moves without affecting fader moves

Sub-modes are indicated by a colored section in the lower part of the channel box in the Status Page:

No Sub-mode



Static Sub-mode Engaged



Sub-modes are also indicated on faders as follows:



STATIC: Indicates the STATIC sub-mode is engaged on that channel.



SUB-MODE: Indicates the either the LATCH or TOUCH WRITE sub-mode is engaged on that channel.

Sub-modes cannot be assigned from the fader module.

The function of each automation sub-mode is described below.

7.1 None



CLEAR SUB-MODE: Clears the automation sub-modes for all channels selected in the channel grid on the Status Page

7.2 STATIC

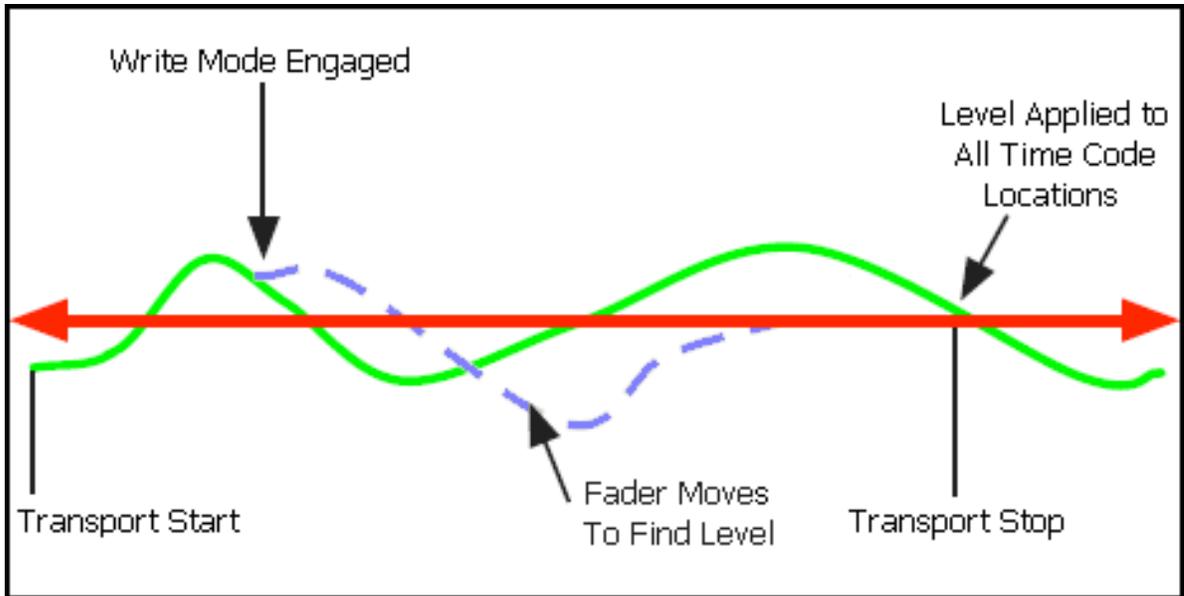


STATIC: Resets initial positions

- When timecode is stopped, the initial positions will be replaced with the last physical positions of the faders, mutes, and inserts
- All moves for the channel will be erased throughout the entire range of timecode (00:00:00:00 to 23:59:59:2X)
- STATIC is only effective in WRITE mode
- STATIC has no effect when used in MANUAL or READ modes
- UPDATE mode does not record moves while STATIC is engaged
- STATIC can be engaged at any time
- When STATIC is engaged on at least one channel:
 - The STATIC button on the Automation Controller illuminates
 - Channels have a blue sub-mode box in the Status Page channel grid
 - The blue STATIC LED on the fader illuminates



Use STATIC in WRITE mode to create initial positions at the start of a mix or when it is desirable to clear all recorded moves and start over with new initial positions.

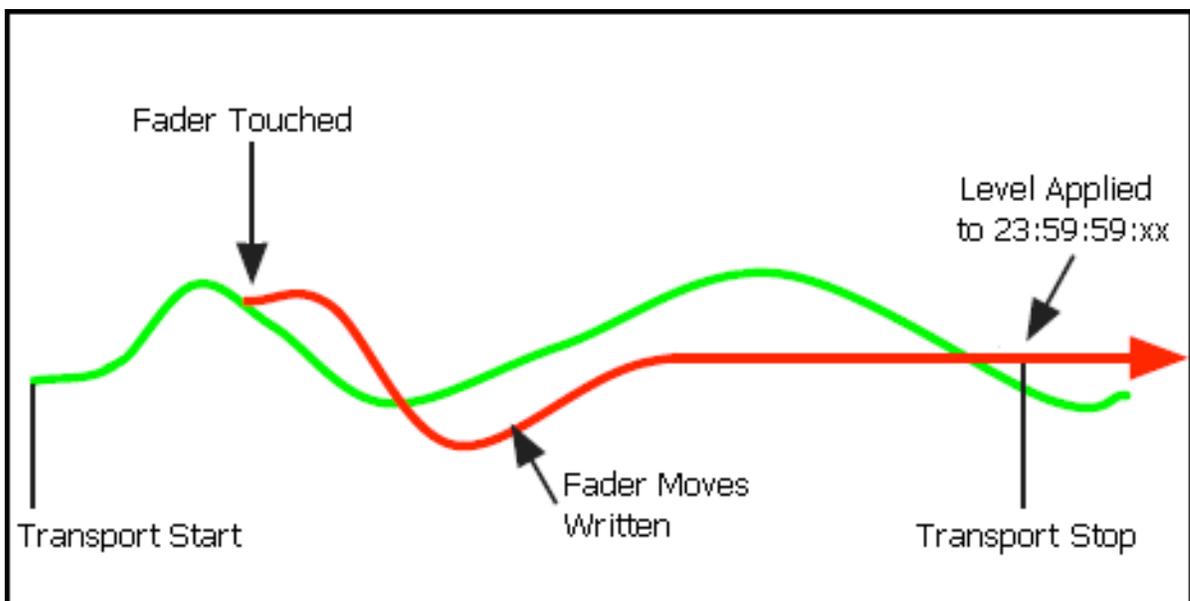


7.3 LATCH



LATCH: The last positions of controls are recorded to the end of timecode:

- When the fader is released in UPDATE or timecode is stopped in WRITE, the current position of the fader, mute, and insert will be recorded to the end of timecode (23:59:59.2X)
- From the point the fader is released or timecode is stopped, all existing moves will be replaced with the last fader, mute, and insert positions
- LATCH can be used in UPDATE and WRITE modes only
- LATCH has no effect when used in MANUAL or READ modes
- LATCH can be engaged at any time
- With LATCH engaged, faders can be released or timecode can be stopped at any time
- When LATCH is engaged on at least one channel:
 - The LATCH button on the Automation Controller illuminates
 - Channels have a turquoise sub-mode box in the Status Page channel grid
 - The yellow SUB-MODE LED on the fader illuminates



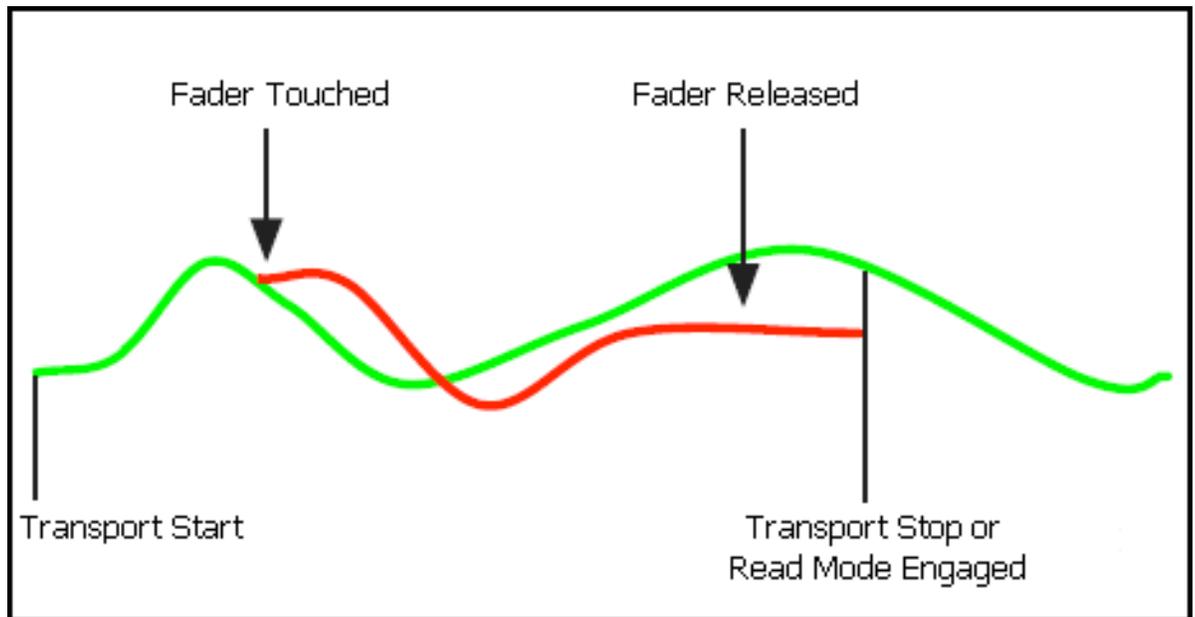
Use LATCH to apply the position of faders, mutes, and/or inserts from the point timecode was stopped all the way to the end. For example, the level of a track was moved to a good level at the beginning of the vamp out of a song. With UPDATE and LATCH engaged, release the fader once the desired level is reached. When timecode is stopped, that position will be written over all remaining moves to the end of timecode without having to play the song past the end.

7.4 TOUCH WRITE



TOUCH WRITE: Faders change from UPDATE to WRITE when touched:

- Playback is exactly as if in UPDATE until a fader is touched
- When a fader is touched, the fader changes from UPDATE to WRITE
- The fader will stay in WRITE after the fader is released and recording will continue
- Any moves will be recorded until timecode is stopped or the mode/sub-mode is changed
- Any previously recorded moves will be erased as long as recording continues
- TOUCH WRITE only applies to faders
- TOUCH WRITE can be used in UPDATE mode only
- TOUCH WRITE has no effect when used in Manual, Read, or WRITE modes
- When TOUCH WRITE is engaged on at least one channel:
 - The TOUCH WRITE button on the Automation Controller illuminates
 - Channels have an orange sub-mode box in the Status Page channel grid
 - The yellow SUB-MODE LED on the fader illuminates



Use TOUCH WRITE to playback previously recorded moves up to a certain point and then start recording in WRITE mode. For example, if you like the fader moves in the first verse of a song, but want replace the moves in the chorus with new ones, playback the verse and touch the fader at the start of the chorus. The verse moves will be played back and recording in WRITE mode will start at the beginning of the chorus.

7.5 MUTE WRITE

The "MUTE WRITE" mode allows mutes and inserts to be changed without affecting the fader.



MUTE WRITE: Puts the mute and insert in WRITE mode when held:

- Holding down the MUTE WRITE button on the fader, will replace all existing mute and insert moves for that channel while the button is held down
- Previously recorded moves will be erased
- MUTE WRITE is only effective when used in UPDATE mode
- MUTE WRITE has no effect when used in MANUAL, READ, or WRITE modes
- Section safes are respected by the MUTE WRITE function
- The MUTE WRITE function is only available from the fader
- Both the MUTE WRITE button and the yellow SUB-MODE LED on the fader illuminate while MUTE WRITE is held down

The MUTE WRITE provides a quick way to over-write mute and insert positions without overwriting the fader moves.

MUTE WRITE is only available on the fader and can only be assigned momentarily... that is as long as its button is held down.

7.6 Automation Sub-mode Assignment

Automation sub-modes can be assigned to channels in the same manner as modes are assigned using the channel grid on the Status Page, the mode buttons, and navigation tools on the Automation Controller. Using this method, modes can be assigned to individual channels, a subset of channels, or all channels.

With the exception of MUTE WRITE, sub-modes cannot be assigned from the fader. STATIC, LATCH, and TOUCH WRITE can only be assigned from the Status Page. MUTE WRITE can only be assigned from the fader.

7.7 Online Fader Trim

Online Fader Trim is used in a similar way as the Offline Trim function (described in section 8.3.6). Online Fader Trim allows you to apply an offset value to fader moves while maintaining the moves that have already been written. Activate Online Fader Trim by putting the fader into UPDATE mode, then hold the "Update" button (on the desired channel) for 2 seconds, until the red null LED's begin flashing rapidly. The fader will continue to track any existing moves as it normally would in UPDATE mode.

If you touch the fader, however, the automation system will keep track of the cumulative displacement of the fader from the moment that you touched it. When the fader is released, that offset will be tentatively applied to that fader, and may be adjusted by moving the fader again. Pressing "Kill Mix" or changing the automation mode of the fader while timecode is running will discard any of the changes that have been made. Stopping timecode while the fader is still in Online Fader Trim mode will cause the established offset value to be applied to the existing moves.

Again, Online Fader Trim does not replace fader moves, but simply modifies them with the established offset value. By default, Online Fader Trim will only affect the range of timecode that was played through on the last pass. If the Static sub-mode is active on the fader in question, however, then the Online Fader Trim offset will be applied to all timecode values.

Online Fader Trim can only be activated by the buttons on the fader. It cannot be activated from the ACM keypad.

8.0 Mix Tree Page

The Mix Tree Page displays and manages the mix files for the current project. This includes the mixes created using console hardware and using the Mix Menu edit functions.

Press the PROJECT PAGES button until the Mix Tree Page opens.



Mix Tree			
Name	Size	Grps	Change
No project open.			
Project:		Filename:	

The Mix Tree will not be functional unless a project file is open.

The Mix Menu will not open unless a project is open.

8.1 Mix Tree Display

Mix Tree			
Name	Size	Grps	Change
-Vocal Up Mix	1291	2	moves trimmed
-Vocal Down Mix	1291	2	moves trimmed
-No Vocal Mix	1219	2	moves saved
-Final Mix	1215	2	moves saved
-Mix 4	673	2	moves saved
-Mix 3	0	2	moves saved
-Mix 2	0	2	Groups Created
-Mix 1	0	0	
Project: 1608 Project		Filename: PRJ0001.UPJ	

The Mix Tree Page displays information about the open project and its mixes.

The name of the open project and project file are shown at the bottom of the Mix Tree Page.

Information and history is provided for each mix.

The diagram below indicates each area of the Mix Tree Page and steps taken to create each of the displayed mixes (mix pass evolution).

	Mix Name	Mix Size	No. of Groups	Changes Made																																													
	<table border="1"> <thead> <tr> <th colspan="4">Mix Tree</th> </tr> <tr> <th>Name</th> <th>Size</th> <th>Grps</th> <th>Change</th> </tr> </thead> <tbody> <tr> <td>-Vocal Up Mix</td> <td>1291</td> <td>2</td> <td>moves trimmed</td> </tr> <tr> <td>-Vocal Down Mix</td> <td>1291</td> <td>2</td> <td>moves trimmed</td> </tr> <tr> <td>-No Vocal Mix</td> <td>1219</td> <td>2</td> <td>moves saved</td> </tr> <tr> <td>-Final Mix</td> <td>1215</td> <td>2</td> <td>moves saved</td> </tr> <tr> <td>-Mix 4</td> <td>673</td> <td>2</td> <td>moves saved</td> </tr> <tr> <td>-Mix 3</td> <td>0</td> <td>2</td> <td>moves saved</td> </tr> <tr> <td>-Mix 2</td> <td>0</td> <td>2</td> <td>Groups Created</td> </tr> <tr> <td>-Mix 1</td> <td>0</td> <td>0</td> <td></td> </tr> <tr> <td colspan="2">Project: 1608 Project</td> <td colspan="2">Filename: PRJ0001.UPJ</td> </tr> </tbody> </table>				Mix Tree				Name	Size	Grps	Change	-Vocal Up Mix	1291	2	moves trimmed	-Vocal Down Mix	1291	2	moves trimmed	-No Vocal Mix	1219	2	moves saved	-Final Mix	1215	2	moves saved	-Mix 4	673	2	moves saved	-Mix 3	0	2	moves saved	-Mix 2	0	2	Groups Created	-Mix 1	0	0		Project: 1608 Project		Filename: PRJ0001.UPJ		
Mix Tree																																																	
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-Mix 1	0	0																																															
Project: 1608 Project		Filename: PRJ0001.UPJ																																															
Current Mix Indicator	-Vocal Up Mix	1291	2	moves trimmed	Mix Pass Evolution:																																												
	-Vocal Down Mix	1291	2	moves trimmed	Vocal trimmed up																																												
	-No Vocal Mix	1219	2	moves saved	Vocal trimmed down																																												
	-Final Mix	1215	2	moves saved	Vocal muted																																												
Highlighted Mix	-Mix 4	673	2	moves saved	Final mix																																												
	-Mix 3	0	2	moves saved	Automation moves saved																																												
	-Mix 2	0	2	Groups Created	Initial mix in STATIC and WRITE																																												
	-Mix 1	0	0		Group set up																																												
	Project: 1608 Project		Filename: PRJ0001.UPJ		Default mix (highlighted)																																												
	Project Name				Project File Name																																												

For each mix, the following information is displayed:

- Mix Name: Name of the mix
- Size: The size of the mix
- Grps (Groups): The number of groups contained within the mix
- Change: A summary of changes made (moves saved/trimmed, groups created, etc.)
- Origin Lines: Lines connect each mix to the mix from which it was made

The Mix Tree will “branch” as many times as needed, each time indicating the previous mix that was current when the mix was created. These “origin lines” will show the history of a mix that can be traced back to its initial mix. In the example on the previous page, mixes 1-4 were created consecutively, each based upon the previous mix. The “Vocal Up Mix,” “Vocal Down Mix,” and “No Vocal Mix” were all derived from the “Final Mix.”

8.2 Current Mix

The arrow icon  in the left hand column of the Mix Tree indicates which mix is the “current mix.” This is the mix that will be replayed in READ. Any recorded changes will be added to the data in the current mix and a new mix will be generated. The resulting mix is added to the Mix Tree and becomes the current mix.

Mix Tree Groups Snapshots				
Name	Size	Grps	Change	
Vocal Up Mix	1291	2	moves trimmed	
Vocal Down Mix	1291	2	moves trimmed	
▷ No Vocal Mix	1219	2	moves saved	
- Final Mix	1215	2	moves saved	
- Mix 4	673	2	moves saved	
- Mix 3	0	2	moves saved	
- Mix 2	0	2	Groups Created	
- Mix 1	0	0		

Project: 1608 Project Filename: PRJ0001.VPJ

To make a mix “current,” open the Mix Tree Page and use the Jog-Wheel to highlight the needed mix.

In this example, the current mix is “No Vocal Mix” and “Final Mix” is highlighted.

Once the mix is highlighted, press the SEL (Select) button. The Change Mix prompt will appear.

Mix Tree Groups Snapshots				
Name	Size	Grps	Change	
Vocal Up Mix	1291	5	moves trimmed	
Vocal Down Mix	1291	2	moves trimmed	
- No Vocal Mix	1219	2	moves saved	
- Final Mix	1215	2	moves saved	
- Mix 3	0	2	moves saved	
- Mix 2	0	2	Groups Created	
- Mix 1	0	0		

Project: 1608 Project Filename: PRJ0001.VPJ

Press the SEL (Select) button and the highlighted mix will become the current mix.

Mix Tree Groups Snapshots				
Name	Size	Grps	Change	
Vocal Up Mix	1291	2	moves trimmed	
Vocal Down Mix	1291	2	moves trimmed	
- No Vocal Mix	1219	2	moves saved	
▷ - Final Mix	1215	2	moves saved	
- Mix 4	673	2	moves saved	
- Mix 3	0	2	moves saved	
- Mix 2	0	2	Groups Created	
- Mix 1	0	0		

Project: 1608 Project Filename: PRJ0001.VPJ

An arrow will appear next to the mix name, indicating it is the current mix.



A mix can also be made current by highlighting it and selecting “Make Current” in the Mix Menu. Refer to section 8.3.1 for details.

8.3 Mix Menu

The mixes in the Mix Tree can be named, edited, color-coded, and deleted using the Mix Menu.



With the Mix Tree Page open, highlight the mix to be manipulated and press the MENU button to open the Mix Menu. The function selected in the Mix Menu will affect the mix highlighted in the Mix Tree when the menu was opened. Several of the Mix Menu edit functions will result in the creation of a new mix.

The Mix Menu will not open unless a project is open.

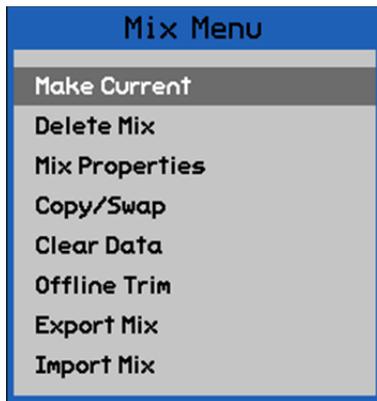
NOTE: A mix does not have to be the current mix to be selected for Mix Menu functions.



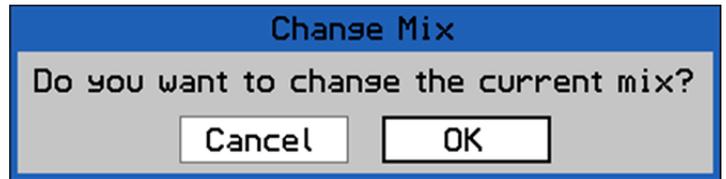
The Mix Menu contains eight (8) items that facilitate the management of mixes and mix editing functions:

- Make Current: Makes the highlighted mix the current mix
- Delete Mix: Deletes the highlighted mix
- Mix Properties: Facilitates edits to the name, glide rate, and color of the highlighted mix
- Copy/Swap: Facilitates copying and swapping of mix data from one channel to another in the highlighted mix
- Clear Data: Clears mix data within the highlighted mix
- Off-line Trim: Facilitates the trimming fader levels within the highlighted mix
- Export Mix: Saves the highlighted mix as a separate mix file
- Import Mix: Loads an exported mix file into the current Mix Tree

8.3.1 Make Current



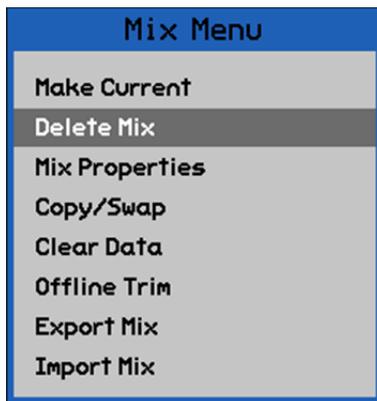
To make a mix the current mix, highlight it in the Mix Tree and select "Make Current" from the Mix Menu. The "Change Mix" dialog box will open.



Highlight "OK" and press SEL (Select) to make the highlighted mix the current mix.

Highlight "Cancel" and press SEL (Select) to cancel.

8.3.2 Delete Mix



To delete a mix, highlight it in the Mix Tree and select "Delete Mix" from the Mix Menu. A confirmation dialog box will open.



Highlight "OK" and press SEL (Select) to delete the highlighted mix.

Highlight "No" and press SEL (Select) to cancel.

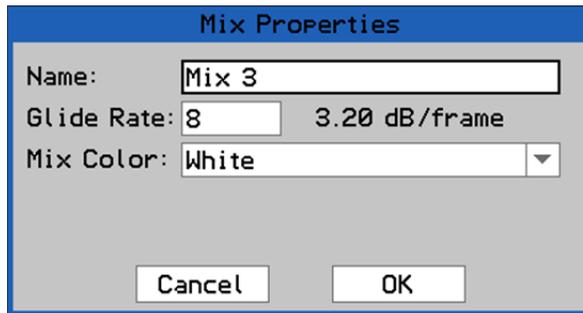
8.3.3 Mix Properties



The "Mix Properties" menu item facilitates editing of the name, glide rate, and color of the highlighted mix.

To rename a mix, change its glide rate, or change its color, highlight it in the Mix Tree and select "Mix Properties" from the Mix Menu. The "Mix Properties" dialog box will appear.

8.3.3.1 Change Mix Name



The mix name is set in the Mix Properties dialog box.

To change the name of a mix, highlight the "Name:" text-entry field and press the SEL (Select) button. Using the text-entry procedures, edit the existing name or enter a new one. Press ESC (Escape) once the name has been entered.

Highlight "OK" and press SEL (Select) to assign the edited name to the highlighted mix.

Highlight "Cancel" and press SEL (Select) to cancel.

8.3.3.2 Change Mix Glide Rate

The "glide" function is always active.

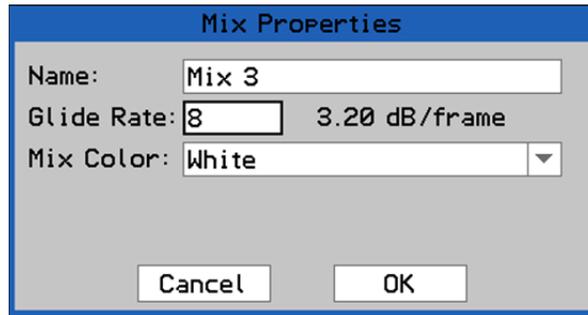
The "glide rate" is the speed at which a fader will return to its recorded position after one of the following events occurs:

- A fader in READ is moved away from its recorded position and is released
- A fader in UPDATE is released

Glide does not apply when:

- A fader in WRITE is changed to READ
- Any end-of-pass process when the physical position of the fader does not match the recorded position when timecode is stopped. In these cases, the faders will "snap" to match the READ mix data without glide.

