MBOX Studio Guide

Legal Notices

REV A 08/24

Important

Model: MBOX Studio
Rating: 12vDC, 3.0A

Safety Compliance

This equipment has been tested to comply with safety certifications in accordance with: UL 62368-1 ed.3-2019, CAN/CSA-C22.2 No. 62398-1:19,BS EN 62368-1:2014+A11:2017, EN 62368-1:2014/AC:2015, IEC 62368-1:2018. Avid Technology Inc., has been authorized to apply the appropriate NRTL mark on its compliant equipment.

Important Safety Instructions

1) Read these instructions.

2) Keep these instructions.

3) Heed all warnings.

4) Follow all instructions.

5) Do not use this equipment near water.

6) Clean only with dry cloth.

7) Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.

8) Do not install near any heat sources such as radiators, heat registers, stoves, or other equipment (including amplifiers) that produce heat.

9) Protect power cords from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the equipment.

10) Only use attachments/accessories specified by the manufacturer.

11) For products that are not rack-mountable: Use only with a cart, stand, tripod, bracket, or table specified by the manufacturer, or sold with the equipment. When a cart is used, use caution when moving the cart/equipment combination to avoid injury from tip-over.

12) Unplug this equipment during lightning storms or when unused for long periods of time.

13) Refer all servicing to qualified service personnel. Servicing is required when the equipment has been damaged in any way, such as power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the equipment, the equipment has been exposed to rain or moisture, does not operate normally, or has been dropped.

14) For products that are a Mains powered device: The equipment shall not be exposed to dripping or splashing and no objects filled with liquids (such as vases) shall be placed on the equipment.

WARNING! To reduce the risk of fire or electric shock, do not expose this equipment to rain or moisture.

Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding type plug has two blades and a third grounding prong. The wide blade or the third prong are provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.

15) For products with a power switch: It should remain accessible after installation.

16) The equipment shall be used at a maximum ambient temperature of 40° C.

LED Safety Notices

Avid hardware might contain LED or Laser devices for communication use. These devices are compliant with the requirements for Class 1 LED and Laser Products and are safe in the intended use. In normal operation the output of these laser devices does not exceed the exposure limit of the eye and cannot cause harm.

Contents

Introduction

Welcome to MBOX™ Studio by Avid®. MBOX Studio is a versatile multi-channel audio interface that integrates with Pro Tools® software and is compatible with third-party audio and MIDI applications that support the Core Audio (Mac) or ASIO (Windows) standard.

MBOX Studio delivers exceptional audio conversion and fidelity, along with everything you need for tracking, mixing, streaming, podcasting and more.

MBOX Studio can be controlled using its top panel controls and using the MBOX Control application, and can also function as a standalone monitor controller.

MBOX Studio Features

- Up to 21 x 22 simultaneous input and output ("I/O", @ 44.1/48k). Maximum I/O varies with sample rate, as follows:

MBOX Studio Max I/O per Sample Rate

Sample Rate	Maximum Inputs	Maximum Outputs
44.1/48 kHz	21	22
882/96 kHz	17	18
176.4/192 kHz	8	10

For a breakdown of available hardware inputs and outputs by sample rate, see Hardware Inputs and Outputs by Sample Rate.

- 4x XLR/¼-inch TRS Combo Microphone/Line/Instruments Inputs (2 on the back panel, 2 on the front panel), each with:
  - High quality microphone preamps
  - Variable **Z** impedance circuit to provide more tonal options and compatibility for Mic and Instrument inputs
  - Large dual-function (rotate/push) encoder
  - **Link** button to link stereo inputs
  - **48V** phantom power
  - HPF (High Pass Filter)
  - –10 dB **Pad**
  - Polarity invert
  - Soft-Limit

    - 9-segment input meters
    - Hardware inserts assignable via FX Loops 1–2
- 2x ¼-inch TRS Line inputs
- 4x ¼-inch TRS Line outputs
    - L/R Main Monitor outputs
    - 1/2 Alt outputs
- 2x ¼-inch TRS effect loops (hardware inserts) with Level and Impedance matching
    - 2x ¼-inch TRS outputs
    - 2x ¼-inch TRS inputs
    - Switchable impedance between “Line” and “Hi-Z/Stomp Box”
- Control Room section
    - Large dual-function (rotate/push) encoder to control output levels (rotate) and Speaker Output select Main/Alt (push)
    - **Mute**, **Dim**, and **Mono** buttons
    - Bluetooth input/output source select button
    - Monitor **Link** Button to link output levels on Main/Alt/Bluetooth
- 4x User Action buttons, color coded with custom color selection (push and push /hold dual functionality)
- Stereo Bluetooth input
- Stereo Bluetooth output
- 1x Coax S/PDIF I/O
- 1x Optical I/O (supports ADAT, SMUX and S/PDIF)
- 8x Pro Tools (or other DAW) software inputs
- 2x ¼-inch headphone outputs with individual mixes and rotary controls
- 1x ¼-inch **Hi-Z Out to Amp** output for re-amplification
- MBOX button (launches MBOX Control)
- Input channel-based EQ, and Avid Reverb and Delay FX
- Built-in instrument Tuner
- 1x1 MIDI I/O
- 2x Footswitch and/or Expression Pedal inputs
- Low Latency Direct Monitoring (LLM) via MBOX Control
- USB 2.0 Type C Connector
- Supports iOS (compatible with camera kit (not included))
- External 12V Power Supply
- Kensington Security Slot

Included Software, Plug-ins, and Sound Libraries

With your purchase and registration of MBOX Studio, you are entitled to the following:

- Pro Tools Studio software, with 1-year subscription and Standard Avid support contract
- Sibelius Artist software, with 1-year subscription
- Bundled effects and instrument plug-ins from Avid and several Avid Development Partners.
- Sound libraries that include samples for almost all of your music production needs, including sound effects, hits, loops, and phrases of a wide variety of instruments, a range of tempo options (for rhythmic material), in many different styles.

For complete, detailed information about what you get with MBOX Studio, visit www.avid.com/mbox-support.

System Requirements and Compatibility Information

MBOX Studio is supported by Pro Tools Artist, Pro Tools Studio, and Pro Tools | Ultimate 2022.9 or later.

For detailed system requirements, visit www.avid.com/mbox-support.

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

For a complete list of optimizations for your Pro Tools computer, visit: Pro Tools Computer Optimizations.

For complete Pro Tools system requirements and a list of qualified computers, operating systems, hard drives, peripherals, and third-party devices, visit 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
Command+N	Hold down the Command key and press the N key
Command-click	Hold down the Command 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 controls on Pro Tools | Carbon are in displayed **in bold text**.

Hyper-links and cross-reference links are displayed in blue 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/account

Support and Downloads

For help with MBOX Studio, visit:

MBOX Studio Learn & Support

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.

www.avid.com/support

Video Tutorials

Learn how to use MBOX Studio by watching some or all of its video Tutorials.

The *Pro Tools Quick Tips* series of online videos provide tutorials to help if you are new to Pro Tools.

Pro Tools Quick Tips

You can browse the videos or use the Pro Tools Quick Reference Guide to find and learn exactly what you want.

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

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

Avid Store

Visit the Avid store for plug-ins and control surfaces to extend the capabilities of your Pro Tools system.

shop.avid.com

Part I: Installation

Installation and Setup

Installing and setting up MBOX Studio is simple and involves the following steps:

1. Unpack the Box
2. Register MBOX Studio and Activate your Avid Master Account
3. Connect Cables
4. Download and Install Pro Tools and MBOX Control Software (including authorizing your software with iLok License Manager, and updating MBOX Studio firmware)
5. Launch and Configure MBOX Control Software
6. Launch Pro Tools

Unpack the Box

Before you get started installing MBOX Studio, unpack the box, which contains the following:

- Welcome card with redemption code, QR code, and serial number
- *MBOX Studio Quick Setup Guide*
- MBOX Studio audio interface. Be sure to remove the protective plastic covering the top panel.
- External 12V Power Supply with adapters
- USB C-Type Cable
- USB C-Type to USB A-Type Adapter

Keep the Welcome card on hand to register MBOX Studio and access software, sound libraries, and documentation downloads. Set the cables aside until you are ready to start making cable connections. Remove MBOX Studio from the box and packaging, and place it on a hard, dry surface.

