Pro Tools® | MTRX Studio Operation Guide

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Chapter 1: Introduction

Pro Tools | MTRX Studio

Welcome to Pro Tools® | MTRX Studio. MTRX Studio is an extremely versatile multi-channel audio interface for Pro Tools | HDX and Pro Tools | HD Native systems. MTRX Studio supports 16- and 24-bit audio with sample rates of 44.1, 48, 88.2, 96, 176.4, and 192 kHz. MTRX Studio provides two DigiLink™ Mini ports for up to 64 input and output channels with Pro Tools. MTRX Studio provides 16 analog line inputs, 16 analog line outputs, two analog monitor outputs, two headphone outputs, and two analog inputs for microphones or instruments. It also provides a 64 I/O channels Dante® IP Audio interface and 16 channels of ADAT™ I/O, Word Clock and Loop sync synchronization, and an input for a foot switch (for various DADman functions, such as talk back remote control). Additionally, MTRX Studio provides built-in SPQ processing for room tuning, bass management, and equalizing of cue and monitor signals.

MTRX Studio can be used a traditional recording interface, with mic and line analog I/O, phantom power, and two headphone jacks on the front panel. MTRX Studio can also be used as a monitor controller output device for immersive audio post production applications with up to 9.1.6 channel layouts. Pro Mon monitor control functionality is available for EUCON™-enabled Avid devices with MTRX Studio using DADman software.

MTRX Studio Features

MTRX Studio provides up to 64 discrete channels of audio for Pro Tools with two DigiLink Mini ports (Primary and Primary/Expansion).

Analog I/O
- 2 Instrument/Microphone inputs (with preamps)
- 16 analog line inputs (DB25)
- 16 analog line outputs (DB25)
- 2 monitor outputs (balanced 1/4-inch)
- 2 stereo headphone outputs

Digital I/O
- 64x64 Dante I/O
- 16x16 ADAT I/O

Synchronization
- Sample rates of 44.1–192 kHz
- Synchronization by Internal, Word Clock, Loop Sync, ADAT, or Dante IP

Control, Routing, and Processing

• Operation using DADman software—some settings can be controlled on the front panel

• All settings controlled over Ethernet

• 512x512 cross-point matrix

• 256x32 summing (Pro | Mon) with monitor profiles

• SPQ processing with 256 filters for 16 channels of speaker EQ

Router Functions and Principle

In addition to the AD/DA conversion and digital I/O functionality, MTRX Studio provides a powerful router matrix. All input signals can be patched to one or more outputs on a mono-channel basis, so MTRX Studio is also a digital patch bay. Use DADman software on your computer to configure and control MTRX Studio over Ethernet.

In order to set up the correct signal flow in MTRX Studio, the correct connections have to be set in the matrix using DADman software. Any one of the analog or digital inputs installed in the MTRX Studio can be patched to any analog or digital output, or can be split into multiple outputs.

DADman lets you import, edit, and save DADman settings files (.dms files), when includes the AD, DA, Monitor (if any), Connections, and Configuration settings. DADman also lets you import, create, and edit separate monitor profiles (.dmprof files). A monitor profile is a matrix configuration that lets you select from multiple sources and outputs, with or without fold downs and external metering, for monitoring workflows. Monitor profiles are customizable from mono to Atmos (16 speakers) and can be controlled from the front panel of MTRX Studio and by EUCON, as well as from within DADman.

You can configure DADman to automatically load your last .dms and .dmprof files on launch in the DADman Preferences (Mac) or Options (Windows).
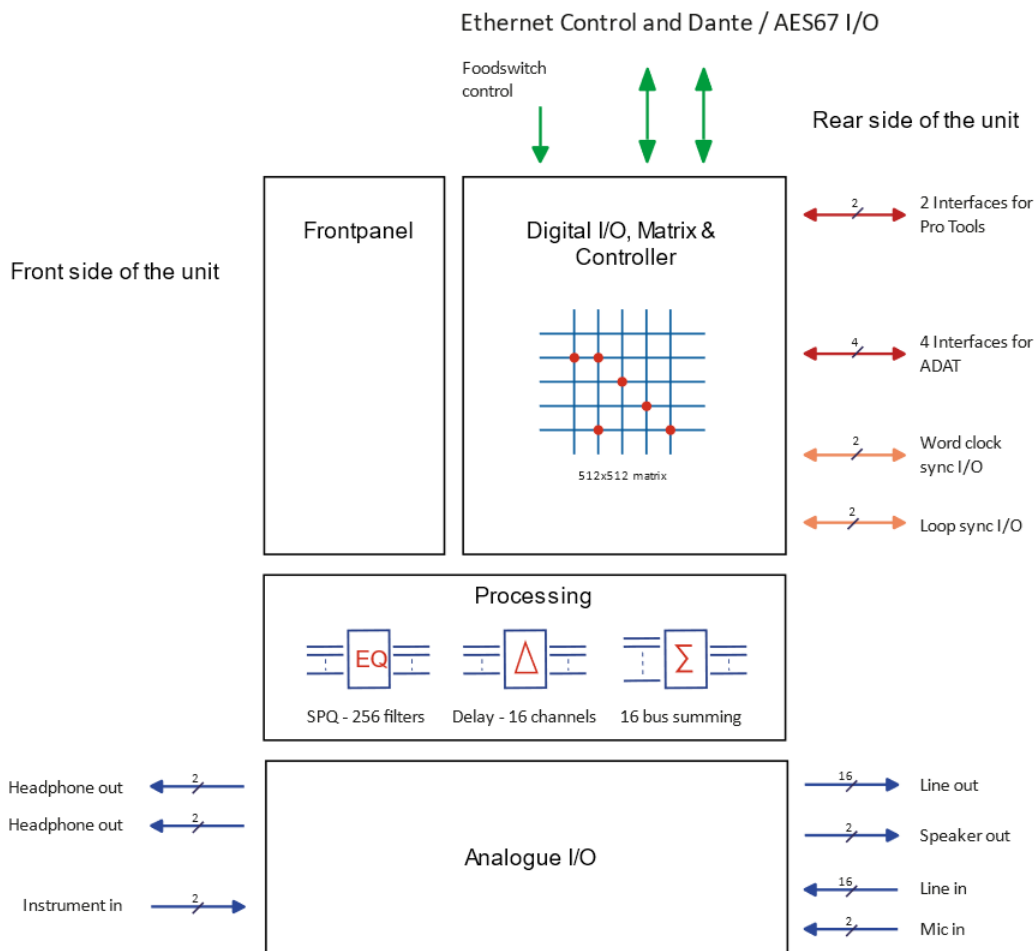
MTRX Studio block diagram

For example, with sixteen analog input channels, each can be patched to Pro Tools Output channels and the Pro Tools input can be patched to sixteen ADAT output channels. At the same time, two channels can be patched to the analog output.

It is essential that all digital signals connected to the MTRX Studio are synchronized to the same basic clock signal.

In order to patch IP Audio channels between different devices, use the Dante Controller software tool from Audinate (visit www.audinate.com).

For details on how to configure the routing matrix, see **Pro Tools | MTRX Studio Operation.**

Before You Start

This guide provides basic information about using Pro Tools | MTRX Studio and DADman software.

For information about installation, refer to the printed MTRX Studio Installation Guide that came with your unit.

System Requirements and Compatibility Information

Avid can only assure compatibility and provide support for hardware and software it has tested and approved.

For complete system requirements and a list of qualified computers, operating systems, hard drives, peripherals, and third-party devices, visit http://www.avid.com/compatibility.

Conventions Used in Pro Tools Documentation

Pro Tools documentation uses the following conventions to indicate menu choices, keyboard commands, and mouse commands:

Convention	Action
File > Save	Choose Save from the File menu
Control+N	Hold down the Control key and press the N key
Control-click	Hold down the Control key and click the mouse button
Right-click	Click with the right mouse button

The names of Commands, Options, and Settings that appear on-screen are in a different font.

The names of physical switches on MTRX Studio are in displayed **in bold text**.

The following symbols are used to highlight important information:

User Tips are helpful hints for getting the most from your Pro Tools system.

Important Notices include information that could affect your Pro Tools session data or the performance of your Pro Tools system.

Shortcuts show you useful keyboard or mouse shortcuts.

Cross References point to related sections in this guide and other Avid documentation.

Resources

The Avid website (www.avid.com) is your best online source for information to help you get the most out of your Avid system.

Account Activation and Product Registration

Activate your product to access downloads in your Avid account (or quickly create an account if you do not have one). Register your purchase online, download software, updates, documentation, and other resources.

www.avid.com/register

www.avid.com/account

Support and Downloads

Contact Avid Customer Success (technical support), download software updates and the latest online manuals, browse the Compatibility documents for system requirements, search the online Knowledge Base or join the worldwide Avid user community on the User Conference.

www.avid.com/support

Training and Education

Study on your own using courses available online, find out how you can learn in a classroom setting at an Avid-certified training center, or view video tutorials and webinars.

www.avid.com/education

Video Tutorials

The *Get Started Fast with Pro Tools* series of online videos provide tutorials to help if you are new to Pro Tools. They also provide videos for the experienced user that introduce new features found in the latest versions of Pro Tools.

www.avidblogs.com/get-started-fast-with-pro-tools/

Products and Developers

Learn about Avid products, download demo software, or learn about our Development Partners and their plug-ins, applications, and hardware.

www.avid.com/products

Pro Tools | MTRX Studio Operation

Pro Tools | MTRX Studio is controlled over Ethernet by DADman software on your computer. The front panel of the unit also provides indicators and controls for input settings and monitoring functions.

Pro Tools | MTRX Studio Front Panel
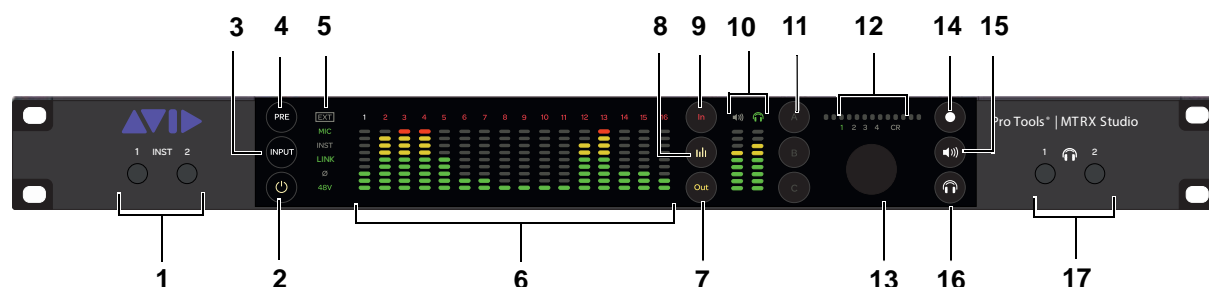
Pro Tools | MTRX Studio front panel

1 Instrument inputs 1 and 2 (mono 1/4-inch unbalanced).

💡 *These inputs are shared with the Mic inputs on the back panel, select INST inputs to use the front panel INST inputs.*

2 Power button.

3 **INPUT** button — Toggles Mic/Inst inputs 1 and 2 between INST (front panel) or MIC (back panel) when **PRE** is activated. Press the **Select** button (14) to toggle between channels 1 and 2 (the number for the corresponding channel illuminates above the encoder (13). If the channels are linked, the **INPUT** button toggles both channels in tandem.

4 **PRE** button — When activated, the **PRE** button lights green and you can change the input settings for Mic/Inst inputs 1 and 2. Press the **Select** button (14) to switch between channel 1 and channel 2. Press **INPUT** (3) to toggle between INST (front panel) or MIC (back panel). Press the **A** button (11) to link or unlink channels 1 and 2. Press **B** to enable or disable Ø. Press **C** to switch 48V (phantom power) on or off. Use the encoder (13) and the horizontal meter (12) to adjust input levels.

5 Indicators (from top to bottom) — Displays the Mic/Inst input settings per channel when **PRE** (4) is activated.
- EXT — Lights green to indicate sync lock to an external clock source, or flashes red to indicate that sync is not locked.
- MIC — Indicates Mic input for the selected channel.
- INST — Indicates Instrument input for the selected channel.
- Link — Indicates that channels 1 and 2 are linked.
- Ø — Indicates polarity for the selected channel.
- 48V — Indicates phantom power is enabled for the selected channel.

6 16 segmented LED meters indicating signal level of the selected source (analog, ADAT, or Dante) input or output.

⚠️ *Note that levels for the Mic/Inst input channels (1/4-inch inputs on the front panel and XLR inputs on the back panel) are not shown in the 16 segmented LED meters. Likewise, these meters do not show the levels for the monitor outputs (1/4-inch jacks on the back panel).*

7 **OUT** button — Press to set the 16 segmented LED meters to display output levels for the selected source.

8 **Meter** button — Press to cycle between sources for the 16 segmented LED meters: analog, ADAT, and Dante (1–4). The individual sources for metering are indicated by different colors in the meters and channels numbers. The mapping is shown in table 1 below.

Meter sources

Meter button push	Color	Viewed Channels	Meter Number highlight
Mode 1	Light Blue	Analog channels	Light Blue
Mode 2	Dark Blue	ADAT channels	Dark Blue
Mode 3	Orange	Dante channels 1–16	Orange, 1 White
Mode 4	Orange	Dante channels 17–32	Orange, 2 White
Mode 5	Orange	Dante channels 33–48	Orange, 3 White
Mode 6	Orange	Dante channels 49–64	Orange, 4 White

9 **IN** button — Press to set the 16 segmented LED meters to display input levels for the selected source.

10 CR, Monitor/Cue Level meter — Shows the level of the left and right signal of the control room output or the monitor/cue output. The readout follows the selection made using the **Speaker** (15), **Headphone** (16), and **Select** (14) buttons.

11 **A**, **B**, and **C** buttons — These three buttons illuminate **A**, **B**, and **C**. When **PRE** (4) is activated, use these buttons to change the settings for the two Mic/Inst inputs. When the **PRE** button is not activated, the **A**, **B**, and **C** buttons are used to select configured DADman monitor profiles. The function of these can be configured access any available monitor function, such as input source selection, speaker set selection, folddown, and so on. These buttons are also layered using the **Select** button (15) along with the Level control encoder (13), and the level and channel indicators (12).

📄 *For information on assigning functions to the A, B, and C buttons in DADman, see* **MTRX Studio Page***.*

12 Level and Channel indicators — When **PRE** (4) is activated, the Level meter shows the input gain levels for the selected Mic/Line input and the Channel indicators show which channel is selected for editing (1 or 2, or both). Otherwise, these show the output level for the selected Monitor/Cue source, and which source is selected (defined in DADman).

13 Encoder — When **PRE** (4) is activated, turning the encoder adjusts the input gain level for the selected Mic/Line input. Otherwise, turning the encoder adjusts the monitor level for the selected Monitor/Cue source. The encoder can also be assigned to various functions in DADman when turned or pushed. For example, you can assign the encoder to mute and unmute the selected monitor path when pushed.

📄 *For information on assigning functions to the encoder in DADman, see* **MTRX Studio Page***.*

14 **Select** button — Use for selecting channels or layers. Selections are indicated by the channel indicator (12). When the MTRX Studio is connected to a monitor profile in DADman these 3 keys are controlling DADman and the function is defined in DADman. The default functionality is that the **Speaker** button (1*5*) selects the control room (CR) as focus for the level control encoder, and the **A**, **B**, and **C** buttons (11) and the **Headphone** button (17) selects the monitors/cues as focus. Using the **Select** button (14), 4 different layers can be selected according to the configuration of the monitor profile in DADman.

15 **Speaker** button — Selects the control room (CR) as focus for the level control encoder (13) and meter (12).

16 **Headphone** button — selects the monitors/cues as focus for the level control encoder (13) and meter (12).

17 Headphone outputs 1 and 2 (stereo 1/4-inch).

Instrument and Microphone Inputs 1 and 2

You can select the input (microphone or instrument) and configure the input settings for channels 1 and 2 (front panel instrument inputs or back panel mic inputs) on the front panel of MTRX Studio.

To select the input source for input channels 1 and 2:

1 If necessary, press the **PRE** button (4) so that it lights green.

2 Press the **Select** button (14) to toggle between input channels 1 and 2 (unless both channels are linked).

3 Press the **INPUT** button (3) to toggle between MIC (back panel) and INST (front panel) for the selected channel.

To adjust the input gain for input channels 1 and 2:

1 If necessary, press the **PRE** button (4) so that it lights green.

2 Press the **Select** button (14) to toggle between input channels 1 and 2 (unless both channels are linked).

3 Turn the encoder (13) to boost or attenuate the input gain for the selected channel.

To link (or unlink) input channels 1 and 2:

1 If necessary, press the **PRE** button (4) so that it lights green.

2 Press the **A** button (11) to link (or unlink) input channels 1 and 2.

To enable invert phase for input channels 1 and 2:

1 If necessary, press the **PRE** button (4) so that it lights green.

2 Press the **Select** button (14) to toggle between input channels 1 and 2 (unless both channels are linked).

3 Ensure that the Input channel is set to MIC.

4 Press the **B** button (11) to phase invert on and off.for the selected channel.

To enable phantom power for input channels 1 and 2:

1 If necessary, press the **PRE** button (4) so that it lights green.

2 Press the **Select** button (14) to toggle between input channels 1 and 2 (unless both channels are linked).

3 Ensure that the Input channel is set to MIC.

4 Press the **C** button (11) to toggle phantom power (48V) on and off.for the selected channel.

Control Room and Headphone Monitoring

MTRX Studio lets you adjust the settings for Control Room and Headphone monitoring from the front panel using the encoder, and several of the buttons. The Control Room monitor path has up to four layers of controls using the front panel encoder and buttons, while the Cue paths (Headphone 1 and 2) have only one layer of controls.

📖 *For information on making control assignments for the encoder, footswitch, and buttons A, B, and C, see* **MTRX Studio Page**.

To select the Control Room (CR) for control focus:

1 If necessary, press the **PRE** button so that it lights white.

2 Press the **Speaker** button (15) so that CR and the speaker indicator illuminate.

3 The encoder, footswitch, and **A**, **B**, and **C** buttons now apply their assigned functions to the Control Room monitor path (such as level adjustment).