The movement of a gliding fader is carried out at a constant, decibel-relative rate. The actual speed of the fader movement will be scaled to accommodate the audio taper depending on its physical position. (Constant glide rate in dB/frame requires slower physical motion at the bottom of the fader.)



Glide rate is set in the Mix Properties dialog box.

To change the glide rate of a mix, highlight the "Glide Rate:" selection field and press the SEL (Select) button. The "Glide Rate:" field will become active and turn grey. Use the Jog-Wheel to scroll to the needed glide rate and press SEL (Select).

Glide Rate:	1	0.40 dB/frame
Glide Rate:	2	0.80 dB/frame
Glide Rate:	4	1.60 dB/frame
Glide Rate:	8	3.20 dB/frame
Glide Rate:	16	6.40 dB/frame
Glide Rate:	32	12.80 dB/frame
Glide Rate:	64	25.60 dB/frame
Glide Rate:	128	51.20 dB/frame
Glide Rate:	256	102.40 dB/frame

The nine (9) glide rate choices are shown to the left.

Glide rate is expressed in decibels per frame (dB/frame). The lower the glide rate number, the slower the rate of return. At higher glide rates faders essentially "snap" back.

Press the SEL (Select) button once the needed glide rate has been selected.

Highlight "OK" and press SEL (Select) to assign the selected glide rate to the highlighted mix.

Highlight "Cancel" and press SEL (Select) to cancel.

NOTE: Changes to the glide rate do not apply to previously recorded fader moves.

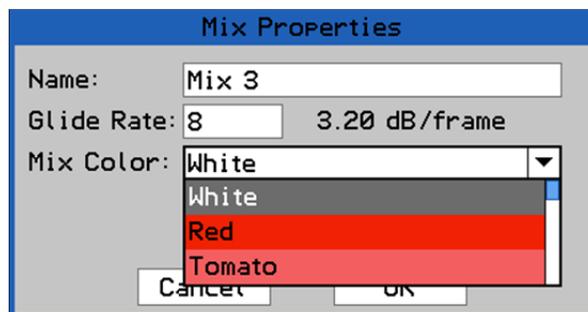
Changing the glide rate does not affect any of the fader moves within the mix. However, the new glide rate will be applied to the fader moves in any mixes derived from this mix. So, when you change the glide rate in a mix you are really setting it for any subsequent mixes made from that mix.

Only one glide rate can be assigned to a mix at a time. However, multiple glide rates can be used within a mix. After moves have been recorded using one glide rate, the rate can be changed and the subsequent moves will use the new rate.

NOTE: When the glide rate for a mix is changed, the mix is not automatically made current. The mix must be made current for the changed glide rate to be used in a mix.

NOTE: The glide rate for new moves is always determined by the current mix. Mixes created earlier or later may have different glide rates. The system will apply the glide rate set for whatever mix is current.

8.3.3.3 Change Mix Color



Mix color is set in the Mix Properties dialog box.

To change the color of a mix, highlight the "Mix Color:" selection field and press the SEL (Select) button. The "Mix Color:" field will become active and turn into a pull-down menu. Use the Jog-Wheel to scroll to the needed color and press SEL (Select).

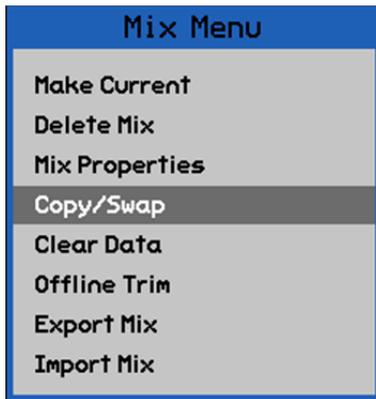


The colors to the left can be selected.

Highlight "OK" and press SEL (Select) to assign the selected color to the highlighted mix.

Highlight "Cancel" and press SEL (Select) to cancel.

8.3.4 Copy/Swap

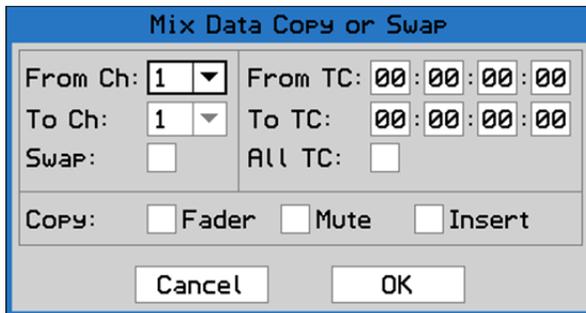


The "Copy/Swap" menu item facilitates copying and swapping of data between channels within the highlighted mix.

To copy or swap data within a mix, highlight it in the Mix Tree and select "Copy/Swap" from the Mix Menu. The "Copy/Swap" dialog box will appear.

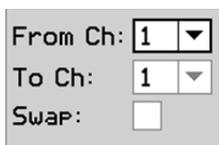
The copy or swap function can apply to all timecode addresses (00:00:00:00 to 23:59:59:2X) or only to a user-defined range of timecode addresses.

A new mix with the copied or swapped data will be created in the Mix Tree as a result of using this function.



The mix data copy and swap functions are facilitated by the Mix Data Copy or Swap dialog box.

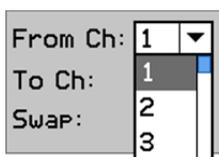
Each section of this dialog box is explained in the following sections.



Channel Selection: Selects channels for the copy or swap function
From Ch (From Channel): Pull-down menu to select the channel from which the copied or swapped data originates

To Ch (To Channel): Pull-down menu to select the channel to which the data will be copied to or swapped with

These pull-down menus will contain the number of installed input channels (1-16, 1-32, 1-48), the Group Master Faders (G1, G2), and Program Master Fader (PGM).



To select the "From" and "To" channels, highlight the pull-down menu and press the SEL (Select) button. Use the Jog-Wheel to select the needed channel and press the SEL (Select) button.

"Copy" is the default function of the Mix Data Copy or Swap dialog box. This allows data from one channel to be copied to another.

Swap: Swap: Changes the "Copy" function to the "Swap" function. This allows data to be swapped between two channels.

To select the swap function, highlight the "Swap:" check box and press the SEL (Select) button. An "X" will appear in the check box when the swap function is selected.



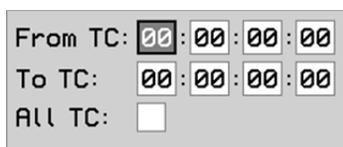
Timecode Range: Selects the range of timecode to which the Copy/Swap function will be applied. Either all timecode addresses or a range of addresses with user-defined beginning and ending points can be selected.

From TC (From Timecode): The starting timecode address for the Copy/Swap function

To TC (To Timecode): The ending timecode address for the Copy/Swap function

Timecode has four fields to enter:

- Hours: 00-23
- Minutes: 00-59
- Seconds: 00-59
- Frames: 00-2X (X depends on frame rate)



To select the "From" and "To" timecode addresses, highlight the needed field and press the SEL (Select) button. The field will turn grey. Use the Jog-Wheel to select the needed value and press the SEL (Select) button.

All TC: All TC (All Timecode): Selects the entire range of timecode addresses (00:00:00:00 to 23:59:59:2X)

To select all timecode addresses for the Copy/Swap function, highlight the "All TC:" check box and press the SEL (Select) button. An "X" will appear in the check box all timecode addresses are selected.



Copy: Selects the controls whose data will be copied or swapped.

Fader Fader, Mute, and Insert data can be copied or swapped.

Mute To select the controls for the Copy/Swap function, highlight the needed check box and press the SEL (Select) button. Each control must be selected separately.

Insert

Highlight "OK" and press SEL (Select) to apply the copy or swap function to the selected channels during the selected timecode window. This will create a new mix in the Mix Tree.

Highlight "Cancel" and press SEL (Select) to cancel.

8.3.4.1 Copy/Swap Procedure

To copy or swap data from one channel to another, use the following procedure:

1. Highlight the desired mix in the Mix Tree and select "Copy/Swap" from the Mix Menu.
2. Select the channel to copy or swap "from."
3. Select a channel to copy or swap "to."
4. Check "Swap" to change from the copy function to the swap function if needed.
5. Select the timecode region to which the copy or swap data will be applied.
6. Select the "OK" button to create new mix with the copied or swapped data.

8.3.5 Clear Data

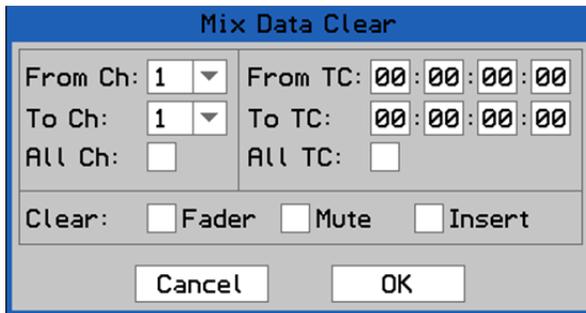


The "Clear Data" menu item facilitates clearing data within the highlighted mix.

To clear data within a mix, highlight it in the Mix Tree and select "Clear Data" from the Mix Menu. The "Mix Data Clear" dialog box will appear.

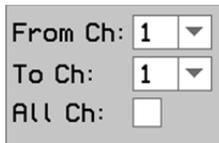
The clear data function can apply to all timecode addresses (00:00:00:00 to 23:59:59:2X) or only to a user-defined range of timecode addresses.

A new mix with the cleared data will be created in the Mix Tree as a result of using this function.



The mix data clear function is facilitated by the Mix Data Clear dialog box.

Each section of this dialog box is explained in the following sections.

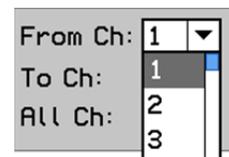


Channel Selection: Selects a range of channels for the clear data function

From Ch (From Channel): Pull-down menu to select the first channel whose data will be cleared

To Ch (To Channel): Pull-down menu to select the last channel whose data will be cleared

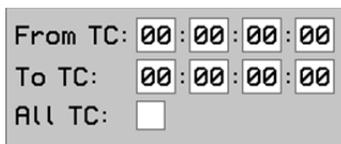
These pull-down menus will contain the number of installed input channels (1-16, 1-32, 1-48), the Group Master Faders (G1, G2), and Program Master Fader (PGM).



To select the "From" and "To" channels, highlight the pull-down menu and press the SEL (Select) button. Use the Jog-Wheel to select the needed channel and press the SEL (Select) button.

All Ch: All Ch (All Channels): Selects all channels for the channel clear function.

To select all channels for the Clear Data function, highlight the "All Ch:" check box and press the SEL (Select) button. An "X" will appear in the check box when all channels are selected.



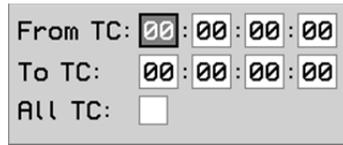
Timecode Range: Selects the range of timecode to which the Clear Data function will be applied. Either all timecode addresses or a range of addresses with user-defined beginning and ending points can be selected.

From TC (From Timecode): The starting timecode address for the Clear Data function

To TC (To Timecode): The ending timecode address for the Clear Data function

Timecode has four fields to enter:

- Hours: 00-23
- Minutes: 00-59
- Seconds: 00-59
- Frames: 00-2X (X depends on frame rate)



To select the "From" and "To" timecode addresses, highlight the needed field and press the SEL (Select) button. The field will turn grey. Use the Jog-Wheel to select the needed value and press the SEL (Select) button.

All TC All TC (All Timecode): Selects the entire range of timecode addresses (00:00:00:00 to 23:59:59:2X)

To select all timecode addresses for the Clear Data function, highlight the "All TC:" check box and press the SEL (Select) button. An "X" will appear in the check box when all timecode addresses are selected.



Clear: Selects the controls whose data will be cleared.

Fader Fader, Mute, and Insert data can be cleared.

Mute To select the controls for the Clear Data function, highlight the needed check box and press the SEL (Select) button. Each control must be selected separately.

Insert

Highlight "OK" and press SEL (Select) to apply the Clear Data function to the selected channels during the selected timecode window. This will create a new mix in the Mix Tree.

Highlight "Cancel" and press SEL (Select) to cancel.

8.3.5.1 Clear Data Procedure

To clear mix data on one or more channels, use the following procedure:

1. Highlight the desired mix in the Mix Tree and select "Clear Data" from the Mix Menu.
2. Select the first channel to clear data.
3. Select the last channel to clear data.
4. Select the timecode region in which the data will be cleared.
5. Select the "OK" button to create new mix with the cleared data.

8.3.6 Offline Trim

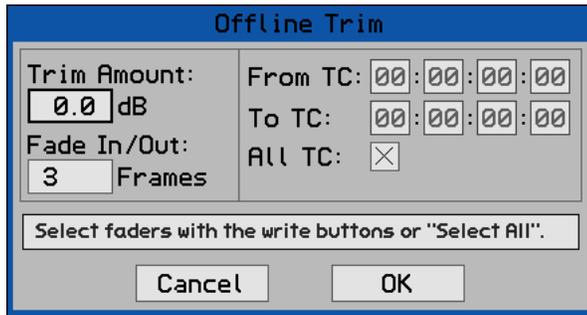


The "Offline Trim" menu item facilitates fader data trimming within the highlighted mix.

"Offline Trim..." allows the fader levels for the highlighted mix to be "trimmed" offline by a user-defined amount.

The trimmed levels can apply to all timecode addresses (00:00:00:00 to 23:59:59:2X) or only to a user-defined range of timecode addresses.

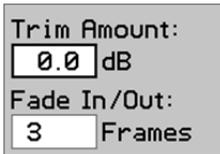
A new mix with the trimmed levels will be created in the Mix Tree as a result of using this function.



The Offline Trim function is facilitated by the Offline Trim dialog box.

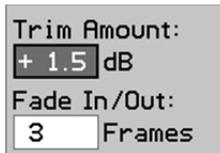
To trim fader data within a mix, highlight it in the Mix Tree and select "Offline Trim" from the Mix Menu. The "Offline Trim" dialog box will appear.

Each section of this dialog box is explained in the following sections.



Trim Amount: Selects a +/- 50dB offset of fader data in .5dB increments.

Fade In/Out: Selects the number of frames (1-99) it takes for the trim to fade in and out from existing levels.



To select the "Trim Amount," highlight the "dB" field and press the SEL (Select) button. Use the Jog-Wheel to select the amount of trim and press the SEL (Select) button.



To select the "Fade In/Out" time, highlight the "Frames" field and press the SEL (Select) button. Use the Jog-Wheel to select the needed number of frames and press the SEL (Select) button.



Timecode Range: Selects the range of timecode to which the Offline Trim function will be applied. Either all timecode addresses or a range of addresses with user-defined beginning and ending points can be selected.

From TC (From Timecode): The starting timecode address for the Offline Trim function

To TC (To Timecode): The ending timecode address for the Offline Trim function

Timecode has four fields to enter:

- Hours: 00-23
- Minutes: 00-59
- Seconds: 00-59
- Frames: 00-2X (X depends on frame rate)



To select the "From" and "To" timecode addresses, highlight the needed field and press the SEL (Select) button. The field will turn grey. Use the Jog-Wheel to select the needed value and press the SEL (Select) button.



All TC (All Timecode): Selects the entire range of timecode addresses (00:00:00:00 to 23:59:59:2X).

To select all timecode addresses for the Offline Trim function, highlight the "All TC:" check box and press the SEL (Select) button. An "X" will appear in the check box when all timecode addresses are selected. "All TC" will be selected by default in Offline Trim.



Select faders with the write buttons or "Select All".

Fader Selection: The Offline Trim dialog box provides instructions on how to select faders for trimming. As the prompt indicates, use the WRITE buttons to select faders to trim.

WRITE: Selects the faders to be trimmed, if pressed while the Offline Trim dialog box is open.

SELECT ALL (on the ACM keypad): Alternately selects all faders or no faders to be trimmed, if pressed while the Offline Trim dialog box is open.

Highlight "OK" and press SEL (Select) to apply the trim and fade values to the selected channels during the selected timecode window. This will create a new mix in the Mix Tree.

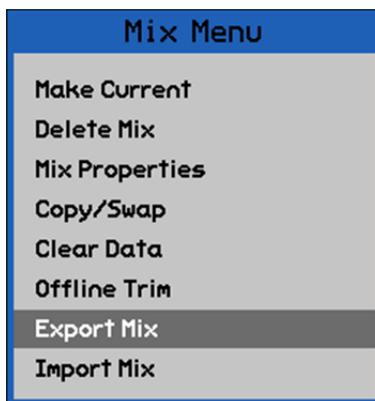
Highlight "Cancel" and press SEL (Select) to cancel.

8.3.6.1 Offline Trim Procedure

To trim mix data on one or more channels, use the following procedure:

1. Highlight the desired mix in the Mix Tree and select "Offline Trim" from the Mix Menu.
2. Select the trim value (+/- 50dB).
3. Select number of frames for the fade-in/fade-out time.
4. Select the timecode region in which the data will be trimmed.
5. Select the faders to be trimmed using the fader WRITE buttons.
6. Select the "OK" button to create new mix with the trimmed data.

8.3.7 Export Mix

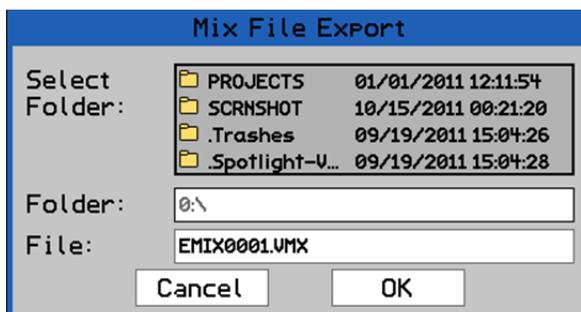


The "Export Mix" menu item facilitates the export of the highlighted mix as a .VMX mix file.

An exported mix remains in the Mix Tree and is not deleted as a result of using this function.

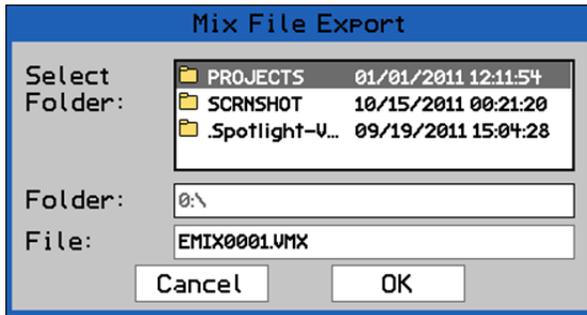
The Export Mix function is facilitated by the Mix File Export dialog box.

To export a mix from a project, highlight it in the Mix Tree and select "Export Mix" from the Mix Menu.



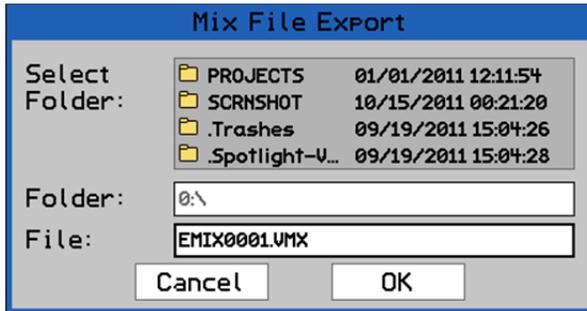
The "Mix File Export" dialog box will appear, displaying a list of folders and files on the memory card and a text-entry box.

Select a location for the mix file to be exported. The default location is the root directory of the memory card.



If a different location is needed (such as another project folder), press the SEL (Select) button while the directory list is highlighted to activate access to it.

Use the Jog-Wheel and SEL (Select) button to navigate to the needed location, highlight it, and press the SEL (Select) button to select it.



Once the needed location is selected, use the Jog-Wheel to highlight the "File:" text-entry field.

Press SEL (Select) to enter a name for the mix file.

Press ESC (Escape) when finished.



Once the mix file name has been entered, use the Jog-Wheel to highlight "OK."

Press the SEL (Select) button to save the mix file in the selected location.

Highlight "Cancel" and press SEL (Select) to cancel.

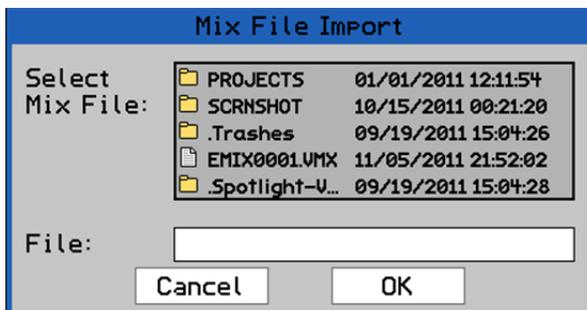
8.3.8 Import Mix



The "Import Mix" menu item facilitates the importing of .VMX mix files into the currently open project and Mix Tree.

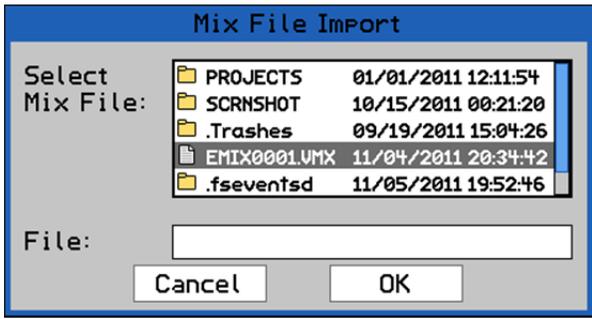
The Import Mix function is facilitated by the Mix File Import dialog box.

To import a mix into a project, open the Mix Tree and select "Import Mix" from the Mix Menu.



The "Mix File Import" dialog box will appear, displaying a list of folders and files on the memory card and a text-entry box.

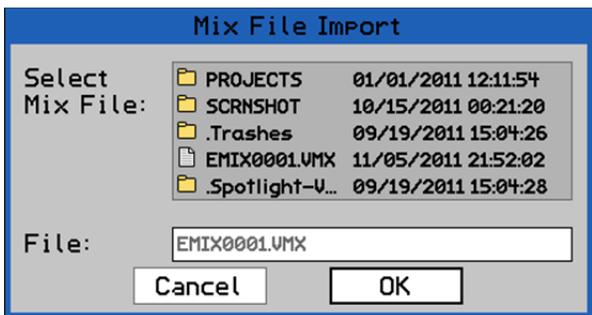
The list will open in the root directory of the memory card.



Press the SEL (Select) button while the directory list is highlighted to activate access to it.

Use the Jog-Wheel to locate and highlight the mix file to be imported.

Press the SEL (Select) button to select the highlighted mix file.



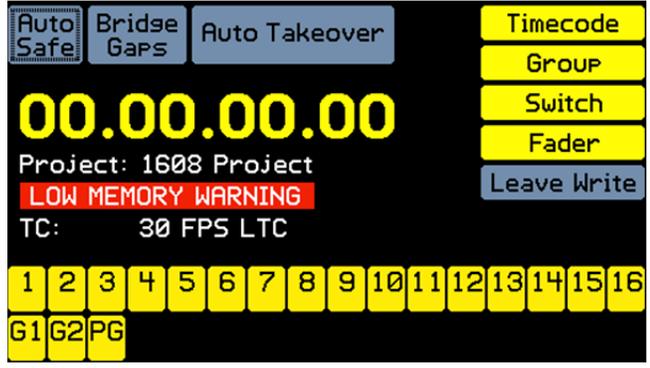
Once the mix file has been selected, the name of the mix file to be imported will appear in the "File:" text box

Use the Jog-Wheel to highlight "OK."

Press the SEL (Select) button to import the selected mix file in the current Mix Tree and project.

8.4 Low Memory Warning

The Automation Controller (ACM) has a limited amount of memory for the current mix. If a mix is loaded that exceeds 350,000 records (about 4 megabytes), a warning prompt will appear on the Status Page.



This warning indicates the onboard memory is approaching capacity and only a few more changes can be safely made to the mix.

The system will lockup if it runs out of memory. A dialog box will appear indicating you have run out of memory and must reboot. The mix files will not be corrupted, but the current mix pass will be lost.

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9.0 Automation Procedures

This section is intended to provide a step-by-step tutorial on how to start an automated mix on the 1608. It assumes the engineer has basic knowledge of system navigation, automation concepts, and file management. Detailed information and procedures for these areas are provided in their respective sections of this manual.

9.1 Starting a New Mix

For all procedures below:

1. Synchronize the 1608 with the multitrack media using MIDI timecode (MTC) or SMPTE timecode (LTC) at the same frame rate as the open project file.
2. Make sure groups, switches, and faders are enabled.

9.1.1 New Mix in a New Project

This method is useful at the end of a session after you've been recording and/or mixing in MANUAL mode and you are ready to start an automated mix.

To create a new mix using this method, perform the following procedure:

1. Start in MANUAL mode:
 - Press the SELECT ALL button to select all channels
 - Press the MANUAL button to put all channels in MANUAL
2. Enable timecode by selecting "Timecode" on the Status Page.
3. Create a preliminary mix on the console.
4. Press the STATUS PAGE button, then press MENU to bring up the main menu.
5. Highlight "New Project" and press SEL.
6. Use the text entry methods (described in section 3.3.4) to enter a title and filename for the new project.
7. Choose a timecode rate, and use the default Basis, "Current Positions."
8. A new project will be created with the current fader, mute, and insert positions as the initial positions of Mix 1 of the new project.