Proceed to Register MBOX Studio and Activate your Avid Master Account.

Register MBOX Studio and Activate your Avid Master Account

MBOX Studio includes a Welcome card with a redemption code and a QR code that lets you register the unit. Registering lets you access software and PDF documentation through your online Avid Master Account. (The QR code is also provided on the underside of the MBOX Studio unit.)

For step-by-step instructions on registration and license options, visit MBOX Registration.

To register your MBOX Studio unit and access MBOX-related downloads through your Avid Master Account:

1 Locate the Welcome card and codes.

Example Welcome card (shown at left) and location of the serial number and QR code on the unit (shown at right)

2 Do one of the following:

- With your mobile device, scan the QR code on the Welcome card, follow the on-screen instructions then continue with the next step.
- Visit https://www.avid.com/register and continue with the next step.

3 Log in to your Avid Master Account. If you do not already have an Avid Master Account, create a new one and log in.

4 Enter the redemption code on the Welcome card and click Register. If you scanned the QR code, your redemption code is entered automatically.

5 Enter the MBOX Studio serial number (it is located on a sticker on the underside of the unit).

6 Select your iLok.com account and click Use This Account, or create a new iLok account by following the on-screen instructions. You are directed to the My Products page for your Avid Master Account.

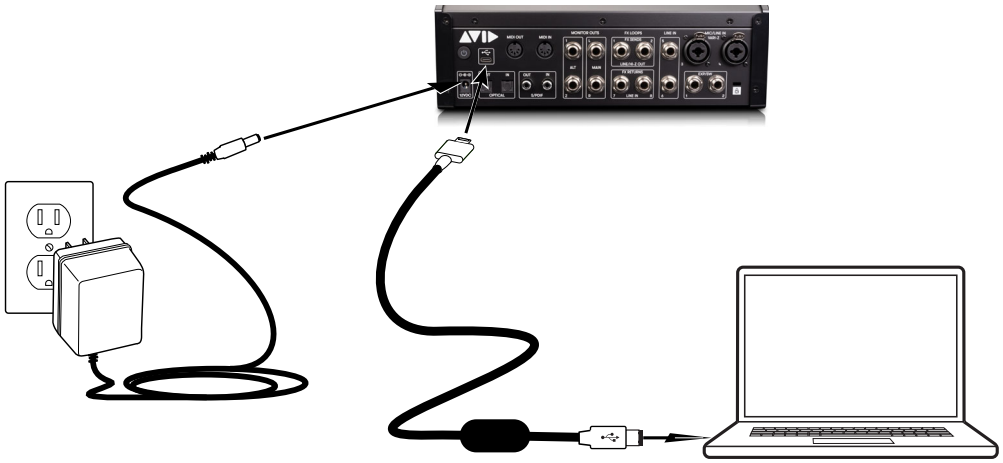
7 Proceed to Connect Cables.

Connect Cables

To install MBOX Studio, make USB and Power Connections as shown below.

- If necessary use the included USB-to-USB-C adapter.
- Choose the power adapter appropriate for your region.

USB and Power Connections

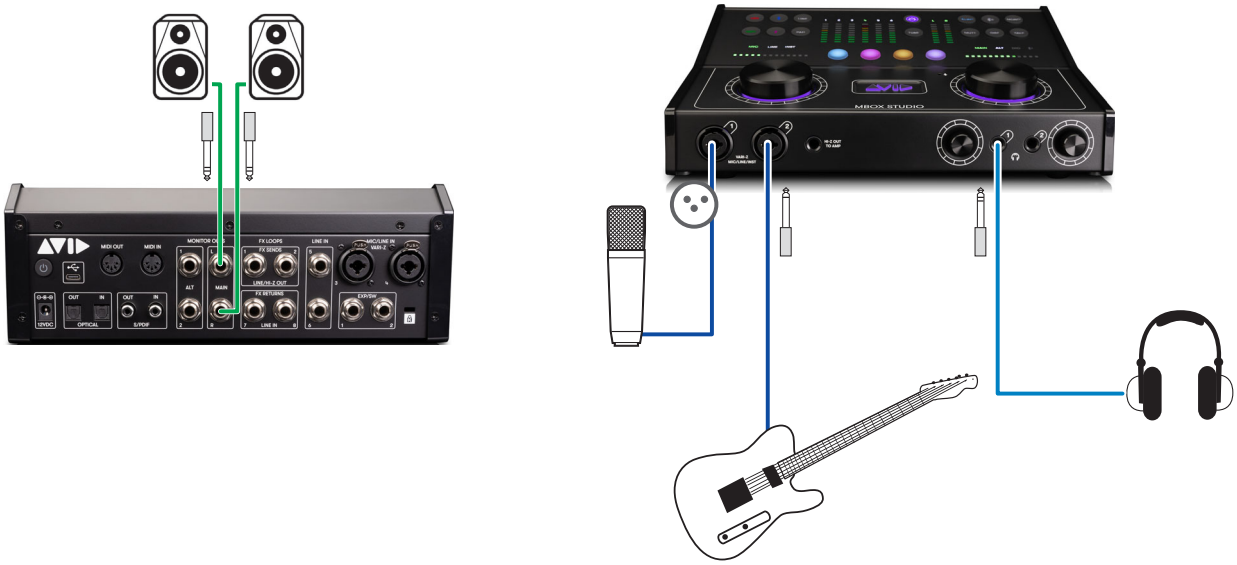


Audio Connections

The following diagrams show example audio connections. Consider making only minimal input and output connections now while you are completing the installation process, and connecting the rest of your audio equipment later.

Basic Input and Output Connections

Connect a single set of speakers and/or headphones, and a single input source (such as a microphone, electric guitar, or similar). This will let you play back, listen, and record to confirm a successful installation.



Minimal audio output and input connections

For details about front and back panel connectors and more example diagrams, see Download and Install Pro Tools and MBOX Control Software.

Download and Install Pro Tools and MBOX Control Software

Once you have registered MBOX Studio, you can download and install Pro Tools Studio software, including plug-ins, and sound libraries from your Avid Master Account. PDF documentation for MBOX Studio and Pro Tools software is also available through your Avid Master Account.

If you are an existing customer who already owns an eligible Pro Tools product, you may choose between getting an additional Pro Tools license or extending the duration of the term of your current product.

Download and Review PDF Documentation

Download and review PDF documentation for MBOX Studio and Pro Tools software from your Avid Master Account. Be sure to consult any Read Me documentation for the latest known issues.

Download and Install Pro Tools and MBOX Control Software

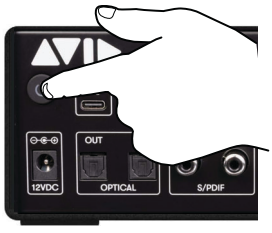
To download Pro Tools and MBOX Control software:

1. From the computer where you will be installing Pro Tools Artist, log in to your Avid Master Account (if you are not already).
2. Under My Products, locate and click MBOX Studio in the Products list.
3. Click the View Software Download Links & Product Details link for your platform (macOS or Windows) to show download links for all software installers and PDF documentation included with MBOX Studio.
4. Download the installers for each of the following:
   - MBOX Control installer
   - Pro Tools software installer
   - Plug-in installer(s) such as Ignition Pack or other, as available.
   - Demo Sessions, sound libraries and other content.
5. Locate and extract (uncompress) each of the downloaded installers.
6. Locate and launch the MBOX Control installer. Follow the on-screen instructions to complete the installation.
7. Locate and launch the Pro Tools installer. Follow the on-screen instructions to complete the installation, then restart your computer when prompted.
8. After your computer restarts, install plug-ins and sound libraries download from your Avid Master Account (you can also do this using the Avid Link desktop application that is installed with Pro Tools).
9. Proceed to Power On MBOX Studio.