To switch between control layers for the Control Room monitor path:

1 If necessary, press the **PRE** button so that it lights white.

2 Press the **Speaker** button (15) so that CR and the speaker indicator illuminate.

3 Press the **Select** button (14) to cycle through control layers 1–4.

To select either Headphone 1 or Headphone 2 for control focus:

1 If necessary, press the **PRE** button so that it lights white.

2 Press the **Headphone** button (16) so that the headphone indicator illuminates.

3 Press the **Select** button (14) to switch between Headphone 1 and Headphone 2.

4 The encoder, footswitch, and **A**, **B**, and **C** buttons now apply their assigned functions to the Headphone cue path (such as level adjustment).

Pro Tools | MTRX Studio Back Panel Connections

Pro Tools | MTRX Studio Back Panel

Pro Tools | MTRX Studio back panel

1 IEC power connector.

2 Reconfig button (see **Reconfig Button**).

3 Footswitch — the footswitch can used for controlling the DADman monitor profile or talkback (see **MTRX Studio Page**).

4 Word Clock In and Out (BNC).

5 Loop Sync In and Out (BNC).

6 Ethernet 1 and 2 (network or Dante) — Two RJ45 Ethernet ports for Control and Dante (which can be set to switched or redundant mode). In redundant mode the control network must be connected to port 1.

7 DigiLink Mini port 1, primary port.

8 DigiLink Mini port 2, primary or expansion port (configured in DADman software).

9 ADAT In and Out 1.

10 ADAT In and Out 2.

11 Main Monitor Out L and R (balanced 1/4-inch).

12 Line Out 1–8 (DB25).

13 Line Out 9–16 (DB25).

14 Mic Input 1 and 2 (XLR).

These inputs are shared with the instrument inputs on the front panel, select MIC inputs to use the back panel MIC inputs.

*In addition to front panel and DADman control, the built-in Mic pres can also be controlled from Pro Tools (Mac only). For more information, see **Network Fundamentals**.*

15 Line In 1–8 (DB25).

16 Line In 9–16 (DB25).

Digital I/O Connections

Ethernet, RJ45 Connector, Gigabit

Pin 1 BI_DA+

Pin 2 BI_DA−

Pin 3 BI_DB+

Pin 4 BI_DC+

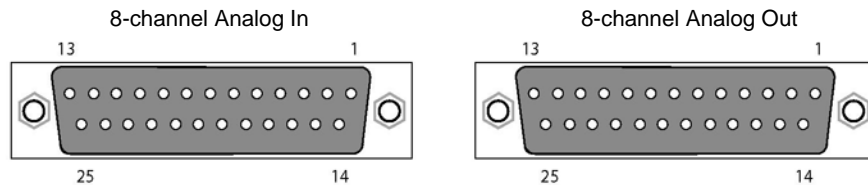**Pin 5** BI_DC−

Pin 6 BI_DB−
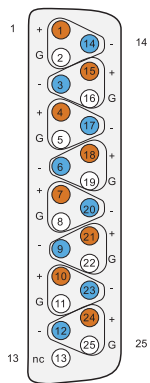
Pin 7 BI_DD+

Pin 8 BI_DD−

Analog I/O Connections

Analog I/O 25-pin Female D-sub Connectors

MTRX Studio uses 25-pin D-sub connectors on the back panel for both analog line input (channels 1–8 and 9–16) and analog line output (channels 1–8 and 9–16).

8-channel Analog In   8-channel Analog Out

Connections Channels 1–8

Connections for the 25-pin D-sub connector are listed in the table below. The pinning is according to the proprietary standard by Tascam.

Pin number	Function	Pin number	Function
1	AIN/OUT 8 +	14	AIN/OUT 8 –
2	GND	15	AIN/OUT 7 +
3	AIN/OUT 7 –	16	GND
4	AIN/OUT 6 +	17	AIN/OUT 6 –
5	GND	18	AIN/OUT 5 +
6	DOUT 2/6 +	19	GND
7	AIN/OUT 4 +	20	AIN/OUT 4 –
8	GND	21	AIN/OUT 3 +
9	AIN/OUT 3 –	22	GND
10	AIN/OUT 2 +	23	AIN/OUT 2 –
11	GND	24	AIN/OUT 1 +
12	AIN/OUT 1 –	25	GND
13	N.C.		

Reconfig Button

The Reconfig button on the back of MTRX Studio should not be used during normal installation. It is intended only as for recovery in case something goes wrong during programming of IP addresses or a software upgrade (such as an unintended power loss). It lets you start MTRX Studio in various basic modes so it can be restored without having to be returned to the factory.

The Reconfig button is accessed through a hole in the rear panel using a pen or a similar pointed item (such as a paper clip). A green LED is visible through the hole. When the Reconfig button is activated, the LED lights to indicate the two Recovery modes for MTRX Studio: last used IP Address and DHCP.
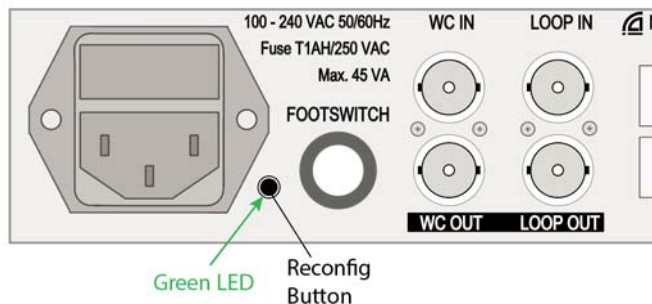
Recovery Mode

Use Recovery mode if the software in the MTRX Studio is not operative. In Recovery mode only basic boot software is operative in the unit, and new software can be downloaded using DADman software.

To enter Recovery mode using the last used IP address settings:

1 Power off MTRX Studio.

2 Press the Reconfig button using a pen or a similar (such as a paper clip) and power the unit on. Hold while the unit is powering up.

The green LED turns on and MTRX Studio enters Recovery mode. The IP address settings of the unit are the last setting used in the unit.

To switch Recovery mode to use DHCP:

■ While the unit is in Recovery mode and the green LED is on, briefly press the Reconfig button again.

The green LED turns off, but the MTRX Studio remains in Recovery mode and the IP address settings of the unit is set to DHCP. In case there is no DHCP server on the network, the MTRX Studio defaults to IP address 10.0.7.20 / 255.255.0.0 after approximately 2 minutes.

The selection of either of recovery mode are fixed after selection. MTRX Studio starts with a basic boot software and IP configuration. MTRX Studio will not be operational until a proper firmware has been downloaded using the DADman software and the unit has been powered off and back on again. By enabling recovery mode with default IP address and network configuration the unit can always be identified on a network using the default setup.

⚠ *Note that the IP address referred to is the IP address of the controller/management interface of the unit. This is not the IP address of the IP audio interface. This IP address can not be accessed in recovery or restore defaults mode.*

Restore Defaults

In Restore Defaults mode, all settings of the unit are initialized and reset to the factory programmed defaults. However, the IP address settings of the unit are remain unchanged and do *not* return to factory default.

To restore the default settings to MTRX Studio:

1 While the unit is powered on and operating normally, push and hold the Reconfig button for 10 seconds.

2 Release the Reconfig button.

When the Reconfig button is released the firmware of the unit restarts with the factory default settings and enters normal operation automatically.

DADman Software

Use DADman software to configure and control MTRX Studio over Ethernet.

Assigning the IP Address for your Computer and MTRX Studio

Before using DADman with MTRX Studio units on your network, you must set the network configuration for each MTRX Studio unit in your system, one at a time. You can use fixed IP addresses or IP addresses assigned by DHCP.

☼ *When using MTRX Studio units in Pro Tools systems with EUCON peripherals (such as S6, S1, or Control app), use a dedicated Network Interface for EUCON peripherals and connect all other network devices to a separate Network Interface (for MTRX Studio/DADman, Dante audio, local network, internet, and so on). Using separate Network Interfaces is especially important when streaming audio over Dante.*

Fixed IP Address

You must have a preferred range of IP addresses, and a network mask for the computer network and the connected MTRX Studio units.

To use a fixed IP address:

1 Configure your computer IP address and network mask using the macOS System Preferences or the Windows Control Panel to 10.0.7.25 | 255.255.255.0.

2 Launch DADman.

3 Choose Settings > Device List.

4 Click Refresh to discover the MTRX Studio on the network.

5 Right-click the MTRX Studio and choose Network Settings.
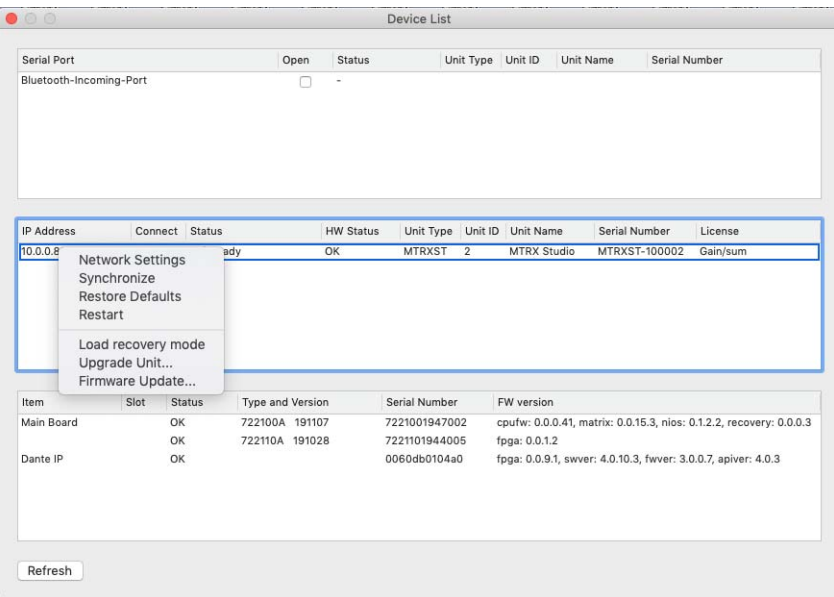
Device List

6 Configure each MTRX Studio unit in turn with a unique IP address and the preferred network mask, for example 10.0.7.21 | 255.255.255.0. You can also configure IP audio network settings in this window.

7 When you are done you can connect more than one MTRX Studio to the network, and each one appears in the DADman Device List.

Automatic IP address

You must have a network with a DHCP server to allocate the IP addresses.

To use an automatic IP address:

1 Configure your computer IP address to DHCP using the Mac System Preferences or the Windows Control Panel.

2 Launch DADman.

3 Choose Settings > Device List.

4 Click Refresh to discover the MTRX Studio on the network.

5 Right-click the MTRX Studio and choose Network Settings.

6 Configure each MTRX Studio in turn to use DCHP.

7 When you are done, you can connect more than one MTRX Studio to the network, and they will all appear in the DADman Device List.

⚠ *In order for MTRX Studio to function properly, the router and sample rate must be correctly configured in DADman software.*

DADman Configuration Files

Use the DADman File and Settings menus to Save and Load MTRX Studio configuration files (.dms).

📄 *You can also save and load separate monitor profiles (.dmprof), see **Monitor Profile Files**.*

Saving and Loading Configuration Files

When you have set up DADman as you like, you can save the configuration to a file (.dms) so it can be re-loaded later if necessary.

To save a MTRX Studio Configuration file in DADman. do one of the following:

■ Choose File > Save.

■ Press Command+S (Mac) or Control+S (Windows).

To save the MTRX Studio Configuration as a new file in DADman:

1 Choose File > Save As, or press Command+Shift+S (Mac) or Control+Shift+S (Windows).

2 In the Save As dialog, navigate to where you want to save the file and name the file.

3 Click Save.

To load a MTRX Studio Configuration file in DADman:

1 Choose File > Open, or press Command+O (Mac) or Control+O (Windows).

2 In the Open dialog, navigate to and select the MTRX Studio configuration file (.dms) that you want to load.

3 Click Open.

DADman Settings Menu

The DADman Settings menu provides access to the Device List window, the Monitor Profile Configuration window, the MIDI Settings window, and lets you enable (or disable) EUCON. On Windows, it also lets you access the Options window. On Mac, use the DADman menu to access the Preferences window (which is equivalent to Options on Windows).

Preferences and Options

To set Preferences (Mac) or Options (Windows) for DADman:

1 Choose DADman > Preferences (Mac) or Settings > Options (Windows).
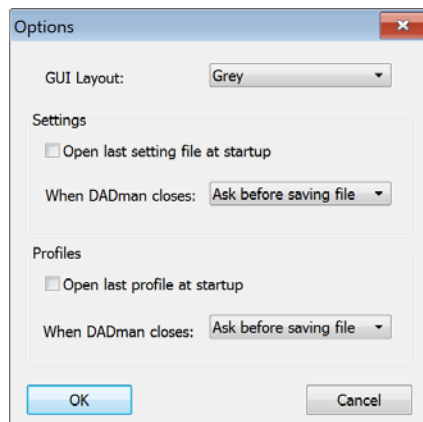
Options dialog (Windows)

2 Configure the MTRX Studio Preferences (Mac) or Options (Windows) as desired:

GUI Layout Select a color scheme for DADman.

Settings Lets you specify what DADman does with the settings file when starting and closing DADman.

Profile Lets you specify what DADman does with the monitor profile when starting and closing DADman.

3 Click OK.

Device List

The Device List lets you discover and connect to any MTRX Studio (and MTRX) on the network. Right-click on any connected unit in the list to change its Network Settings, Synchronize, Restore Defaults, or Restart the unit. You can also enter Recover Mode, Upgrade the unit, or update its firmware.

Monitor Profile

The Monitor Profile Configuration window lets you create and edit monitor profiles for MTRX Studio. For more information, see **Monitor Profiles.**

MIDI Settings

The MIDI Settings window lets you select MIDI Input and Output, and MIDI Mode (Pro Tools PRE or Mackie C4). For more information, see **Network Fundamentals.**

EUCON

DADman software can be controlled by EUCON-compatible control surfaces such as S1, S6, and the Avid Control app.

To enable EUCON control of DADman:

■ Select Settings > EUCON.

DADman Window

The DADman window is separated into five sections: AD, DA, Monitoring (if configured), Connections, and Configuration. Each subsection can be shown or hidden by clicking on the corresponding button in the leftmost column.
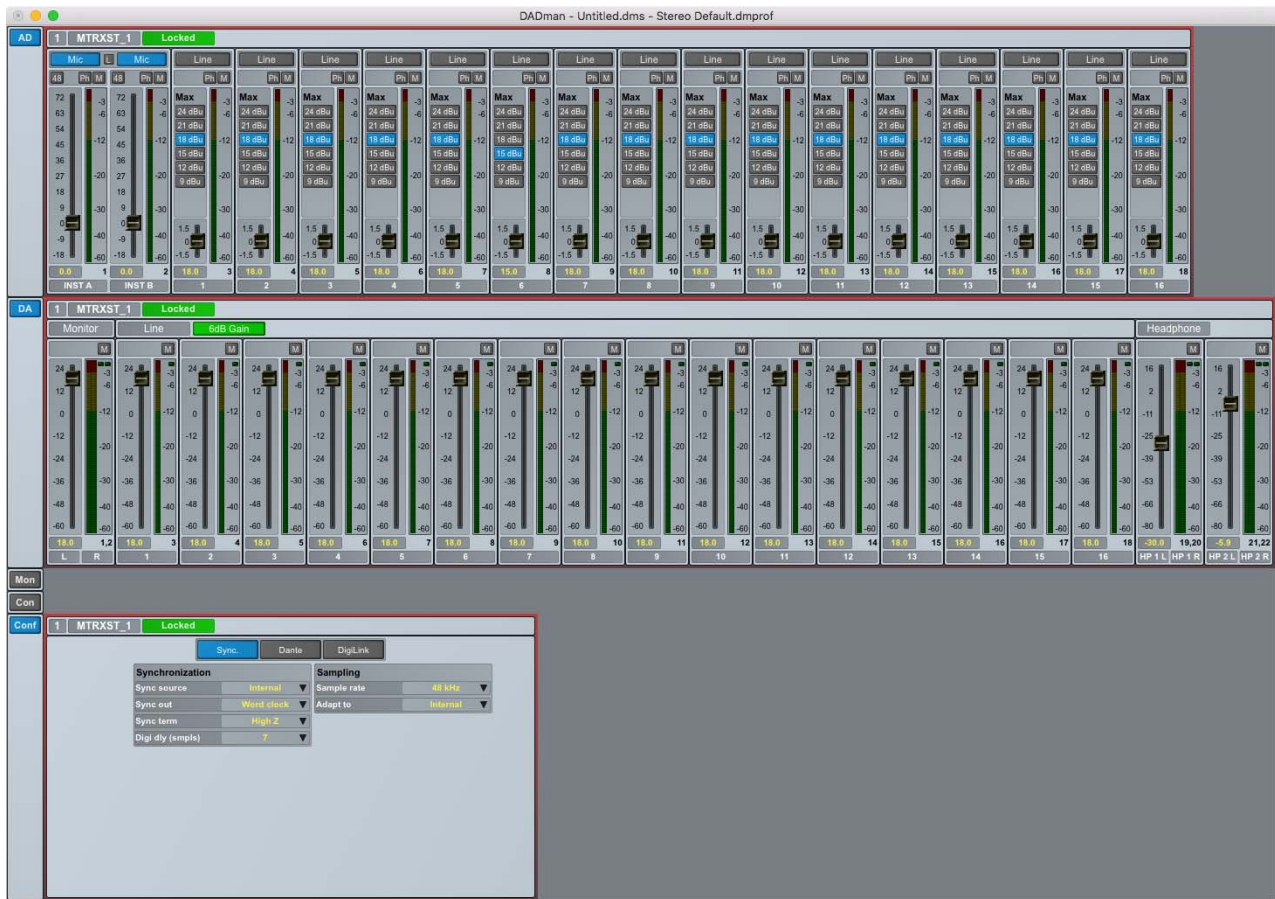

DADman Window, Mon and Con sections collapsed

Note that the order from left to right in which DADman shows the units are defined by the unit ID number stored in each unit. The ID number for any unit can be changed by editing the ID field in the corresponding section in the DADman window (just to the right of the unit ID number). The name of each unit can be edited in the name Window. This name is stored in the unit. Names can also be assigned for each analog input and output channel. However, these channel names are only stored in MTRX Studio Configuration files, not in the MTRX Studio unit itself.

AD Section

The AD section controls all analog inputs in the MTRX Studio:

• Mic/Inst Inputs 1 and 2.