9.1.2 New Mix in an Existing Project

This method is useful if you want to start over with a new mix while staying within an existing project.

To create a new mix using this method, perform the following procedure:

1. Disable timecode by deselecting "Timecode" on the Status Page.
2. Select "Auto Safe" on the Status Page.
3. Put all channels in STATIC and WRITE:
 - Press the SELECT ALL button to select all channels
 - Press the STATIC button to enable the STATIC sub-mode on all channels
 - Press the WRITE button to enable WRITE mode on all channels

NOTE: The STATIC button must be engaged before WRITE can be enabled on the ACM.

NOTE: DO NOT engage UPDATE in order enable WRITE on the ACM. Doing so will result in the loss of your preliminary mix positions.

4. Create a preliminary mix on the console.

5. After you have a good starting mix for automation, enable timecode by selecting "Timecode" on the Status Page.
6. Play back your recording to start timecode and let it run for a few seconds. When timecode is stopped:
 - The positions of the faders, mutes, and inserts will be written to all timecode addresses
 - A new mix that contains the initial positions of your preliminary mix will be created in the Mix Tree
 - Since "Auto Safe" is on, the mode will change from WRITE to UPDATE when timecode is stopped
7. Press the CLEAR SUB-MODE button to disengage STATIC.
8. You may want to change the color of the mix that has just been created to differentiate it from other mixes in the project.

9.1.3 Tips for Working on a Mix

1. To record additional moves, select the needed channel(s) and engage UPDATE or WRITE to record your moves at the proper time:
 - Channel selection and mode can be changed at any time, even while timecode is running
 - Pressing UPDATE plays back the mix: faders record only when touched and mutes/inserts are added to the existing mix
 - Pressing WRITE on a fader allows automation to be "punched-in" directly from READ
2. It might be helpful to engage "Auto Safe" on the Status Page so all channels in WRITE will change to UPDATE after moves have been recorded and timecode is stopped. "Auto Safe" acts as a safety device to help prevent recorded moves from being overwritten accidentally.
3. Each time timecode is stopped after new moves have been recorded, a new mix will be saved to the Mix Tree.
 - Pressing the KILL MIX button before timecode is stopped will "kill" the current mix pass, discard any recorded moves, and prevent a new mix from being created in the Mix Tree
4. Open the Mix Properties from the Mix Menu to adjust the "Glide Rate" as needed. It can also be helpful to rename and color code mixes as needed.
5. To fine-tune the mix, use a combination of mode and sub-modes as needed. Using the Mix Menu edit functions (Copy/Swap, Clear Data, Offline Trim) might also help fine-tune the mix.
6. As all the moves for a set of controls (fader, mute, or insert) have been completed, it might be helpful to set the "Safe" mode for that set of controls to help prevent accidental changes.

If no changes are written to automation, the initial positions will be used throughout the mix. If changes are written to automation, they will be played back at the timecode locations at which they were recorded. If playback is started before any recorded moves, the initial positions will be replayed by the automation system and held until the first recorded move is played back.

9.2 Make a Mix Current

As mixing continues, the Mix Tree will grow with time. To make an existing mix the active mix, perform the following procedure:

1. Press the PROJECT PAGES button to open the Mix Tree.
2. Highlight the desired mix in the Mix Tree.

3. Press the SEL (Select) button to select the highlighted mix.
4. Highlight "OK" and press the SEL (Select) button to make the highlighted mix current.
5. An arrow icon  will appear in the Mix Tree to indicate that this is the current mix.

9.3 Change the Glide Rate

As mixing continues, it may become necessary to change the "Glide Rate." To change the "Glide Rate," perform the following procedure:

1. Press the PROJECT PAGES button to open the Mix Tree.
2. Highlight the desired mix in the Mix Tree. Ideally this will be the current mix.
3. Press the MENU to open the Mix Menu.
4. Highlight the "Mix Properties" item and press the SEL (Select) button. The Mix Properties dialog box will open.
5. Highlight the "Glide Rate:" selection field and press the SEL (Select) button. The selection field will turn grey indicating it has been activated.
6. Use the Jog-Wheel to select the needed glide rate and press the SEL (Select) button.
7. While you have the Mix Properties dialog box open, make any changes to the mix name and color as needed
8. Highlight "OK" and press the SEL (Select) button to assign the new glide rate, name, and mix color to the highlighted mix.
9. If it is not already current, make the highlighted mix the current mix.
 - Fader moves recorded using this mix as the current mix will use the newly set glide rate

NOTE: The glide rate for new moves is always determined by the current mix. Mixes created earlier or later may have different glide rates. The system will apply the glide rate set for whatever mix is current.

9.4 Export a Mix

To export a mix, perform the following procedure:

1. Press the PROJECT PAGES button to open the Mix Tree Page.
2. Use the Jog-Wheel to highlight the mix to be exported.
3. Press the MENU button to open the Mix Menu.
4. Highlight "Export Mix" and press the SEL (Select) button.
5. Press the SEL (Select) button to activate the directory list. Use the Jog-Wheel and SEL (Select) button to navigate to the needed location (Folder) for the exported mix file.
6. Once the location for the new mix file has been selected, press the ESC (Escape) button to exit the directory. The name of the selected location will appear in the "Folder" text field.
7. Highlight the "File" text-entry field and use text-entry procedures to enter a mix file name. Press the SEL (Select) button when finished.
8. Highlight the "OK" button and press the SEL (Select) button to export the highlighted mix as a .VMX file.

9.5 Import a Mix

To import a mix, perform the following procedure:

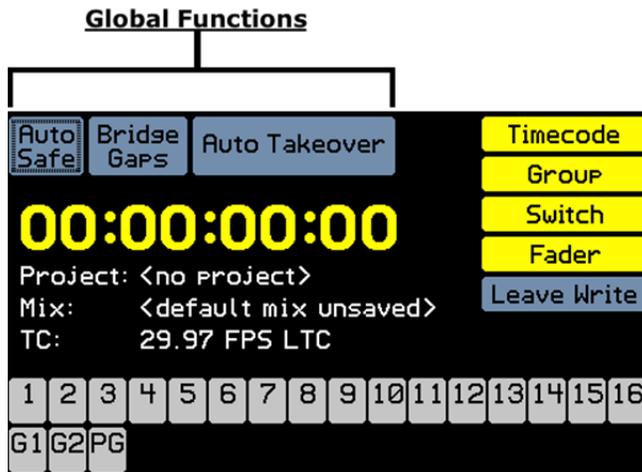
1. Press the PROJECT PAGES button to open the Mix Tree Page.
2. Press the MENU button to open the Mix Menu.
3. Highlight "Import Mix" and press the SEL (Select) button.
4. Press the SEL (Select) button to activate the directory list. Use the Jog-Wheel and SEL (Select) button to navigate to the mix file to be imported.
5. Press the SEL (Select) button once the needed mix file is highlighted. Once the file has been selected, its name will appear in the "File:" text box.
6. Highlight the "OK" button and press the SEL (Select) button to import the selected mix into the current project and Mix Tree Page.

10.0 Global Functions

There are four (4) automation functions that apply to the automation system on a global basis and are not channel oriented. Collectively, these functions are known as "Global Functions."

There are four (4) "global automation functions:"

- Auto Safe: Automatically changes any channels in WRITE to UPDATE when timecode is stopped
- Bridge Gaps: Allows control positions and modes at the point when timecode is stopped to be applied up to a later location if timecode is started at a later location without rewinding
- Auto Takeover: Keeps track of the channels that are in UPDATE or WRITE at the point where timecode is stopped and restores those modes when that point in Timecode is reached on a subsequent pass
- Kill Mix: Activates a flag to discard any changes made during the current automation pass



"Auto Safe," "Bridge Gaps," and "Auto Takeover" are found on the Status Page.

The KILL MIX is a button on the Automation Controller.



10.1 Kill Mix



KILL MIX: Activates a flag to discard any changes made during the current automation pass and suppress the end-of-pass processes when timecode is stopped.

- "The KILL MIX" function can be engaged at any time before timecode is stopped, by pressing the KILL MIX button.
- The KILL MIX button will illuminate when engaged

KILL MIX functions as an instant "undo" if engaged before timecode is stopped. When engaged, the "KILL MIX" function activates a flag to discard any changes made during the current automation pass and a new mix is not created.

KILL MIX only works if the button is engaged when timecode is stopped. The button can be engaged whenever while timecode is running and must remain engaged when timecode is stopped. If KILL MIX is not engaged, as soon as timecode stops, any changes made during the pass will be committed to a new mix in the Mix Tree.

KILL MIX can be toggled on and off while time code is running. If KILL MIX is engaged and you change your mind before you stop playback, press the KILL MIX button again to disengage the function.

If unwanted changes are recorded and KILL MIX was not engaged before Timecode was stopped, the previous mix can be made current in the Mix Tree.

10.2 Auto Safe



Auto Safe: Sets all channels in WRITE to UPDATE when timecode is stopped.

- "Auto Safe" can be engaged at any time, by selecting its button on the Status Page
- "Auto Safe" will turn yellow when engaged

Designed as a safety feature, "Auto Safe" automatically resets all channels in WRITE to UPDATE whenever timecode is stopped. It helps prevent accidental erasure of moves from forgetting to take channels out of WRITE after moves have been recorded and restarting timecode playback.

10.3 Bridge Gaps



Bridge Gaps: Allows control positions and modes at the point when timecode is stopped to be applied to a later location, if timecode is started at a later location without rewinding.

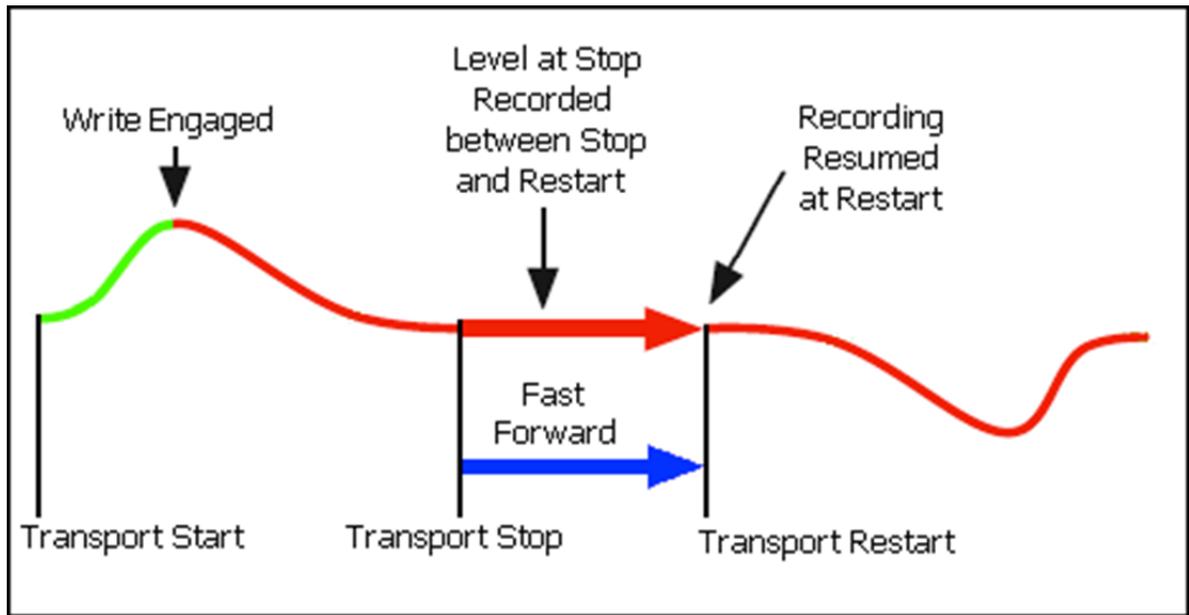
- Transport must be stopped and restarted at a later location without rewinding
- "Bridge Gaps" can be engaged at any time, by selecting its button on the Status Page
- "Bridge Gaps" will turn yellow when engaged

After recording moves and playback is stopped, faders, mutes, and inserts will normally "revert" to their previously recorded positions at the location where timecode was stopped. With "Bridge Gaps" engaged, those "reverts" are flagged as speculative.

If the media is rewind, playback is started before the stopping point, and then played through the stopping point, the "reverts" will playback as they normally would.

If instead you start playback from the stopping point or fast forward by an arbitrary amount and start playback, those speculative reverts will be discarded and all intervening data will be written over, as if timecode had never stopped at all. The positions and modes when timecode was stopped will "bridge the timecode gap" be applied over the gap and recording will continue from the restart position.

The speculative reverts will become permanent if you rewind to an earlier timecode location and start playback. The system will operation as if "Bridge Gaps" was not engaged.



In other words, the positions of faders in WRITE will be "held" or "remembered" when timecode is stopped. If timecode is restarted at that point or a later timecode address, those positions will be applied between the stopping point and the later starting point. Recording will be resumed at the point where timecode was restarted. The net result is the "gap" between the previous stopping point and later starting point is "bridged" or filled-in with the positions the controls were in at the stopping point.

"Bridge Gaps" only affects faders, mutes, and inserts in WRITE when timecode stops

"Bridge Gaps" must be engaged before timecode is stopped for this function to be activated.

“Bridge Gaps” can be used to perform complicated edits incrementally, starting and stopping playback without having your faders jump back to their previous positions each time playback is stopped.

“Bridge Gaps” is also handy for bulk erasing moves over large sections of a song or scene.

10.4 Auto Takeover

Auto Takeover

Auto Takeover: Keeps track of the channels that are in UPDATE or WRITE at the point where timecode is stopped and restores those modes when that point in timecode is reached on a subsequent pass.

- “Auto Takeover” can be engaged at any time, by selecting its button on the Status Page
- “Auto Takeover” will turn yellow when engaged

Auto Takeover Ready

When “Auto Takeover” is engaged and timecode is started, the “Auto Takeover” button will change to “Auto Takeover Ready.” This indicates that “Auto Takeover” is ready to capture the timecode address when the transport is stopped.

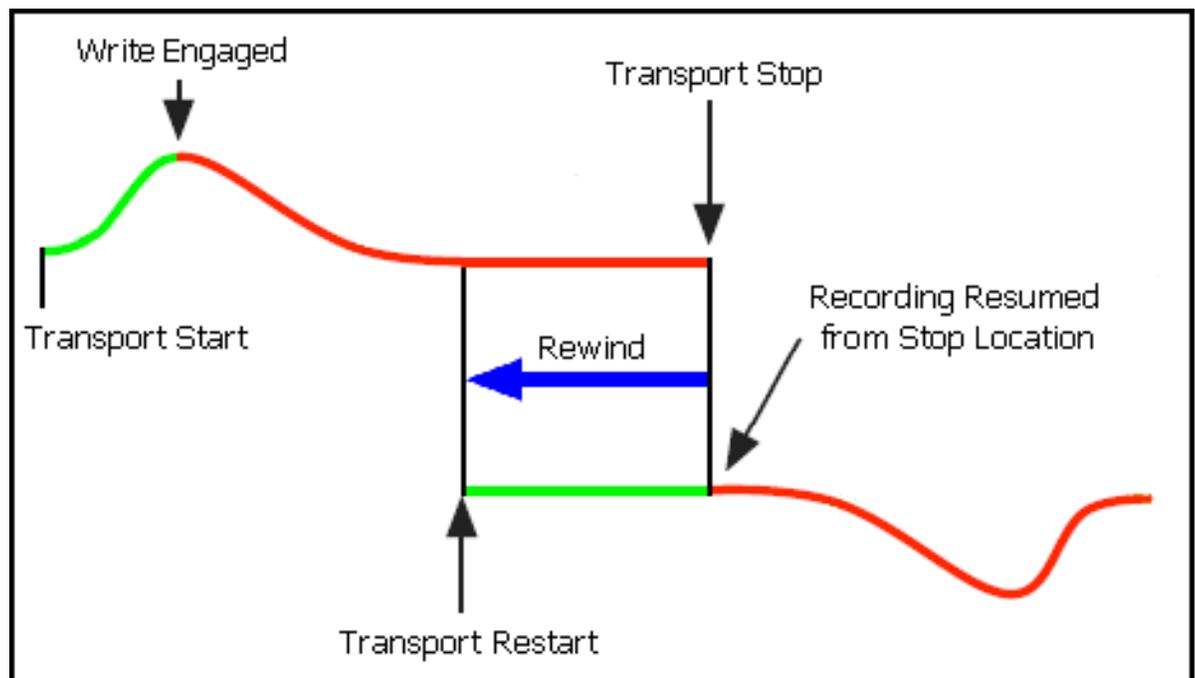
When timecode is stopped any channels in WRITE or UPDATE will automatically be set to READ.

**Auto Takeover
00:00:33:26**

The “Auto Takeover” button will display the timecode address where the timecode was stopped. This timecode address is where the previous modes will be restored on the next pass.

When the media is rewound and then played up to the point where timecode was stopped, “Auto Takeover” will restore all the channels that were previously in WRITE or UPDATE to their former modes at that point.

“Auto Takeover” can be activated or deactivated at any time. When deactivated, the memorized activation timecode and saved modes will be discarded.



“Auto Takeover” is useful when you want to review the moves recorded through a section of a mix and then automatically resume mixing in the same modes at the point where the timecode was stopped.

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11.0 Automation Safe Modes

After automation moves have been recorded, faders, mutes, and inserts can be put in a "safe" mode on a global basis. Changes cannot be made to the existing automation data for controls in safe mode.

For example, engaging SAFE FADER allows fader moves to be protected while the channel is put into WRITE so mute and insert moves can be rewritten. Engaging SAFE MUTE and SAFE INSERT allows fader moves to be rewritten in WRITE while protecting existing mute and insert moves.



The "SAFE" buttons for the faders, mutes, and inserts are located on the Automation Controller.

Changing a control in "safe" will "audition" the new position without recording new moves, regardless of which mode the channels are in.

Once a mix is finished, it might be beneficial to engage all SAFE buttons while recording the final mix.

11.1 Safe Fader



SAFE FADER: Engages "Safe" mode for faders console-wide

- Protects the fader automation data from recorded changes
- The SAFE FADER button will illuminate when engaged

11.2 Safe Mute



SAFE MUTE: Engages "Safe" mode for mutes console-wide

- Protects the mute automation data from recorded changes
- The SAFE MUTE button will illuminate when engaged

11.3 Safe Insert



SAFE INSERT: Engages "Safe" mode for inserts console-wide

- Protects the insert automation data from recorded changes
- The SAFE INSERT button will illuminate when engaged

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12.0 Groups

"Groups" can be set up to control the following:

- Faders
- Mutes
- Inserts

Groups are set up with a "Master" fader or input channel and one or more "Members."

Any fader can be a group Master or Member for faders, including channel faders, the two Control Group Master faders (G1 & G2), and the Program Master fader (PGM). Any channel or Control Group Master fader can be a group Master or Member for mutes. Any channel or the Program Master can be a group Master or Member for inserts.

NOTE: Mutes cannot be controlled from the Program Master Fader (PGM).

NOTE: Inserts cannot be controlled from the Control Group Masters (G1 & G2).

The only limit to the number of groups that can be set up is the number of 548B Input Modules installed in the console. On a fully loaded 16-channel console, there is a total of 16 channel faders, 2 Control Group Masters, and 1 Program Master fader. On a console this size a maximum of 8 groups can be set up and a maximum of 16 groups can be set up on a 32-channel console. As long as there is at least one fader or channel available to be the Master and at least one channel to be the Member, a new group can be set up.

Groups are stored within mixes. The number of groups in each mix is displayed in the Mix Tree. Every time a group is created, edited, or deleted, a new mix is created and the difference from the original mix is shown in the "Changes" column of the Mix Tree.

Mix Tree Groups Snapshots				
Name	Size	Grps	Change	
▶ -Vocal Down Mix	1291	5	Group Edited	
-Vocal Down Mix	1291	5	moves trimmed	
-Mix 23	1191	5	Group Edited	
-Mix 22	1191	5	Group Created	
-Mix 21	1219	4	Group Deleted	
-Mix 20	1219	5	Group Edited	
-No Vocal Mix	1219	5	moves saved	
-Final Mix	1215	5	moves saved	

Project: 1608 Project Filename: PRJ0001.VPJ

Mixes 20-23 in the Mix Tree to the left shows the changes made to the groups within each mix and the number of groups in each mix.

12.1 Groups Page

The Groups Page displays and manages the fader, mute, and insert groups within a mix.

Press the PROJECT PAGES button until the Groups Page opens.



Mix Tree Groups Snapshots				
Name	Type	Null	Mstr	Members
No groups in list				

Project: 1608 Project Mix: Mix 1

A project does not have to be open in order to create fader, mute, and insert groups. However, groups made outside of a project are temporary.

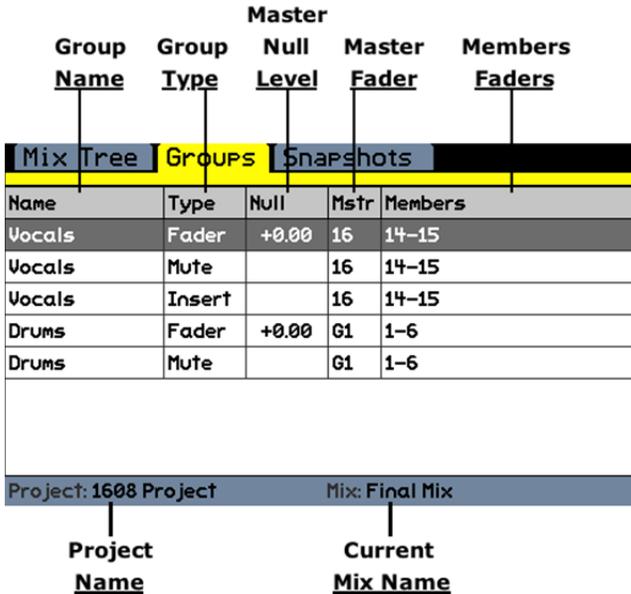
Mix Tree		Groups		Snapshots	
Name	Type	Null	Mstr	Members	
Vocals	Fader	+0.00	16	14-15	
Vocals	Mute		16	14-15	
Vocals	Insert		16	14-15	
Drums	Fader	+0.00	G1	1-6	
Drums	Mute		G1	1-6	

Project: 1608 Project Mix: Final Mix

The Groups Page displays information about the open project, current mix, and its groups.

The Groups Page to the left shows three (3) groups set up to support vocals on channels 14-15 as "Members" with channel 16 as the designated "Master" channel for faders, mutes, and inserts and a drum set on channels 1-6 as "Members" with Control Group Master #1 (G1) designated as the "Master" channel.

The diagram below indicates each area of the Groups Page.



For each group, the following information is displayed:

- Name: Name of the group
- Type: The type of group (fader, mute or insert)
- Null: The "null" level of the master fader
- Mstr (Master): Group masters
- Members: Group members

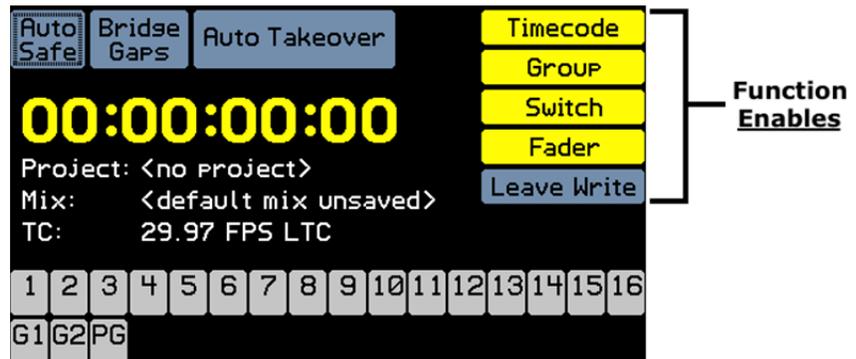
The name of the open project file and current mix are shown at the bottom of the Groups Page.

NOTE: Only the groups for the current mix will be displayed on the Groups Page.

12.2 Enable Groups

Groups will not function until they are "enabled."

Groups are enabled using the "Group" function enable button on the Status Page:



To enable "Groups," open the Status Page, highlight the "Group" button, and press the SEL (Select) button. The button will turn yellow when engaged.

Faders and switches do not need to be enabled to be used in groups, but must be enabled to be used in automation.

12.3 Group Masters

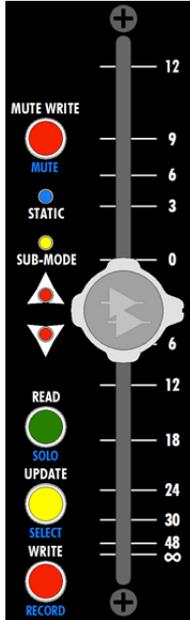
A "group master" must be designated in order to control the faders, mutes, and inserts on other channels.

Any fader on the console, including the channel faders, the two Control Group Master faders (G1-G2), and the Program Master fader (PGM) may be designated as a "Group Master Fader" or simply "group master."

Any channel and either of the two Control Group Master faders (G1-G2) may be designated as group master for mutes. Mutes cannot be controlled from the Program Master fader (PGM).

Any channel and/or the Program Master (PGM) may be designated as group master for inserts. Inserts cannot be controlled from either of the two Control Group Master faders (G1-G2).