Power On MBOX Studio

To power on MBOX Studio:

1. Press and hold the Power button on the back panel for at least half a second. The encoders and other elements illuminate.



2. Proceed to Launch and Configure MBOX Control Software.

Launch and Configure MBOX Control Software

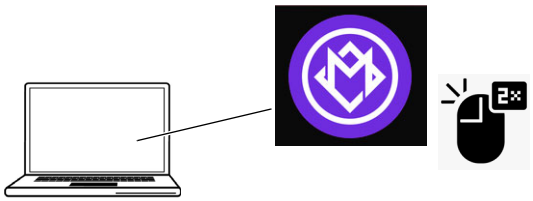
MBOX Control software lets you configure MBOX Studio hardware settings, signal routing, and many other parameters including the on-board Avid FX and User Action Button assignments. Preference settings can be saved as MBOX Control User Presets and recalled at any time to optimize MBOX Studio for different workflows, such as live audio tracking, re-amping, or effects processing.

To configure MBOX Control:

1 Make sure you have already installed MBOX Control software.

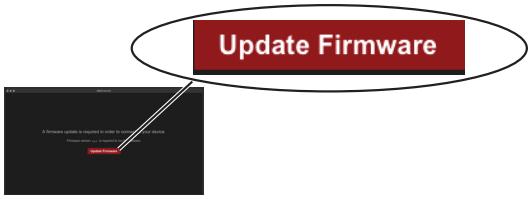
2 Launch MBOX Control by doing the following:

- Double-click the MBOX Control icon in Applications (Mac), or launch MBOX Control from the Start menu (Windows).



Launching MBOX Control

3 Be sure to update firmware if prompted to do so (for more information see Firmware Update).



Update Firmware dialog

4 MBOX Control opens in its default view.

MBOX Control default view, and the Settings icon to access MBOX Control Preferences

5 Click the Settings (gear) icon to open MBOX Control Preferences.

6 In the Clocking Options section, configure Clock Source and Sample Rate as desired.

- Leave Clock Source set to Internal, or choose the digital I/O ports you want to set as the *clock leader*.
- Choose a Sample Rate and any other settings as desired. For complete descriptions of all Preference settings, see Preferences.

7 Optional: Click the Presets button and save your settings as a custom Preset. For more information, see Presets.

8 Leave MBOX Control running and proceed to Launch Pro Tools.

Launch Pro Tools

To launch Pro Tools:

1 Double-click the Pro Tools icon in the Applications folder or in the Dock (Mac), or choose it from the Start menu (Windows).

Pro Tools application icon

2 If prompted to Activate your Pro Tools software license, follow the on-screen instructions.

Press and hold the N key when launching Pro Tools to open the Playback Engine dialog. If MBOX Studio is not selected as the Playback Engine, select it and click OK. Alternatively, you can select MBOX Studio in the Playback Engine after you have launched Pro Tools (Setup > Playback Engine). For more information, see Playback Engine.

iLok Authorization Using iLok License Manager

Once you have registered MBOX Studio and downloaded and installed software from your Avid Master Account, use iLok License Manager to authorize iLok Cloud or your physical USB iLok (purchased separately) with your entitlements. When launching Pro Tools for the first time, you are prompted to Activate your software license using your registered iLok account.

Firmware Update

Required firmware updates are included with MBOX Control software.

Configure Pro Tools for MBOX Studio

When you first launch Pro Tools you see the Dashboard, which lets you create and open Pro Tools Session files, open a Session Template, access Getting Started resources, and more. Before creating or opening a session, do the following to configure Pro Tools for MBOX Studio.

Playback Engine

The Playback Engine (Setup > Playback Engine) lets you adjust Pro Tools performance by changing system settings that affect its capacity for processing, playback, and recording. In most cases, the default settings for your system provide optimum performance.

For now, use the Playback Engine dialog to confirm communication with MBOX Studio as described below.

To configure Playback Engine:

1 If the Dashboard is open, click Cancel to close it (but do not quit out of Pro Tools).

2 Choose Setup > Playback Engine.

3 Make sure MBOX Studio is the current Playback Engine. If it is not, choose it from the Playback Engine selector.

You can return to the Playback Engine dialog at any time to adjust settings to accommodate large or processing-intensive Pro Tools sessions, or to optimize performance for your computer.

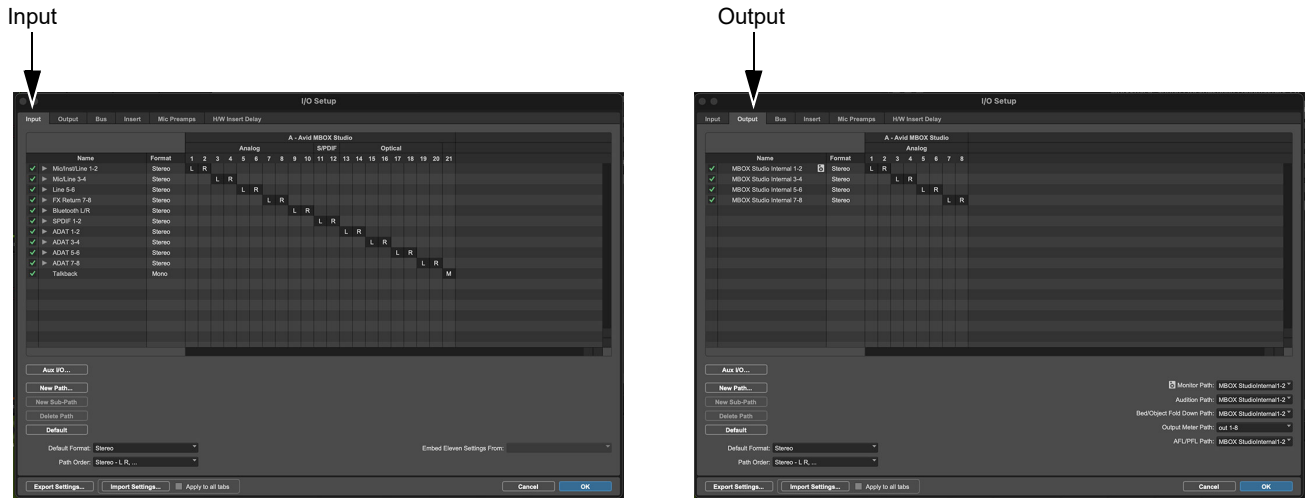
I/O Setup

Like a virtual patchbay, I/O Setup controls let you route *physical* inputs and outputs on audio interfaces to Pro Tools input and output channels, create internal mix busses, and more. In most cases, the default settings provide all the signal paths you will need. For now, visit the I/O Setup dialog to confirm it is configured appropriately for MBOX Studio.

To configure I/O Setup:

1 Choose Setup > IO.

2 Click to view the Input, Output, and Bus tabs to make sure you see MBOX Studio at the top, with *signal paths* appropriate for your audio interface in the grid, below.



I/O Setup Input tab (at left) and Output tab (at right)

3 If the I/O Setup does not show MBOX Studio, make sure you have selected it as the Playback Engine and try again.

4 If any tabs list de-activated signal paths, reset them by doing the following:

- Click to select a tab (such as Inputs).
- Click to select any path Name then press Command+A (Mac)/Control+A (Windows) to select all paths in that tab.
- Click Delete.
- Click Default.
- Repeat for the Outputs and Busses tabs.

Default Input paths are created for each hardware and software input.

5 Click OK to close the I/O Setup dialog.

6 Your MBOX Studio is ready to use with Pro Tools.

How to Proceed

To start learning about MBOX Studio and how to use it, refer to the following sections of this guide:

- MBOX Studio Hardware Overview
- MBOX Control Software Overview
- Using MBOX Studio

Starting Up and Shutting Down Your System

Day-to-Day Power Up and Down

To ensure that the components of your Pro Tools system communicate properly with each other, it is advised that you power them on in the following order.