• Analog Inputs (DB25) 1–8 and 9–16.
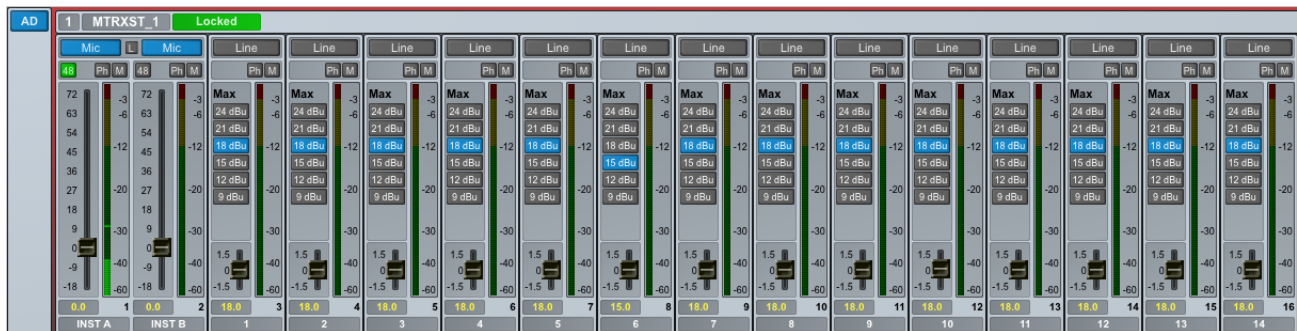
AD section

Any selected level slider can be adjusted with the mouse, the mouse scroll wheel, or with the Up and Down Arrows on your computer keyboard. Note that using the mouse adjusts the gain by 0.5 dB increments, but the Up and Down Arrow keys adjusts the gain by 0.1 dB increments.

🔲 *Command-click (Mac) or Control-click (Windows) any fader to set it to 0.*

Mic and Inst Channel Strips
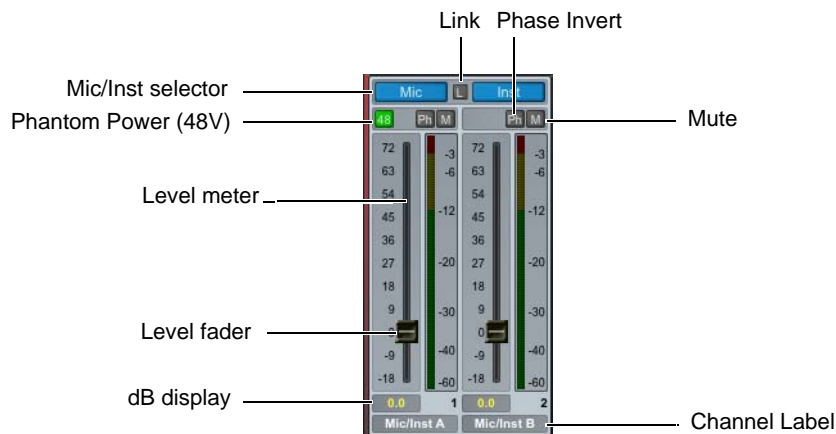
Mic/Inst channel strips

The Mic and Inst channel strips (front and back panel inputs 1 and 2) provides the following controls:

Mic/Inst Selector Click to toggle between Mic input (back panel) and Instrument input (front panel).

Link Enable to Link controls for both input channels 1 and 2.

Phantom Power (48) Click to enable (or disable) phantom power (48V)—Mic input only.

Phase Invert (Ph) Click to enable (or disable) phase inversion.

Mute (M) Click to mute (or unmute) the channel.
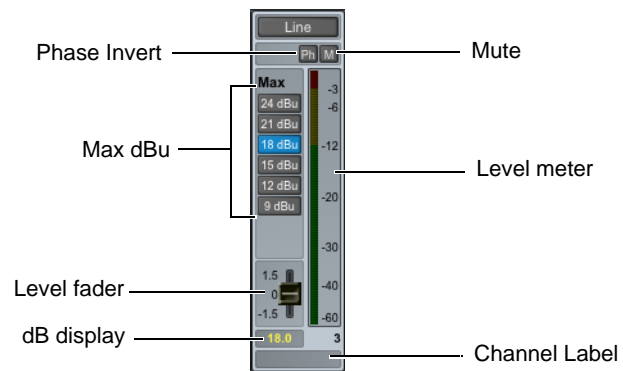
Level Meter Displays the input signal level.

Fader Move to adjust the input signal level.

dB Display Displays the gain adjustment to the input signal in dB.

Label Click to change the label (name) for the channel.

Line Input Channel Strips

Line Input Channel Strip

The Line input channel strips provide the following controls:

Phase Invert (Ph) Click to enable (or disable) phase inversion.

Mute (M) Click to mute (or unmute) the channel.

Max Sets the unity gain value for the Level fader.

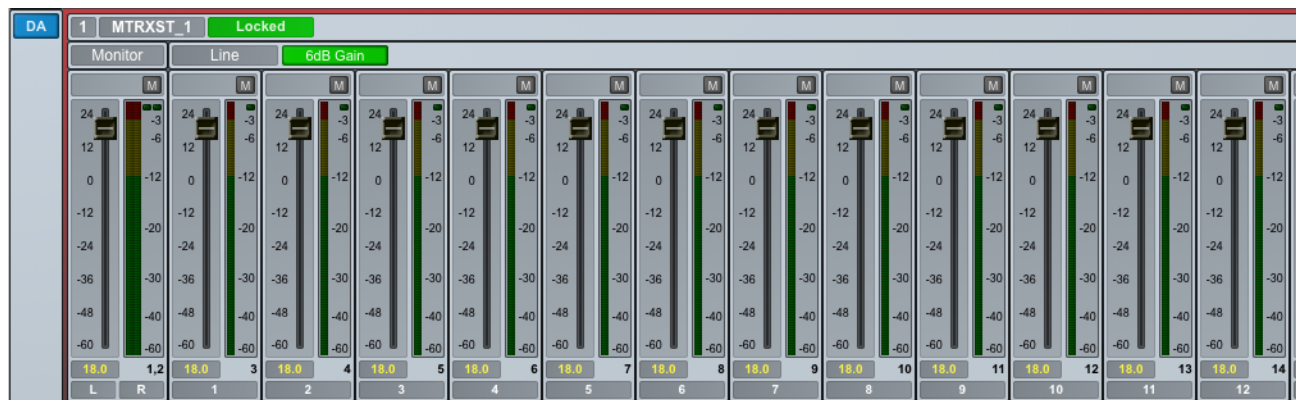**Level Meter** Displays the input signal level.

Fader Move to adjust the input line signal level by +/–1.5 dB (0 = the selected Max dBu value).

dB Display Displays the gain adjustment to the input signal in dB.
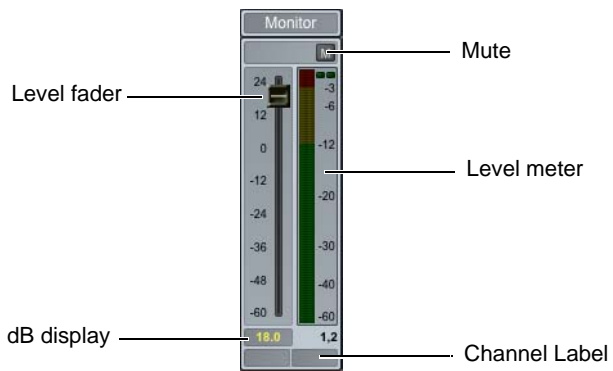
Label Click to change the label (name) for the channel.

DA Section

The DA section controls all analog outputs in the MTRX Studio.

DA section

Monitor Channel Strip

Mute —
Level fader —
Level meter —
dB display —
Channel Label —

Monitor channel strip (stereo)

The Monitor channel strip provides the following controls:

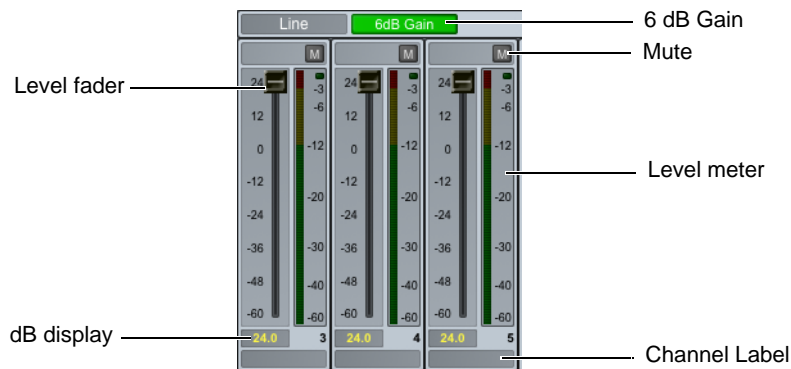**Mute (M)** Click to mute (or unmute) the channel.

Level Meter Displays the input signal level.

Fader Move to adjust the input signal level.

dB Display Displays the gain adjustment to the input signal in dB.

Label Click to change the label (name) for the channel.

Line Output Channel Strip

6 dB Gain —
Mute —
Level fader —
Level meter —
dB display —
Channel Label —

Monitor channel strip (stereo)

The Line output channel strips provide the following controls:

6 dB Gain Click to add (or subtract) 6 dB to the Level meter and Gain fader.

Mute (M) Click to mute (or unmute) the channel.
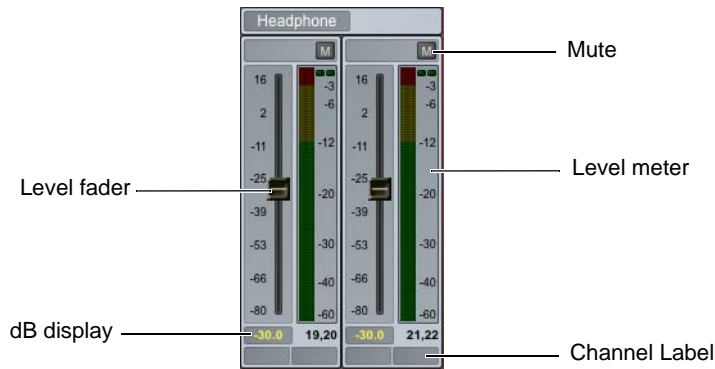
Level Meter Displays the input signal level.

Fader Move to adjust the input signal level.

dB Display Displays the gain adjustment to the input signal in dB.

Label Click to change the label (name) for the channel.

Headphone Channel Strips

Headphone channel strips (stereo)

The Headphone channel strips provide the following controls:

Mute (M) Click to mute (or unmute) the channel.

Level Meter Displays the input signal level.

Fader Move to adjust the input signal level.

dB Display Displays the gain adjustment to the input signal in dB.

Label Click to change the label (name) for the channel.

Monitoring Section

The Monitor (Mon) section is available when the Enable monitor option is selected in the Monitor Profile Configuration Settings window (Settings > Monitor Profile). This lets you monitor defined sources and route them to defined outputs (configured in the Monitor Profile Configuration Settings window). The Mon section also provides controls for Talkback parameters and signal delay amounts. EQ and Filter options are also available for each output channel. Note that this section is blank if no Monitor Profile is defined.

📖 *For information on creating and editing Monitor Profiles, see* **Monitor Profiles.**

Mon section: default stereo monitor profile shown

Monitor Header Display

Monitor Profile label   Summing Info   SPQ Info
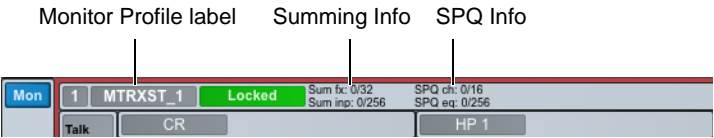
*Mon section: default stereo monitor profile shown*

Monitor Profile Label Click to type a new label for the monitor profile.

Summing Info Displays the summed Sources Sum fx (n/n) and input channels Sum inp (n/n).

SPQ Info Displays the number of SPQ channels (SPQ ch) used out of the total number available, and the number of SPQ EQs (SPQ eq) used out of the total number available.

Talkback Controls

If you have configured a Talkback channel in the Monitor Profile Configuration window (see **Talkback**), use the Talkback controls to toggle Talkback on and off, and adjust the Talkback level.

Talkback level
Talkback level in dB

Dim level
Dim level in dB

Enable/Disable Talkback
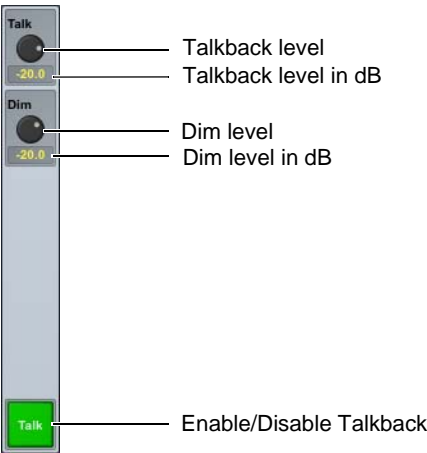
Mon section: Talkback controls

Talkback Level Lets you adjust the level for Talkback.

Talkback Level Indicator (dB) Displays the Talkback level setting in dB.

Dim Level Lets you adjust the level for Talkback when it is dimmed.

Dim Level Indicator (dB) Displays the Dim level setting in dB.

Enable/Disable Talkback Click to enable or disable Talkback. This can be controlled by the footswitch or from the front panel if configured in the MTRX Studio page in the Monitor Profile Configuration window (see **MTRX Studio Page**).

Monitor Controls

MTRX Studio lets you have up to three defined monitor paths: one for the Control Room, and two for cues (Headphone Outputs 1 and 2).
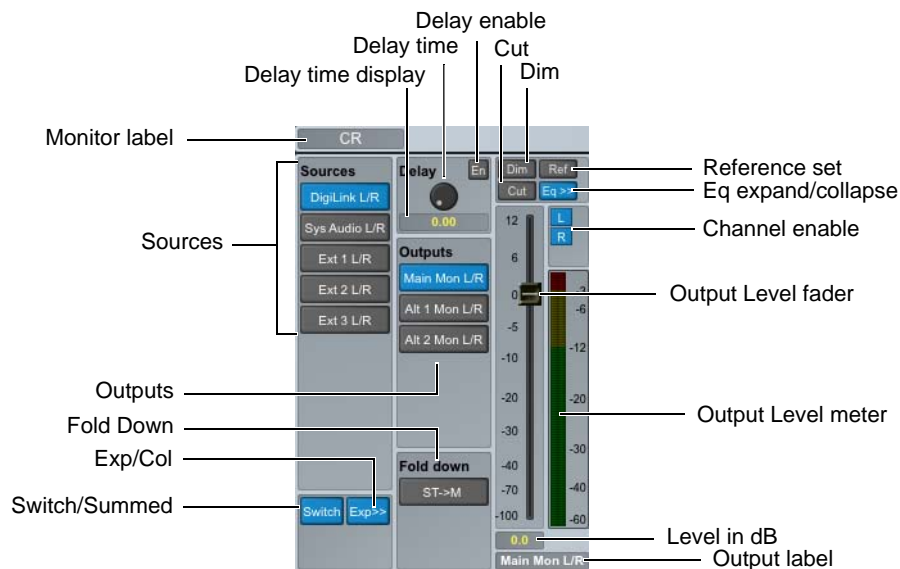
Monitor controls

Monitor Label

You can click the Monitor label to type a new name.
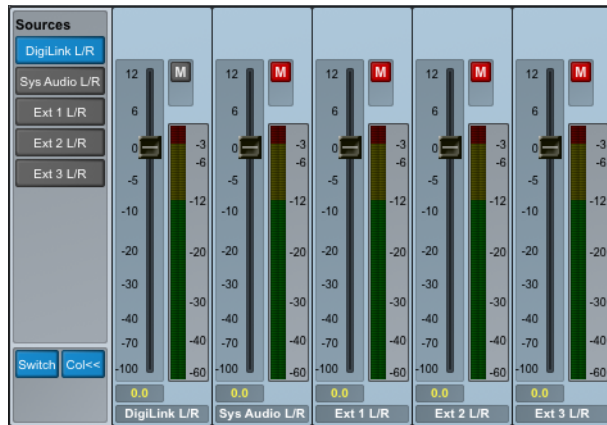
Sources

Under Sources, all available monitoring sources are listed (as configured in the Monitor Profile Configuration window). Click to select the desired input source. When Switch is enabled, click to select the desired source for monitoring. When Sum is enabled, all selected sources are summed for monitoring.

Switch/Sum Click to toggle between switching between available sources or summing all selected sources. When Sum is enabled, an additional All button appears that lets you select (or deselect) all sources. When Sum is enabled and All is disabled, you can selected any combination of sources.

All sources selected and summed for monitoring

Sources Exp/Col Click to expand or collapse channel view for all available sources. You can adjust the level for each source independently. Unselected sources are muted.

Defined sources expanded

Delay

The channel delay knob controls the delay of the selected channel. This delay can be set between 0–600 ms.

Outputs

Under Outputs, all available monitoring outputs are listed (as configured in the Monitor Profile Configuration window). Click to select the desired output.

Fold Down

Under Fold Down, all available fold down matrix options are listed (as configured in the Monitor Profile Configuration window). Click to select the desired fold down matrix.

Monitor Channel Strip

Monitor channel strip stereo (left); Monitor channel strip 5.1 (right)

Dim Click to enable or disable dimming of the monitor output signal.

Ref Click to reset the output level fader to reference level.

Cut Click to enable or disable cut on the monitor output signal, which effectively mutes the signal.

EQ Click to show or hide the expanded EQ view for the defined monitor path (see **EQ**).

Channel Select Click to engage or disengage any given channel of the monitor signal path. For example, a stereo monitor path has left (L) and right (R) channels, while a 5.1 monitor path has left (L), center (C), right (R), left surround (Ls), right surround (Rs), and low frequency (Lfe) channels. Disengaged channels are effectively muted.

**Output Level Fader** Move to adjust the monitor signal level.

Output Level Meter Displays the monitor signal level.

Level Display Displays the gain adjustment to the monitor signal in dB.

Output Label Click to change the label (name) for the channel.