Channel Fader



Any 548B input channel can be designated as a "Group Master Fader" for faders, mutes, and inserts. It's common to use an unused channel as a Group Master, but any fader, including one carrying audio, may be used. If the Group Master is passing audio and is adjusted (i.e. fader change or mute), it will affect the group Members as well as its own audio.

An advantage of using channel faders as masters is the ability to locate a Group Master near the Members it controls. Channel Group Masters can also control channel inserts.



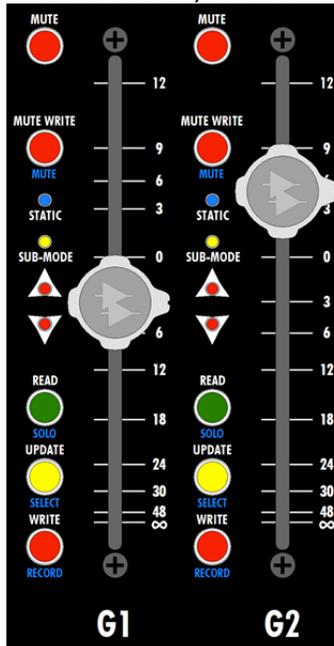
The MUTE switch on the 548B Input Module is typically used as the "Mute Group Master" when that channel is designated as a "Group Master Fader." However, mute groups can be set up independently of fader groups.



The INSERT switch on the 548B Input Module is typically used as the "Insert Group Master" when that channel is designated as a "Group Master Fader." However, insert groups can be set up independently of fader and mute groups.

Channel Group Masters faders, mute, and inserts are fully automatable and can be set up to control faders, mutes, and inserts on their assigned "Member" channels.

Control Group Masters



The two (2) Control Group Master Faders (G1 & G2) on the Automation Controller that can be designated as Group Masters for faders and mutes.

Control of inserts is not available from the Control Group Master Faders (G1 or G2).

These Control Group Masters are control devices only and cannot be used to carry audio.

An advantage of using the Control Group Master is they do not use any channel resources and are located next to the Program Master Fader.



The MUTE switch on the G1 and G2 masters is typically used as the "Mute Group Master" when that fader is designated as a "Group Master Fader." However, mute groups can be set up independently of fader groups.

Control Group Master Faders and mute are fully automatable and can be set up to control faders and mutes on their assigned "Member" channels.

Program Master



The Program Master fader on the Automation Controller can also be designated as a Group Master for faders and inserts.

Control of mutes is not available from the Program Master Fader (PGM).

Program Master Fader feeds the console Program Outputs, so it is not commonly used as a "Group Master Fader."



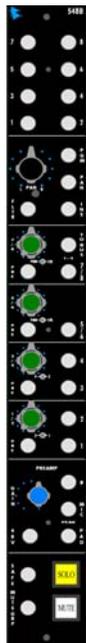
The Program Insert (PGM INS) switch on the 268B program master module can be used as the "Insert Group Master" when that Program Master fader is designated as a "Group Master Fader." However, insert groups can be set up independently of fader groups.

The Program Master Fader and insert are fully automatable and can be set up to control fader and inserts on the assigned "Member" channels.

IMPORTANT NOTE: If the Program Master Fader (PGM) is used as a Group Master in addition to carrying the program audio (mix), the level of Member Channels will be doubly affected when the Program Master Fader is moved. If the Program Master is moved downward, the contribution of Member Channels to the Program Bus will be attenuated as well as the Program Outputs of the console. The result will be a decreasing amount of Member Channel contribution to the mix as the mix is faded. The Member Channels will effectively "disappear" from the mix towards the end of a final fade.

12.3.1 Insert Group Masters and Members

The INSERT switches on the 548B Input Modules and the PGM INS (Program Insert) in the 268B Program Master Module can be a Master or Member of a group. The input channel and program master inserts cannot be controlled from the Control Group Master faders (G1 or G2) since these faders do not have inserts.



Any 548B Input module on the console may be designated as an "Insert Group Master." It is common practice to use an unused channel as a Group Master, but any channel, including one carrying audio, may be used.



The INS (Insert) switch on the 548B Input Module is typically used as

the "Insert Group Master" when that channel is designated as a "Group Master Fader." However, insert groups can be set up independently of fader and mute groups.

The 548B "Insert Group Masters" are fully automatable and control their Member channels.



The insert on the 268B Program Master Module may be designated as an "Insert Group Master."



The PGM INS (Insert) switch on the 268B Program Master Module is typically used as the "Insert Group

Master" when the Program Master Fader is designated as a "Group Master Fader." However, insert groups can be set up independently of fader and mute groups.

The 268B "Insert Group Masters" are fully automatable and control their Member channels.

12.4 Groups Menu

Groups can be created, named, edited, and deleted using the Groups Menu.



With the Groups Page open, press the MENU button to open the Groups Menu. The function selected in the Groups Menu will affect the group highlighted on the Groups Page when the menu was opened. Several of the Groups Menu edit functions will result in the creation of a new mix in the Mix Tree.



The Groups Menu contains seven (7) items that facilitate the management of groups and group editing functions:

- New Group: Creates a new group
- Edit Group: Facilitates edits to the name, master, and members of the highlighted group
- Delete Group: Deletes the highlighted group
- Disable/Enable Group: Disables/enables the highlighted group
- Coalesce & Delete: Writes the relative automation data for all Group Members in the highlighted group to a new mix pass and deletes the group
- Coalesce & Keep: Writes the relative automation data for all Group Members in the highlighted group to a new mix pass and retains the Group Master and Members, but deletes the Master Fader moves
- Coalesce w/ Audio Master: Writes the relative automation data for all Group Members in the highlighted group to a new mix pass and retains the Group Master and Members, but keeps the Master Fader moves

12.4.1 New Group



To create a new group, select "New Group" from the Groups Menu. The "New Group" dialog box will open.

Fader, mute, and/or insert groups can be created.



The New Group dialog box allows a new group to be named.

To enter the name of the new group, highlight the "Name:" text-entry field and press the SEL (Select) button. Using the text-entry procedures, edit the existing name or enter a new one. Press ESC (Escape) once the name has been entered.

The New Group dialog box allows the selection of group "Type:"

- Fader
- Mute
- Insert

Type: Fader Mute Insert

Type: Check boxes that select the controls for the new groups.

Fader Faders, mutes, and inserts can be selected for new group creation in any combination. A new group will be created for each of the selected controls.

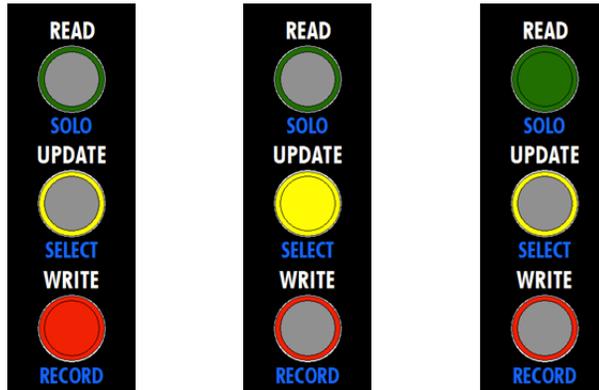
Mute To select the controls to be included in the new group(s), highlight the needed check box and press the SEL (Select) button. Each control must be selected separately.

Insert

The fader automation mode buttons are used to select the group master and members. The New Group dialog box indicates the function of each button in the "Fader Buttons" box.

Fader Buttons		
Write: Master	Update: Member	Read LED: In Use

When the New Groups dialog box is open, the fader automation mode buttons function as follows:



READ: Indicates the channel-fader is already in use.

UPDATE: Designates the channel as a Group Member when pressed

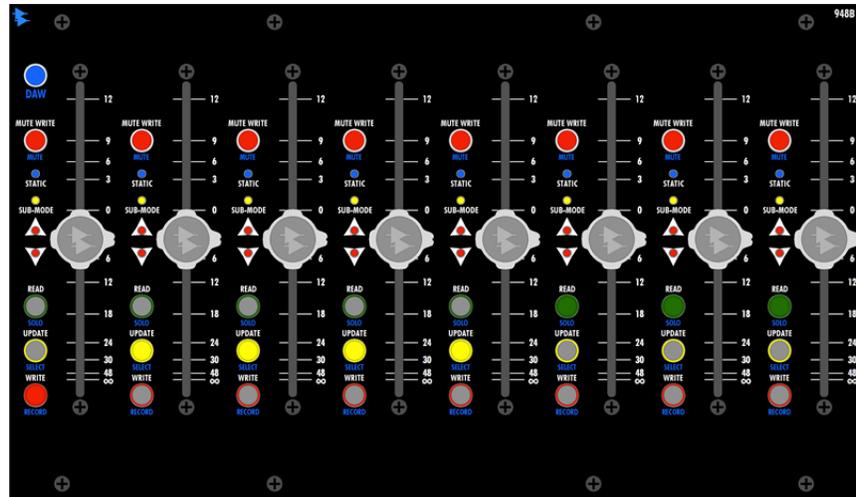
WRITE: Designates the channel-fader as the Group Master when pressed

The faders to the right indicate the following group assignments:

Ch. 1: Master

Ch. 2-5: Members

Ch. 6-8: In use



To designate the "Group Master," press the WRITE button on the desired fader after opening the New Group dialog box.

To assign members to the new group, press the UPDATE buttons on other channels to designate them as "Group Members."

Once the "Group Master" has been designated, its channel number (1-48, G1, G2, PGM) and null level will be displayed in the New Group dialog box.

Master: G1 **Master:** Indicates which channel/fader has been selected as the master

Master Null: +0.00 **Master Null:** Indicates the master fader null level (in dB)

The "Master Null" is the level of the Group Master fader at the time the group is created or edited. It is the level where neither gain nor attenuation is applied to the Group Members from the Group Master. You could think of this as a kind of unity gain position for the Group Master, although the master fader does not have to be set at 0dB as a starting location.

Care should be taken when setting the null level of the Group Master in order to provide adequate group gain and attenuation with detailed control. Setting null level too high or too low may limit the effectiveness and resolution of the Group Master. A setting of 0dB is a recommended null position for Group Masters and will typically provide maximum control over the group.

IMPORTANT NOTE: Do not set the master null point with the fader all the way down ($-\infty$ dB). All member faders will jump to their highest level if the null point is set at $-\infty$ dB and the Group Master Fader is moved.

Highlight "OK" and press SEL (Select) to create the new group(s) as determined by the New Group dialog box and the selected group master and members. A new mix will be created in the Mix Tree that contains the newly created group(s). This mix will become the current mix.

Highlight "Cancel" and press SEL (Select) to cancel.

12.4.2 Edit Group



To edit a group, highlight the needed group in the Groups Page and select "Edit Group" from the Groups Menu. The "Edit Group" dialog box will open.

The following group parameters can be changed:

- Group Master
- Master null level
- Group Members
- Group name

The type of group cannot be changed.



To change the name of the selected group, highlight the "Name:" text-entry field and press the SEL (Select) button. Using the text-entry procedures, edit the existing name or enter a new one. Press ESC (Escape) once the name has been edited.

To change the Group Master, deselect the current master by pressing its WRITE button and select the new master by pressing its WRITE button while the Edit Group dialog box is open.

To change the Group Master null level, change the level of the Group Master fader while the Edit Group dialog box is open.

To change the Group Member, press the UPDATE button on the needed faders to add and delete channels while the Edit Group dialog box is open.

Highlight "OK" and press SEL (Select) to apply the edits to the group as determined by the New Group dialog box and the selected group master, members, and master null level. A new mix will be created in the Mix Tree that contains the newly edited group. This mix will become the current mix.

Highlight "Cancel" and press SEL (Select) to cancel.

12.4.3 Delete Group



To delete a group, highlight the needed group in the Groups Page and select "Delete Group" from the Groups Menu. A confirmation dialog box will open.



Highlight "YES" and press SEL (Select) to delete the highlighted group. A new mix will be created in the Mix Tree that does not contain the deleted group. This mix will become the current mix. The deleted mix will still be in the previous mix that was edited.

Highlight "No" and press SEL (Select) to cancel.

12.4.4 Disable/Enable Group



To disable a group, highlight the needed group in the Groups Page and select "Disable Group" from the Groups Menu.

This function allows the selected group to remain intact, but be disabled and re-enabled as needed.

This function is similar to the Groups Enable button on the Status Page that disables and enables groups on a global basis, but does so for individual groups.

Disabled groups will appear dimmed on the Groups Page.

The "Vocals" fader group is "Disabled" in the Groups Page on the right.

Mix Tree		Groups	Snapshots	
Name	Type	Null	Mstr	Members
Vocals	Fader	-3.00	16	14-15
Vocals	Mute		16	14-15
Vocals	Insert		16	14-15
Drums	Fader	+0.00	G1	1-6
Drums	Mute		G1	1-6



To re-enable a disabled group, highlight the needed group in the Groups Page and select "Enable Group" from the Groups Menu.

Disabling/enabling groups does not create new mixes in the Mix Tree.

12.4.5 Coalesce & Delete Group



Selecting "Coalesce & Delete Group" will cause the automation system to create a new mix in the Mix Tree with the following attributes:

- Applies the Group Master's recorded moves to the Group Members
- Deletes all Group Master moves
- Deletes the group

This is useful when you are finished working with a group, but want to keep the moves that were made to the Group Members. Once the group is deleted, the Group Master and Members can be reassigned to other groups.



To coalesce & delete a group, highlight the needed group in the Groups Page and select "Coalesce & Delete" from the Groups Menu.

A confirmation dialog box will open.

Highlight "YES" and press SEL (Select) to apply the relative Group Master automation moves to the data of each Group Member and delete the highlighted group. A new mix will be created in the Mix Tree that contains the coalesced data applied to the Group Members, but does not contain the deleted group. This mix will become the current mix. The deleted group will still be in the previous mix that was edited.

Highlight "No" and press SEL (Select) to cancel.

12.4.6 Coalesce & Keep Group



Selecting "Coalesce & Keep Group" will cause the automation system to create a new mix in the Mix Tree with the following attributes:

- Applies the Group Master's moves to the Group Members
- Deletes all Group Master moves
- Keeps the group intact

This is useful when you want to keep the moves that were made using the group, but want to "clear" all the moves of the Group Master. This allows the Group Master to be moved to a more convenient location (using the Group Edit function) and additional moves can be made using the Group Master from the new position.

Typically this option is used when an unused audio channel is used as the Group Master.

This option may not be appropriate when the Group Master is carrying audio as part of a group (such as when the bass drum channel/fader is the Master for a drum group).



To coalesce & keep a group, highlight the needed group in the Groups Page and select "Coalesce & Keep" from the Groups Menu.

A confirmation dialog box will open.

Highlight "YES" and press SEL (Select) to apply the relative Group Master automation moves to the data of each Group Member and keep the highlighted group intact. A new mix will be created in the Mix Tree that contains the coalesced data applied to the Group Members, as well as the group. This mix will become the current mix.

Highlight "No" and press SEL (Select) to cancel.

12.4.7 Coalesce w/ Audio Master



Selecting "Coalesce w/ Audio Master" will cause the automation system to create a new mix in the Mix Tree with the following attributes:

- Applies the Group Master's moves to the Group Members
- Keeps all Group Master moves
- Deletes the group

This is useful when you are finished working with a group, but the Group Master is carrying audio as part of the group (such as the bass drum channel/fader being the Group Master in a drum group).

In such a case, it would be inappropriate to delete the moves made to the Group Master (bass drum) since its audio should change with the rest of the group.



To coalesce a group, delete it, but retain the moves of the Group Master, highlight the needed group in the Groups Page and select "Coalesce w/ Audio Master" from the Groups Menu.

A confirmation dialog box will open.

Highlight "YES" and press SEL (Select) to apply the relative Group Master automation moves to the data of each Group Member, retain the moves of the Group Master, and delete the highlighted group. A new mix will be created in the Mix Tree that contains the coalesced data applied to the Group Members and Group Master moves, but without the deleted mix. This mix will become the current mix. The deleted group will still be in the previous mix that was edited.

Highlight "No" and press SEL (Select) to cancel.

12.5 Default Groups

A set of groups can be stored in the console as the "Default Groups." This is a convenience feature that allows a commonly used set of groups to be stored and reloaded as needed. This is very useful if the same starting place is used on multiple or repeated projects.

Default Groups are stored using the procedure outlined below in section 12.5.1 Saving Default Groups.

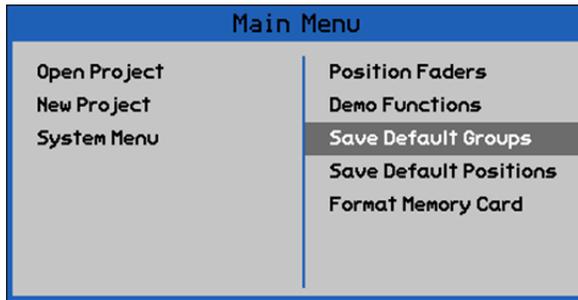
Default Groups are reloaded whenever the automation package is powered-up or after the RESET button has been pressed.

Default Groups are stored in the Automation Controller, independent of any project. Like any groups, they can be created and saved without a project being open.

The Default Groups can also serve as the initial groups for an automated mix. If "With Existing Mix" is not selected in the New Project dialog box when the project is created, the Default Groups will be included in the default mix (Mix 1) for the new project.

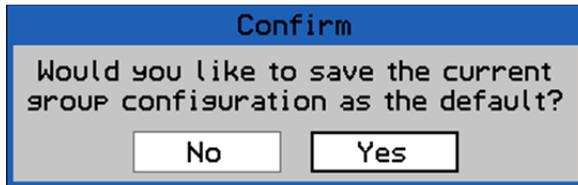
12.5.1 Saving Default Groups

To save new Default Groups, create the needed groups using the procedures outlined in sections 12.0 Groups and 12.6 Group Setup Procedures. Once the desired groups have been created, open the Main Menu from the Status Page.



Highlight "Save Default Groups" and press the SEL (Select) button.

A confirmation dialog box will open.



Highlight "Yes" button and press the SEL (Select) button to save the groups as the Default Groups.

Highlight "No" and press SEL (Select) to cancel.

12.5.2 Reloading Default Groups

To reload the Default Groups, carefully press the RESET button on the Automation Controller. It is the recessed button next to the MEMORY-CARD slot. You'll need a toothpick or paperclip to access the button. Alternately, cycling the power for the automation package will reload the Default Groups.

The automation package will reboot. When the reboot process is complete, the Default Groups will be loaded and active.

12.6 Group Setup Procedures

12.6.1 Enable Groups Globally

To "Enable" all groups on a global basis, perform the following procedure:

1. Press the STATUS PAGE button to open the Status Page.
2. Using the Jog-Wheel, highlight the GROUPS button.
3. Press the SEL (Select) button to enable groups.
4. The button will turn yellow when groups are enabled.

To "Disable" all groups on a global basis, perform the following procedure:

1. Press the STATUS PAGE button to open the Status Page.
2. Using the Jog-Wheel, highlight the GROUPS button.
3. Press the SEL (Select) button to disable groups.
4. The button will turn grey when groups are disabled.

12.6.2 Create a New Group

To make a new group, perform the following procedure:

1. Make sure that Groups, Faders, and Switches are "enabled" on the Status Page.
2. Press the PROJECT PAGES button 1 to 3 times to open the Groups Page.
3. Press the MENU button to open the Groups Menu.
4. Highlight "New Group" and press the SEL (Select) button. The New Group dialog box will open.

5. Enter a name for the new group in the "Name" text entry field.
6. Highlight the check box for each group "Type" (fader, mute, and/or insert) needed. Press SEL (Select) to select each checkbox.
7. Press the WRITE button on the channel to be designated as the Group Master.
8. If setting up a fader group, set the Master Null level on the Group Master. Make sure the Group Master Fader is set to 0dB or another desired value.
9. Press the UPDATE button on the channels to be designated as Group Members.

NOTE: Channels whose READ buttons are illuminated are already in use and are unavailable for use in the new group.

10. Highlight the "OK" button and press the SEL (Select) button to create the new group.
11. The New Group dialog box will close and the new group will appear on the Groups Page. If a project is open, a new mix containing the new group will appear in the Mix Tree and become the current mix.

12.6.3 Edit an Existing Group

To edit an existing group, perform the following procedure:

1. Press the PROJECT PAGES button 1 to 3 times to open the Groups Page.
2. Use the Jog-Wheel to highlight the group to be edited.
3. Press the MENU button to open the Groups Menu.
4. Highlight "Edit Group" and press the SEL (Select) button. The Edit Group dialog box will open.
5. To edit the group name, enter a new name in the "Name" text entry field as needed.

NOTE: The group Type cannot be edited.

6. To change the Master Null level, reposition the Group Master Fader as needed.
7. To change the Group Master, press the WRITE button on the current Group Master to deselect it and press the WRITE button on the channel or fader to be designated as the new Group Master.
8. To delete the Group Members, press the UPDATE buttons on the current Group Members to deselect them.
9. To add the Group Members, press the UPDATE button on the channels to be added to the group.

NOTE: Channels whose READ buttons are illuminated are already in use and are unavailable for use in the new group.

10. Highlight the "OK" button and press the SEL (Select) button to accept the edits to the group.
11. The Edit Group dialog box will close and the changes to the edited group will appear on the Groups Page. If a project is open, a new mix containing the edited group will appear in the Mix Tree and become the current mix.

12.6.4 Delete a Group

To delete a group, perform the following procedure:

1. Press the PROJECT PAGES button 1 to 3 times to open the Groups Page.
2. Use the Jog-Wheel to highlight the group to be deleted.
3. Press the MENU button to open the Groups Menu.
4. Highlight "Delete Group" and press the SEL (Select) button. A confirmation dialog box will open.
5. Highlight "Yes" and press the SEL (Select) to delete the highlighted group.
6. The confirmation dialog box will close and the deleted group will disappear from the Groups Page. If a project is open, a new mix without the deleted group will appear in the Mix Tree and become the current mix.

12.6.5 Disable a Group

To "Disable" a group, perform the following procedure:

1. Press the PROJECT PAGES button 1 to 3 times to open the Groups Page.
2. Use the Jog-Wheel to highlight the group to be disabled.
3. Press the MENU button to open the Groups Menu.
4. Highlight "Disable Group" and press the SEL (Select) button.
5. The disabled group will appear dimmed (grey) on the Groups Page, indicating its status. The group will cease to operate. Since the group can be easily re-enabled, a new mix is not created in the Mix Tree.

12.6.6 Enable a Disabled Group

To "Enable" a disabled group, perform the following procedure:

1. Press the PROJECT PAGES button 1 to 3 times to open the Groups Page.
2. Use the Jog-Wheel to highlight the group to be enabled.
3. Press the MENU button to open the Groups Menu.
4. Highlight "Enable Group" and press the SEL (Select) button.
5. The enabled group will appear normal on the Groups Page and will resume normal operation. A new mix will not be created in the Mix Tree.

12.6.7 Coalesce a Group

To "Coalesce and Delete" a group, perform the following procedure:

1. Press the PROJECT PAGES button 1 to 3 times to open the Groups Page.
2. Use the Jog-Wheel to highlight the group to be coalesced and deleted.
3. Press the MENU button to open the Groups Menu.
4. Highlight ""Coalesce & Delete" and press the SEL (Select) button. A confirmation dialog box will open.
5. Highlight "Yes" and press the SEL (Select) to coalesce the Master moves with the Members and delete the highlighted group. The confirmation dialog box will close.

6. The Group Master's moves will be applied to the Group Members, the Group Master's moves will be deleted, and the group will be deleted. The group will also be removed from the Groups Page.
7. A new mix without the coalesced moves and deleted group will appear in the Mix Tree and become the current mix.

To "Coalesce and Keep" one or more groups, perform the following procedure:

1. Press the PROJECT PAGES button 1 to 3 times to open the Groups Page.
2. Use the Jog-Wheel to highlight the group to be coalesced and kept.
3. Press the MENU button to open the Groups Menu.
4. Highlight ""Coalesce & Keep" and press the SEL (Select) button. A confirmation dialog box will open.
5. Highlight "Yes" and press the SEL (Select) to coalesce the Master moves with the Members and keep the highlighted group intact. The confirmation dialog box will close.
6. The Group Master's moves will be applied to the Group Members, the Group Master's moves will be deleted, but the group will remain intact.
7. A new mix with the coalesced moves will appear in the Mix Tree and become the current mix.

To "Coalesce w/ Audio Master" one or more groups, perform the following procedure:

1. Press the PROJECT PAGES button 1 to 3 times to open the Groups Page.
2. Use the Jog-Wheel to highlight the group to be coalesced with Audio Master (Group Master).
3. Press the MENU button to open the Groups Menu.
4. Highlight ""Coalesce w/Audio Master" and press the SEL (Select) button. A confirmation dialog box will open.
5. Highlight "Yes" and press the SEL (Select) to coalesce the Master moves with the Members, keep the Group Master moves, and delete the highlighted group. The confirmation dialog box will close.
6. The Group Master's moves will be applied to the Group Members, the Group Master's moves will be retained, but the group will be deleted.
7. A new mix with the coalesced moves and deleted group will appear in the Mix Tree and become the current mix.

13.0 Snapshots

A “snapshot” is a captured static image of the positions of the faders, mutes, and inserts on a selected set of channels.