Start up your Pro Tools system in this order:

1. Make sure all your equipment (including your computer) is off.
2. Mute your MBOX Studio monitor speakers and lower the volume of all output devices in your system.
3. Turn on any external hard drives.
4. Turn on any control surfaces (such as Avid S1).
5. Turn on any MIDI interfaces, MIDI devices, or synchronization peripherals.
6. Power on MBOX Studio. Wait at least fifteen seconds for it to initialize.
7. Turn on your computer.
8. Launch Pro Tools or any third-party audio or MIDI applications.
9. Unmute your MBOX Studio monitor speakers.

Powering on MBOX Studio

Shut down your Pro Tools system in this order:

1. Mute your MBOX Studio monitor speakers and turn off or lower the volume of all output devices in your system.
2. Quit Pro Tools and any other running applications. To quit Pro Tools, choose Pro Tools > Quit (Mac) or File > Exit (Windows).
3. Shut down your computer.
4. Turn off MBOX Studio (press and hold the power button for 2 seconds).
5. Turn off any MIDI interfaces, MIDI devices, or synchronization peripherals.
6. Turn off any control surfaces (such as Avid S1).
7. Turn off any external hard drives.

Part II: Hardware and Software Overview

MBOX Studio Hardware Overview

MBOX Studio Front Panel

MBOX Studio front panel

MBOX Studio Front Panel

#	Item	Notes
1	Inputs 1–2 combo XLR/TRS	Accepts XLR, 1/4-inch TRS, and 1/4-inch TS
2	Hi-Z Out to Amp	Mirrors FX Send 2
3	Headphones 1 and 2 outputs (TRS) and level controls	Digital level controls

MBOX Studio Top Panel

MBOX Studio top panel

MBOX Studio Top Panel

#	Item	Description
4	**+48V**	Phantom Power
5	Bluetooth Input switch	(see Bluetooth Input)
6	Stereo **LINK**	
7	Input meters	
8	MBOX	Open MBOX Control
9	Output meters	
10	Monitor **LINK** switch	
11	Bluetooth Output switch	(see Bluetooth Output)
12	**MONO** switch	Fold the currently selected monitor outputs to mono
13	**INPT**, **Z**, and **PAD** switches	Input selector switch (mic/line/inst), input impedance switch, and –10 dB pad switch
14	**TUNE** switches	
15	**MUTE**, **DIM**, and **TALK** switches	Mute or dim outputs, enable talkback
16	Left Encoder section	Push/turn encoders, and input gain indicator LEDs
17	Right Encoder section	Push/turn encoders and monitor level indicator LEDs
18	User Action switches 1–4	Customizable buttons (see User Action Buttons 1–4 Assignment)

MBOX Studio Back Panel

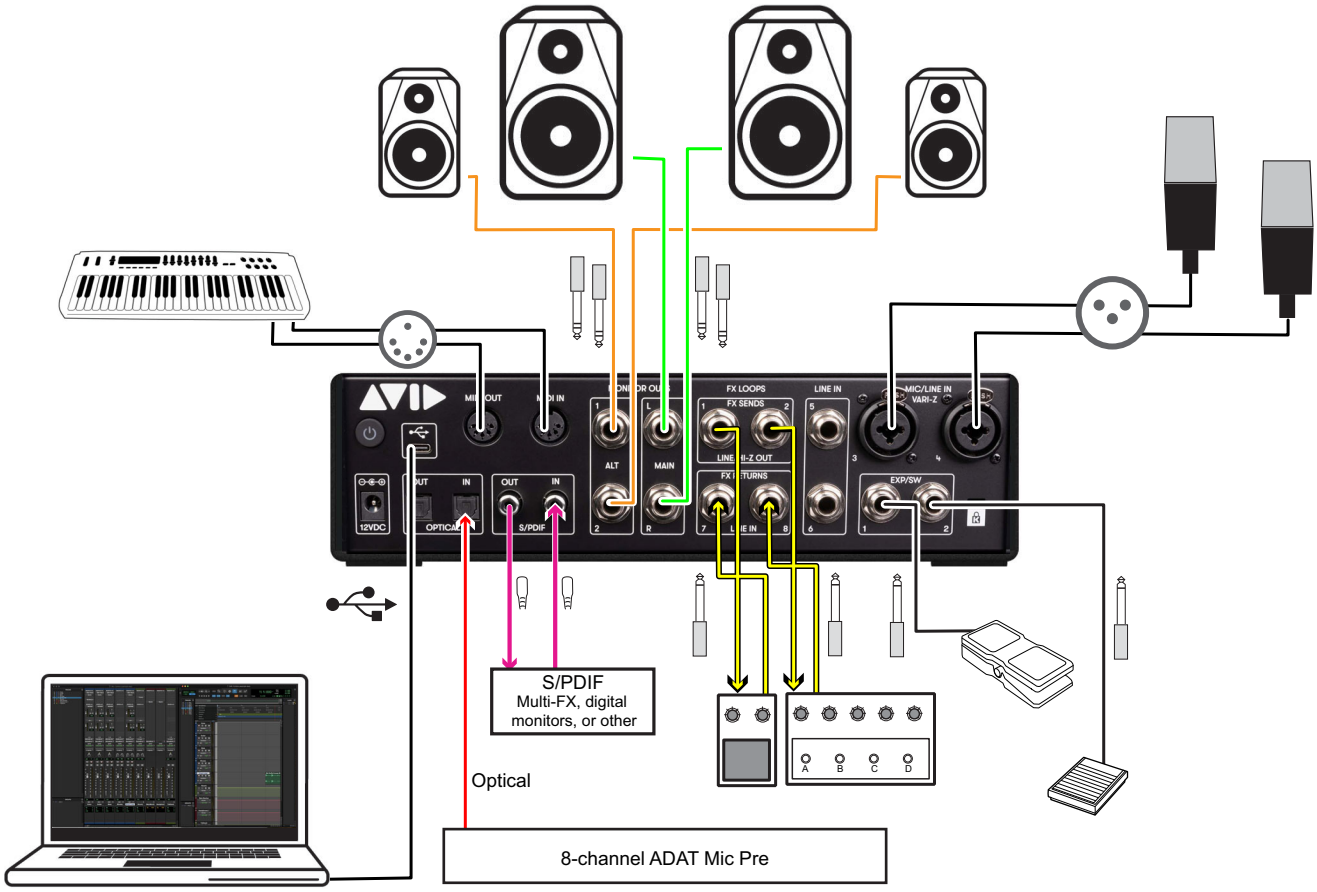
MBOX Studio back panel

MBOX Studio Back Panel

#	Item
19	Power switch
20	USB
21	**MIDI IN** / **OUT**
22	**MONITOR OUTS** (**ALT** and **MAIN**)
23	**FX LOOPS**
24	**LINE IN** Inputs 5-6
25	**MIC/LINE IN** 3-4 combo inputs
26	Power input
27	**OPTICAL IN** / **OUT**
28	Coax **S/PDIF IN** / **OUT**
29	**EXP/SW** footswitch inputs
30	Kensington Lock

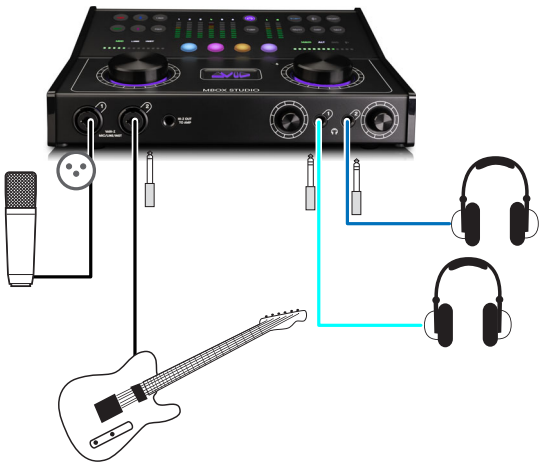
Example Audio Connections

Connect equipment to MBOX Studio as suggested in the following diagrams.



That's a lot of gear!