Connections Section

The Connections section shows the DADman matrix for each unit in on the network. The left side of the panel for each unit and horizontal lines are inputs for the unit. The top side and vertical lines are the outputs.
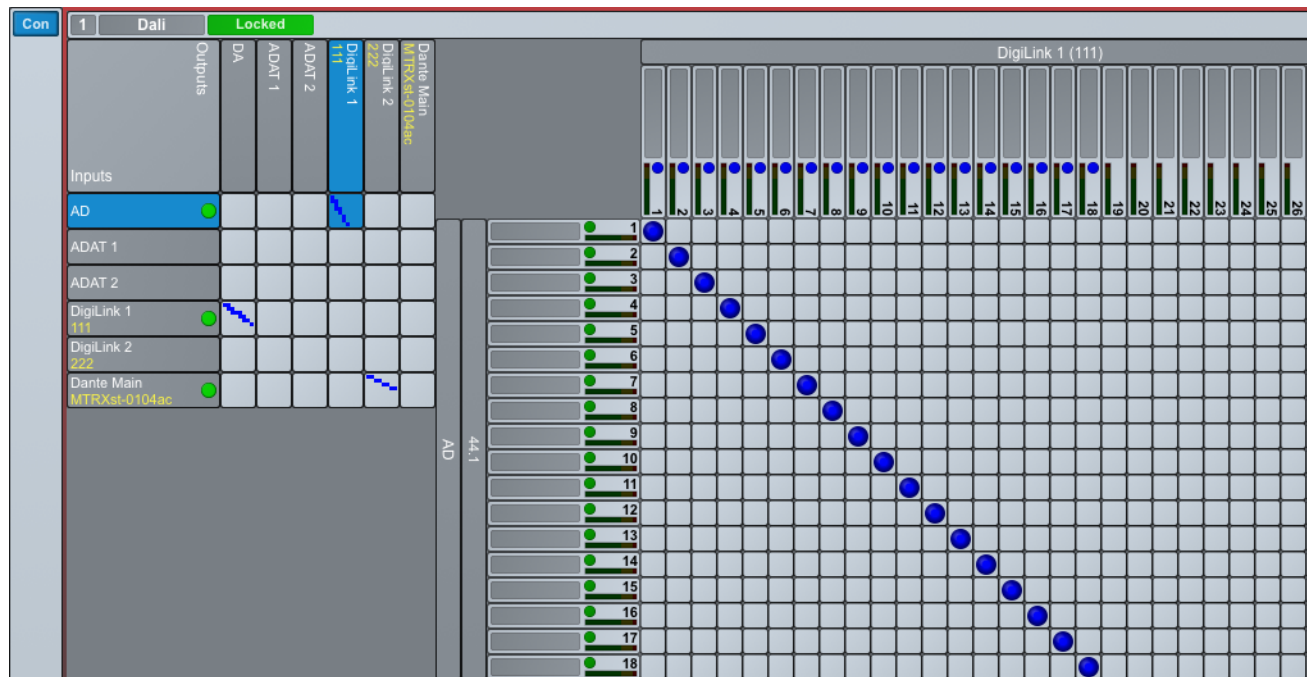
Connections section: AD inputs mapped to DigiLink 1 outputs

To connect inputs and outputs, do any of the following:

- Click in the junction of the mono input and output channels that you what to connect. It highlights blue.

- Shift-click to connect two consecutive channels.

- Command-click (Mac) or Control-click (Windows) to select noncontiguous channels.

To disconnect an input and output:

- Click any crosspoint connection (blue) to disconnect it.

The Connections section includes of an overview matrix to the left and a detailed matrix, to the right, which appears when you select a cross point between two interfaces in the overview matrix.

There is more helpful information in the matrix view. In the top row of the output signal names, a blue square is visible if the output is already connected. The square is light blue if the output is connected to an input not shown in the detailed matrix. The square is dark blue if the output is connected to an input shown in the detailed matrix. It is always possible to override this connection by just connecting to another input.

In the left side of the detailed matrix, there is a status indicator next to each channel:

Green On a digital input, green indicates that there is a valid input and carrier. It does not indicate whether there is an audio signal present on the channel.

Yellow Indicates lost synchronization or mismatched sample rates.

Red Indicates an error with the interface, such as no input signal.

Along the top of the detailed matrix, there is also a status indicator for each channel:

Dark Blue Indicates an active connection.

Light Blue Indicates that the patched inputs are not visible on the current page. For example, if you are looking at Dante outputs and have AD 1–8 patched to Dante outputs but your input selection in the patch grid is ADAT, you will see light blue circles over 1–8 indicating that you need to look at a different (input) page to see the actual patch.

X Indicates the channel is used as a monitor path.

Connections section, Xs indicate assigned monitor paths

Configuration Section

The Configuration section is divided into subsections: Synchronization, Dante, and DigiLink.

Configuration section, Synchronization pane shown

Synchronization

The Synchronization pane in the General sections lets you set the following MTRX Studio parameters: Sync source, Sync out, Sync term (synchronization termination), Digi dly (in samples), Sample rate, and Adapt to. The following table shows which settings are available. Please note that DADman will only show the settings that are relevant in the given configuration.

Parameter	Options	Description
Source	Internal Word clock Loop Sync ADAT 1 ADAT 2 Dante IP	This determines the clock source of the MTRX Studio.
Sampling	44.1 kHz, 48 kHz 88.2 kHz, 96 kHz 176.4 kHz, 192 kHz	This determines the sample rate of the MTRX Studio if the Adapt to setting is set to Internal. If the Adapt to setting is set to any of the digital inputs, only the actual sample rate will be shown.
Adapt to	Internal ADAT 1 ADAT 2 Dante IP DigiLink 1 DigiLink 2	The sample rate of the MTRX Studio can either be set manually by selecting Internal, or it can follow any of the digital inputs. For example, if it is set to DigiLink 1, the sample rate will automatically follow the current Pro Tools sample rate.
Out	Word clock Word clock, base	This parameter sets whether the Word Clock output should only follow the base sample rate (44.1 kHz / 48 kHz) or follow the actual sample rate (44.1 kHz / 48 kHz / 88.2 kHz / 96 kHz / 176.4 kHz / 192 kHz).
Sync term	High Z 75 ohm	This parameter sets whether the Word Clock input is terminated internally in the MTRX Studio with 75 ohm, or left unterminated. It is strongly recommended that the Word Clock input is terminated in 75 ohm for optimum performance.
Digi Dly (sampls)	7–31	System delay in samples.

Dante

Dante pane

The Dante pane lets you set the following MTRX Studio parameters: Sample Rate, Dante card is a slave to the clock of the Dante network. Latency (us), and Preferred Master. The following table shows which settings are available. Please note that DADman will only show the settings that are relevant in the given configuration.

Parameter	Options	Description
Sample Rate	Free	Dante is set to the sample rate of the MTRX Studio
	Follow	Dante is not set to any sample rate by MTRX Studio, so this has to be done in the Dante Controller.
Latency (us)	(in samples)	The Dante network latency, which can be set from 250 to 21333 microseconds (21,333 milliseconds)
Preferred Master	No	Dante is set to be the preferred master of the Dante clock. The Dante network will be synchronized to the MTRX Studio.
	Yes	MTRX Studio is a slave to the clock of the Dante network.

DigiLink

MTRX Studio can be configured as either two Primary audio interfaces (Pri/Pri) with both DigiLink Mini ports connected to an HDX or HD Native card, or as a Primary audio interface and an Expansion audio interface (Pri/Exp) with the primary DigiLink Mini port connected to an HDX or HD Native card and the second DigiLink Mini port connected to another audio interface (such as an HD I/O).

To set the DigiLink mode:

■ Click the DigiLink button and select either Pri/Exp or Pri/Pri from the DigiLink mode selector.

Selecting DigiLink mode

Monitor Profiles

A monitor profile is a control room or cue system using the available analog and digital I/O MTRX Studio. You can add sources, outputs, fold downs, and meters to define a monitor within DADman. A single monitor can contain multiple sources (inputs) and output sets, including stereo, surround, and expanded Atmos configurations using analog or digital I/O. You can efficiently switch between near-field stereo, 5.1 or 7.1 surround, as well as Atmos speaker configurations from the front panel of MTRX Studio or using a EUCON-compatible control surface (such as S1, S6, or the Avid Control app).
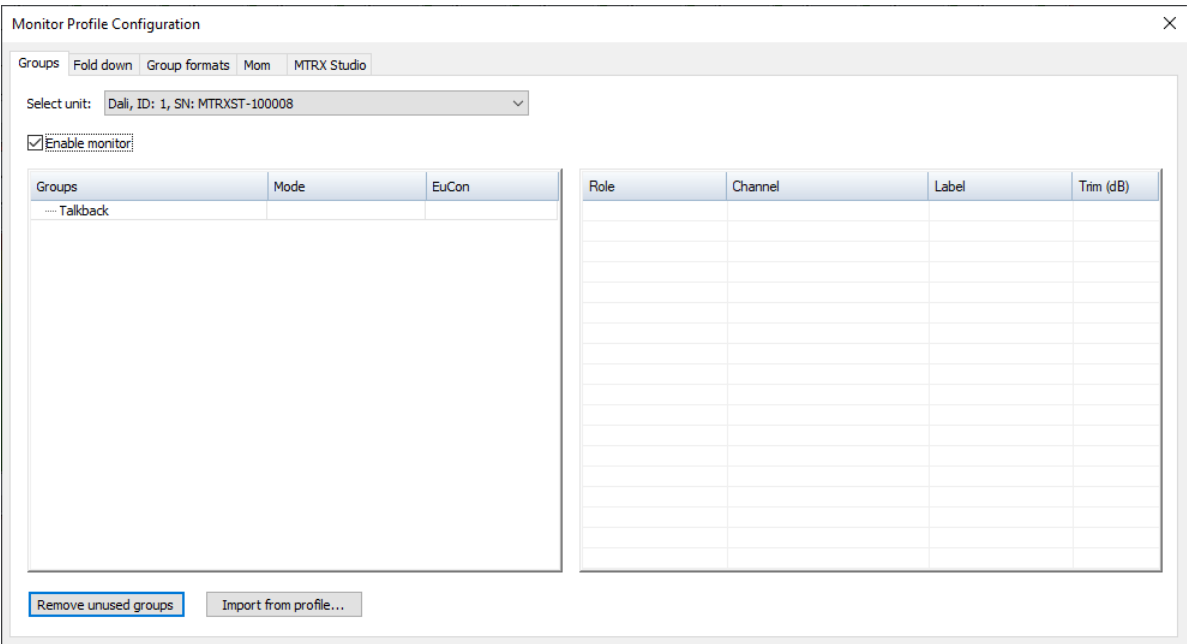
Monitor Profile Files

To use the monitoring and cue functionality of MTRX Studio, you need to create or import a Monitor Profile (.dmprof files). To get started, you can download a default stereo monitor profile configuration from your Avid Master account: Stereo Default.dmprof (5.1, 7.1, and 7.1.2 profiles are also available).

Monitor Profile Configuration Window

The Monitor Profile Configuration window lets you create and edit monitor profiles for MTRX Studio. It is organized into multiple pages: Groups, Fold down, Group formats, Mom, and MTRX Studio. Click the corresponding tab to view each page.

To open the Monitor Profile Configuration window:

■ Choose Settings > Monitor Profile.

Monitor Profile Configuration window

To enable monitor profiles:

1 Choose Settings > Monitor Profile.

2 Select the unit you want to use for monitoring.

3 Select Enable monitor.

## Opening, Saving, and Closing Monitor Profile Settings

Monitor Profiles can be saved and opened from the file menu. Monitor Profile files (.dmprof) store all monitor settings, EQ, and format configurations that are loaded and active in DADman. When a profile is loaded all Monitor settings are restored. You can set the Preferences (Mac) or Options (Windows) to automatically load the last saved monitor profile when DADman opens.

⚠️ *Note that a monitor profile assumes that the I/O resources loaded are available in the actual unit. If this is not the case, the I/O configurations are left blank and you will need to manually remap sources and outputs.*

To open a monitor profile:

1 Choose File > Open Profile.

2 Navigate to the profile (.dmprof) you want to open and select it.

3 Click Open.

When opening a monitor profile created on a different unit, you may encounter a "File Load Error." This error occurs because the monitor profile tries to match the serial number of the unit on which it was created. You can load the monitor profile and safely dismiss this error by clicking Retry once and then Cancel.
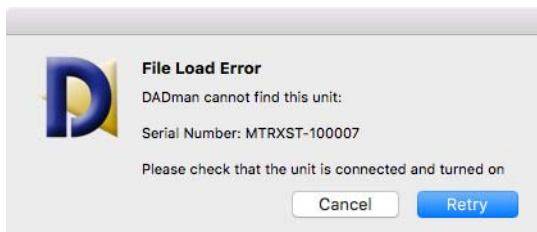
File Load Error dialog

To avoid this error in the future, Save the monitor profile under a new name and it will use the your device's serial number.

1 Choose Settings > Monitor Profile.

2 If necessary, click the Groups tab.

3 Select the unit you will use for monitoring.

4 Select Enable monitor.

5 Choose File > Save Profile As.

6 Replace the existing file or save your changes as a new monitor profile.

7 Click Save.

To save a monitor profile:

1 Choose File > Save Profile.

If you are saving edits to an existing profile, your changes are saved to that file and you can ignore the following steps. If you saving a newly created profile, continue with the following steps.

2 In the resulting Save As dialog, type a name for the monitor profile.

3 Navigate to where you want to save the profile (.dmprof).

4 Click Save.

To save a monitor profile as a new file:

1 Choose File > Save Profile As.

2 In the resulting Save As dialog, type a name for the monitor profile.

3 Navigate to where you want to save the profile (.dmprof).

4 Click Save.

To close the current monitor profile:

■ Choose File > Close Profile.

DADman saves the profile and closes it.

Importing Groups and Group Formats from a Monitor Profile

You can import Groups and Group formats from any monitor profile file (.dmprof) into the current monitor profile in DADman.

To import groups and group formats from a monitor profile:

1 Choose Settings > Monitor Profile.

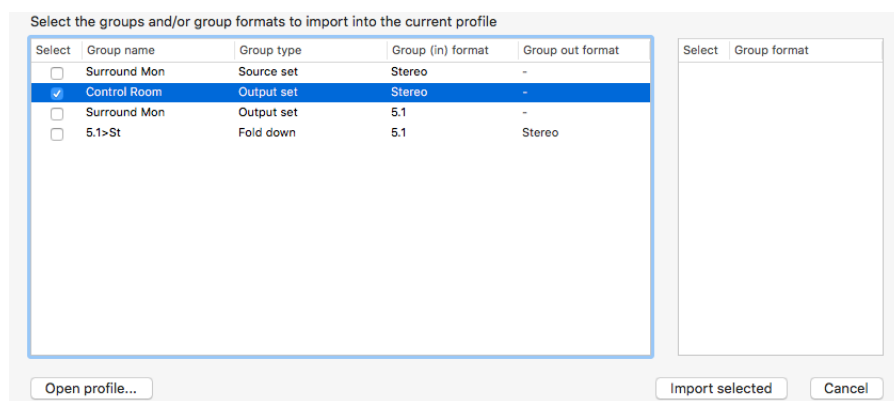2 In the Monitor Profile Configuration window, click the Input from profile button.
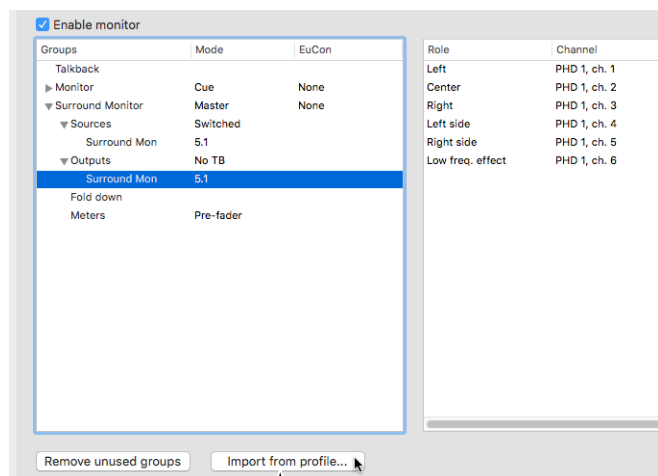
Monitor Profile Configuration window

3 In the resulting Import Profile Settings window, click Open profile.

4 Navigate to the monitor profile you want, select it, and click Open.

All of the Groups and Group formats from the selected monitor profile are listed in the Import Profile Settings window.

5 In the left pane of the window, select any Groups that you want to import into the current monitor profile. In the right pane, select any Group formats that you want to import.

Import Profile Settings window

6 Click Import selected.

The selected Groups and Group formats are loaded into the current monitor profile.

Groups Page

The Groups page of the Monitor Profile Configuration window lets you create and edit monitor and cue configurations for MTRX Studio. The Groups page consists of a left pane where you can add monitor and cue groups, and a right pane where you can make input and output assignments.

Groups Lists Talkback, Monitors and Cues, and their various attributes such as Outputs and Sources.

Mode Shows selected features of elements in the Groups column, such as the Monitor mode (Cue or Master) and channel widths for Outputs and Sources.

EUCON shows monitor control assignments for EUCON-compatible control surfaces (such as S1, S6, and Avid Control app).

The right pane is organized in four columns: Role, Channel, Label, and Trim. These are all attributes of whatever is selected in Groups column in the left pane, such as Outputs and Sources.

Role Displays the speaker assignments for each channel in the Monitor group, such as Left, Right, Center, or Lfe.

Channel Displays the input or output assignments for Monitor groups. Right-click to select routing assignments for each channel to any of the available analog or digital I/O, such as AD, DA, DigiLink, or Dante.

Label Click to type a label for the channel.