The items in the Snapshot Menu, allow the engineer to “take” a snapshot of the faders and/or mutes & inserts on selected channels and store it on the Snapshot Page or to a separate .VSS file. The snapshots in the list can be “loaded” and further managed as needed.

Snapshots are typically stored as part of the current project file. Multiple snapshots can be saved in a project. A snapshot can be exported as a file and imported into another project

In common practice, snapshots can be very useful for quickly storing and recalling fader, mute, and insert positions when moving between projects and songs or storing settings for use at a later time.

13.1 Snapshots Page

The Snapshots Page provides the means to create, display, and manage snapshot files.

Press the PROJECT PAGES button until the Snapshots Page opens.



Mix Tree Groups Snapshots	
Name	Channels
No snapshots	

Project: 1608 Project

The Snapshots Page displays information about the open project and its snapshots.

Mix Tree Groups Snapshots	
Name	Channels
Mix Start	1-16, G1-PG
Mix End	1-16, G1-PG
Drums	1-4, G1

Project: 1608 Project

The Snapshots Page to the left shows three (3) snapshots.

The “Mix Start” and “Mix End” snapshots contain control positions for channels 1-16, the two Control Group Masters (G1 & G2), and the Program Master (PG).

The “Drums” snapshot contains control positions for channels 1-4 and Control Group Master #1 (G1).

The diagram to the right indicates each area of the Snapshots Page.

For each snapshot, the following information is displayed:

- Name: Name of the snapshot
- Channels: The channels included in the snapshot.

The name of the open project file is shown at the bottom of the Snapshots Page.

Snapshot Name		Included Channels	
Mix Tree Groups Snapshots			
Name	Channels		
Mix Start	1-16, G1-PG		
Mix End	1-16, G1-PG		
Drums	1-4, G1		

Project: 1608 Project

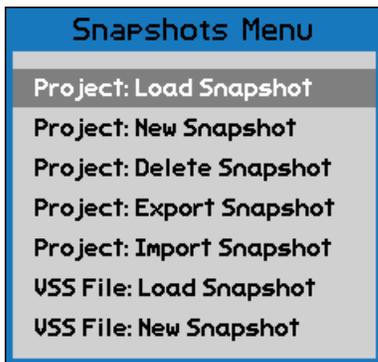
Project File Name

13.2 Snapshots Menu

Snapshots can be created, loaded, deleted, imported, and exported using the Snapshots Menu.

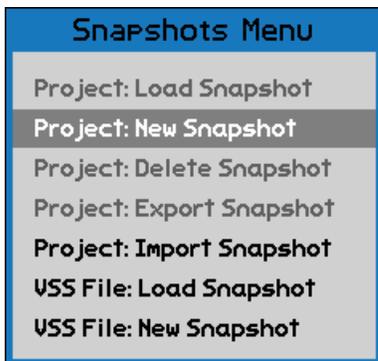


With the Snapshots Page open, press the MENU button to open the Snapshots Menu. The function selected in the Snapshots Menu will affect the snapshot highlighted on the Snapshots Page when the menu was opened.



The Snapshots Menu contains seven (7) items that facilitate the management of snapshots:

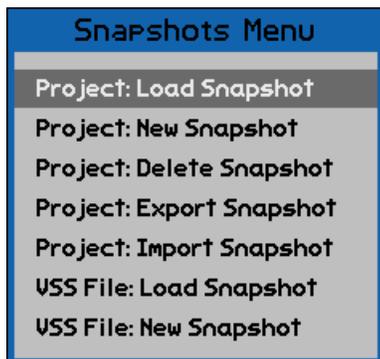
- Project: Load Snapshot: Loads the highlighted snapshot from within the current project
- Project: New Snapshot: Creates a new snapshot within the current project
- Project: Delete Snapshot: Deletes the highlighted snapshot within the current project
- Project: Export Snapshot: Saves the highlighted snapshot from the current project as a separate snapshot file (.VSS)
- Project: Import Snapshot: Loads a separate snapshot file (.VSS) into the current project
- VSS File: Load Snapshot: Loads a separate snapshot file without adding it to the current project and can be used even when no project is open
- VSS File: New Snapshot: Creates a new snapshot and saves it directly to a separate snapshot file (.VSS), even when no project is open



When a new project is first opened, there will be no snapshots on the Snapshot Page. Until at least one snapshot is on the Snapshot Page, the "Project: Load Snapshot", "Project: Delete Snapshot", and "Project: Export Snapshot" options will be unavailable on the Snapshot Menu.

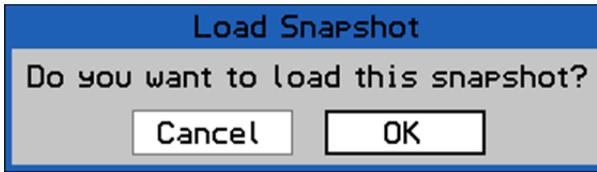
Once a snapshot has been loaded, created, or imported, all Snapshots Menu items will be available.

13.2.1 Project: Load Snapshot



To load a snapshot from the current project, open the Snapshots Page and highlight the needed snapshot.

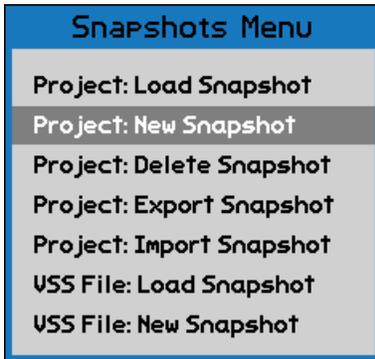
Select "Project: Load Snapshot" from the Snapshots Menu. The "Load Snapshot" dialog box will open.



Highlight "OK" and press SEL (Select) to load the highlighted snapshot. The saved positions for the controls and channels stored in the snapshot will replace the current positions on those channels.

Highlight "Cancel" and press SEL (Select) to cancel.

13.2.2 Project: New Snapshot



To create a new snapshot within the current project, select "Project: New Snapshot" from the Snapshots Menu. The "New Project Snapshot" dialog box will open.

A new snapshot of faders and/or mutes & inserts on selected channels can be created.



The New Project Snapshot dialog box allows a new snapshot to be named.

To enter the name of the new snapshot, highlight the "Name:" text-entry field and press the SEL (Select) button. Using the text-entry procedures, edit the existing name or enter a new one. Press ESC (Escape) once the name has been entered.

NOTE: The snapshot name cannot be edited after the snapshot is created.

The New Project Snapshot dialog box allows the selection of snapshot "Type:"

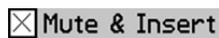
- Fader
- Mute & Insert



Type: Check boxes that select the controls for the new snapshot.



Faders and mutes & inserts can be selected for capture in the new snapshot.



To select the controls to be included in the new snapshot, highlight the needed check box and press the SEL (Select) button. Each set of controls must be selected separately.

The channel WRITE mode buttons are used to select the channels to be included in the new snapshot. The New Project Snapshot dialog box indicates the function of each button in the "Fader Buttons" box.



Select faders with the write buttons or "Select All".

Channel Selection: The New Project Snapshot dialog box provides instructions on how to select the channels to be included in the new snapshot. As the prompt indicates, use the WRITE buttons to select channels.

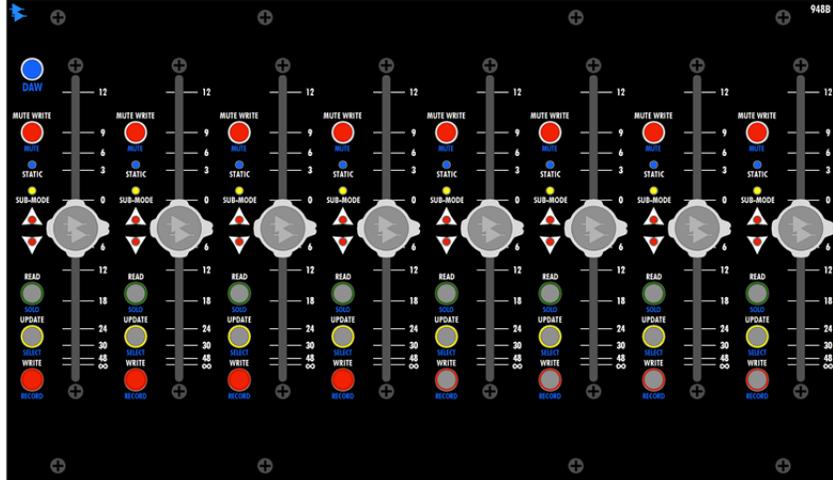
WRITE: Includes the channel in the new snapshot, if pressed while the New Project Snapshot dialog box is open.

SELECT ALL (on the ACM keypad): Alternately selects all channels or no channels to be included in the new snapshot, if pressed while the New Project Snapshot dialog box is open.

The faders to the right indicate the following snapshot selections:

Ch. 1-4: Selected

Ch. 5-8: Unselected



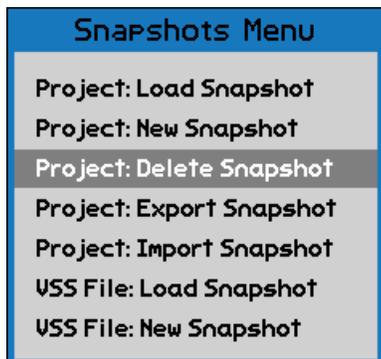
When the New Project Snapshot dialog box opens, all channels will be selected for inclusion in the snapshot. To deselect a channel for inclusion in the new snapshot, press the WRITE button on the desired fader before closing the New Project Snapshot dialog box. Alternately, you can press SELECT ALL to deselect all channels for inclusion.

IMPORTANT NOTE: Only the controls and channels captured in a snapshot can be reapplied to the console hardware when the snapshot is loaded.

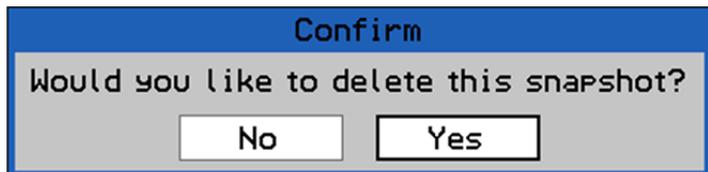
Highlight "OK" and press SEL (Select) to create the new snapshot as determined by the New Project Snapshot dialog box and the selected channels. The new snapshot will appear on the Snapshot Page.

Highlight "Cancel" and press SEL (Select) to cancel.

13.2.3 Project: Delete Snapshot



To delete a snapshot, highlight the snapshot on the Snapshots Page and select "Project: Delete Snapshot" from the Snapshots Menu. A confirmation dialog box will open.

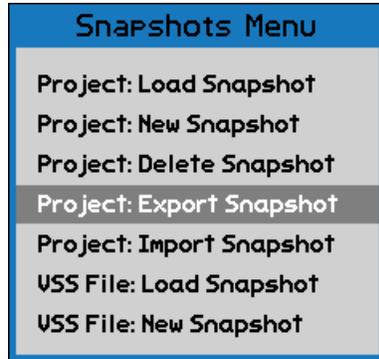


Highlight "YES" and press SEL (Select) to delete the highlighted snapshot. The snapshot will disappear from the Snapshots Page.

IMPORTANT NOTE: A deleted snapshot cannot be recovered once it has been deleted, unless it has been exported as a separate file.

Highlight "No" and press SEL (Select) to cancel.

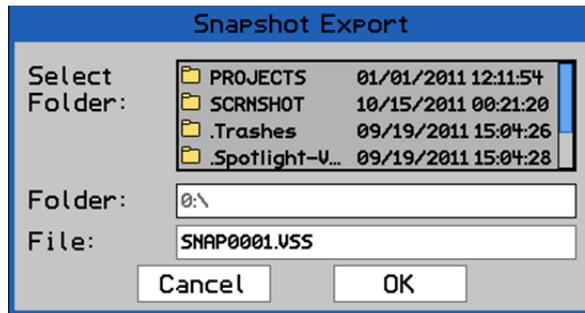
13.2.4 Project: Export Snapshot



The "Project: Export Snapshot" menu item facilitates the export of the highlighted snapshot as a .VSS snapshot file.

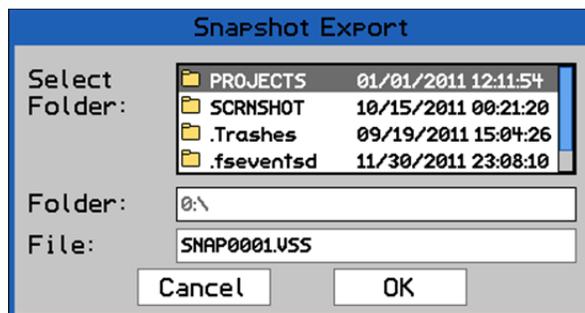
An exported snapshot remains on the Snapshot Page and is not deleted as a result of using this function.

To export a snapshot as a .VSS file, highlight it on the Snapshots Page and select "Project: Export Snapshot" from the Snapshots Menu.



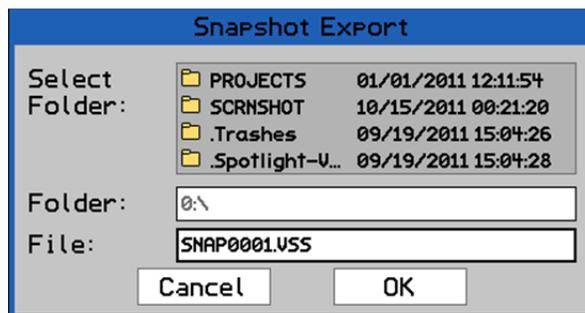
The "Snapshot Export" dialog box will open, displaying a list of folders and files on the memory card and a text-entry box.

Select a location for the mix file to be exported. The default location is the root directory of the memory card.



If a different location is needed (such as another project folder), press the SEL (Select) button while the directory list is highlighted to activate access to it.

Use the Jog-Wheel and SEL (Select) button to navigate to the needed location, highlight it, and press the SEL (Select) button to select it.



Once the needed location is selected, use the Jog-Wheel to highlight the "File:" text-entry field.

Press SEL (Select) to enter a name for the snapshot file.

Press ESC (Escape) when finished.

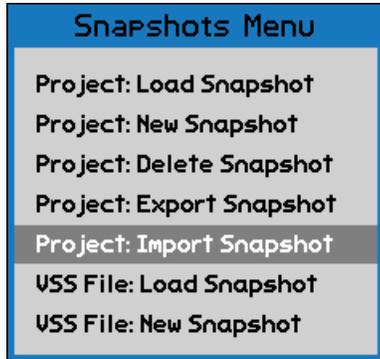


Once the snapshot file name has been entered, use the Jog-Wheel to highlight "OK."

Press the SEL (Select) button to save the snapshot file in the selected location.

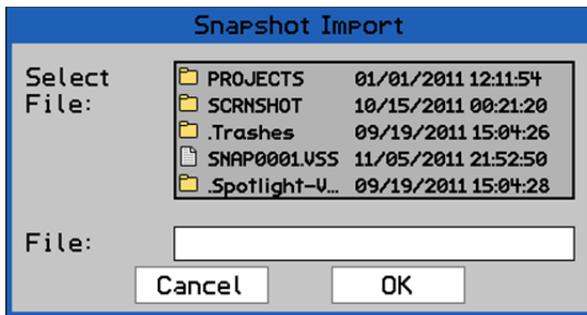
Highlight "Cancel" and press SEL (Select) to cancel.

13.2.5 Project: Import Snapshot



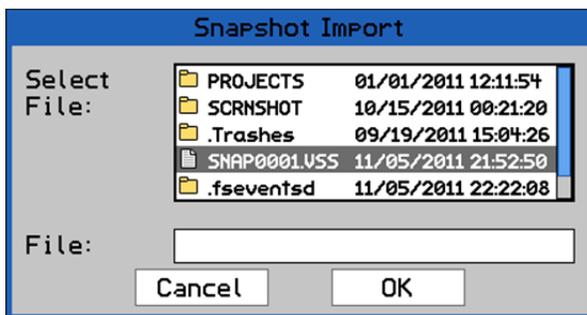
The "Project: Import Snapshot" menu item facilitates the importing of .VSS snapshot files into the currently open project and Snapshots Page.

To import a snapshot into a project, open the Snapshots Page and select "Project: Import Snapshot" from the Snapshots Menu.



The "Snapshot Import" dialog box will open, displaying a list of folders and files on the memory card and a text-entry box.

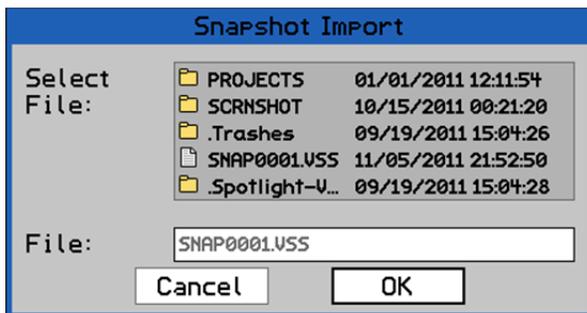
The list will open in the root directory of the memory card.



Press the SEL (Select) button while the directory list is highlighted to activate access to it.

Use the Jog-Wheel to locate and highlight the snapshot file to be imported.

Press the SEL (Select) button to select the highlighted snapshot file.

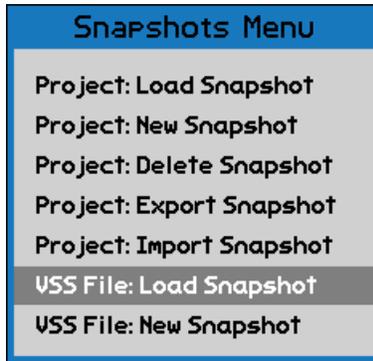


Once the snapshot file has been selected, the name of the snapshot file to be imported will appear in the "File:" text box

Use the Jog-Wheel to highlight "OK."

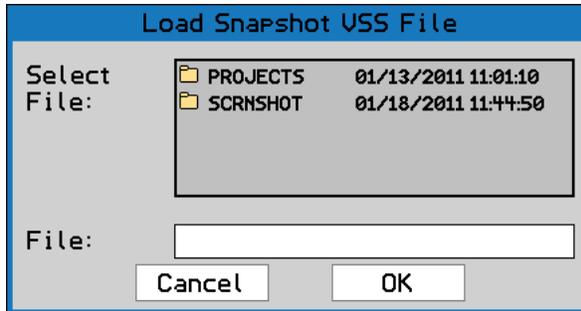
Press the SEL (Select) button to import the selected snapshot file in the current project and Snapshot Page.

13.2.6 VSS File: Load Snapshot



The "VSS File: Load Snapshot" menu item facilitates the loading of .VSS snapshot files without importing them into the currently open project (or without any project open at all).

To load a snapshot directly from a VSS file, open the Snapshots Page and select "VSS File: Load Snapshot" from the Snapshots Menu.



The "Load Snapshot VSS File" dialog box will open, displaying a list of folders and files on the memory card and a text-entry box.

The list will open in the root directory of the memory card.

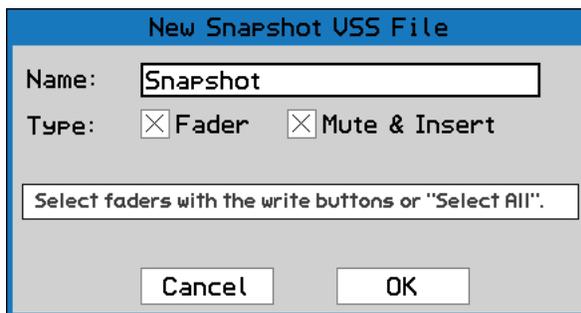
Select and load a VSS file using the same procedure as described in the preceding section "Project: Import Snapshot"

13.2.7 VSS File: New Snapshot

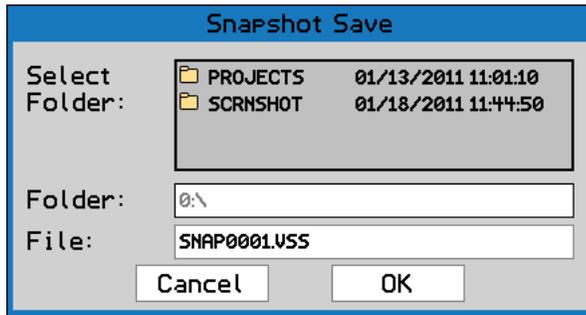


To take a new snapshot directly to a VSS file, open the Snapshots Page and select "VSS File: New Snapshot" from the Snapshots Menu.

It is not necessary to have a project open to take a snapshot. A snapshot taken directly to a VSS file will not be added to the current project if one is open.



The "New Snapshot VSS File" dialog box will open. Follow the same procedure to take a snapshot as is described in section 13.2.2 "Project: New Snapshot"



After selecting "Ok", the "Snapshot Save" dialog will open. Choose a location and file name as is described in section 13.2.4 "Project: Export Snapshot"

13.3 Default Positions

A set of fader, mute, and insert positions can be stored in the console as the "Default Positions." This is a convenience feature that allows a commonly used set of positions to be stored and reloaded as needed. This is very useful if the same starting place is used on multiple or repeated projects and can be thought of as a "default snapshot."

Default Positions are stored using the procedure outlined below in section 13.3.1 Saving Default Positions.

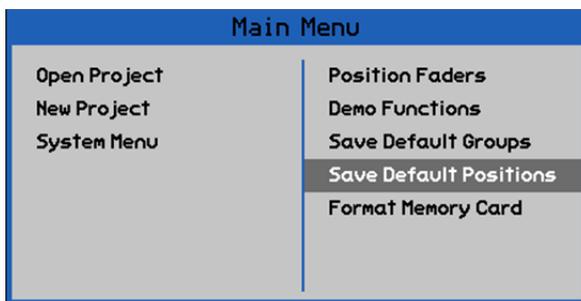
Default Positions are reloaded whenever the automation package is powered-up or after the RESET button has been pressed.

Default Positions are stored in the Automation Controller, independent of any project. Accordingly, they can be created and saved without a project being open.

The Default Positions can also serve as the "initial positions" for an automated mix. If "With Existing Mix" is not selected in the New Project dialog box when the project is created, the Default Positions will be the "initial positions" in the default mix (Mix 1) for the new project.

13.3.1 Saving Default Positions

To save the Default Positions, put all channels in MANUAL mode and set the faders, mutes, and inserts to the needed positions. Once the controls have been positioned, open the Main Menu from the Status Page.



Highlight "Save Default Positions" and press the SEL (Select) button.

A confirmation dialog box will open.



Highlight "Yes" button and press the SEL (Select) button to save the current fader, mute, and insert positions as the Default Positions.

Highlight "No" and press SEL (Select) to cancel.

13.3.2 Reloading Default Positions

To reload the Default Positions, carefully press the RESET button on the Automation Controller. It is the recessed button next to the MEMORY-CARD slot. You'll need a toothpick or paperclip to access the button. Alternately, cycling the power for the automation package will reload the Default Positions.

The automation package will reboot. When the reboot process is complete, the Default Positions will be loaded in the ACM. All channels will be in MANUAL after rebooting. Select all channels in the Status Page channel grid and press READ or UPDATE. The faders, mutes, and inserts will move to the Default Positions.

13.4 Snapshot Procedures

13.4.1 Create a New Snapshot (Project)

To make a new snapshot, perform the following procedure:

1. Press the PROJECT PAGES button 1 to 3 times to open the Snapshots Page.
2. Press the MENU button to open the Snapshots Menu.
3. Highlight "Project: New Snapshot" and press the SEL (Select) button. The New Project Snapshot dialog box will open.
4. Enter a name for the new Snapshots in the "Name" text entry field.
5. Highlight the "Type" check boxes for each set of controls to be included in the snapshot (fader and/or mute & insert). Press SEL (Select) to select each checkbox.
6. Press the WRITE button on the channels to be included in the snapshot.
7. Highlight the "OK" button and press the SEL (Select) button to create the new snapshot.
8. The New Project Snapshot dialog box will close and the new snapshot will appear on the Snapshots Page.

13.4.2 Load an Existing Snapshot (Project)

To load an existing snapshot, perform the following procedure:

1. Press the PROJECT PAGES button 1 to 3 times to open the Snapshots Page.
2. Use the Jog-Wheel to highlight the snapshot to be loaded.
3. Press the MENU button to open the Snapshots Menu.
4. Highlight "Project: Load Snapshot" and press the SEL (Select) button. The Load Snapshot dialog box will open.
5. Highlight the "OK" button and press SEL (Select) to load the highlighted snapshot.

13.4.3 Delete a Snapshot (Project)

To delete a snapshot, perform the following procedure:

1. Press the PROJECT PAGES button 1 to 3 times to open the Snapshots Page.
2. Use the Jog-Wheel to highlight the snapshot to be deleted.
3. Press the MENU button to open the Snapshots Menu.
4. Highlight "Project: Delete Snapshot" and press the SEL (Select) button. A confirmation dialog box will open.
5. Highlight "Yes" and press the SEL (Select) to delete the highlighted snapshot.
6. The confirmation dialog box will close and the deleted snapshot will disappear from the Snapshots Page.