Example Front Panel Audio Connections



Vocal and guitar

Guitar Re-amplification

MBOX Control Software Overview

MBOX Control software lets you configure settings for your audio interface for use with Pro Tools, for other audio applications that support the Core Audio (Mac) or ASIO (Windows) standard, and even for MBOX Studio as a standalone monitor controller.

MBOX Control provides a Toolbar across the top, the Channel Focus and Monitor sections along the left side, and Hardware Input, Software Input, and Hardware Output sections in the main part of the window. Channels can be renamed by clicking their displayed name.

MBOX Control

Many features of MBOX Studio can be accessed directly from the MBOX Studio front and top panels, such as input gain, the tuner, and monitoring volume. Many more parameters and features are available from the MBOX Control application, including its on-board Avid FX (delay and reverb), EQ, User Action Button 1–4 assignments, footswitch settings, and more. All settings can be saved as a User Layout Preset.

Toolbar

The Toolbar provides the following settings and indicators:

Toolbar

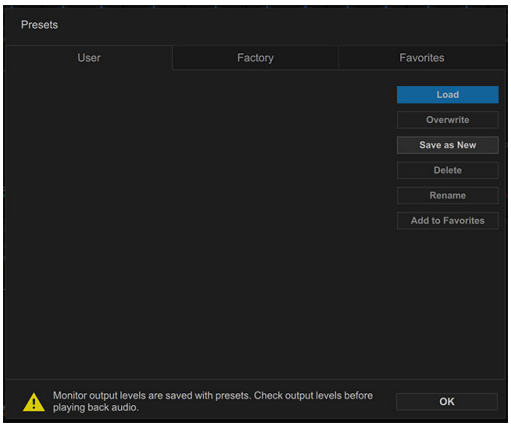
- Presets
- Mix Options
- User Action Buttons 1–4 Assignment
- Footswitch / Expression Pedal 1 and 2
- Loopback
- Tune
- Sample Rate and Clock Source Display
- Help
- Settings

Presets

Opens the Presets window to manage MBOX Control Presets. Presets store all settings including signal routing, levels, pan, User Action 1–4 assignments, and all other controls. Presets include custom (User), Factory, and Favorites.

To use MBOX Control Presets:

1 Click the Presets button in the Toolbar.



Presets

2 Click to show User, Factory, or Favorites.

3 Do the following:

- To store the current MBOX Control state as a Preset, click Save as New, enter a name for the new Preset, and click OK.
- To load, overwrite, delete, rename, or add a Preset as a Favorite, click to select an available Preset and choose any of the following commands:

Commands for MBOX Control Presets

Command	Action
Load	Loads the currently selected Preset (replaces all current settings).
Overwrite	Replaces the saved Preset on disc with the current settings.
Save as New	Saves a new Preset based on the current settings, without affecting the current settings.
Delete	Deletes the currently selected Preset file.
Rename	Lets you rename the current Preset.
Add to Favorites	Adds the current Preset to Favorites.

4 When done, click OK.

When you add a Preset to Favorites, the preset becomes available for assignment to a User Action button 1–4. This lets you save different MBOX setups for different workflows and recall them with a single button or footswitch press (or a press and hold). For more information, see Customizing the User Action Buttons 1–4.

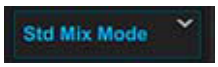
Preset files are stored in Documents > MBOX Studio Presets.

Mix Options

MBOX Studio can operate in either of two Mix Modes, *Standard* or *Advanced*, and both provide other options for output grouping and mirroring. By default (and whenever Advanced Mix Mode is *not* enabled) MBOX Studio operates in Standard Mix Mode.

To access Mix Modes and options:

- Click the Mix Mode button.



Mix Mode (Standard Mix Mode shown)

The Mix Mode dialog opens. Available settings include:

- Advanced Mix Mode
- Group All Monitor Mixes
- Mirror Main to S/PDIF

Standard Mix Mode

In Standard Mix mode, faders in the Hardware Input and Software Input strips control channel levels being sent *to* outputs and can be set uniquely for each Hardware Output mix. Gain and other input parameters can be adjusted in Channel Focus.

One output channel (mono or stereo) is always selected, and only one output can be selected at a time. The only exceptions are ALT and Bluetooth: Bluetooth output always mirrors ALT. Selecting either Bluetooth or ALT selects both. ALT and Bluetooth still have independent monitoring level, Mono, Mute, and Dim control. S/PDIF output can mirror MAIN (see Mirror Main to S/PDIF), and you can Group All Monitor Mixes.

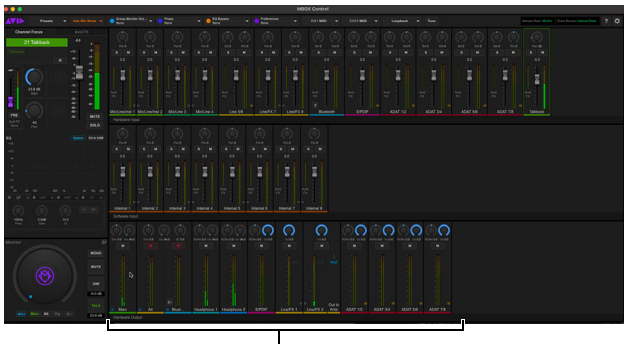
For a signal flow diagram, see Help.

Advanced Mix Mode

When Advanced Mix mode is enabled, you can access the "top of channel" input level by first deselecting all outputs and then adjusting channel faders in the Hardware and Software Input sections. Adjusting "top of channel" input faders affects all output mixes globally. (For a signal diagram, see Help.)

To use Advanced Mix mode:

1. Click Std Mix Mode in the Toolbar.
2. In the Mix Mode dialog select Advanced Mix Mode then click OK. The Toolbar button lights amber and displays Adv Mix Mode.
3. In the Hardware Output section, click the currently highlighted Output mix to deselect it (so no Output mixes are highlighted). Input faders are set to unity (0 dB) and pans are centered.



Advanced Mix Mode after deselecting all Hardware Output mixes

4. Adjust controls in the Hardware Input and Software Input sections to affect that channel's input controls in all outputs.
5. To adjust channel send level to outputs (as in Standard Mix Mode) select the desired Output.

Group All Monitor Mixes

When enabled, Alt, Headphone 1, Headphone 2, and Bluetooth outputs mirror Main. Group All Monitor Mixes can be enabled in either Standard or Advanced Mix Mode.

- All Monitor outputs share the same Input to Output Mix. Individual mix layer controls are linked together so that, for example, when you move the Internal 1/2 fader in the single mix monitor group, that fader moves for all of those grouped/linked output mixers).
- Main Mix Layer (which is only accessible in Advanced Mix Mode) is locked out for the user and input faders are set at unity and pans centered.
- S/PDIF is included in the Monitor output single mix group if the Mirror Main to S/PDIF preference is enabled.
- FX 1, FX 2/Hi-Z Output and ADAT 1–8 are not part of the single Mix monitor group and are mixed the same way as in Standard Mix Mode.

Mirror Main to S/PDIF

When Mirror Main to S/PDIF is enabled, the mix routed to the MAIN output is also sent (mirrored) to the S/PDIF output. This provides a convenient way to use the S/PDIF output as another monitor output option. Cycling through monitor outputs will cycle from Main, to Alt to Dig (S/PDIF). When S/PDIF is selected, MUTE, DIM, and other monitor controls apply to the Dig (S/PDIF) output the same as they do for MAIN and ALT.

User Action Buttons 1–4 Assignment

Each of the four User Action buttons can be assigned to perform two separate functions, one for when the corresponding User Action button is pressed and a second function for when that button is pressed and held. The current User assignments are shown in the Toolbar.

For more information, see Customizing the User Action Buttons 1–4.

Actions

The following tables list the available Internal Actions.