Trim Click to type a negative value to attenuate or a positive value to boost (in dB) the signal level for each channel.
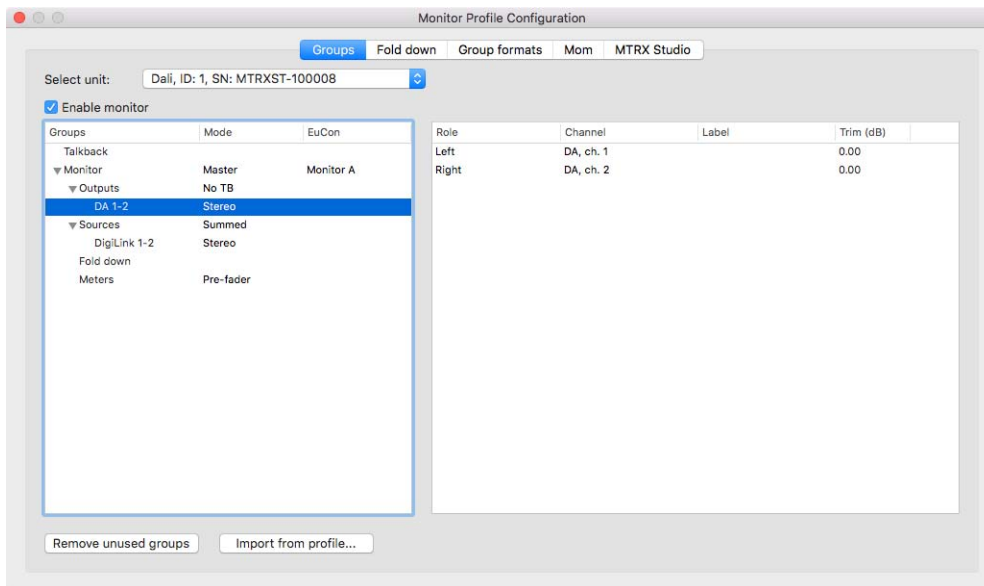
*Monitor Profile Configuration window, Groups page*
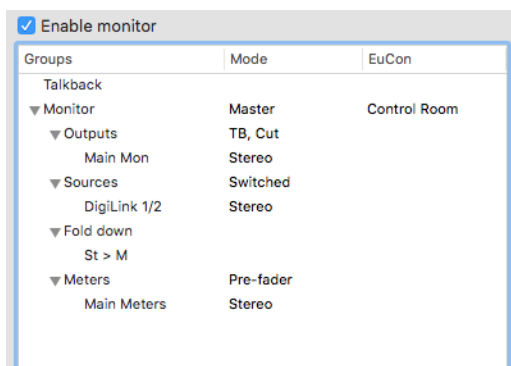
Monitor group with assignments: stereo output, stereo source, stereo to mono fold down, and stereo meters

Talkback

Talkback is the first item in the Groups column and is always present. The source for Talkback can be any available mono input.

To assign an input for Talkback:

1 Click to highlight Talkback at the top of the Groups page of the Monitor Profile Configuration window.

2 In the Channel column in the right pane, right-click <add channel> and select the input source for the Talkback mic.
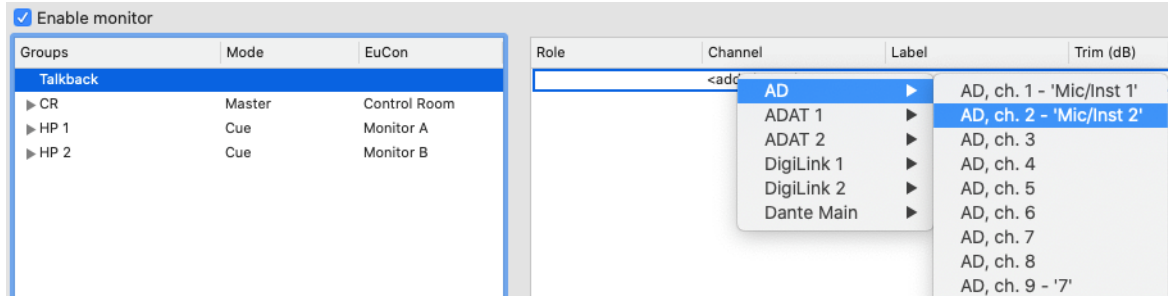

Assigning Talkback input

3 If desired, click to edit the Label and Trim for the Talkback input.

Monitor

You have manually add or import monitor groups. Every monitor group includes the following attributes: Sources, Outputs, Fold down, and Meters. Each monitor group that you add can be designated as a Cue or Master monitor. Each monitor group can also be assigned to EUCON monitor control.

To create a new monitor group:

1 Right-click in the left pane and choose Add monitor.
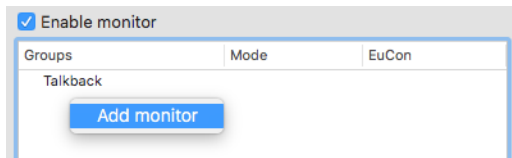
Right-click to Add monitor

2 Right-click Monitor and choose Rename (or double-click the name in the Groups column), and type a descriptive name (such as "CR" or "Control Room," or "HP 1" or "Headphone 1"—use shorter names for displays on EUCON-compatible control surfaces).

3 Right-click on Monitor to set the Monitor mode to either Cue or Master.

4 If desired, right click on Monitor again to set the EUCON mode to Control Room, or one of Monitor A–D.

5 Click the reveal triangle to the left of the new Monitor group to show its attributes.
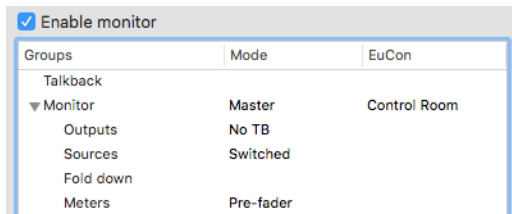
Monitor group with no assignments

Now you can proceed to add and assign Outputs and Sources. You can also add Fold downs and outputs for external Meters if desired.

To remove a Monitor group:

▪ Right-click the monitor group and choose Remove monitor.

Monitor Output Sets

You can add multiple output sets of any format (channel width) to a Monitor group. If there are multiple Outputs, the selected Output in the Monitor section of DADman is used for monitoring.

To add output sets to a Monitor group:

1 If necessary, click the reveal button to list the attributes of the Monitor group.

2 Right-click on Outputs under Monitor and choose Add new set. Once you have created a new output set, it can be added to additional Monitor groups from Add existing set in the Right-click menu.
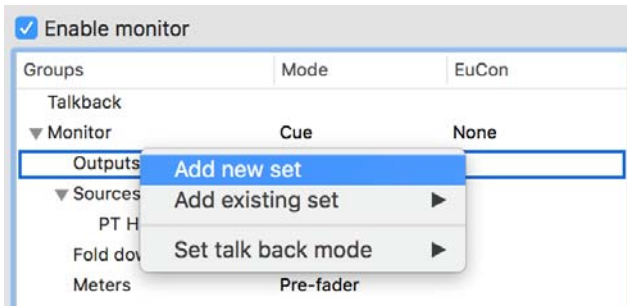
Add new output set

3 Right-click New output set and choose Rename (or double-click the name in the Groups column), and type a descriptive name.

4 Right-click the output set and select the desired channel width from Set group format. Choose from the available preset formats (such as Stereo or 5.1). You can also create custom formats (see **Group Formats**) to choose from.
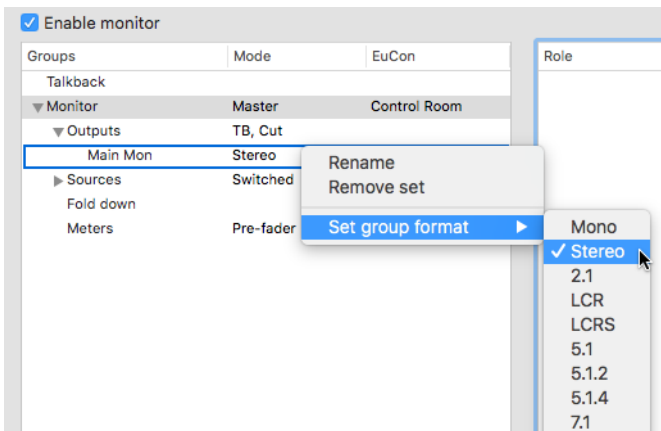
Set group format

5 Select the output set. The right pane lists all channels in the output set.

6 In the right pane, right-click each channel of the selected output and select the desired output assignment from the available outputs (such as DA > DA, ch. 1).

7 If desired, click in the Label column of each row and type a descriptive label.

8 To adjust the trim on any channel, click in the Trim column for any channel and type a negative value to attenuate or a positive value (in dB) to boost the output signal for that channel.

Once you have made all assignments for the output set, you can repeat these steps to add additional output sets to the monitor group. You can select the desired output set for monitoring in the Monitor section of the DADman window. You can also assign output set selection to the front panel buttons in the MTRX Studio page (see **MTRX Studio Page**).

To remove an output set:

■ Right-click the output set and choose Remove set.

Talkback Mode for Output Sets

If you have assigned an input source for Talkback (see **Talkback**), you can set the Talkback mode for any Monitor group Output (applies to all Outputs sets for the selected Monitor group).

To set the Talkback mode for a Monitor group Output:

■ Right-click Outputs and select one of the following from Set Talkback mode:
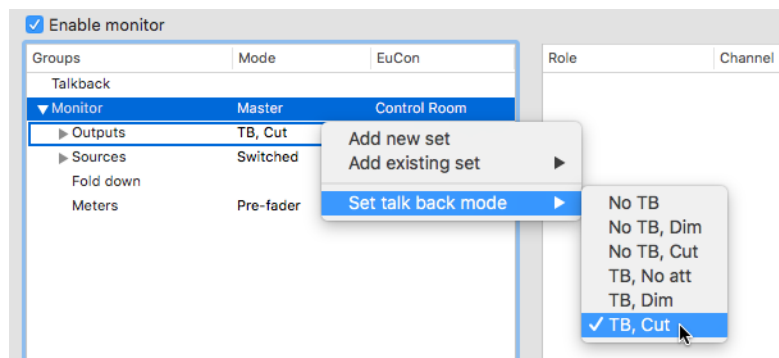
Setting Talkback mode

No TB No Talkback for this Monitor group.

No TB, Dim Talkback is not injected, but on Talkback press the program is dimmed.

No TB, Cut Talkback is not injected, but on Talkback press the program is cut.

TB, No att Talkback is injected on Talkback press with no attenuation.

TB, Dim Talkback is injected on press and program is dimmed.

**TB, Cut** Talkback is injected on press and program is cut.

Monitor Sources

You can add multiple Sources of any format (channel width) to a Monitor group. If there are multiple Sources, and the source selection mode is set to Switched, the selected Source in the Monitor section of DADman is used. In Summed mode, all defined sources (or all selected sources) are summed for monitoring.

To add Sources to a Monitor group:

1 If necessary, click the disclosure triangle (Mac) or + button (Windows) to list the attributes of the Monitor group.

2 Right-click on Sources under Monitor and choose Add new set. Once you have created a Sources set, it can be added to additional Sources from Add existing set.

3 Right-click the New input set and choose Rename. Type a descriptive name.

4 Right-click the input set and select the desired channel width from Set group format. Select from the available preset formats (such as Stereo or 5.1). You can also create custom formats (see **Group Formats**).

5 Select the input set. The right pane lists all channels in the input set.

6 In the right pane, right-click each channel of the selected input set and select the desired inpuy assignment from the available inputs (such as DigiLink 1 > DigiLink 1, ch. 2).
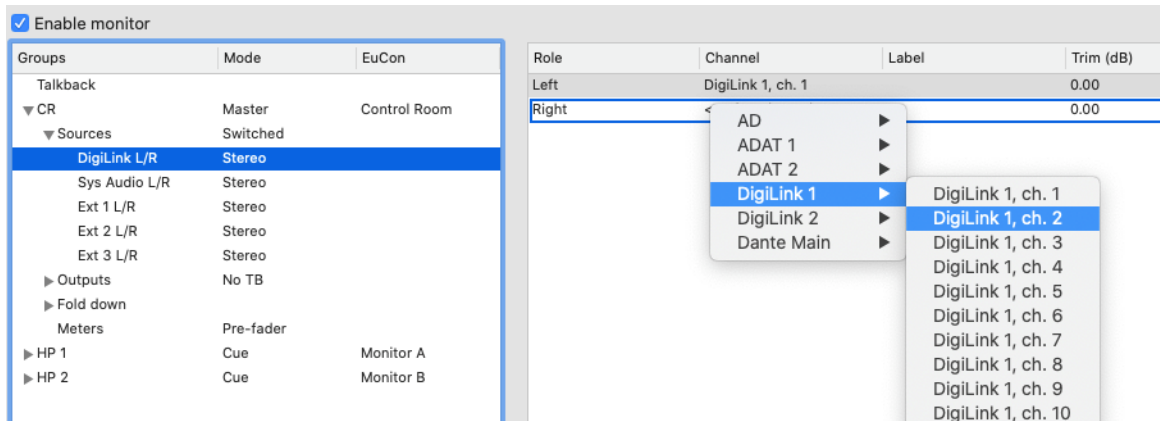
Assigning Right channel for selected source

7 If desired, click in the Label column of each row and type a descriptive label.

8 To adjust the trim on any channel, click in the Trim column for any channel and type a negative value to attenuate or a positive value (in dB) to boost the input signal for that channel.

Once you have made all assignments for the input set, you can repeat these steps to add additional input sets. You can select the desired input set for monitoring in the Monitor section of the DADman window. You can also assign input set selection to the front panel buttons in the MTRX Studio page (see **MTRX Studio Page**).

To remove an input set:

- Right-click the input set and choose Remove set.

Fold Downs

You can add any Fold downs that are defined in the Fold Down page (see **Fold Down Page**) for use with the monitor group. If you have added multiple Fold downs to a Monitor group, you can select (or deselect) any one of them in the Monitor section of the DADman window. When selected, that Fold down is used for the Monitor group. For example, if you are monitoring a 5.1 source over headphones, use a 5.1 to Stereo fold down. If no Fold down is selected, no Fold down is applied.

To add Fold down to a monitor group:

1 Click the Fold down tab and setup any fold down matrices that you want to be available for use (see **Fold Down Page**).

2 In the Groups page, right-click Fold down under the monitor group select the desired configured fold down from Add fold down.
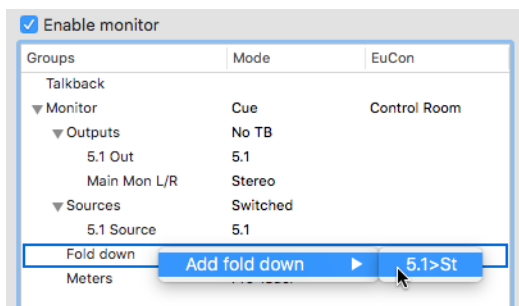
Adding 5.1 to stereo fold down for monitoring

Repeat these steps to add additional fold downs.

**To remove a fold down from a monitor group:**

- Right-click the fold down and choose Remove fold down.

External Metering

You can assign one or more output sets for an external metering system (such as one from TC Electronics or DK Technologies). Assign any metering output sets to parallel assigned monitoring output sets.

To add a parallel output to an external metering system:

1 Right-click on Meters and choose Add new set or Add existing set.
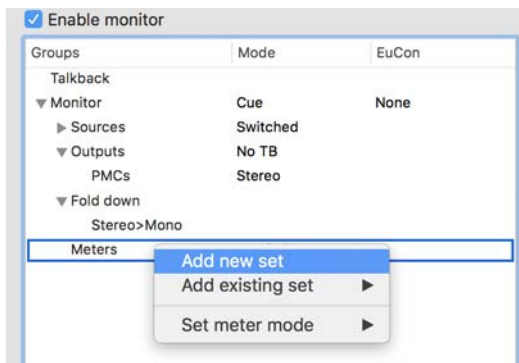
2 To specify Pre- or Post-Fader operation, right-click on Meters, choose Set meter mode, then select the desired mode. Typically you want to use pre-fader for recording workflows and post-fader for mixing workflows.

3 Right-click New output set and choose Rename (or double-click the name in the Groups column), and type a descriptive name.

4 Right-click the output set and select the desired channel width from Set group format. Choose from the available preset formats (such as Stereo or 5.1). You can also create custom formats (see **Group Formats**) to choose from.

5 Select the output set. The right pane lists all channels in the output set.

6 In the right pane, right-click each channel of the selected output and select the desired output assignment from the available outputs (such as DA > DA, ch. 1).

7 If desired, click in the Label column of each row and type a descriptive label.

8 To adjust the trim on any channel, click in the Trim column for any channel and type a negative value to attenuate or a positive value (in dB) to boost the output signal for that channel.

Once you have made all assignments for the output set, you can repeat these steps to add additional output sets to the monitor group for external metering.

To remove an output set from Metering:

▪ Right-click the output set under Metering and choose Remove set.

Remove Unused Groups button

Click the Remove Unused Groups button to remove any defined (existing), but unassigned input or output sets in the monitor profile.

Fold Down Page

The Fold down page lets you select preset Fold down matrices to add to monitor groups (see **Fold Downs**). You can also create custom fold down matrices. For any selected fold down matrix, you can attenuate or boost inputs to ensure the optimal dynamic balance in the fold down output.

To add a preset fold down matrix:

1 In the Monitor Profile Configuration window, click the Fold down tab.

2 In the Fold down column on the left side of the Fold down page, right-click and select the desired fold down matrix from Add preset matrix.
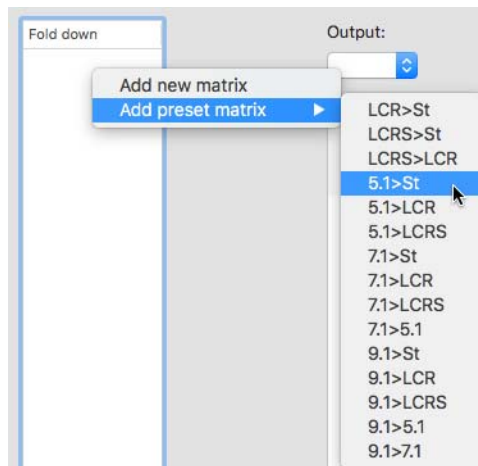
Adding 5.1 to stereo fold down

Repeat this step to add more fold down options for monitoring.

To rename a fold down matrix:

1 In the Fold down column on the left side of the Fold down page, right-click the fold down matrix you want to rename and choose Rename, or double-click it.

2 Type a new name and press Return (Mac) or Enter (Windows).

To remove a fold down matrix:

▪ In the Fold down column on the left side of the Fold down page, right-click the fold down matrix you want to remove and choose Remove matrix.

To add a custom fold down:

1 In the Monitor Profile Configuration window, click the Fold down tab.

2 In the Fold down column on the left side of the Fold down page, right-click and choose Add new matrix.

3 Right-click New fold down and choose Rename, or double-click it and type a descriptive name (like St>M for stereo to mono).