13.4.4 Export a Snapshot (Project)

To export a snapshot, perform the following procedure:

1. Press the PROJECT PAGES button 1 to 3 times to open the Snapshots Page.
2. Use the Jog-Wheel to highlight the snapshot to be exported.
3. Press the MENU button to open the Snapshots Menu.
4. Highlight "Project: Export Snapshot" and press the SEL (Select) button.
5. Press the SEL (Select) button to activate the directory list. Use the Jog-Wheel and SEL (Select) button to navigate to the needed location (Folder) for the exported snapshot file.
6. Once the location for the new snapshot file has been selected, press the ESC (Escape) button to exit the directory. The name of the selected location will appear in the "Folder" text field.
7. Highlight the "File" text-entry field and use text-entry procedures to enter a snapshot file name. Press the SEL (Select) button when finished.
8. Highlight the "OK" button and press the SEL (Select) button to export the highlighted snapshot as a .VSS file.

13.4.5 Import a Snapshot (Project)

To import a snapshot, perform the following procedure:

1. Press the PROJECT PAGES button 1 to 3 times to open the Snapshots Page.
2. Press the MENU button to open the Snapshots Menu.
3. Highlight "Project: Import Snapshot" and press the SEL (Select) button.
4. Press the SEL (Select) button to activate the directory list. Use the Jog-Wheel and SEL (Select) button to navigate to the snapshot file to be imported.
5. Press the SEL (Select) button once the needed snapshot file is highlighted. Once the file has been selected, its name will appear in the "File:" text box.
6. Highlight the "OK" button and press the SEL (Select) button to import the selected snapshot into the current project and Snapshots Page.

13.4.6 Load a Snapshot (VSS File)

To load a snapshot directly from a VSS file, perform the following procedure:

1. Press the PROJECT PAGES button 1 to 3 times to open the Snapshots Page.
2. Press the MENU button to open the Snapshots Menu.
3. Highlight "VSS File: Load Snapshot" and press the SEL (Select) button.
4. Press the SEL (Select) button to activate the directory list. Use the Jog-Wheel and SEL (Select) button to navigate to the snapshot file to be loaded.
5. Press the SEL (Select) button once the needed snapshot file is highlighted. Once the file has been selected, its name will appear in the "File:" text box.
6. Highlight the "OK" button and press the SEL (Select) button to load the selected snapshot file.

13.4.7 Create a New Snapshot (VSS File)

To make a new snapshot and save it directly to a VSS file, perform the following procedure:

1. Press the PROJECT PAGES button 1 to 3 times to open the Snapshots Page.
2. Press the MENU button to open the Snapshots Menu.
3. Highlight "VSS File: New Snapshot" and press the SEL (Select) button. The New Snapshot VSS File dialog box will open.
4. Enter a name for the new Snapshots in the "Name" text entry field.
5. Highlight the "Type" check boxes for each set of controls to be included in the snapshot (fader and/or mute & insert). Press SEL (Select) to select each checkbox.
6. Press the WRITE button on the channels to be included in the snapshot.
7. Highlight the "OK" button and press the SEL (Select) button to create the new snapshot.
8. The New Snapshot VSS File dialog box will close and the Save Snapshot dialog will open.
9. Press the SEL (Select) button to activate the directory list. Use the Jog-Wheel and SEL (Select) button to navigate to the needed location (Folder) for the saved snapshot file.
10. Once the location for the new snapshot file has been selected, press the ESC (Escape) button to exit the directory. The name of the selected location will appear in the "Folder" text field.
11. Highlight the "File" text-entry field and use text-entry procedures to enter a snapshot file name. Press the SEL (Select) button when finished.
12. Highlight the "OK" button and press the SEL (Select) button to save the snapshot to a .VSS file.

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14.0 DAW Control

A Digital Audio Workstation (DAW) can be controlled from the 1608 automation package using the Human User Interface (HUI) protocol over MIDI. The following DAW controls can be operated from the console hardware:

- Fader
- Mute
- Solo
- Record Ready
- Channel Select

Similarly, the DAW can control the 1608, allowing moves made in the DAW (and automation) to control the 1608 faders.

A maximum of thirty-two (32) channels can have DAW control simultaneously. There are four (4) pairs of MIDI IN and OUT ports that can carry data between the console 8-channel Fader Control Modules (FCM) and DAW tracks. Each set of ports shares data with up to eight (8) DAW channels.

A fifth MIDI IN port is used to provide MIDI timecode (MTC) to the system. The fifth MIDI OUT port is not used.

The MIDI ports are available on a female 25-pin D-sub connector and the MIDI breakout cable supplied with the console. Connect the MIDI ports on the console rear panel to the MIDI interface for the DAW.

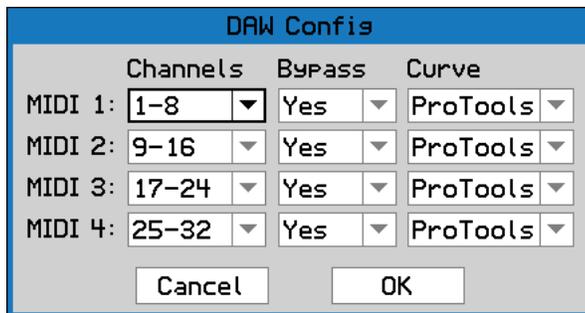
14.1 DAW Configuration



To use DAW control, the system must be first configured. This involves mapping the four pairs of MIDI ports with the 8-channel Fader Modules. This is accomplished using the "DAW Config" dialog box, available from the System Menu.

To configure DAW MIDI mapping, open the Status Page and press the MENU button to open the Main Menu. In the Main Menu, highlight "System Menu" press the SEL (Select) button.

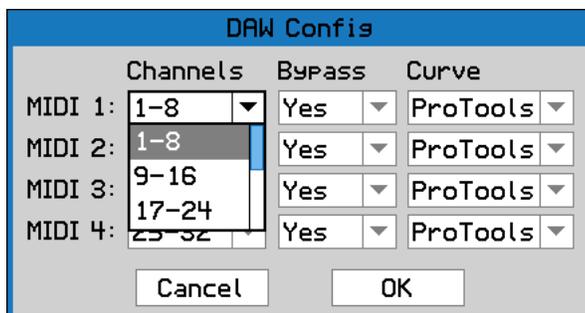
Highlight "DAW Config" and press the SEL (Select) button to open the DAW Config dialog box.



The DAW Config dialog box has four (4) pull-down menus that allow each pair of MIDI in and out ports to be mapped to one of the 8-channel fader modules.

MIDI 1-4: Each menu assigns a pair of MIDI in/out ports with one fader module.

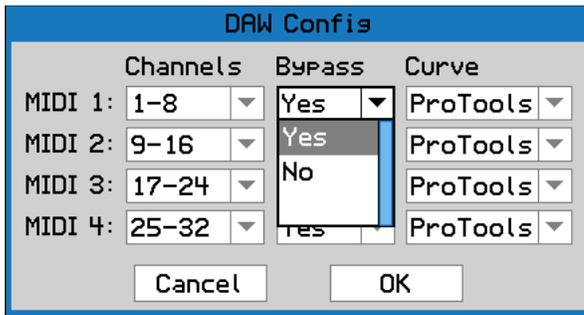
To set channel mapping, highlight the pull-down menu for needed MIDI ports and press the SEL (Select) button.



The pull-down menu will open, revealing the following choices:

- 1-8: Channels 1-8 (FCM #1)
- 9-16: Channels 9-16 (FCM #2)
- 17-24: Channels 17-24 (FCM #3)
- 25-32: Channels 25-32 (FCM #4)
- 32-40: Channels 33-40 (FCM #5)
- 41-48: Channels 41-48 (FCM #6)
- G1-PGM: Control Group Masters 1 & 2 (G1 & G2) and Program Master (PGM) on the Automation Controller (ACM)

Use the Jog-Wheel to highlight the needed channels and press the SEL (Select) button. The selected channels will be mapped to the MIDI ports associated with that menu.



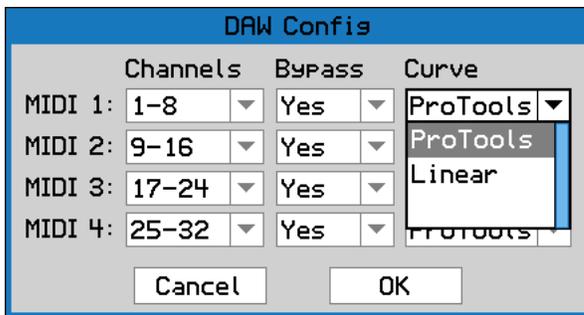
The "Bypass" option for each bank of faders determines how the audio signal on each channel of the 1608 interacts with the fader when it is under DAW control.

"Yes" is the default choice, and allows the audio to bypass each fader at unity gain. This means that the movements of the faders in conjunction with the DAW software will not affect the audio levels passing through each channel.

Choosing "No" for Bypass means that the audio signal level will continue to be affected by the movements of the faders in conjunction with the DAW software. In addition, the audio mute circuit in each channel will be under control of the DAW software. Muting a track in the DAW will mute the corresponding channel on the 1608 and vice-versa. Working in this way, the DAW effectively becomes the "brains" of the automation system.

It is recommended that when Bypass is set to "No," the audio of each track is output from the DAW pre-fader. Otherwise the gain change of the fader will be applied twice (once by the virtual fader in the DAW software, and once by the hardware fader of the 1608). It is also recommended that the "Shift Channels" function (see section 14.4) not be used while Bypass is set to "No," as fader and mute controls will likely be applied to the wrong audio signals.

Note 1: There is no way to transfer automation data (i.e. fader and mute moves) between DAW software and the automation system. Setting Bypass to "No" simply allows the audio signal path of the 1608 to be controlled by the DAW software.



Note 2: There are two possible fader curves to choose from ("ProTools" and "Linear"). This is to account for the fact that different DAW programs scale the fader control over the HUI interface differently. "ProTools" is the default choice and is designed to match the actual gain of the fader to what is displayed in Pro Tools software.

Note 3: The HUI protocol that links the console to the DAW has a significantly lower resolution than the built in automation system. Therefore the precision and responsiveness may be degraded when using the DAW mode.

DAW Mode:	Automation Data Stored By:	Channel Levels Affected By:	Audio Mute Controlled By:
Off	1608	1608 Hardware Faders	1608
On, Bypass: Yes	DAW	Virtual DAW Faders	1608
On, Bypass: No	DAW	1608 Hardware Faders	DAW

14.2 DAW Enable



Once the DAW configuration has been completed, channels must be enabled for DAW control. Each 8-channel Fader Control Module (FCM) has a DAW button in its upper left-hand corner. The Automation Controller also has a DAW button that enables DAW control for the Control Group Masters (G1 & G2) and the Program Master (PGM). This DAW button is located above the Program Master Fader.

A project does not need to be open to enable DAW control. DAW control can be enabled on up to four (4) control modules at a time in any combination:

- The DAW button illuminates in blue when engaged

When the DAW control is enabled, faders will move to match the position of the faders in the DAW. The DAW enabled 1608 faders and DAW faders will track with each other as long as DAW control is enabled. Control of the DAW Mute, Solo, Record Ready, and Select functions will also be enabled from the 1608 faders using the controls labeled with **blue** letters.

When the DAW control is disabled, the faders will move to restore their previous positions. Faders in MANUAL or WRITE mode will return to their last position before the DAW button was pressed. Faders in READ or UPDATE mode will return to their position as determined by the current mix. The fader automation controls (labeled with **white** letters) will resume their normal functions.

14.3 DAW Controls

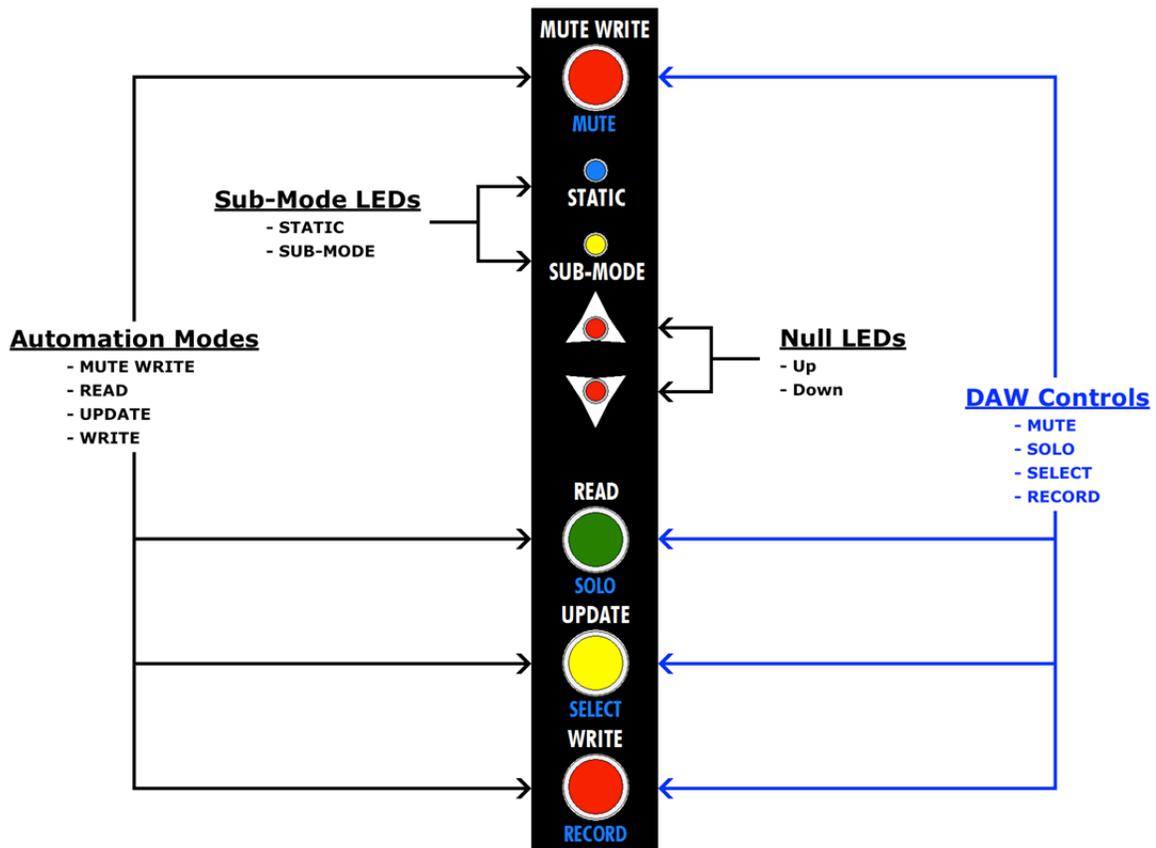
Console controls are mapped to the DAW as follows:

<u>1608</u>	=	<u>DAW</u>
Fader	=	Fader
MUTE WRITE*	=	Mute
READ	=	Solo
UPDATE	=	Select (DAW channel select)
WRITE	=	Record Ready

1608 faders are mapped directly to the associated DAW faders, but "mute, solo, record ready, and select" functions must be "borrowed" from alternate console controls. The four automation mode buttons are dual function buttons and perform different operations depending if the DAW control is enabled or not.

In normal operation the MUTE WRITE, READ, UPDATE, and WRITE buttons change the automation mode of the fader. When DAW control is enabled, these buttons change function and become MUTE, SOLO, SELECT, and RECORD controls respectively for the assigned DAW tracks. The automation controls are labeled in **white** and the DAW controls are labeled in **blue**.

**NOTE: When Bypass is set to "No" in the DAW Config dialog, the MUTE control that is part of the 548B module will also be mapped to the DAW Mute control. The SOLO button on the 548B input module is never part of the automation system or the DAW control system.*



14.4 Shift Channels

Even with 1608 EX expanders installed, since the 1608 is a small format console it is common to have more DAW audio tracks recorded than console faders for control. To help control a large number of tracks from a limited number of faders, a "Shift Channels" feature is included. This feature allows the user to "shift" the DAW tracks assigned to faders, one track at a time.



To "shift channels", press the SHIFT CHANS button on the Automation Controller.

- The SHIFT CHANS button illuminates when engaged

The DAW Channels grid will open.

DAW Channels							
1	2	3	4	5	6	7	8
KckI	KOut	STop	SBtm	HHat	Tom1	Tom2	Tom3
9	10	11	12	13	14	15	16
Tom4	Ride	OHL	OHR	Rm L	Rm R	Tamb	Shkr
G1	G2	PG					
----	----	----					

The DAW Channels grid has a box for each of the channels set up in the General Config dialog box. The grid to the left is configured for a 16-channel console.

Channels configured for DAW control will "inherit" the name of the DAW track it is controlling and display it in abbreviated form.

Channels not configured for DAW control will not inherit a track name and will display "----."

DAW Channels							
1	2	3	4	5	6	7	8
Ride	OH L	OH R	Rm L	Rm R	Tamb	Shkr	BsDI
9	10	11	12	13	14	15	16
BsAm	AG L	AG R	EG L	EG R	PnoL	PnoR	Bone
G1	G2	PG					
----	----	----					

While the DAW Channels grid is open, the Jog-Wheel can be used to “shift” the DAW tracks applied to each of the 1608 faders. Each click of the Jog-Wheel will shift the assigned tracks by one to the left or the right.

A channel shift of 10 tracks is shown in the grid to the left when compared to the grid above.

DAW Channels							
1	2	3	4	5	6	7	8
BsDI	BsAm	AG L	AG R	EG L	EG R	PnoL	PnoR
9	10	11	12	13	14	15	16
Bone	Sax	Trpt	BGVB	BGVT	BGVA	BGVS	Lead
G1	G2	PG					
----	----	----					

Continual turns of the Jog-Wheel will continue to shift the assigned channels back and forth.

A channel shift to the end of a 32-track DAW session is shown in the grid to the left when compared to two grids above.

DAW control does not need to be enabled for SHIFT CHAN to function.

It is recommended that the “Shift Channels” function not be used while Bypass (in the DAW Config) is set to “No,” as fader and mute controls will likely be applied to the wrong audio signals. This is true even if one bank of faders is set to Bypass: Yes and another is set to Bypass: No.

14.6 DAW Control Applications

DAW control can be applied in a variety of ways. A few examples are listed below, but the system is not limited to these applications.

1. The fader, mute, solo, and record ready could be controlled from the console to provide a tactile control while recording or “mixing-in-the-box.”
2. Using DAW control of tracks returning to the Program Bus via the 1608 echo returns during a mix.
3. Using the console for signal processing, sends, and program summing while using DAW automation during a mix.

14.7 DAW Control Procedures

For all procedures below:

1. Set up the needed routing and channel settings.
2. Connect the MIDI ports on the console rear panel to the MIDI interface for the DAW
3. Set the needed configuration in the DAW to allow HUI control over MIDI

14.7.1 Using the console control surface to control a DAW

To establish DAW control, perform the following procedure:

1. Highlight the “System Menu” from the “Main Menu” via the Status Page and press the SEL (Select) button. This will open the “System Menu.”
2. Highlight the “DAW Config” item from the “System Menu” and press the SEL (Select) button. This will open the DAW Config dialog box.
3. Use the pull-down menus for each pair of MIDI ports (1-4) and assign fader modules (8 faders) to the MIDI Ports.

4. Use the pull-down menus to set the Bypass to either "Yes" or "No" for each fader module.
5. Highlight the "OK" button to and press the SEL (Select) button to save the current configuration.
6. Press the DAW button on the configured channels to establish DAW control.
7. Press the SHIFT CHANS button to shift the assigned DAW tracks across the configured DAW channels on the 1608 (if Bypass is set to "Yes").

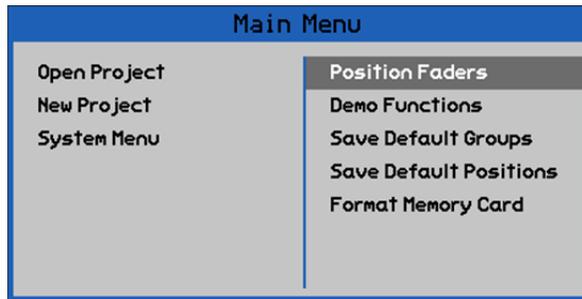
15.0 Ancillary Fader Functions

The 1608 automation package provides two (2) ancillary fader functions:

- Position Faders: Sets all faders to a specific value
- Demo Functions: Activates the fader demonstration mode

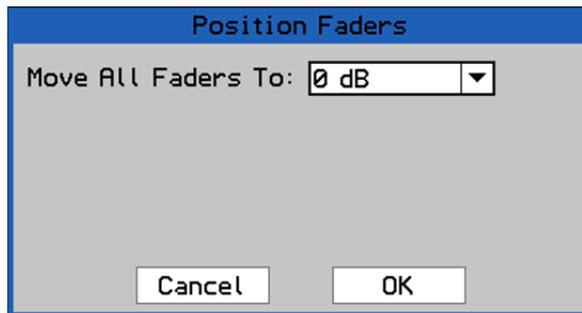
15.1 Position Faders

All console faders can be set to a specific value using the "Position Faders" function, available in the Main Menu. Position faders can be useful at the start of a tracking session when it is desirable to set all faders to unity gain. It is also useful when using console processing, routing, and summing while using DAW automation to playback the mix.



To position faders, open the Status Page and press the MENU button to open the Main Menu.

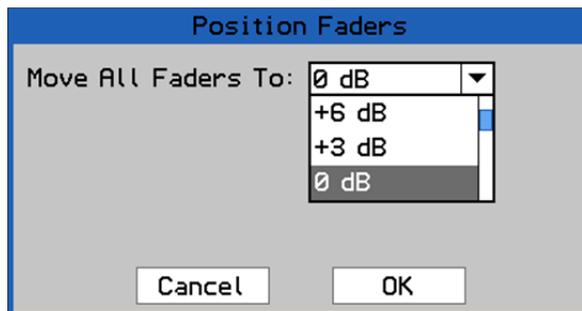
Highlight "Position Faders" and press the SEL (Select) button to open the Position Faders dialog box.



The "Move All Faders To" pull-down menu allows the faders to be set to one of fifteen (15) levels:

+12 dB	-3 dB	-18 dB
+9 dB	-6 dB	-24 dB
+6 dB	-9 dB	-30 dB
+3 dB	-12 dB	-48 dB
0 dB	-15 dB	-∞ dB

0 dB is the default level in the pull-down



To select the level for fader positions, highlight the "Move All Faders To" pull-down menu and press the SEL (Select) button. The pull-down menu will open.

Use the Jog-Wheel to scroll through the fader level choices and highlight the needed value.

Once the needed level is highlighted, press the SEL (Select) button to select that value.

Highlight "OK" and press SEL (Select) to set all faders to the selected level.

IMPORTANT NOTE: There is no "undo" for the Position Faders function. Once faders have been positioned, there is no way to restore the previous fader positions, unless they have been saved in a snapshot or mix.

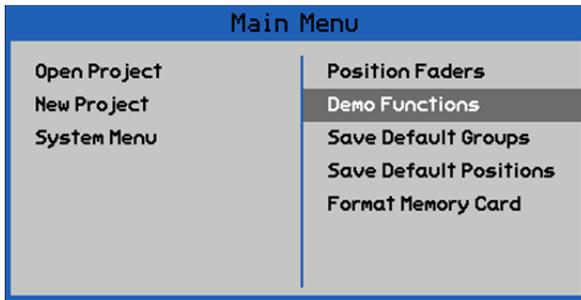
Highlight "Cancel" and press SEL (Select) to cancel.

15.2 Demo Functions

There are three (3) "Demo Functions" for the automation system:

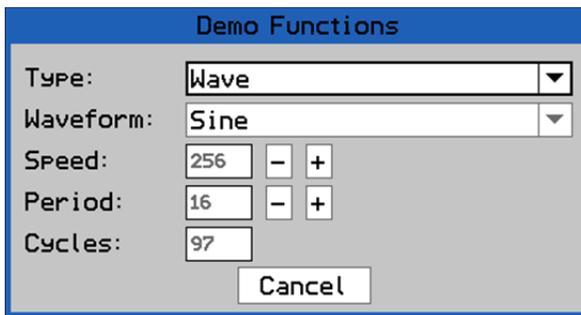
- Wave: Faders will move up and down according to the selected waveform, speed, and period
- Up/Down: Faders will move up and down in unison with each other, according to the selected waveform and speed
- Follow Me: When any fader is moved, all other faders will follow in unison

In each of these functions, the all faders will perform a different pattern of pre-programmed motion for a total of 100 fader cycles. After 100 fader cycles the demo function will time-out.



To start a fader demo function, open the Status Page and press the MENU button to open the Main Menu.

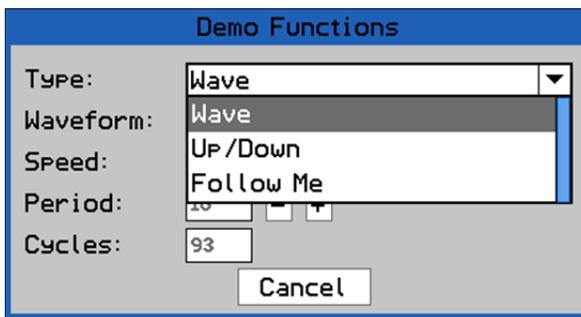
Highlight "Demo Functions" and press the SEL (Select) button to open the Demo Functions dialog box.



Once the Demo Functions dialog box opens, the default demo function will begin. The settings for this demo are shown in the dialog box to the left.

Demo settings can be changed as described in the following sections.

Highlight "Cancel" and press SEL (Select) to cancel the Demo Function.