Internal Actions

Available Internal Actions

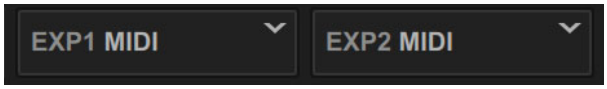
Internal Actions	Notes
MAIN Monitor Mute	Toggle between Muted and Unmuted states
ALT Monitor Mute	Toggle between Muted and Unmuted states
Bluetooth Monitor Mute	Toggle between Muted and Unmuted states
Standard/Advanced Mix Mode	Toggle On/Off
Group Monitor Outputs	Toggle “Group All Monitor Mixes” option on/off
Phase	(of selected channel)
High Pass Filter	(of selected channel)
Soft Limit	(of selected channel)
EQ Bypass	(of selected channel)
EQ to DAW	(of selected channel)
Solo	(of selected channel)
Mute	(of selected channel)
User Presets	Opens the User Presets dialog
Preferences	
HI-Z OUT TO AMP Ground Lift	Toggle ground lift on HI-Z OUT TO AMP

Available Internal Actions

Internal Actions	Notes
AVID FX Mute	
FX 1 Bypass	(FX 1 and FX 2 when stereo linked)
FX 2 Bypass	(FX 1 and FX 2 when stereo linked)
Input Selection Follows Hardware	Toggle On/Of

Footswitch / Expression Pedal 1 and 2

The footswitch buttons in the MBOX Control toolbar let you assign functions to the footswitch/Expression pedal inputs 1 and 2. The buttons show the currently assigned function. Clicking either button opens the Function Assignment dialog where you can choose from a variety of functions including MBOX Monitor mute and dim, FX Loop bypass, Continuous Controller mapping to plug-in parameters for filter sweeps, “wah” effects, and similar (the plug-in must support MIDI Learn).

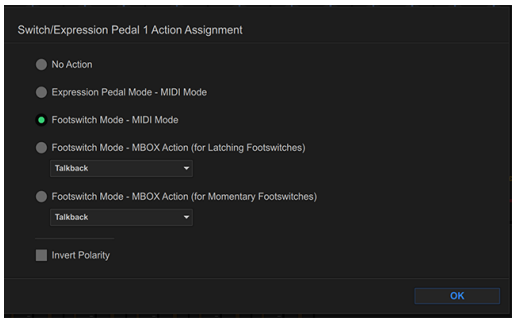


Footswitch buttons

To assign footswitch functions:

1 Connect footswitches to either or both the **EXP/SW IN 1** and **EXP/SW IN 2** inputs on the back panel. You can use momentary and/or continuous (expression) pedals.

2 In MBOX Control, click the SW/EXP 1 or 2 button. (The button text indicates the current assignment, such as “EXP1 MIDI, indicating that EXP/SW In 1 is assigned to Continuous Control/Expression MIDI mode. Button names may differ on your system.)



Switch/Expression Pedal 1 Function Assignment

3 Choose the desired footswitch function.

MBOX Footswitch settings

Footswitch Setting	Description
No Action	Footswitch has no effect
Expression Pedal Mode - MIDI Mode	Connect an expression pedal to be able to assign it to parameters using MIDI Learn in Pro Tools.
Footswitch Mode - MIDI Mode	Connect a momentary footswitch to be able to assign parameters using MIDI Learn in Pro Tools.

MBOX Footswitch settings

Footswitch Setting	Description
Footswitch Mode - MBOX Action	MBOX-specific functions:
	Talkback
	Monitor Mute
	Monitor Dim
	Main Alt Switch
	Bluetooth
	Tuner
	FX1 Bypass
	FX2 Bypass

Loopback

Enabling Loopback routes audio from Software Inputs Internal 7–8 directly to inputs ADAT 7–8 (at 48 kHz) for routing digitally to a DAW. This lets you route and re-record computer audio from an application other than Pro Tools. Note that at 88.2 and 96 kHz, audio is routed to ADAT 3–4. Loopback is not available at 176.4/192 kHz.

For more information, see Using Loopback.

Tune

Opens the built-in Tuner, and the MBOX top panel enters Tuner mode.

Tuner window (shown at left) and tuning using the top panel (shown at right).

Reference Choose a tuning reference from the Reference selector. Choices include 438, 439, 440, 441, and 442 Hz.

Mute Mutes the output of the tuner.

Input Indicates the current Tuner input.

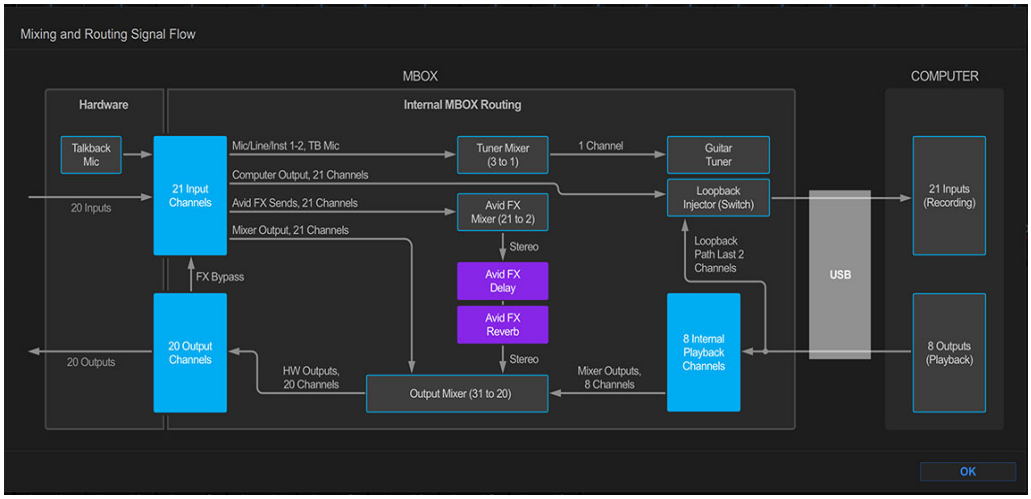
For instructions, see Using the Tuner.

Sample Rate and Clock Source Display

Shows the current MBOX Sample Rate and Clock Source. You can change these in MBOX Control settings (gear icon). For more information, see Preferences.

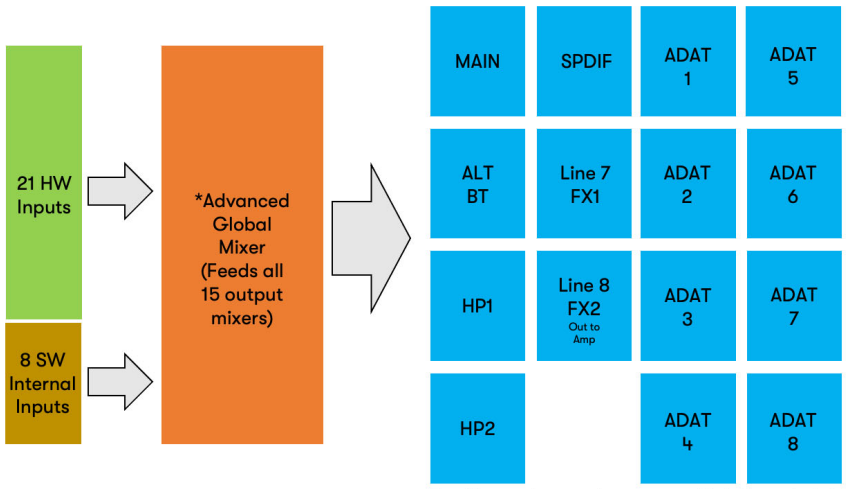
Help

Shows the Mixing and Routing Signal Flow.



Signal Flow

The following diagram illustrates signal flow in Advanced Mix Mode.



MBOX Control Advanced Mix Mode

Settings

Preferences let you optimize MBOX Studio hardware and MBOX Control settings. For more information, see Preferences.