4 Click to select the new fold down.

5 Select the input channel format from the Input selector (such as Stereo).

6 Select the output channel format from the Output selector (such as Mono).

7 In the resulting matrix (L/R to C), type any desired gain adjustment for the input channels (such as –3.00 dB for L and R).
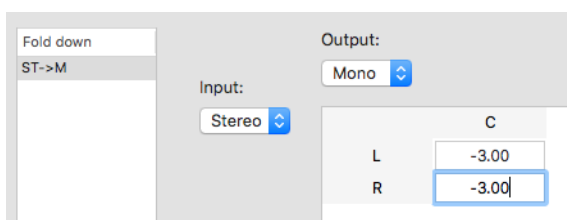
Attenuating input gain of L and R source channels

Fold-down and Speaker Match

DADman lets you define a summing matrix (fold-down), mainly to play back a higher channel count signal as source on a speaker set with fewer channels, such as 5.1 to stereo or stereo to mono. You can match between any of the formats. Also, speaker up-match lets you play back lower channel immersive formats on more speakers in a higher channel count speaker set-up.

The following figure shows the fold-down and speaker match configuration window. The two pairs of button scroll right/left and up/down in the fold-down matrix respectively.
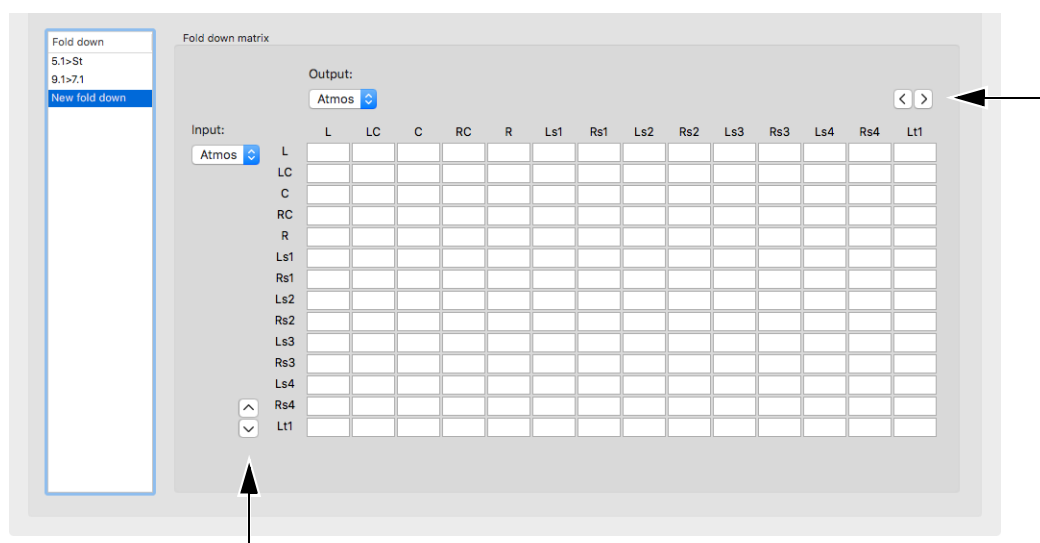
Group Formats

The available Custom group formats are referred to by name, such as "51 ch. Immersive." Formats are available in the Custom format list when loaded. There is no allocation of I/O signal or SPQ parameters attached to the group format setting.

**Group Type** This list has 3 categories: Source set, Output set, and Fold-down.

Source Set This defines a group format related to sources. It includes allocated physical inputs as well as gain adjust settings.

Output Set This defines a group format related to speaker outputs. It includes the allocated physical outputs as well as gain adjust settings and SPQ filter parameters. This provides an easy way to manage different EQ settings for the speaker system.

Fold-down This defines fold-down and speaker match summing matrices. When loaded, the fold-down is available in the fold-down list.

Configuring Custom Speaker and Source Formats

DADman lets you setup the Monitor Profile Configuration with custom speaker and source formats. Group formats are used for defining the channel formats for sources and outputs. This lets you connect and match the input sources to the outputs (each of which can be any of the defined formats), so left goes to left, right to right, and so on. This has a well-defined coherence in the existing default Preset formats. In the Custom formats editor, group formats using the well-defined role tags can be created, thus making almost any speaker mapping possible. A speaker output can also reuse speakers from other speaker outputs with in the control room environment. When selecting Preset formats, predefined Group formats can be viewed.
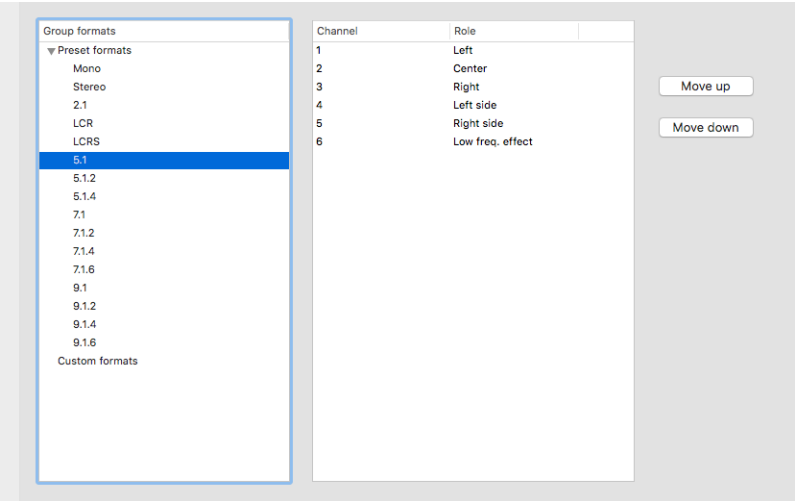
When selecting Custom formats, Custom Group formats can be created and edited, as shown in the picture below. If Create new format is selected, an editor window will open (not shown) for fast configuration of larger immersive speaker formats (such as for Dolby Atmos mixing stages).
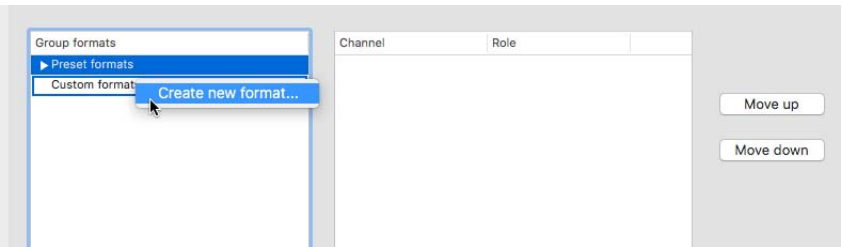
The Custom Group formats can also be created or edited by selecting parameters directly in the column view as shown in the following picture.
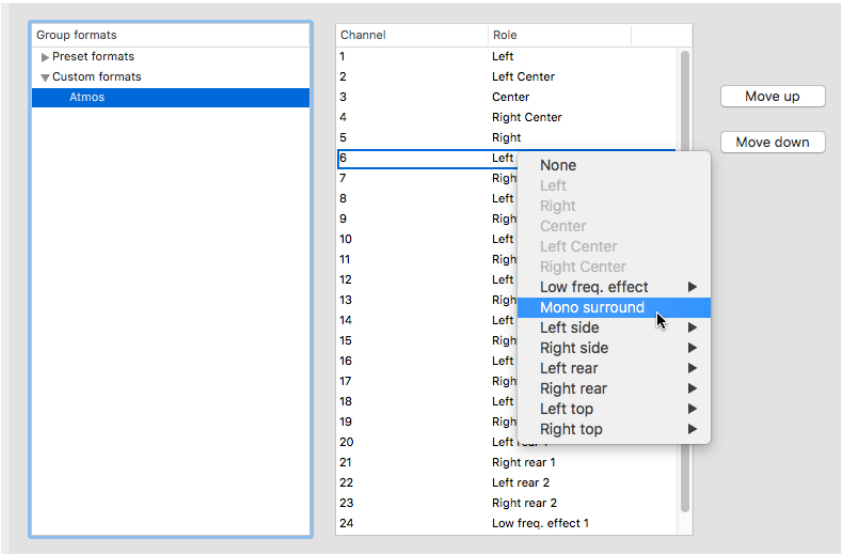
⚠️ *Formats with cross-over filters for active speakers, such as left and right in an immersive set-up, can also be created when working creatively with the group configurations. Note that the system does not provide protection if incompatible speaker configuration profiles are loaded sourcing (such as tweeter speakers), which can be easily destroyed if correct filtering is not applied to the signals.*
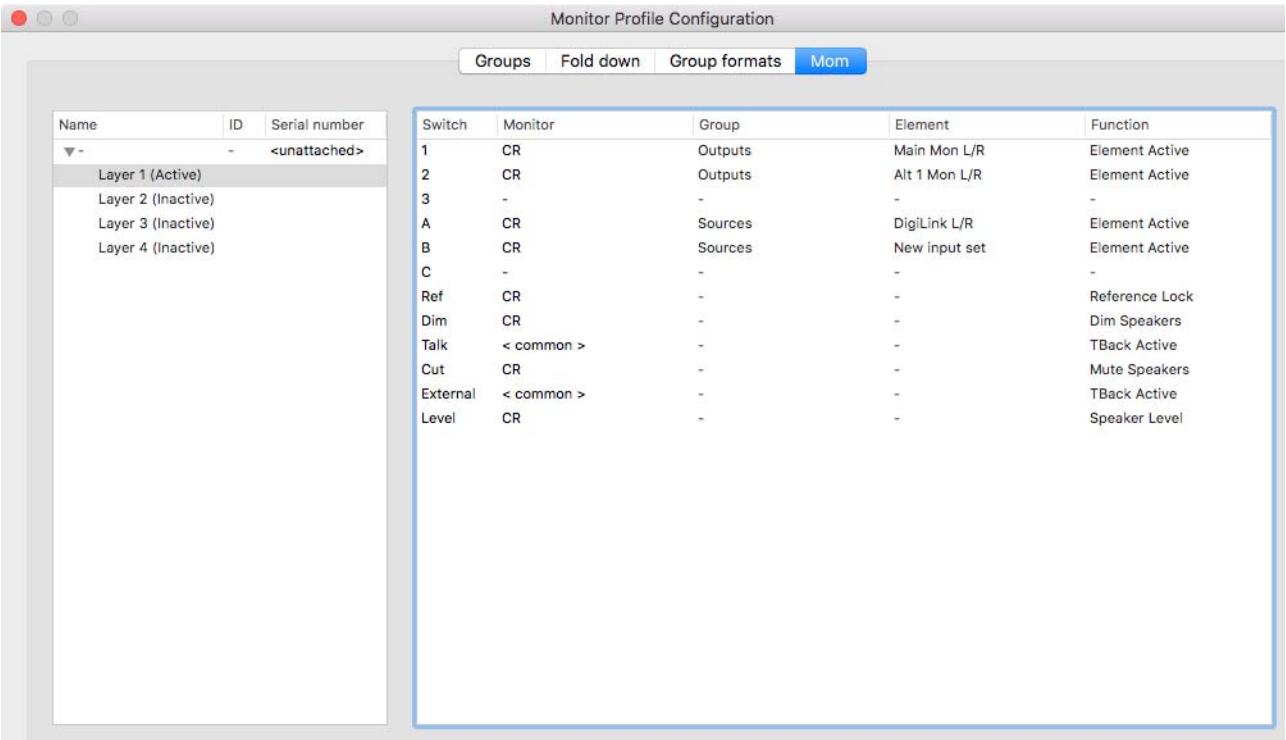
Mom Page

The Mom page lets you assign a MOM unit (monitor operating module) for controlling monitoring, if you have one on the network,.and make control assignments for the selected MOM.

Mom page, MOM unassigned, Layer 1 default assignments

MTRX Studio Page

The MTRX Studio page lets you assign the footswitch, front panel buttons **A**, **B**, and **C**, and the main encoder (dial) on the front panel of MTRX Studio to control talkback, monitor settings, outputs, and sources.

MTRX Studio lets you assign up to 4 layers of control for the main monitor (Control Room). You can also assign a single layer of control to each headphone output (Cue 1 and Cue 2). The MTRX Studio page is organized into two panels. The left panel lists the four control layers for the Control Room monitor and Cues 1–4 (only Cues 1 and 2 are active with MTRX Studio). The right panel show the assignable controls for the selected Control Room layer or selected Cue.

The right pane is organized in 6 columns: Switch, Monitor, Group, Element, Function, and Color.

Switch Lists the front panel controls and footswitch that can be assigned to control monitor functions.

Monitor Displays the monitor to be controlled (as selected in the left panel).

Group Displays the group (if any), such as Output or Source set, or Fold down, within the Monitor group that is assigned control.

Element Displays the element assigned to control within the designated group.

Function Displays the assigned function for each Switch.

Color Lets you select a color for identifying each switch's assigned function. This color illuminated the corresponding Switch on the front panel of the MTRX Studio.
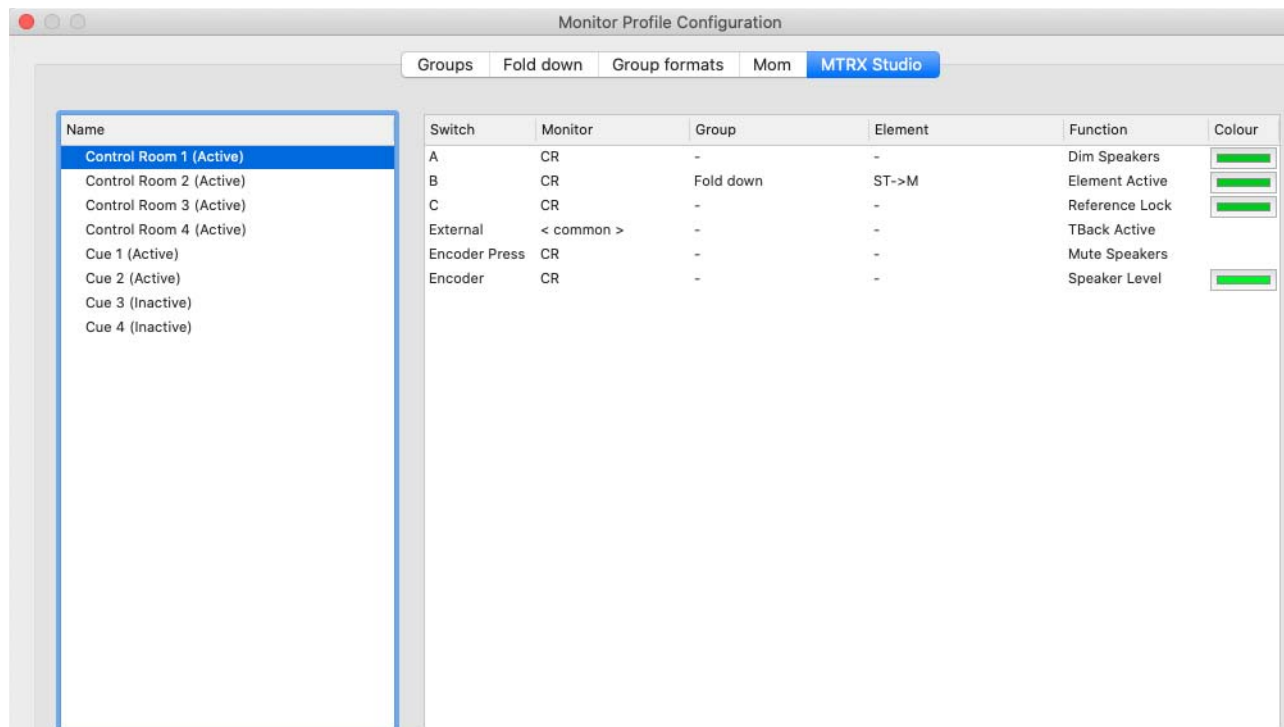
MTRX Studio page, Control Room layer 1 assignments

To assign a function to a switch for the selected Control Room layer or Cue:

1 In the left pane, select Control Room 1, 2, 3, or 4 depending on which control layer you want, or Cue 1 or Cue 2 (for Headphone 1 and Headphone 2).

2 In the right pane, right-click on the switch that you want to assign. The available switches include:
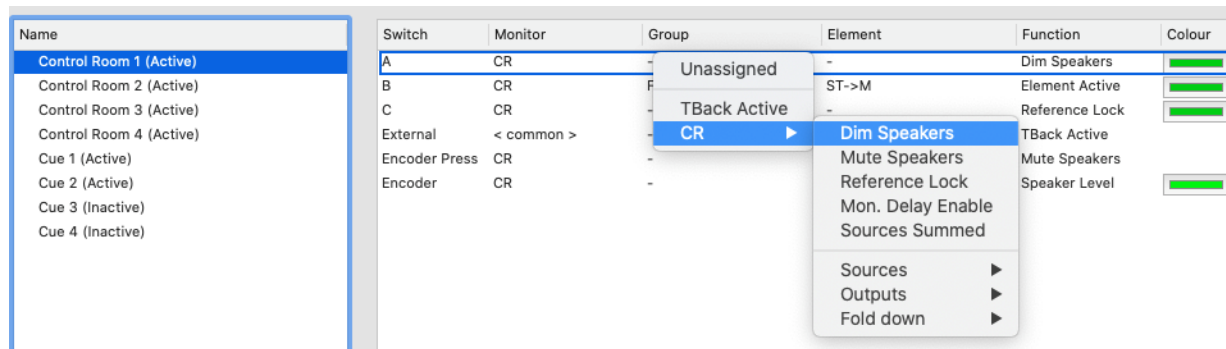
A The **A** button on the front panel.

B The **B** button on the front panel.

C The **C** button on the front panel.

External The footswitch connected to the jack on the back panel.

Encoder Press Pressing the encoder (dial) on the front panel.

Encoder Turning the encoder (dial) on the front panel.

MTRX Studio page, Control Room layer 1 assignments

3 Choose from the following options:

Unassigned Removes any control assignment for the switch.

TB Active The assigned switch toggles Talkback on and off for the monitor group.

Dim Speakers The assigned switch toggles Dim on and off for the monitor group.

Mute Speakers The assigned switch toggles Mute on and off for the monitor group.

Reference Lock The assigned switch toggles Ref on and off for the monitor group.

Mon Delay Enable The assigned switch toggles the Delay on and off for the monitor group.

Sources Summed The assigned switch toggles between Sources Summed and Sources Switched for the monitor group.

Sources Lets you select a specific Input set.

Outputs Lets you select a specific Output set.

Fold down Lets you select a specific Fold down.

4 Click in the Colour column to set the color for the assigned switch.

Repeat these steps for the remaining Control Room layers. Cues only provide a single layer of control.

SPQ Processing

MTRX Studio provide 256 filters and 16 channels of SPQ processing for tuning your speakers for monitoring.