The demo "Type" pull-down menu allows the selection of one of the three demo functions:

- Wave (default)
- Up/Down
- Follow Me

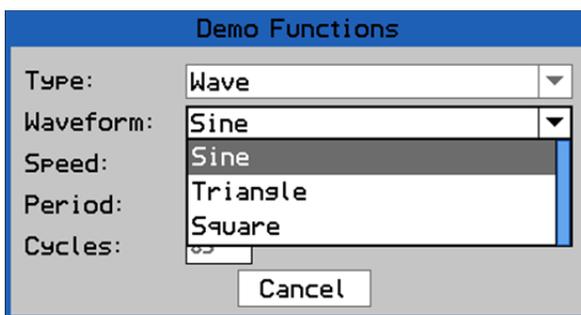
To select the demo function, highlight the "Type" pull-down menu and press the SEL (Select) button. The pull-down menu will open.

Use the Jog-Wheel to scroll through the three choices and highlight the needed demo function.

There are three (3) "Demo Functions" for the automation system:

- Wave: Faders will move up and down according to the selected waveform, speed, and period
- Up/Down: Faders will move up and down in unison with each other, according to the selected waveform and speed
- Follow Me: When any fader is moved, all other faders will follow in unison

Once the needed demo function is highlighted, press the SEL (Select) button and that demo will start. For "Wave" and "Up/Down," the cycle count will reset to 100 and start counting down.



One of the three waveforms can be applied to the "Wave" and "Up/Down" demos functions.

The "Waveform" pull-down menu allows the selection waveforms:

- Sine (default)
- Triangle
- Square

To select the waveform for the selected demo function, highlight the "Waveform" pull-down menu and press the SEL (Select) button. The pull-down menu will open.

Use the Jog-Wheel to scroll through the three choices and highlight the needed waveform.

Once the needed waveform is highlighted, press the SEL (Select) button. The selected waveform will be applied and that demo will start over. The cycle count will continue counting down from its current position.

Speed:

The speed (frequency) of the "Wave" and "Up/Down" demo functions can be set to one of eight (8) values:

- 64
- 128
- 256 (default)
- 512
- 1024
- 2048
- 4096
- 8192

To increase the speed of the demo function, highlight the minus button and press the SEL (Select) button. Each press will shorten the speed value incrementally and increase the rate of fader movement.

To decrease the speed of the demo function, highlight the plus button and press the SEL (Select) button. Each press will lengthen the speed value incrementally and decrease the rate of fader movement.

Period:

The period (wavelength) of the "Wave" demo function can be set to one of sixty-three (63) values, 2 through 64.

Each value determines the number of faders needed for a complete waveform cycle. "2" is the minimum value since at least two faders are needed to represent a complete cycle. Even though a maximum of 51 faders can be controlled with the 1608 automation package, the period can be mapped as if there are 64 faders.

To increase the period of the "Wave" demo function, highlight the plus button and press the SEL (Select) button. Each press will shorten the period of the selected waveform incrementally. The complete waveform will be spread over fewer faders and the rate of individual fader movement will increase.

To decrease the period of the "Wave" demo function, highlight the minus button and press the SEL (Select) button. Each press will lengthen the period of the selected waveform incrementally. The complete waveform will be spread over more faders and the rate of individual fader movement will decrease.

Cycles:

The "Wave" and "Up/Down" demo functions are limited to 100 cycles before automatically timing out.

This feature will prevent fader damage if a demo function is started and inadvertently left running unattended. The "Cycles" display will indicate how many cycles are left and will count down to "0." At "0," the demo will stop running.

Highlight "Cancel" and press SEL (Select) to cancel the Demo Function.

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16.0 System Configuration, Calibration, and Firmware

The System Menu provides access to several functions that support system configuration, calibration, and firmware information/updates. All of these functions will be needed for the initial setup of the automation package after installation (assuming DAW control is to be included). These functions also support ongoing maintenance and updates.

16.1 Automation Interfacing

Some simple connections are needed to interface the 1608 automation package with other studio equipment. These connections include:

- LTC timecode interfacing
- MIDI interfacing (timecode and DAW control)
- 1608 EX expander interfacing

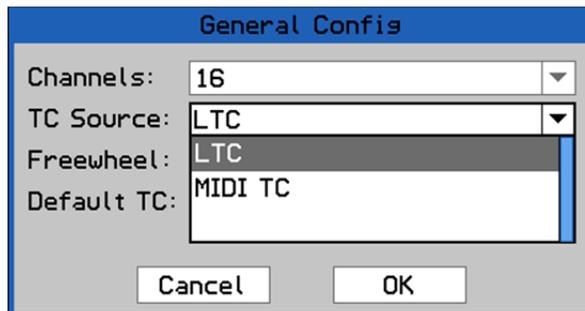
16.1.1 Timecode Interfacing

For proper operation, the automation package must be synchronized with the media to be mixed. Any media can be synchronized as long as the playback device can provide either SMPTE longitudinal analog time code (LTC) or MIDI timecode (MTC).

16.1.1.1 LTC Timecode



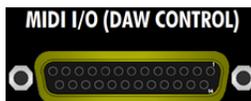
To use LTC, analog longitudinal SMPTE timecode must be provided to the system. A female, 3-pin XLR connector is included on the rear panel of the console to support SMPTE timecode. This connector is labeled "SMPTE LTC" and will accept balanced, line-level of approximately -12dBu to +12dBu.



LTC must be selected as the timecode source. This is set in the General Config dialog box, available from the System Menu. For details, see section 16.2.6 General Configuration.

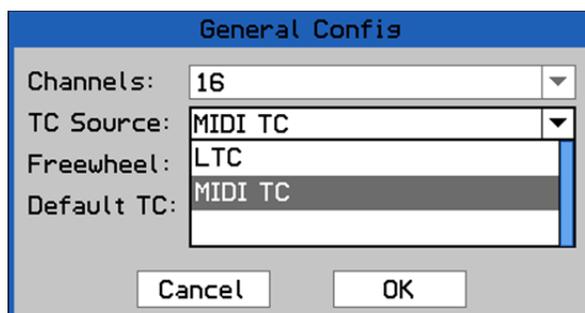
Timecode must also be enabled for synchronization to operate. For details see section 5.7 Function Enables.

16.1.1.2 MIDI Timecode



To use MTC, MIDI timecode must be provided to the system. A female DB-25 (D-sub) connector is included on the rear panel of the console to support MIDI interfacing.

The ACM accepts MIDI timecode on MIDI 5 IN of the MIDI breakout cable provided with the system. This MIDI connector must be interfaced with MIDI Out port on the playback device that carries MTC. For details regarding the MIDI breakout cable, see section 16.1.2 MIDI Interfacing.



MTC must be selected as the timecode source. This is set in the General Config dialog box, available from the System Menu. For details, see section 16.2.6 General Configuration.

Timecode must also be enabled to synchronization to operate. For details see section 5.7 Function Enables.

16.1.2 MIDI Interfacing



MIDI interfacing is provided via a female DB-25 (D-sub) connector on the rear panel of the console. This MIDI interface supports DAW control and synchronization using MIDI timecode (MTC).

A MIDI breakout cable is supplied with the automation package. This cable has a male DB-25 on one end, and ten (10) male 5-pin DIN connectors on the other. The DB-25 connector interfaces with MIDI I/O (DAW CONTROL) connector on the rear of the console. The ten DIN connectors interface with the MIDI In and Out ports on the DAW. The DIN connectors are labeled as follows:

- MIDI 1 IN
- MIDI 2 IN
- MIDI 3 IN
- MIDI 4 IN
- MIDI 5 IN (MTC)
- MIDI 1 OUT
- MIDI 2 OUT
- MIDI 3 OUT
- MIDI 4 OUT
- MIDI 5 OUT (not used)

MIDI IN and OUT 1-4 support DAW control for up to 32 channels. Each set of ports is mapped to an 8-channel fader module via 1608 software (see section 14.0 DAW Control). Therefore, the MIDI IN and OUT 1-4 connectors need to be interfaced with the MIDI ports on the DAW that are configured for HUI control.

MIDI 5 IN supports MIDI timecode (MTC). It should be interfaced with the MIDI Out port on the DAW that is configured to provide MTC when its transport is started.

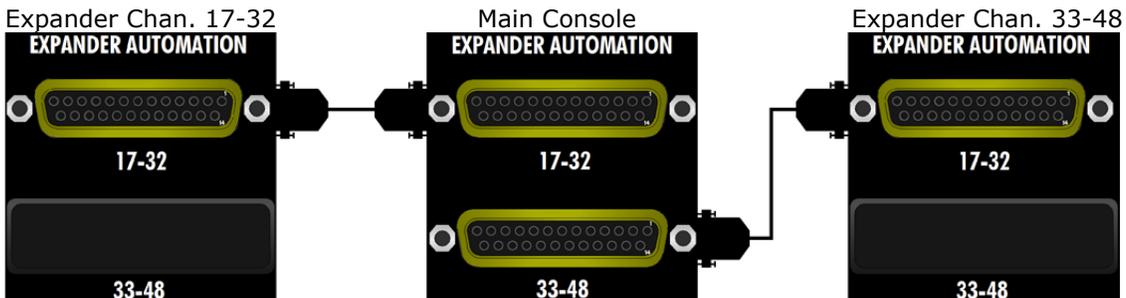
MIDI 5 OUT is currently not used.

The standard MIDI breakout cable supplied with the automation package is thirty (30) feet in length. Other lengths can be ordered and cables of up to fifty (50) feet in length have been tested successfully. Performance can vary with the environment in which the system is used.

16.1.3 Expander Interfacing

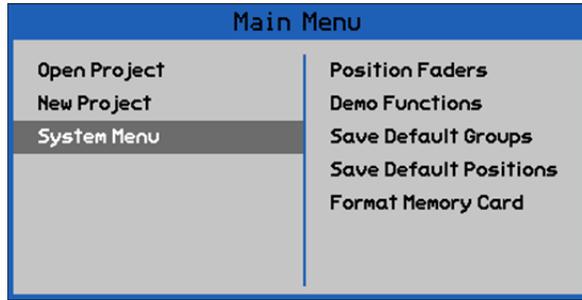
If the 1608 console and automation package are expanded to 32 or 48 channels, each 1608 EX expander must be interfaced with the ACM in the main console.

Automation expander cable(s) will be supplied with the automation package. Each cable is terminated with male DB-25 (D-sub) connectors on each end. The cables are connected as indicated in the diagram below.



NOTE: Typically the data port on all 1608 EX expanders is mounted in the 17-32 position (although it can easily be moved at customer request.)

16.2 System Menu



To access the System Menu, open the Status Page and press MENU to open the Main Menu.

Highlight "System Menu" and press the SEL (Select) button. The System Menu will open.



The System Menu contains six (6) items that support system configuration, calibration, and firmware:

- Software Versions: Displays the software versions of currently loaded firmware
- Load Firmware: Update and/or reinstall ACM and FCM firmware
- Set Clock: Sets the system month, day, year, and time of day
- Calibrate Faders: Fader calibration tool
- DAW Config: Maps fader modules to MIDI ports for DAW control
- General Config: Sets the number of channels, timecode source, freewheel frames, and default timecode frame rate

16.2.1 Software Versions



To view the currently loaded software versions, highlight "Software Versions" in the System Menu and press the SEL (Select) button.

The Software Versions dialog box will open.

	App	FPGA	System Version
ACM:	0.28	f10_p4	0.32
FCM 1:	1.09	f4_p3	
FCM 2:	1.09	f4_p3	
FCM 3:	---	---	
FCM 4:	---	---	
FCM 5:	---	---	
FCM 6:	---	---	

An 'OK' button is located at the bottom right of the dialog box.

The Software Versions dialog Box will display the currently loaded software versions for:

- ACM: Automation Controller
- FCM 1-6: Fader modules 1-6
- APP: Application version
- FPGA: Field Programmable Gate Array version
- System Version: Software set
 - Green = Consistent software versions on all FCMs

Highlight "OK" and press SEL (Select) to exit the Software Versions dialog box.

16.2.2 Load Firmware

The software for the Automation Control Module (ACM) and Fader Control Modules (FCM) is loaded into firmware installed in each module.

The most current software file will be available to 1608 automation owners from api. The included card reader should be used to transfer the software file from your computer to a properly formatted memory card. The software file is loaded into the ACM and FCM firmware from the memory card.

The memory card can have more than one software file, but the system will only load the latest one. The system relies on file name recognition, so never rename the software file.

To load new software or reload the software in the ACM and FCM firmware, first make sure the most current software file is loaded on a properly formatted memory card.

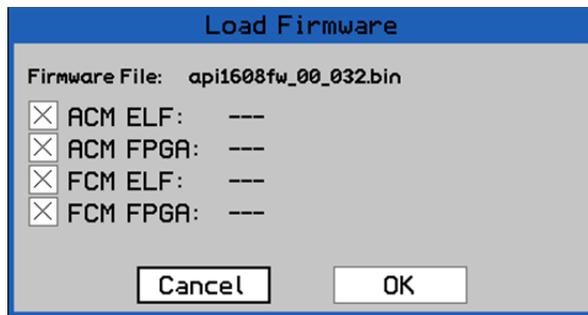
Use the procedure outlined in 16.1.2.1 FCM Firmware Programming (below) to enable the FCM firmware to accept programming if the FCMs are to be reloaded. This must be done first since it requires the system to be rebooted.



Highlight "Load Firmware" in the System Menu and press the SEL (Select) button.

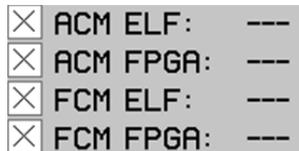
The Load Firmware dialog box will open.

NOTE: The "Cancel" button will be highlighted automatically to help prevent accidental firmware loading.



The automation software is made up of four (4) separate components that are integrated into a single ".bin" file to be load in to ACM and FCM firmware.

The "Firmware File" in the "Load Firmware" dialog box to the left is "api1608fw_00_032.bin"

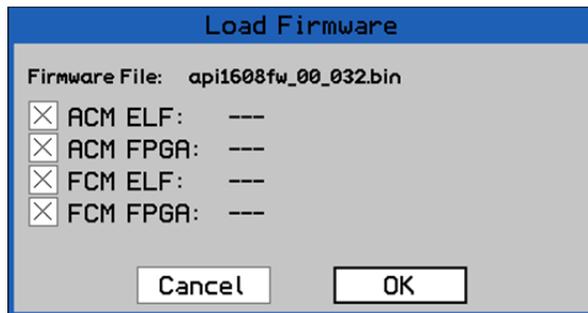


The four software components can be loaded as a group or individually. The "Load Firmware" dialog box will open with all four components selected for loading. This is the typical and suggested method of installing software.

Each software component can be deselected to prevent it from being loaded when the "OK" button is highlighted and selected.

To deselect a software component, highlight its check box and press the SEL (Select) button.

The "X" in the check box will disappear indicating it is not selected.



To load software into the firmware, open the "Load Firmware" dialog box from the System Menu.

Deselect any unneeded software components (not usually recommended).

Highlight "OK" and press SEL (Select) to start loading the selected software components

Highlight "Cancel" and press SEL (Select) to cancel.

The loading progress of each component will be displayed with a percentage counter.



If the FCMs are enabled for programming, the "up" null indicator on the leftmost fader on the enabled Fader Control Module will flash as the FCM firmware is loaded.

Loading the firmware cannot be interrupted once it's been started. Once all selected components have been loaded, the dialog box will close.

After loading the firmware, reboot the system using the RESET button on the Automation Controller.

Software Versions			
	App	FPGA	System Version
ACM:	0.28	f10_p4	0.32
FCM 1:	1.09	f4_p3	
FCM 2:	1.09	f4_p3	
FCM 3:	----	----	
FCM 4:	----	----	
FCM 5:	----	----	
FCM 6:	----	----	

Check the "Software Versions" dialog box.

It should give an overall version number (i.e. 0.32). If it says "inconsistent", then something didn't program correctly or there are different versions of the software loaded in the FCMs. Make sure you're using a valid software file and try again.

A fader calibration should also be performed after updating the firmware.

16.2.2.1 FCM Firmware Programming

If the FCM firmware is to be loaded, each Fader Module (FCM) must be enabled to accept programming.



To enable a Fader Module to load firmware, press the RESET button then immediately press and hold the DAW buttons. Continue to hold the DAW buttons until the DAW button and the STATIC LEDs on the faders start to flash, indicating the firmware in the FCMs is ready to be loaded.

One or more FCMs can be enabled to accept programming simultaneously. Only the enabled FCMs will accept programming when the load process is started. Make sure all FCMs are loaded from the same firmware file.

Once the FCMs are ready to accept programming, follow the procedure outlined above in section 16.1.2 Loading Firmware.

16.2.3 Set Clock

The Automation Controller has a built in system clock that "time stamps" any new folder, file, or mix at the time of its creation.

Select:	..	10/31/2011 21:12:06
	PRJ0001.VPJ	10/31/2011 22:37:28

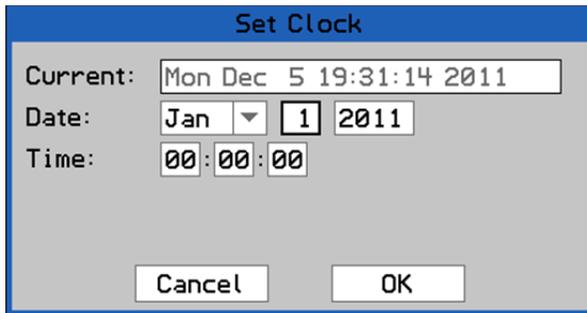
The time, day, month, and year timestamps are displayed with the file name can in the directory lists on the memory card.

PRJ0001.VPJ	10/31/2011 22:37:28
-------------	---------------------

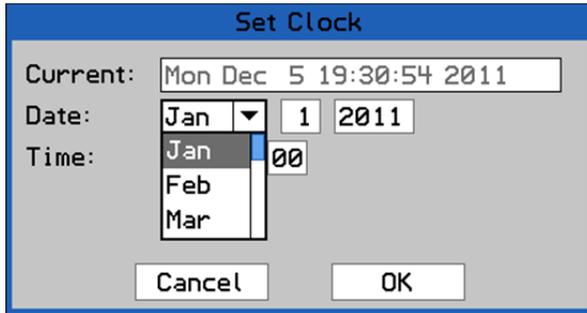


To set the system clock, highlight "Set Clock" in the System Menu and press the SEL (Select) button.

The Set Clock dialog box will open.



The current clock setting is displayed at the top of the page.



To set the month, highlight the month pull-down menu and press the SEL (Select) button to activate the menu.

Use the Jog-Wheel to highlight the needed month and press the SEL (Select) button to select it.



To set the day, highlight the day field and press the SEL (Select) button to activate the field.

Use the Jog-Wheel to scroll to and highlight the needed day. Press the SEL (Select) button to select the highlighted day and deactivate the field.



To set the year, highlight the year field and press the SEL (Select) button to activate the field.

Use the Jog-Wheel to scroll to and highlight the needed year. Press the SEL (Select) button to select the highlighted year and deactivate the field.



To set the hour, highlight the hour field and press the SEL (Select) button to activate the field.

Use the Jog-Wheel to scroll to and highlight the needed hour. Press the SEL (Select) button to select the highlighted hour and deactivate the field.



To set the minute, highlight the minute field and press the SEL (Select) button to activate the field.

Use the Jog-Wheel to scroll to and highlight the needed minute. Press the SEL (Select) button to select the highlighted minute and deactivate the field.



To set the second, highlight the second field and press the SEL (Select) button to activate the field.

Use the Jog-Wheel to scroll to and highlight the needed second. Press the SEL (Select) button to select the highlighted second and deactivate the field.

Once the date and time are entered, highlight "OK" and press SEL (Select) to set the system time.

Highlight "Cancel" and press SEL (Select) to cancel.

16.2.4 Calibrate Faders

The 1608 automation package provides a fader calibration utility that aligns the physical fader positions with the related positions in the software. It is recommended to perform this routine periodically to assure the continued accuracy of fader movement. Calibration should also be performed after firmware updates are installed or hardware changes have been made.

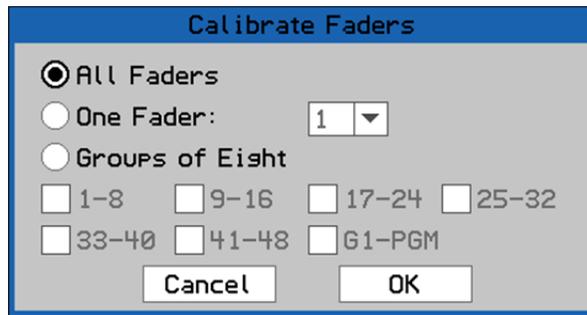


To calibrate faders, highlight "Calibrate Faders" in the System Menu and press the SEL (Select) button.

The Calibrate Faders dialog box will open.

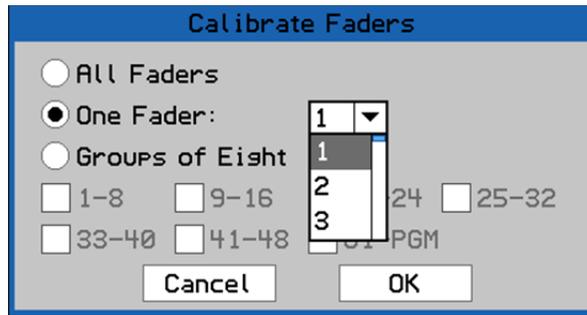
The Calibrate Faders dialog box allows faders to be selected in one of three ways:

- All Faders (default)
- One Fader
- Groups of Eight Faders



To select faders for calibration, highlight the needed radio-button and press the SEL (Select) button.

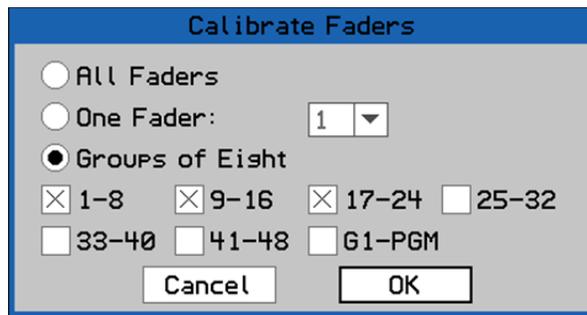
To calibrate all faders, highlight the "All Faders" radio-button and press the SEL (Select) button.



To calibrate just one fader, highlight the "One Fader" radio-button and press the SEL (Select) button.

Highlight the fader pull-down menu and press the SEL (Select) button to activate it.

Use the Jog-Wheel to highlight the needed fader and press the SEL (Select) button to select it.



To calibrate faders in groups of eight (8), highlight the "Groups of Eight" radio-button and press the SEL (Select) button.

Highlight the checkbox and press the SEL (Select) button select each group of eight faders to be calibrated. The faders with checks will be calibrated when "OK" is selected.

Once the faders are selected, highlight "OK" and press SEL (Select) to start the calibration routine.

Highlight "Cancel" and press SEL (Select) to cancel.

When the calibration routine starts, the selected fader(s) will move up and down and then each fader within each set of eight will move to the bottom of its travel and start a rapid back and forth motion, slowly working its way back up to the top. Then the next selected faders will repeat this action until all selected faders are calibrated. This routine will take several minutes and should not be canceled or interrupted. After the routine is finished, normal operation will resume.

IMPORTANT NOTE: Faders SHOULD NOT BE TOUCHED while the calibration routine is running.

NOTE: In an emergency situation, the calibration routine can be stopped by pressing the RESET button (next to the MEMORY-CARD slot) or by cycling the power to the automation package. This should only be used in extreme circumstances and is not recommended. If the calibration routine is interrupted, the faders may be out of calibration and the procedure should be repeated when safe to do so.

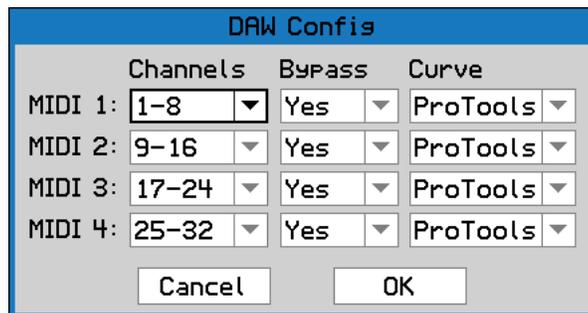
16.2.5 DAW Configuration



To use DAW control, the system must first be configured. This involves mapping the four pairs of MIDI ports with the 8-channel Fader Modules. This is accomplished using the "DAW Config" dialog box, available from the Main Menu.

To configure DAW MIDI mapping, highlight "DAW Config" in the System Menu and press SEL (Select).

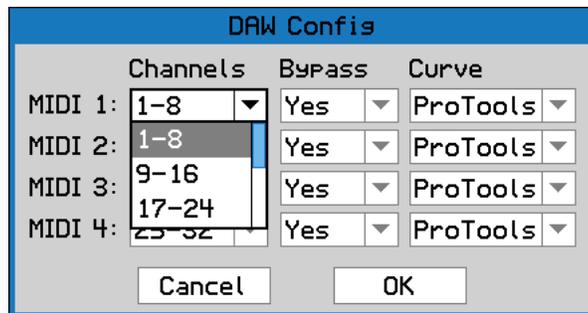
The DAW Config dialog box will open.



The DAW Config dialog box has four (4) pull-down menus that allow each pair of MIDI in and out ports to be mapped to one of the 8-channel fader modules.

MIDI 1-4: Each menu assigns a pair of MIDI in/out ports with one fader module.