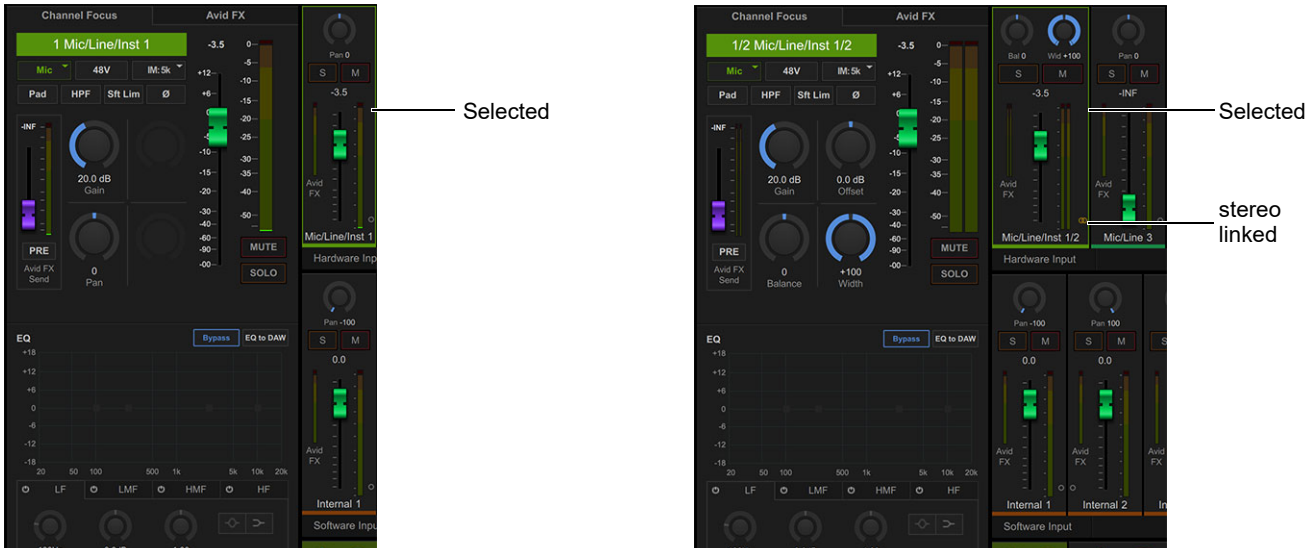
Channel Focus

In MBOX Control the *Channel Focus* tab shows all parameters for the currently selected channel or bus. That selected channel or bus is indicated on-screen with a lit colored border (the color corresponds to the currently selected Output mix).

To focus a channel using MBOX Control:

1 Click an output mix, such as Main.

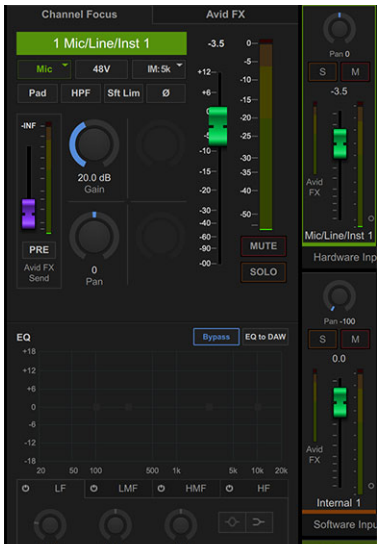
2 Click the desired Hardware Input or Software Input channel.



Channel Focus with Input 1 Mic/Inst/Line selected (shown at left), and when Input 1 and 2 are linked (shown at right)

You can configure MBOX Control Channel Focus to follow top panel channel selection in Preferences.

Channel Focus provides access to many channel parameters not directly available from the top panel.



Channel Focus

Availability of some parameters is determined by whether the channel is mono or stereo, input type (mic, line, or instrument), and other characteristics.

Channel Focus

Item	Description
Channel Focus and Avid FX Tabs	Selects Channel Focus or Avid FX view
Channel Focus Name	Shows the name of the currently focused channel
Mic/Line/Inst Input Select	Selects the input type (MIC/LINE/INST) for the currently focused Hardware Input
Z	Selects the impedance for the currently focused Hardware Input (see Mic and Instrument Impedance Settings)
PAD button	Enables a -10 dB pad for the currently focused Hardware Input
48V (Phantom Power)	Enables +48V Phantom Power for the currently focused Hardware Input channel's Mic input
Sft Lim (Soft Limiter)	Enables a soft-knee compressor on the focused Hardware Input, to protect against clipping.
Ø (Polarity)	Inverts the polarity ("flips the phase") on the currently focused Hardware Input
Channel Fader	Adjust the level of the input channel.
Meters - Mono and Stereo	Displays input level for selected input channel.
MUTE Button	Mutes (silences) the channel.
SOLO Button	Solos the channel (silences all channel that are not also soloed)
AVID FX Send Level	Adjusts how much level is sent to the AVID FX (XMOS) Reverb/Delay Return
AVID FX Send Meter	Shows how much signal of selected input channel is being send to the AVID FX bus
AVID FX Send Pre/Post Fader	When enabled, the pickoff point for channel send to AVID FX is pre-fader/input gain
EQ Section	Provides 4-band parametric EQ
EQ Bypass Button	Bypasses EQ for the selected channel.
EQ to DAW Button	Sends the current input signal to Pro Tools with EQ processing.
Gain	Sets mic preamp gain level of selected input.
Pan	Available on mono channels only, places the signal in the stereo field left-to-right.
Offset	Available on stereo channels only, sets the right channel gain offset.
Balance	Available on stereo channels only, adjusts left-to-right stereo image.
Width	Available on stereo channels only, adjusts stereo image width.

Avid FX Delay and Reverb

When selected, this section of the mixer shows the global controls for AVID FX Delay and Reverb.

For instructions, see Using AVID FX.

Avid FX

AVID FX Global Controls and Indicators

AVID FX Globals

Item	Description
Meters (Input)	Indicate level of signals being sent to Avid FX
Avid FX Return Level (Fader)	Adjusts Avid FX output level
Meters (Output)	Indicate level of Avid FX output
MUTE	Mutes Avid FX output

DELAY Controls

AVID FX Delay

Item	Description
Bypass	Disables the effect.
Delay Time	Sets the delay time between the original signal and the delayed signal (from 0.0 ms to 320 ms).
Rate	Sets the rate of modulation of the delayed signal (from 0.00 Hz to 20.0 Hz).
Depth	Sets the depth of the modulation applied to the delayed signal (from 0% to 100%).
Feedback	Controls the amount of feedback applied from the output of the delay back into its input (from –100% to 100%). It also controls the number of repetitions of the delayed signal. Negative feedback settings give a more intense “tunnellike” sound to flanging effects.
LPF (Low Pass Filter)	Controls the cutoff frequency of the Low Pass Filter (from 10 Hz to 22 kHz). Use the LPF setting to attenuate the high frequency content of the feedback signal. The lower the setting, the more high frequencies are attenuated. The maximum value for LPF is Off. This lets the signal pass through without limiting the bandwidth of the plug-in.
Mix	Sets the balance between the delayed signal (wet) and the original signal (dry). If you are using a delay for flanging or chorusing, you can control the depth of the effect somewhat with the Mix setting.