EQ

The EQ for all speaker channels in the control room speaker set can be edited and viewed by activating the EQ>> button. Note that the button does not enable or disable the filters, it just changes the view.

EQ Filter Resources

SPQ processing resources required by the EQ vary depending on configuration and sample rate. As with the summing engine viewer, the SPQ viewer shows the available and used resources for the filters (out of 256 filters and 16 channels).

DADman EQ Management Window

EQ view shows the assigned EQ for the selected stereo speaker channel of the selected output speaker set. The channel delay knob controls the delay of the selected channel. This delay can be set between 0–600 ms in resolution of samples down to 10 milliseconds, equivalent to the resolution of the general delay setting.
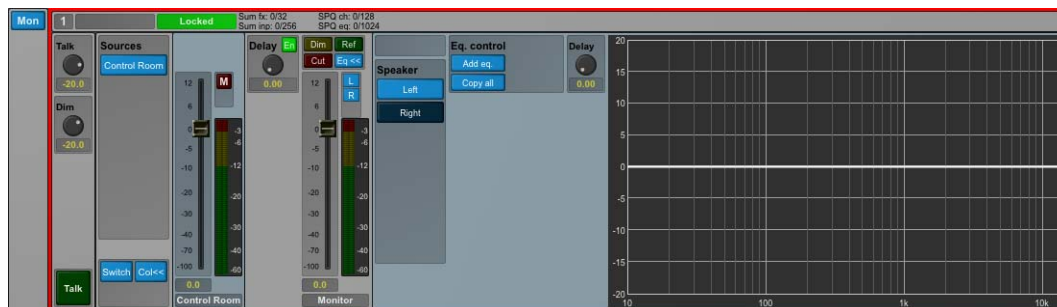

Monitor section with expanded EQ view

The figure below shows the left channel with four EQs configured. They are shown in the graph with matching colors. The resulting EQ response for all the enabled filters is shown as a white line. In the example below, the EQ is not enabled for the channel so the response is flat.

When activating the EQ>> button the filters are activated as shown in the figure below—the white curve shows the resulting frequency response for the EQs on the selected channel.
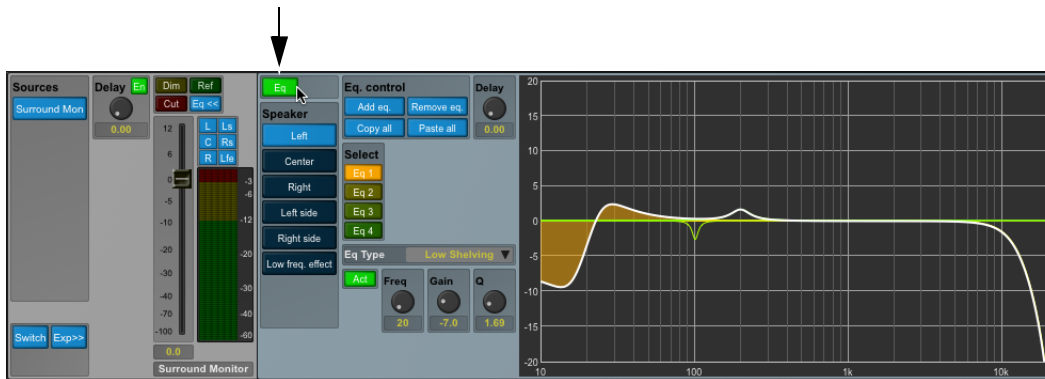
Configuring the EQ Channel

Following are descriptions of the various EQ controls used for configuring and editing an EQ channel.

Add Eq/Remove Eq Adds (or removes) an EQ to the view, both as a selection knob (named Eq 1 to 16), and as a flat curve. A total of 16 EQs can be added. In the same way a selected EQ can be deleted by activating Remove Eq. When an EQ is added the EQ type can be selected by the Eq Type drop down menu. Frequency, Gain, and Q can be set for the selected EQ filter, and the curve in the view will reflect the setting.

Frequency, Gain, and Q Values can be set with the mouse or by clicking the value field and using numerical entry with the keyboard.

Act Activates (or deactivates) the EQ filter of one particular selected EQ filter to another channel, whereas the EQ>> button referred to above enables (or disables) a whole set of filters for the particular channel.

Copy All The total combination of the EQ filters for a channel can be copied and pasted on at other channel. Click Copy All on the channel you want to copy. Select another channel in the speaker set and click Paste All to paste the filter configuration. The Paste All button is only visible when a curve has been copied.

Eq Types The following EQ types are available:

- Parametric EQ filter
- Shelving filter: High Pass or Low Pass
- Butterworth filter: High Pass or Low Pass
- Linkwitch Riley: High Pass or Low Pass

The preceding figures show configurations for a stereo speaker set. When configuring the speaker set, select the speaker format from the preset or custom format list. The 5.1 speaker set is the selected output speaker set in the following figure. The speaker output sets can be configured freely in the monitor profile editor. An additional curve is shown in the graph reflecting the presence of the LFE channel.

When a speaker set format with one or more speaker SUB channels is selected like 5.1 with one LFE channel, it is also possible to apply bass management functionality to the speaker set.


Bass Management for a speaker set is enabled by activating the BMngt button as shown in the figure above. Once this is enabled the curve for the selected speaker will reflect the high pass filter applied in the white resulting curve. When selecting the LFE/SUB channel the response for the low pass filtered curve is shown. The low pass filter curve is also shown the in the non-SUB channels as an additional information.

📖 *For information on configuring bass management, see* **Configuring Bass Management**.

Configuring Bass Management

The configuration of the Bass Management system is done in the Monitor Profile Configuration window. A Bass Management configuration can be made for all speaker output sets, where the speaker format comprises one or more LFE/SUB channels. In relation to the format conventions a translation is made between what is the LFE channel in the signal source, and what are the subwoofer speakers in the speaker setup, and in that relation the mapping between LFE, Bass managed speaker channels and subwoofer speakers is also made. For example, the traditional subwoofer setup for a 5.1 speaker system has the subwoofer connected to the LFE source channel, but Bass Management can be applied as well filtering the low frequency from the surround speakers to the subwoofer speaker. This is the Basic Bass Management configuration also applied in Pro Mon.

In order to configure the Bass Management setup in general or to make a starting point for a more complex Bass Management system, such as with multiple subwoofer speakers, configuration is done in the Bass Management configuration window selected for the relevant speaker set, as shown in the following picture.
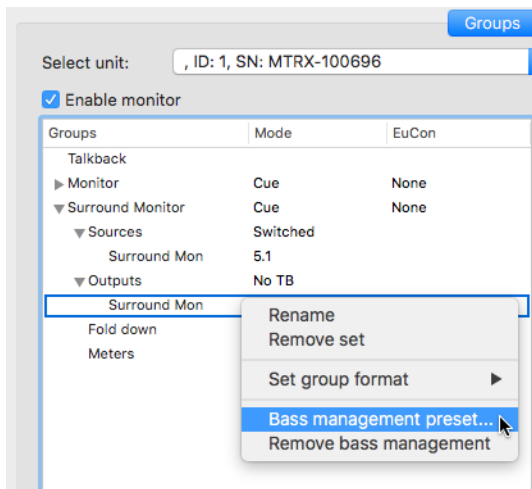
When selecting Bass Management preset an editing window will appear as shown in the following picture.
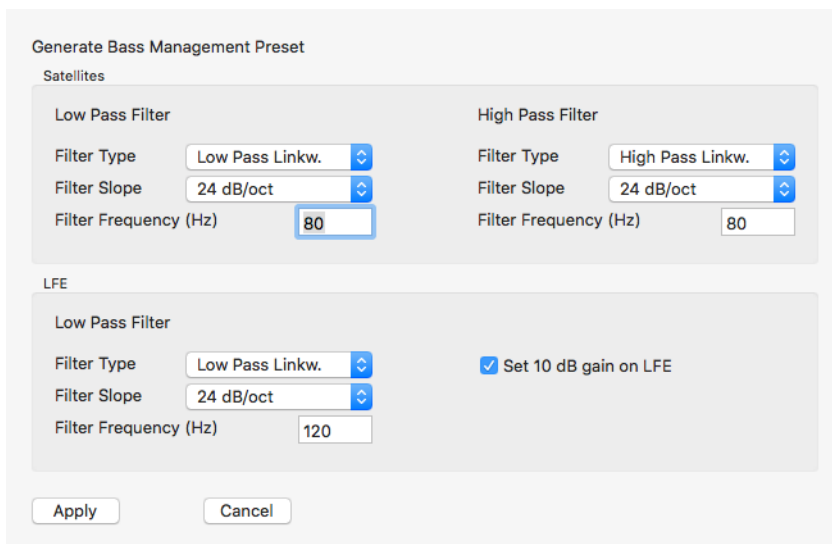
All speakers in the profile will have applied a high pass filter, and the summing for the SUB woofer will have the applied the low pass filter with the entered parameters. The Summing of the LFE source will have applied the selected low pass filter as well. A 10 dB gain on the LFE channel can be applied as well.

⚠ *Note if 10 dB is applied to the LFE channel it will be active on the output speaker setting, and all sources selected to the speaker set will get the additional gain on the LFE channel. Alternatively the raise in LFE gain can also be set in the input configuration for the sources where this is needed.*

When the Bass Management preset have been applied to the output set it can be viewed and further edited in the monitor profile window for the actual speaker set. As shown in the following pictures, the Bass Management filter configuration for each speaker channels is visible when scrolling the window horizontally.
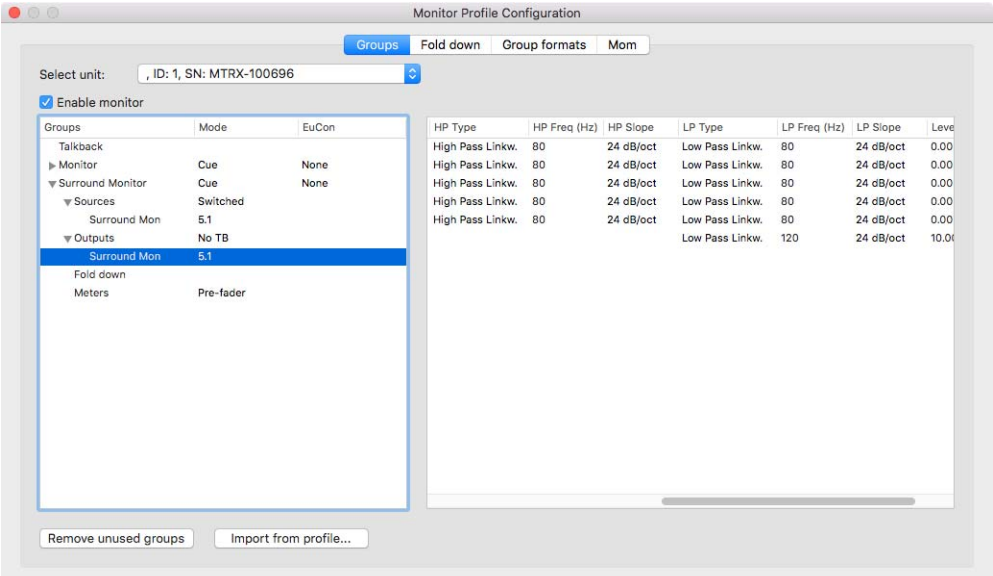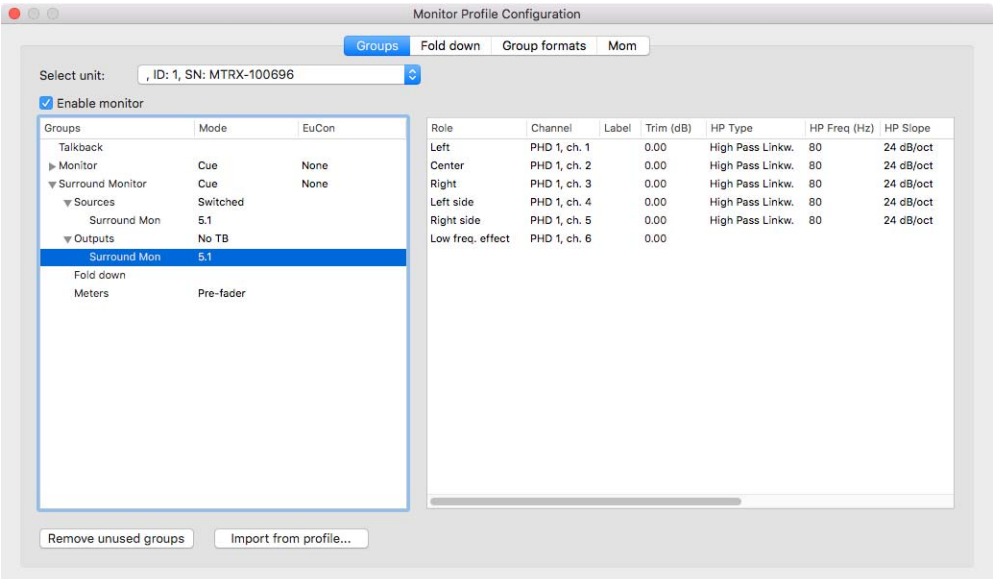
The settings shown in the right-hand columns reflect the selections made in the configuration window described above with the parameters listed out for each speaker channel. Each filter parameter can be edited individually for each channel. Note the column Level sub. 0 dB indicates that the surround channel is summed with unity gain to the SUB. Also, the 10 dB gain for the LFE can be seen. If a different gain structure for the sub signals is needed, this can be edited here. If a speaker format has been selected with more than one SUB, a summing matrix can be established by editing the levels in the SUB columns to allocate SUB woofers to selected surround speakers.

Controlling MTRX Studio Preamps from Pro Tools
(Mac Only)

On Mac, you can control the two microphone preamps in MTRX Studio using the PRE controls in Pro Tools (as well as from MIDI and EUCON control surfaces).

Configuring Audio MIDI Setup

Use the IAC Driver in the macOS Audio MIDI Setup utility to route MIDI between Pro Tools and MTRX Studio.

To configure Audio MIDI Setup (AMS) for Pro Tools PRE control of MTRX Studio:

1 Do one of the following:
   - In Pro Tools, choose Setup > MIDI > MIDI Setup.
   - Launch Audio MIDI Setup (AMS) from the Finder (/Applications/Utilities/Audio Midi Setup).

2 In AMS, choose Window > Show MIDI Studio.

3 Ensure that two virtual MIDI busses are available in the Audio MIDI Setup IAC Driver and that Device is online is enabled.
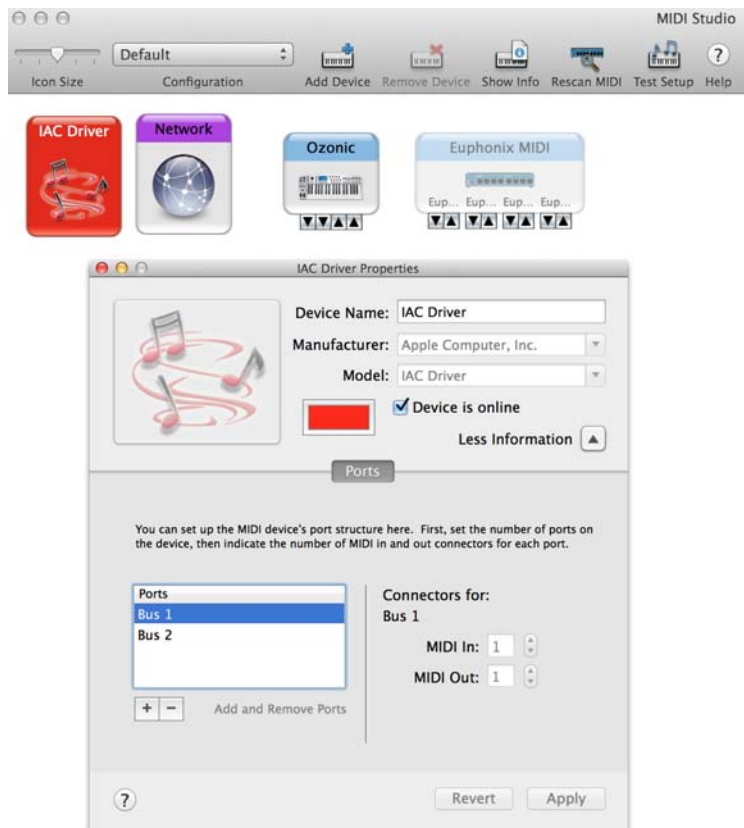
Audio MIDI Setup with two IAC busses

4 Quit Audio MIDI Setup.

Configure DADman

Once Audio MIDI Setup is configured, setup DADman for MIDI.

To configure DADman for Pro Tools PRE control of MTRX Studio units:
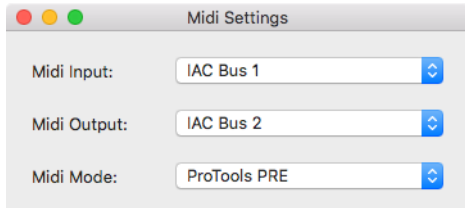
1 Launch DADman software.