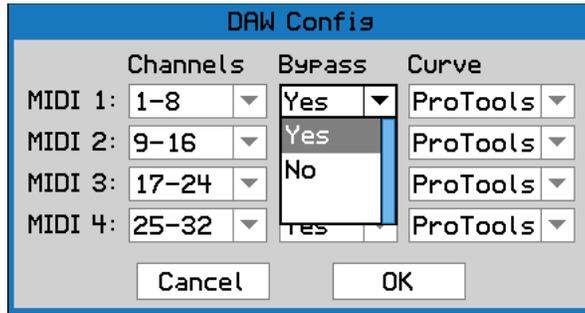
To set channel mapping, highlight the pull-down menu for needed MIDI ports and press the SEL (Select) button.



The pull-down menu will open, revealing the following choices:

- 1-8: Channels 1-8 (FCM #1)
- 9-16: Channels 9-16 (FCM #2)
- 17-24: Channels 17-24 (FCM #3)
- 25-32: Channels 25-32 (FCM #4)
- 32-40: Channels 33-40 (FCM #5)
- 41-48: Channels 41-48 (FCM #6)
- G1-PGM: Control Group Masters 1 & 2 (G1 & G2) and Program Master (PGM) on the Automation Controller (ACM)

Use the Jog-Wheel to highlight the needed channels and press the SEL (Select) button. The selected channels will be mapped to the MIDI ports associated with that menu.



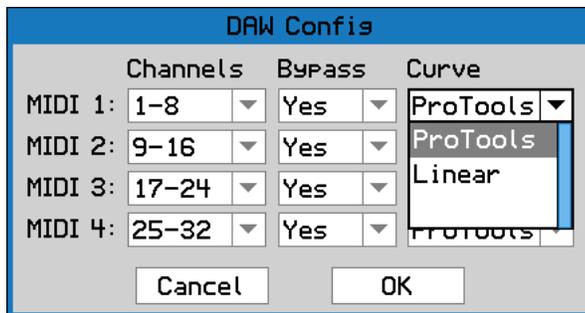
The “Bypass” option for each bank of faders determines how the audio signal on each channel of the 1608 interacts with the fader when it is under DAW control.

“Yes” is the default choice, and allows the audio to bypass each fader at unity gain. This means that the movements of the faders in conjunction with the DAW software will not affect the audio levels passing through each channel.

Choosing “No” for Bypass means that the audio signal level will continue to be affected by the movements of the faders in conjunction with the DAW software. In addition, the audio mute circuit in each channel will be under control of the DAW software. Muting a track in the DAW will mute the corresponding channel on the 1608 and vice-versa. Working in this way, the DAW effectively becomes the “brains” of the automation system.

It is recommended that when Bypass is set to “No,” the audio of each track is output from the DAW pre-fader. Otherwise the gain change of the fader will be applied twice (once by the virtual fader in the DAW software, and once by the hardware fader of the 1608). It is also recommended that the “Shift Channels” function (see section 14.4) not be used while Bypass is set to “No,” as fader and mute controls will likely be applied to the wrong audio signals.

Note 1: There is no way to transfer automation data (i.e. fader and mute moves) between DAW software and the automation system. Setting Bypass to “No” simply allows the audio signal path of the 1608 to be controlled by the DAW software.



Note 2: There are two possible fader curves to choose from (“ProTools” and “Linear”). This is to account for the fact that different DAW programs scale the fader control over the HUI interface differently. “ProTools” is the default choice and is designed to match the actual gain of the fader to what is displayed in Pro Tools software.

Note 3: The HUI protocol that links the console to the DAW has a significantly lower resolution than the built in automation DAW system. Therefore the precision and responsiveness may be degraded when using the DAW mode.

DAW Mode:	Automation Data Stored By:	Channel Levels Affected By:	Audio Mute Controlled By:
Off	1608	1608 Hardware Faders	1608
On, Bypass: Yes	DAW	Virtual DAW Faders	1608
On, Bypass: No	DAW	1608 Hardware Faders	DAW

Once all channels are set up, highlight “OK” and press SEL (Select) to save the DAW configuration.

Highlight “Cancel” and press SEL (Select) to cancel.

16.2.6 General Configuration

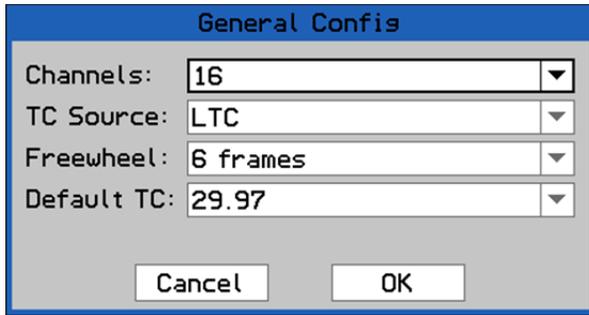
A set of parameters must be set to configure the system for operation within each individual installation.



To configure the system for use, highlight "General Config" in the System Menu and press the SEL (Select) button.

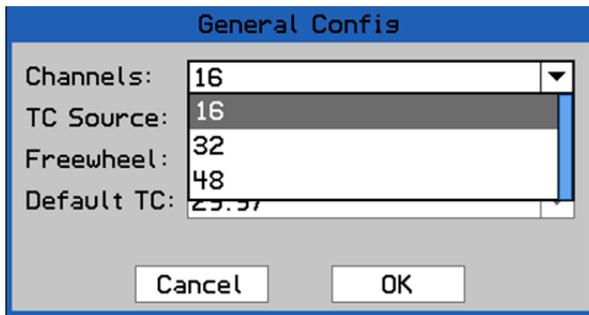
The General Config dialog box will open.

The General Config dialog box has four (4) pull-down menus used to set the system parameters.



The general configuration parameters include the following:

- **Channels:** The number of 548B channels to be supported by the Automation Controller
- **TC Source:** Selects SMPTE or MIDI timecode
- **Freewheel:** Number of frames for timecode drop-out tolerance
- **Default TC:** Default timecode frame rate for new projects



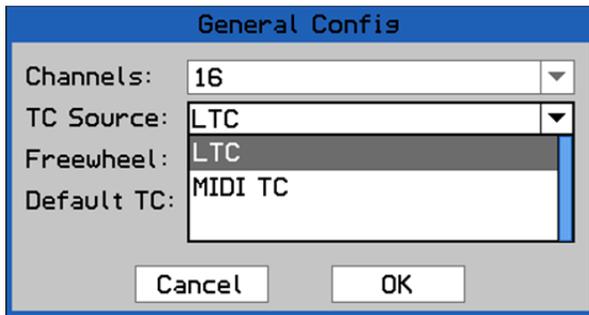
The number of installed channels needs to be specified in the system. This number should match the number of 548B Input Modules and channel faders installed in the console. Three (3) choices are available:

- 16 channels
- 32 channels
- 48 channels

This number will determine the number of channels to be controlled and displayed in software pages and lists.

To set the number of installed channels, highlight the "Channels" pull-down menu. Press the SEL (Select) button to activate the menu.

Use the Jog-Wheel to highlight the needed number of channels and press the SEL (Select) button to select it.

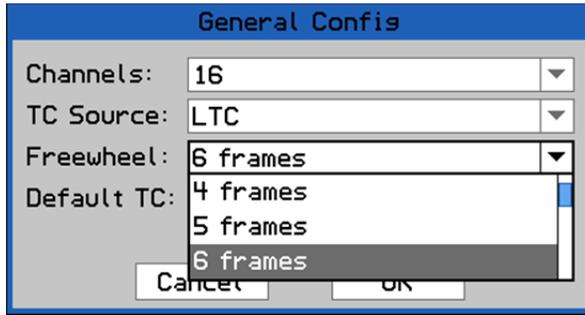


The timecode source can be set to one of two (2) sources:

- **LTC:** Longitudinal SMPTE timecode (via SMPTE LTC analog line-level XLR input)
- **MIDI TC:** MIDI timecode (via the MIDI 5 IN port)

To set the timecode source, highlight the "TC Source" pull-down menu and press the SEL (Select) button to activate the menu.

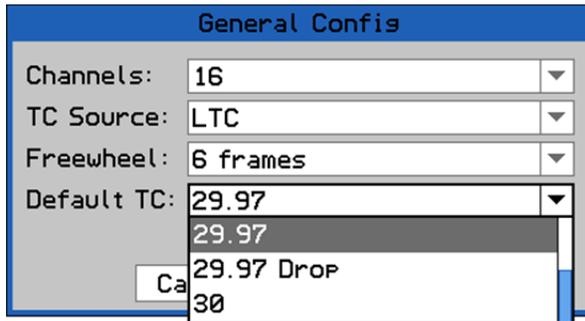
Use the Jog-Wheel to highlight the needed timecode source and press the SEL (Select) button to select it.



“Freewheel” sets the tolerance the system will use when chasing timecode. The pull-down menu selects the number of frames the system will “freewheel” if the timecode source briefly drops out or has other minor errors. This can improve synchronization accuracy, depending on the timecode source. 1 to 15 frames can be selected.

To set the number of freewheel frames, highlight the “Freewheel” pull-down menu and press the SEL (Select) button to activate the menu.

Use the Jog-Wheel to highlight the needed number of frames and press the SEL (Select) button to select it.



The default timecode frame rate for new projects can be specified using the “Default TC” pull-down menu.

Six (6) frame rates are available:

- 23.976
- 24
- 25
- 29.97 (default)
- 29.97 drop
- 30

To set the number of default timecode frame rate, highlight the “Default TC” pull-down menu and press the SEL (Select) button to activate the menu.

Use the Jog-Wheel to highlight the needed frame rate and press the SEL (Select) button to select it.

Once all configuration parameters have been selected from the pull-down menus, highlight “OK” and press SEL (Select) to save the new configuration.

Highlight “Cancel” and press SEL (Select) to cancel.

16.3 Setup Procedures

To prepare the 1608 console for operation, several “setups” should be performed when the console is initially set up or upgraded:

- Firmware Updates: Verify the installed software for the Automation Control Module (ACM) and Fader Control Modules (FCMs) is the most current stable version. Download and install any stable updates as needed
- General Configuration: Set the basic system parameters
 - Number of Channels: Specify the number of 548B input channels
 - Timecode Source: Select the timecode source (SMPTE LTC or MIDI TC) for automation synchronization
 - Freewheel Frames: Adjust Freewheel Frames for the needed timecode tolerance
 - Default Timecode Frame Rate: Set the default frame rate for new projects
- Set Clock: Sets the system clock for timestamps
- Fader Calibration: Perform a fader calibration routine
- DAW Configuration: Set up the channel mapping to MIDI ports for DAW control

16.3.1 Format Memory Card

Before a memory card can be used with the 1608 automation package, it must be formatted.

To format a memory card, use the following procedure:

1. Insert a memory card in the MEMORY-CARD slot. Make sure the write protection tab is not in place.
2. Press the STATUS PAGE button to open the Status Page.
3. Press the MENU button to open the Main Menu.
4. Highlight "Format Memory Card" using the Jog-Wheel and press the SEL (Select) button. The Format Memory Card dialog box will open, displaying a warning prompt.
5. Highlight "OK" and press the SEL (Select) button to indicate you want to format the inserted memory card. A second dialog box and warning prompt will open.
6. Highlight "OK" and press the SEL (Select) button to format the inserted memory card. This process will erase all files on the memory card and format it for use in the 1608 automation system.
7. Alternately, a memory card can be formatted using an external computer and the card reader. Format the card to the FAT32 format.

IMPORTANT NOTE: All existing files of any type will be erased when a memory card is formatted. There is no "undo" when formatting a memory card. Exercise caution when formatting memory cards.

16.3.2 Firmware Updates

1608 automation packages are shipped from API with the most current firmware installed. As updates are released, they become available from API online. When an update becomes available, download the latest version, and use the card reader to transfer the file from your computer to the memory card.

The automation software is made up of four (4) separate components that are integrated into a single ".bin" firmware file:

- ACM ELE: Executable and Linkable Format file for the Automation Control Module
- ACM FPGA: Field Programmable Gate Array for the Automation Control Module
- ACM ELE: Executable and Linkable Format file for the Fader Control Modules
- ACM FPGA: Field Programmable Gate Array for the Fader Control Modules

16.3.2.1 View Currently Loaded Software

To view the currently loaded software versions, use the following procedure:

1. Press the STATUS PAGE button to open the Status Page.
2. Press the MENU button to open the Main Menu.
3. Highlight "System Menu" using the Jog-Wheel and press the SEL (Select) button. The System Menu will open.
4. Highlight "Software Versions" and press the SEL (Select) button. The Software Versions dialog box will open.
5. Check to see if the currently installed software is the most recent version.
6. Highlight "OK" and press the SEL (Select) button to exit the Software Versions dialog box.

16.3.2.2 Enable FCM Programming

To enable Fader Controls Modules (FCM) to load firmware, use the following procedure:

1. Press the RESET button on the Automation Controller.
2. Immediately press and hold the DAW button on the FCMs to be enabled for programming.
3. Continue holding the DAW as the system reboots.
4. When the reboot is complete, the DAW button and STATIC LEDs on the enabled fader module will flash, indicating the FCM is ready to accept programming. The UP null indicator on the leftmost fader will flash as the FCM firmware is loaded.

16.3.2.3 Load/Update Firmware

To load updated software into the Automation Control Module (ACM) and Fader Control Module (FCM) firmware, use the following procedure:

1. Make sure the most current version of the 1608 software file (.bin) is on the memory card.
2. Enable the FCM's to receive programming as described above (if needed).
3. Press the STATUS PAGE button to open the Status Page.
4. Press the MENU button to open the Main Menu.
5. Highlight "System Menu" using the Jog-Wheel and press the SEL (Select) button. The System Menu will open.
6. Highlight "Load Firmware" and press the SEL (Select) button. The Load Firmware dialog box will open.
7. The checkboxes for all of the software components will be selected by default. Highlight the checkbox of any unneeded software components and press the SEL (Select) button to deselect those components from loading. Any uncheck components will not load when "OK" is selected.
8. Highlight the "OK" button and press the SEL (Select) button to start loading the firmware. Percentage counters will monitor the progress as each component loads. This process cannot be interrupted.

16.3.3 General Configuration

There are four basic parameters that need to be set when configuring the system for operation:

- Number of Channels: Specify the number of 548B input channels
- Timecode Source: Select the timecode source (SMPTE LTC or MIDI TC) for automation synchronization
- Freewheel Frames: Adjust Freewheel Frames for the needed timecode tolerance
- Default Timecode Frame Rate: Set the default frame rate for new projects

16.3.3.1 Number of Channels

The number of channels to be controlled must be specified within the system. This information is used to populate the channel grid and the channel pull-down menus and entry fields in the software pages and dialog boxes.

To specify the number of channels to be controlled, use the following procedure:

1. Press the STATUS PAGE button to open the Status Page.
2. Press the MENU button to open the Main Menu.
3. Highlight "System Menu" using the Jog-Wheel and press the SEL (Select) button. The System Menu will open.
4. Highlight "General Config" and press the SEL (Select) button. The General Config dialog box will open.
5. Highlight the "Channels" pull-down menu and press the SEL (Select) button to activate the menu.
6. Use the Jog-Wheel to highlight the needed number of channels (16, 32, or 48).
7. Press the SEL (Select) button to select the highlighted number of channels.
8. Set other general configuration parameters as needed.
9. Highlight the "OK" button and press the SEL (Select) button to apply the selected number of channels and other general configuration parameters.

16.3.3.2 Timecode Source

The timecode source (LTC or MIDI TC) must be selected.

To select the timecode source, use the following procedure:

1. Press the STATUS PAGE button to open the Status Page.
2. Press the MENU button to open the Main Menu.
3. Highlight "System Menu" using the Jog-Wheel and press the SEL (Select) button. The System Menu will open.
4. Highlight "General Config" and press the SEL (Select) button. The General Config dialog box will open.
5. Highlight the "TC Source" pull-down menu and press the SEL (Select) button to activate the menu.
6. Use the Jog-Wheel to highlight the needed timecode source (LTC or MIDI TC).
7. Press the SEL (Select) button to select the highlighted timecode source.
8. Set other general configuration parameters as needed.
9. Highlight the "OK" button and press the SEL (Select) button to apply the selected timecode source and other general configuration parameters.

16.3.3.3 Freewheel Frames

The number of freewheel frames needs to be set. This sets the tolerance applied when chasing timecode.

To set the number of freewheel frames, use the following procedure:

1. Press the STATUS PAGE button to open the Status Page.
2. Press the MENU button to open the Main Menu.

3. Highlight "System Menu" using the Jog-Wheel and press the SEL (Select) button. The System Menu will open.
4. Highlight "General Config" and press the SEL (Select) button. The General Config dialog box will open.
5. Highlight the "Freewheel" pull-down menu and press the SEL (Select) button to activate the menu.
6. Use the Jog-Wheel to highlight the needed number of freewheel frames (1-15).
7. Press the SEL (Select) button to select the highlighted timecode source.
8. Set other general configuration parameters as needed.
9. Highlight the "OK" button and press the SEL (Select) button to apply the selected timecode source and other general configuration parameters.

16.3.3.4 Default Timecode Frame Rate

The default timecode frame rate for new projects must be selected.

To select the default timecode frame rate, use the following procedure:

1. Press the STATUS PAGE button to open the Status Page.
2. Press the MENU button to open the Main Menu.
3. Highlight "System Menu" using the Jog-Wheel and press the SEL (Select) button. The System Menu will open.
4. Highlight "General Config" and press the SEL (Select) button. The General Config dialog box will open.
5. Highlight the "Default TC" pull-down menu and press the SEL (Select) button to activate the menu.
6. Use the Jog-Wheel to highlight the needed timecode frame rate (23.976, 24, 25, 29.97, 29.97 drop, or 30).
7. Press the SEL (Select) button to select the highlighted default timecode frame rate.
8. Set other general configuration parameters as needed.
9. Highlight the "OK" button and press the SEL (Select) button to apply the selected default timecode frame rate and other general configuration parameters.

16.3.4 Set Date and Time

The system clock must be set to the time, day, month, and year. This time and date is used to timestamp new folders and files.

To select the set the system date and time, use the following procedure:

1. Press the STATUS PAGE button to open the Status Page.
2. Press the MENU button to open the Main Menu.
3. Highlight "System Menu" using the Jog-Wheel and press the SEL (Select) button. The System Menu will open.

4. Highlight "Set Clock" and press the SEL (Select) button. The Set Clock dialog box will open.
5. Highlight the month pull-down menu and press the SEL (Select) button to activate the menu. Use the Jog-Wheel to highlight the needed month and press the SEL (Select) button to select it.
6. Highlight the day entry field and press the SEL (Select) button to activate it. Use the Jog-Wheel to scroll to and highlight the needed day. Press the SEL (Select) button to select the highlighted day.
7. Highlight the year entry field and press the SEL (Select) button to activate it. Use the Jog-Wheel to scroll to and highlight the needed year. Press the SEL (Select) button to select it.
8. Highlight the hour entry field and press the SEL (Select) button to activate it. Use the Jog-Wheel to scroll to and highlight the needed hour. Press the SEL (Select) button to select it.
9. Highlight the minute entry field and press the SEL (Select) button to activate it. Use the Jog-Wheel to scroll to and highlight the needed minute. Press the SEL (Select) button to select it.
10. Highlight the second entry field and press the SEL (Select) button to activate it. Use the Jog-Wheel to scroll to and highlight the needed second. Press the SEL (Select) button to select it.
11. Highlight the "OK" button and press the SEL (Select) button to apply the entered time and date.

16.3.5 Fader Calibration

The 1608 automation package provides a fader calibration utility that aligns the physical fader positions with the related positions in the software. It is recommended to perform this routine periodically to assure the continued accuracy of fader movement. Calibration should also be performed after initial installation, after firmware updates are installed, or after hardware changes have been made.

To calibrate one or more faders, use the following procedure:

1. Press the STATUS PAGE button to open the Status Page.
2. Press the MENU button to open the Main Menu.
3. Highlight "System Menu" using the Jog-Wheel and press the SEL (Select) button. The System Menu will open.
4. Highlight "Calibrate Faders" and press the SEL (Select) button. The Calibrate Faders dialog box will open.
5. Highlight the radio button for the needed method of fader selection and press the SEL (Select) button to select it:
 - All Faders
 - One Fader
 - Groups of Eight
6. If "One Fader" is selected, highlight the fader pull-down menu and press the SEL (Select) button to activate the menu. Use the Jog-Wheel to highlight the needed fader and press the SEL (Select) button to select it.
7. If "Groups of Eight" is selected, highlight the checkbox and press the SEL (Select) button for each group of eight faders to be calibrated.
8. Once all the needed faders have been selected, highlight the "OK" button and press the SEL (Select) button to start the fader calibration routine. This routine will take

several minutes and should not be canceled or interrupted. After the routine is finished, normal operation will resume.

IMPORTANT NOTE: Faders SHOULD NOT BE TOUCHED while the calibration routine is running.

NOTE: In an emergency situation, the calibration routine can be stopped by pressing the RESET button (next to the MEMORY-CARD slot) or by cycling the power to the automation package. This should only be used in extreme circumstances and is not recommended. If the calibration routine is interrupted, the faders may be out of calibration and the procedure should be repeated when safe to do so.

16.4 Emergency Recovery

In the rare event the currently loaded project or the software loaded in the ACM firmware becomes corrupted, it may be necessary to perform an "Emergency Recovery" of the system. This procedure will reload the system software from the memory card.

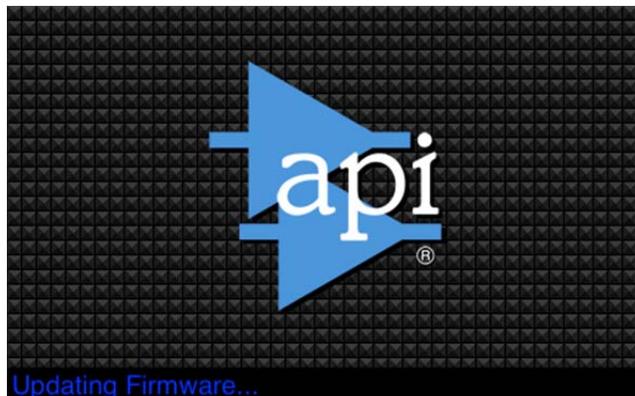
To assure continuity of work, it's a good idea to have 2-3 spare memory cards that are formatted for 1608 and contain the most current software file.

To perform an emergency recovery of the system, use the following procedure:

1. Mute the control monitor system
2. Insert a memory card with a known valid and current version of the software file.
3. Carefully press the RESET button (next to the MEMORY-CARD slot on the Automation Controller).
4. The automation package will restart and the boot-up splash page will be displayed:



5. Press the KILL MIX button while this screen is being displayed to initiate the emergency recovery procedure. You will only have a few seconds. The emergency recovery will begin.



The splash screen will indicate the firmware update has started. The MEMORY-CARD LED indicator will show activity and the software file is read and loaded into the ACM firmware.

This procedure only loads the ELF and FPGA software into the ACM. Fader module firmware is not reloaded using the emergency recovery.



A progress bar will indicate the progress of each file (ACM ELF and FPGA) as it loads.



When the software reload has been completed, the system will boot-up normally.

6. Press the RESET button to reboot the system from the newly loaded firmware.

The system should reboot normally and resume normal operation.

17.0 Software Revision History

This section details changes made and features added in each release of the automation software. Each feature lists a section of this manual with relevant information.

Version 0.39

DAW No Bypass Mode

Added the option to set Bypass to either Yes or No in DAW Config dialog. In previous versions, the bypass was always activated when in DAW mode. Also added the "Curve" option in the DAW Config dialog (section 14.1).

DAW Remember Fader and Switch Positions

When faders are in Manual or Write mode, the console will remember fader and mute positions when switching back and forth between DAW and normal modes (section 14.2).

Online Fader Trim

Use the fader to establish an offset for a channel as can be done with the Offline Trim feature (section 7.7).

Basis Choice for New Projects

Gives the user options for the initial mix of a project, including the current positions of the faders (section 4.4). Note, section 9 has also been edited to reflect the change in functionality for creating a new project.

Snapshot Directly to VSS File

Snapshots can be taken directly to a VSS file without having a project open (section 13).

Select All for Offline Trim and Snapshot Fader Selection

The "Select All" button can be used to select all/none when selecting channels to be included in the Offline Trim or Snapshot function (sections 8.3.6 and 13.2.2).

Jog Wheel Acceleration

Cursor movement accelerates when jog-wheel is being turned rapidly (section 3.3.2).

Mix Tree Notifier

The software alerts the user if no project is open when "Menu" is pressed on Mix Tree page.

TC Range Defaults

In the Copy/Swap, Clear Data, and Offline Trim functions, the timecode range will now default to "All TC."

Button Illumination

"Mute Write", "Esc", and "Sel" buttons now illuminate when pressed.

Project Pages Button Functionality

"Project Pages" button now functions as a universal escape button (the "Status Page" button has this function as well, section 3.3.1).

Import/Export Mix Details

Mix files now retain properties such as color and glide rate when exported and imported.

Version 0.40

Timecode rate is now set correctly for new projects

Timecode rate is now set correctly when opening a project

The timecode rate dropdown in the "New Project" dialog is greyed out if "Current Mix" is selected

The user is prevented from importing mix files with an incorrect frame rate

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