2 Choose Settings > MIDI Settings.

DADman MIDI Settings window

3 Select Bus 1 for MIDI Input and Bus 2 for MIDI Output.

4 Select Pro Tools PRE for MIDI Mode.

5 Click the red button in the upper-left corner of the window to close it.

6 Leave DADman running in the background while running Pro Tools.

Configure Pro Tools Software

To configure Pro Tools for PRE control of MTRX Studio units:

1 In Pro Tools, choose Setup > Peripherals.

2 Click the Mic Preamps tab.
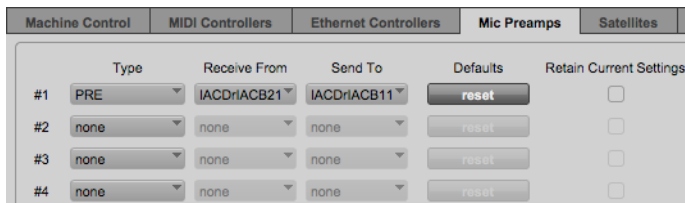
Pro Tools Peripherals, Mic Preamps page

3 Select Type > PRE.

4 Select Receive From > Predefined IAC Driver Bus 2 > Channel 1 in the pop-up menu.

5 Select Send To > Predefined IAC Driver Bus 1 > Channel 1 in the pop-up menu.

6 Click OK.

7 Choose Setup > I/O Setup.

8 Click the Mic Preamps tab.

9 Click on the first channel where the MTRX Studio is physically connected.
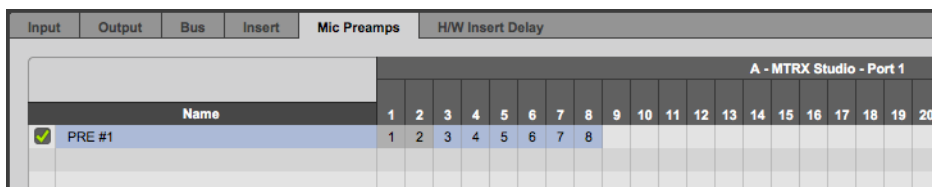
Pro Tools I/O Setup, Mic Preamps assigned to eight channels (MTRX Studio only has Mic Pres on Mic Inputs 1 and 2)

10 To ensure that PRE controls only appear in Pro Tools for MTRX Studio Mic Inputs 1 and 2, Shift-click to select PRE channels 3–8 and press Backspace or Delete.
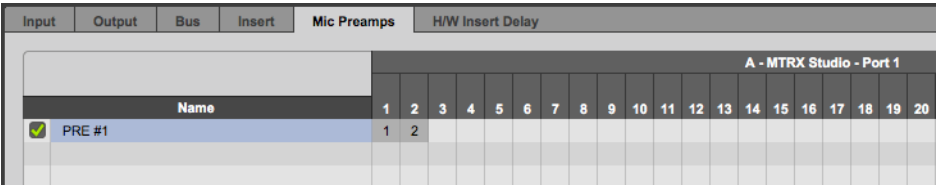
Pro Tools I/O Setup, Mic Preamps assigned only for channels 1 and 2

11 Double click the Name PRE #1 and type MTRX Studio (or similar) to clearly identify MTRX Studio mic pres.
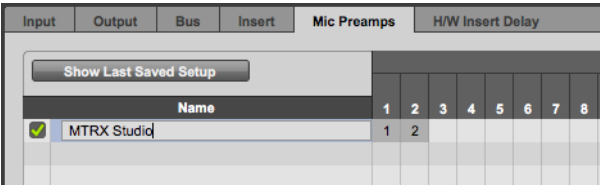
Pro Tools I/O Setup, Mic Preamps name for channels 1 and 2 of MTRX Studio

12 Click OK.

Controlling MTRX Studio from Pro Tools
(or from a Control Surface)

Once configured, Pro Tools can control MTRX Studio Mic Preamp settings on a channel-by-channel basis. Enable Mic Preamps view in either the Edit or Mix window to access these controls (View > Mix Window Views > Mic Preamps or View > Edit Window Views > Mic Preamps). All adjustments made in Mic Preamps view in Pro Tools are mirrored in DADman.
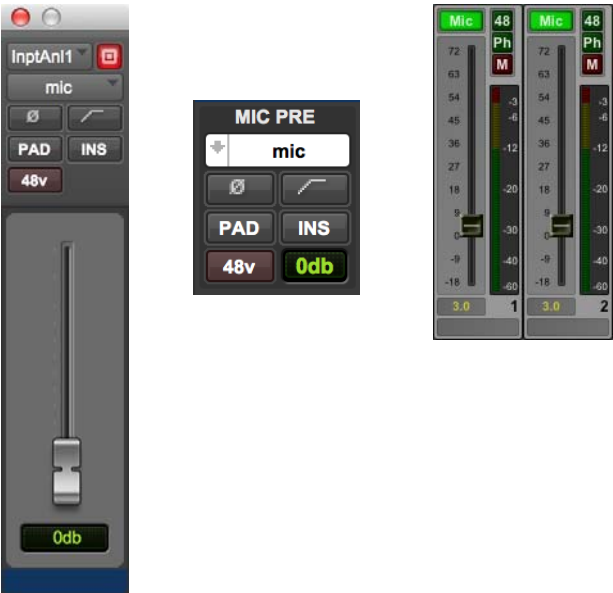
Pro Tools Mic Pre window (left), Pro Tools Mic Pre view (middle), and DADman Channel strip (right)

From Pro Tools Mic Preamps view you can control the following MTRX Studio Mic Pre parameters:

Mic/DI Select the microphone input setting for the corresponding Mic/Inst input channel in MTRX Studio (Mic or DI only, Line does nothing) .

ø Inverts the polarity of the mic input.

Filter No effect.

Pad Moves the fader 18 dB down (reflected in DADman). In pad mode the level of the mic pre can be adjusted in a range from –18 dB to +51 dB.

Insert No effect.

48v Enables phantom power for the mic input.

Fader 0–69 dB range.

Appendix A: Specifications

Audio Specifications

Microphone and Instrument Input

PCM sample rates	44.1, 48, 88.2, 96, 176.4, 192 kHz
Dynamic range (A)	> 120 dB
THD+N(A)	< −108 dB @ −3dB FS
Cross talk q	< −120 dB
Input Impedance (differential)	2 k Ohm (Mic), 1M Ohm (Inst)
Max input level	21 dBu (Mic), 15 dBu (Inst)
Input gain range/accuracy	Adjustable from −18 to 72 dB, in steps of 0.1 dB
Equivalent input noise (A)	< −125 dB (Mic), < −121 dB (Inst)

Analog Line Input

PCM sample rates	44.1, 48, 88.2, 96, 176.4, 192 kHz
Dynamic range (A)	> 120 dB
THD+N(A)	< −108 dB @ −3dB FS
Cross talk q	< −120 dB
Input Impedance (differential)	> 10 k Ohm
Maximum input level	Adjustable from 9 dBu to 24 dBu in steps of 0.1 dB

Analog Line and Monitor Output

PCM sample rates	44.1, 48, 88.2, 96, 176.4, 192 kHz
Dynamic range (A)	> 118 dB
THD+N(A)	−110 dB @ −3 dBFS
Cross talk	< 120 dB
Max output level	Adjustable from −60 dBu to 24 dBu in steps of 0.1 dB
Output Impedance	< 25 R
Max output level Line	Adjustable from −66 dBu to 18 dBu in steps of 0.1 dB
Max output level Monitor	Adjustable from −60 dBu to 24 dBu in steps of 0.1 dB

Analog Headphone Output

PCM sample rates	44.1, 48, 88.2, 96, 176.4, 192 kHz
Dynamic range (A)	> 118 dB
THD+N(A), 300 R load	< −110 dB @ −3dBFS
THD+N(A), 30 R load	< −105 dB @ −3dBFS
Cross talk	< 110 dB
Headphone impedance	30 to 600 Ohm
Output Impedance	< 1 R
Max output level	Adjustable from −80 dBu to 19 dBu in steps of 0.1 dB

Digital I/O and Synchronization

Digital I/O formats Supported sample rate	Pro Tools DigiLink, Dante IP Audio, ADAT/SMUX up to 192 kHz
Synchronization	Internal, Word Clock, Loop Sync, ADAT, and Dante

Network Interface

Interface	1000BASE-T, RJ45 connector, 4-pair connection

Electrical Specifications

Power consumption	45 VA max.
Input voltage	90–260 VAC 100–240 VAC Nominal, 47–63 Hz
Mains fuse, mounted in IEC connector	1 A, T1AH/250V
Safety compliance	N 60950-1:2006

Power supply cord must be a light sheathed flexible cord according to IEC60227 (designation 60227 IEC 52) and include a protective earth conductor having a green-and-yellow insulation. Cross-sectional areas min. 3 x 0.75mm.

Mains line plug type	Correct type acc. to standard
110–125V	UL817 and CSA C22.2 no 42
220–230V	CEE 7 page VII, SR section 107-2-D1/IEC 83 page C4
240V	BS 1363 of 1984.Specification for 13A fused plugs and switched and un-switched socket outlets

Mechanical Specifications

Chassis standard	19", 1 RU
Chassis depth, without connectors mounted	23.5 cm / 9.3"
Chassis body width	43.5 cm / 17.2"
Weight, not including I/O cards	2.8 kg / 6.5 lbs.

## Environmental Specifications

Operating Temperature	0–45º C / 32–113º F
Humidity	20–85% (non-condensing)
EMC compliance	EN 55103-1, part 1: emission EN 55103-2, part 2: Immunity FCC 47 CFR part 15 (B): emission

Appendix B: Network Fundamentals

The following is a basic introduction to networks and how to set them up in relation to Pro Tools | MTRX Studio. Covering the entire subject of "network" would require several hundred pages so we will focus on the "need-to-know" parts of it.

What is a network?

A network allows multiple devices, such as PCs, printers, and many others devices to communicate with each other. As opposed to traditional audio signals such as AES and MADI, which are point-to-point connections, a network allows any device on the network to communicate with any other device on the network.
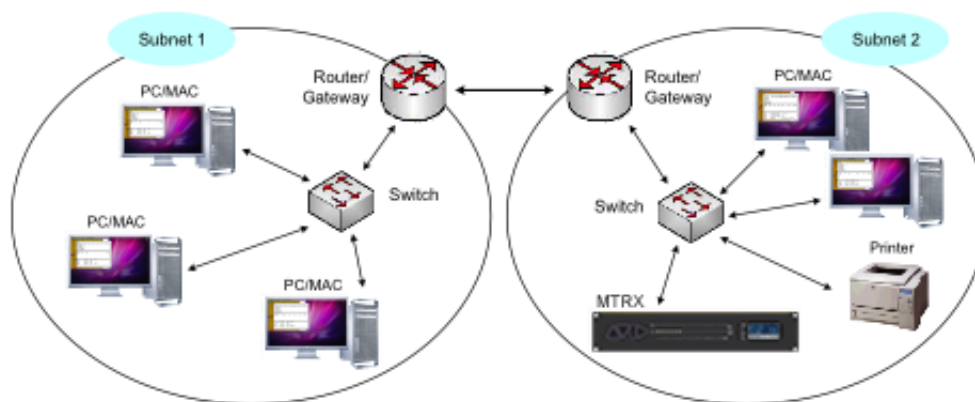
Example network configuration (MTRX shown)

A network consists of one or more subnets. A subnet is typically a local network in building. A subnet can operate as a closed network with no external connections or it can be connected to the Internet.

There are different types of devices in a network, such as PCs, printers, multiple MTRX Studios, switches, and routers.

Physical Connections

Devices in a network can be connected through a wide range of media. The most common for local connections is the UTP (Unshielded Twisted Pair) cable. This is also referred to as CAT5, CAT5e, or CAT6. There are also other "CAT"-types, but the three mentioned here are the most common. UTP cables are normally terminated in an RJ45 connector.

Other types of media can be fiber cables, wireless (WiFi), coaxial cables, and even power cables.

As the MTRX Studio and most computers have an RJ45 connector for use with UTP cables, we will focus on this type of interface.

When using UTP cables, it is possible to use different bit rates, typically 10 Mbit/s, 100 Mbit/s, or 1000 Mbit/s (1 Gb/s). The network interface on Pro Tools | MTRX Studio and on most computers today support 1 Gb/s. It is therefore important that the cabling supports this bit rate to ensure a stable connection. Cat5 cables do *not* support gigabit transmission, so never use this type of cable. CAT5e and CAT6 cables both support 1 Gb/s, so be sure to use either of these two types. The CAT-type is usually printed on the cable, so it is easy to identify.

CAT5e and CAT6 cables contain four twisted pairs (a total of eight wires). In order to achieve gigabit transmission, all four pairs must be used. If only two pairs are used, the cable can only support 100 Mbit/s transmission. If you look closely at the RJ45 connector on a network cable, you can easily see whether two or four pairs are used.

Twisted pair cabling like CAT5e and CAT6 comes in two main varieties, solid and stranded. Solid CAT5 cable supports longer length runs and works best in fixed wiring configurations like office buildings. Stranded CAT5 and CAT6 cable, on the other hand, is more pliable and better suited for shorter-distance, movable cabling such as on-the-fly patch cabling. The maximum cable length for 1 Gb/s Ethernet is 100m when using solid cables, for both CAT5e and CAT6. Never assume that you can go any further than that!

Finally, network cables are available as either "straight" or "crossed" cables. This nomenclature is from the "old days" when connecting two computers directly to each other. Nowadays most network devices automatically determine whether they should operate with straight or crossed connections and will adapt as necessary.

Summary

- Only use CAT5e or CAT6 cables.

- Make sure all four pairs in the cable are used.

- Make sure to use solid cables, and not stranded cables, for long cable runs.

- Never exceed 100 meters distance.

Infrastructure

There are different types of network devices which perform different functions. The main ones are a switch and a router.

Switches are used for connecting local devices together. Switches have a number of ports: typically 5, 8, 16, 24, 32, and upwards. Each port can connect to one device. For example, an 8-port switch lets you connect up to eight PCs. Switches are generally non-intelligent so they simply provide a connection between the devices.

Routers are used when a subnet needs to connect to another subnet or to the Internet. Routers are intelligent and act as a "gateway" to other networks. They handle all traffic that is destined for the "outside world" as well as taking care of any traffic coming from the outside. Only one router is allowed in a network.

Most routers nowadays also perform other functions as well, such as firewall and DHCP-server (see later for more on DHCP). Most routers also have a built-in switch to make installation easier.

Summary

- Switches are used for local connections between devices.

- Routers are used for connections to other networks. Routers are only required if the network has to connect to other networks or the Internet.

Addressing

Since there can be many devices on a network, it is necessary that each of them has a unique address. This is called an IP (Internet Protocol) address and each device in a network must be assigned one. The IP address can either be provided automatically by a DHCP-server or configured manually in the device as a fixed IP address.

As mentioned previously, most Internet routers have a built-in DHCP-server. When using a DHCP-server, a device is automatically assigned an IP address every time it is powered up or restarted. The DHCP-server ensures that no two devices get the same IP address.

The IP address is assigned to a device on power-up, which means that the address can be different after a restart, as the DHCP-server simply assigns the device the first available IP-address.

If the device on the other hand is configured with a fixed IP address, the IP address remains the same after a restart. It is perfectly legitimate to build a network where some devices have fixed IP addresses and other devices have DHCP-assigned IP addresses. However, it is important to ensure that no devices get the same IP address. If you have a device with a fixed IP-address, it is important that you ensure this IP-address does not interfere with other devices on the network.

In addition to the IP address, the device must also have a subnet mask. The subnet mask helps the device identify which other devices are on the same subnet and which are on a different subnet.
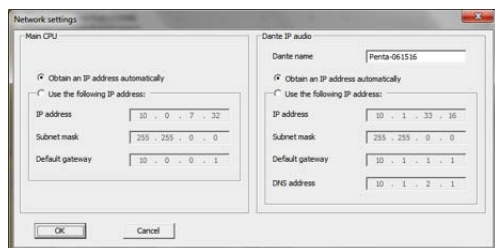
Example network configuration

On the left-hand side you will find the network settings of the MTRX Studio itself. On the right-hand side you will find the network settings for the Dante Audio over IP module or Dante Expansion card (if either is installed in the MTRX Studio).

If you look at the MTRX Studio settings, the first choice is between Obtain an IP address automatically or Use the following IP address. If you select Obtain an IP address automatically, the MTRX Studio is assigned an IP address, Subnet mask, and Default gateway automatically by a DHCP-server (if a DHCP-server is present on the network).

If you instead select Use the following IP address you must enter the IP address, Subnet mask, and optionally Default gateway manually.

IP address

The IP address of the unit.

Subnet mask

Determines which devices are on the same subnet. Devices on the same subnet can communicate directly with each other whereas devices on different subnets can only communicate through a router.

Default gateway

An optional parameter. Default gateway is the IP address of the router which would allow the MTRX Studio to communicate with a device on another subnet. There is no need to provide a Default gateway if the MTRX Studio does not need to communicate with devices on other subnets.

So which IP address should you choose? If you use a DHCP-server, then it's most likely already configured and you don't need to worry about it. If you don't have DHCP-server, you need to enter IP addresses manually.

IP addresses consist of 4 bytes (numbers), usually written with a decimal pint between them, for example 192.168.0.1. This means IP addresses can range from 0.0.0.0 to 255.255.255.255, giving a total of approximately 4.3 billion addresses. The IP addresses are however reserved for different purposes, so for example some are public (when used on the Internet) and others are private (only used on local networks). In order to avoid any problems, it is best to use the addresses reserved for private use, which are:

  10.0.0.0 to 10.255.255.255

  172.16.0.0 to 172.31.255.255

  192.168.0.0 to 192.168.255.255

The subnet mask is necessary to identify which addresses are on the same subnet, and which are outside the subnet. For example, a subnet mask of 255.255.255.0 means that all IP addresses where the first three numbers are the same, and are on the same subnet. For another example, 192.168.0.5 is on the same subnet as 192.168.0.21 because the first three numbers (192.168.0) are the same, but 192.168.1.10 is not on the same subnet because the third number is different.

With a subnet mask of 255.255.255.0, there can be up to 256 devices on the same subnet, as the last number in the IP address goes from 0 to 255. For example, if you need more than 256 devices on the same subnet, you can change the subnet mask to 255.255.254.0 which will give you an additional 256 devices, for a total of 512.

Explaining how the subnet mask is used is rather complicated, so we recommend that you just use 255.255.255.0.

Summary

◆ IP address is the address of a device in a network.

◆ Subnet mask is used to identify which devices are on the same network and which are outside the network.

◆ Default gateway is the IP address of the router, in case a connection is required outside the local network.

Appendix C: I/O Delays

MTRX Studio Input to Output Delays

The total system delay has to be large enough to accommodate for the processing latency in the unit. There is almost the same delay on all the digital I/O, and any difference is due to an inherit difference of time it takes to sync to the different signals before samples are available for time stamping. Digital inputs are time stamped when they enter the matrix algorithm and buffered according to the time stamp on all outputs in the digital domain. This maintains phase coherence regardless of audio signal path and processing. Likewise, signals maintain the same phase whether they are running through the summing process, EQ processing, or not.

MTRX Studio has a general system delay of 7 samples on the digital matrix and SPQ (regardless of whether or not SPQ is enabled) path ways. The digital interfaces add one more sample of delay for a total of 8 samples of latency (166 microseconds at 48 kHz) for digital I/O.

There is an additional delay with analog I/O—AD (analog-to-digital) and DA (digital-to-analog)—due to the conversion process. There is approximately 650 microseconds of delay with the analog-to-digital conversion, and approximately 250 microseconds of delay with the digital-to-analog conversion. These delays are not dependent on the sample rate. Once digitized, the signal is time stamped and buffered the same as with digital inputs.