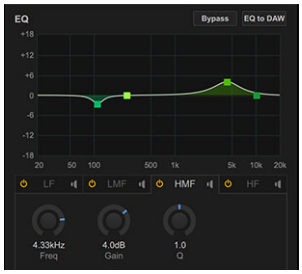
REVERB Controls

AVID FX Reverb

Item	Description
Bypass	Disables the effect
Size	In conjunction with the Room (Algorithm) control, adjusts the overall size of the reverberant space. There are three sizes: Small, Medium, and Large. The character of the reverberation changes with each of these settings (as does the relative value of the Decay setting). Size can be used to vary the range of a reverb from large to small. Generally, you should select an algorithm first, and then choose the size that approximates the size of the acoustic space that you are trying to create.
Room (Algorithm)	Selects one of seven reverb algorithms: Hall, Church, Plate, Room 1, Room 2, Ambience, or Non-linear. Selecting an algorithm changes the preset provided for it. Switching the Size setting changes characteristics of the algorithm that are not altered by adjusting the decay time and other user-adjustable controls. Each of the seven algorithms has a distinctly different character.
Decay	Controls the rate at which the reverb decays after the original direct signal stops. The value of the Decay setting is affected by the Size and Algorithm controls.
HF Cut	Controls the decay characteristic of the high frequency components of the reverb. It acts in conjunction with the Low Pass Filter control to create the overall high frequency contour of the reverb. When set relatively low, high frequencies decay more quickly than low frequencies, simulating the effect of air absorption in a hall. The maximum value of this control is Off (which effectively means bypass).
Diffusion	Sets the degree to which initial echo density increases over time. High settings result in high initial build-up of echo density. Low settings cause low initial buildup. This control interacts with the Size and Decay controls to affect the overall reverb density. High settings of diffusion can be used to enhance percussion. Use low or moderate settings for clearer and more natural-sounding vocals and mixes.
Pre-Delay	Determines the amount of time that elapses between the original audio event and the onset of reverberation. Under natural conditions, the amount of pre-delay depends on the size and construction of the acoustic space, and the relative position of the sound source and the listener. Pre-Delay attempts to duplicate this phenomenon and is used to create a sense of distance and volume within an acoustic space. Long Pre-Delay settings place the reverberant field behind rather than on top of the original audio signal.
LPF	Controls the overall high frequency content of the reverb by setting the frequency above which a 6 dB per octave filter attenuates the processed signal. The maximum value of this control is Off (which effectively means bypass).

EQ

The lower section of Channel Focus is the built-in EQ.



EQ in Channel Focus

Based on Avid ChannelStrip, MBOX EQ can be used either on channel feeds to MBOX outputs such as headphones, or applied to channel feeds to Pro Tools. Each Hardware Input channel (including Talkback) can have their own Channel Focus EQ settings.

EQ Controls

AVID FX EQ

Item	Description
Bypass	When enabled (lit) the effect of the EQ is silenced.
EQ to DAW	When enabled (lit) EQ is applied to channel feeds going to Pro Tools. When not enabled, EQ is only applied to channel feeds to MBOX hardware outputs.
Bands	LF (Low Frequency), LMF (Low-Mid Frequency), HMF (High-Mid Frequency), HF (High Frequency), Each with:
Band On/Off	 Toggles that band in/out (on/off)
Freq	Sets the center frequency for that band
Gain	Boosts or attenuates the corresponding frequencies for that band
Q	Changes the width of the band. • With the HF or LF band set to Peak, the Q control changes the width of the EQ band. (Higher Q values represent narrower bandwidths. Lower Q values represent wider bandwidths.) • With the HF or LF band set to Shelf, the Q control changes the Q of the shelving filter. Higher Q values represent steeper shelving curves. Lower Q values represent broader shelving curves.
Filter Type (HF and LF only)	Sets the HF or LF band to Peak or Shelf

For instructions, see Using AVID FX EQ.

Monitor

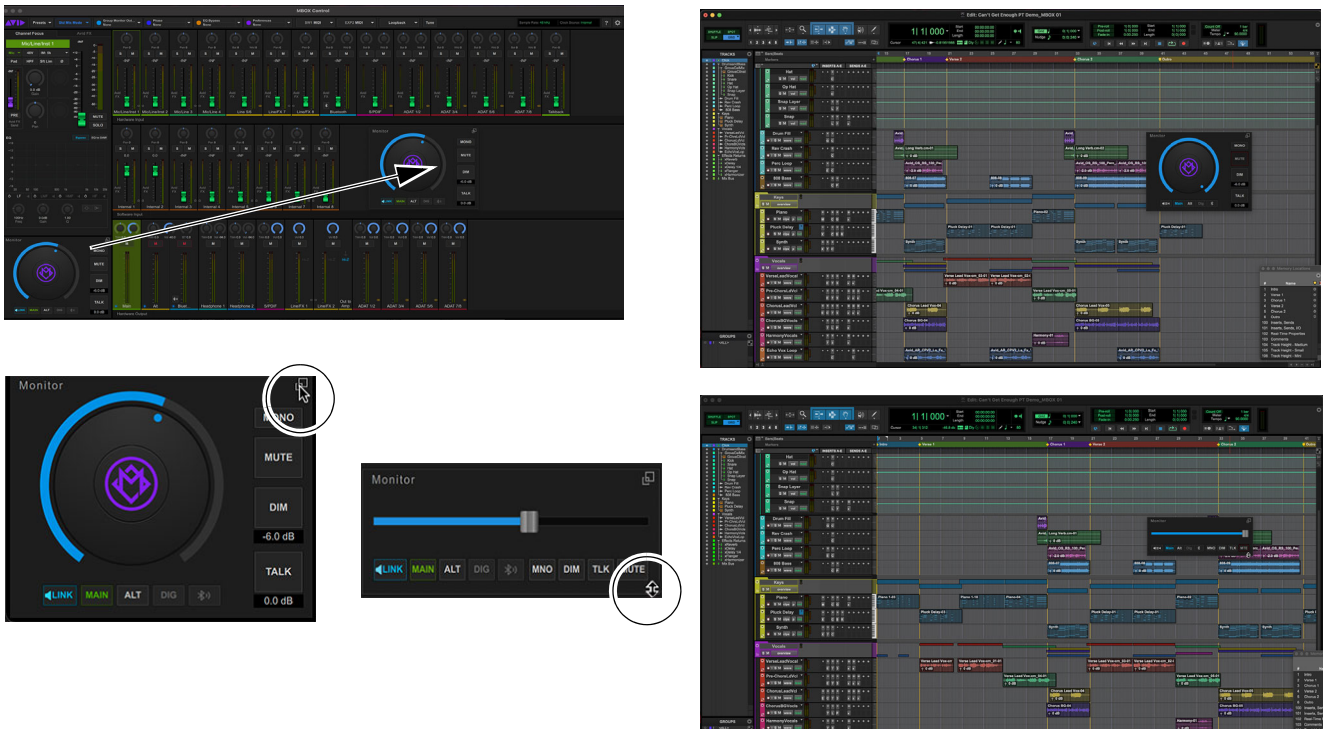
The Monitor section provides a master volume knob, Mono, Mute, and other parameters that apply to Monitor outputs (only): Main, Alt/Bluetooth, Headphone 1 and Headphone 2.

Monitor Section Controls and Indicators

Item	Description
Knob	Controls output level of the selected mix(es).
LINK	Links Main, Alt, Dig, and Bluetooth outputs for linked level control from the Main Monitor Encoder.
MAIN	Focuses Monitor controls on Main.
ALT	Focuses Monitor controls on Alt.
DIG	Focuses Monitor controls on digital outputs (only available when Mirror MAIN to S/PDIF option is selected.).
Bluetooth	Focuses Monitor controls on Bluetooth.
MONO	Folds the current Monitor output to mono.
MUTE	Mutes the current Monitor output(s).
DIM	Lowers the current Monitor output(s) by the editable value shown directly below (default is -6 dB, the minimum Dim amount). Dim can be applied globally (affecting all outputs) or per channel in Preferences.
TALK	Unmutes the built-in Talkback mic input.
Detach	The upper right corner of the Monitor section provides a Detach icon. Detaches the Monitor Section and turns it into a floating, “always on top” window. To close the detached Monitor window, click its Detach icon again.

Floating Monitor Window

The Monitor section in MBOX Control can be detached from the main screen to become a floating window that can be resized and placed anywhere on the screen and remains “on top,” to maintain direct access to level, mute, and other monitor parameters even while working in Pro Tools.



Detaching and moving the Monitor section (shown at left) and floating above Pro Tools before and after resizing (shown at right)

Hardware Input

The Hardware Input section shows fader strips for all MBOX hardware inputs. The view is scrollable left and right.

Hardware Input

Each fader strip provides a Pan knob, Solo and Mute buttons, input meter(s), and Avid FX Send level meters. Each fader adjusts the output level of the input channel (the level fed to MBOX output mixes). These controls mirror the same settings in the Channel Focus tab, letting you adjust pan, solo, and mute even when a channel is not the current channel focus.

Adjacent channels can be stereo-linked (see Stereo Linking). Double-clicking on a channel strip collapses it to a narrow view, to conserve screen real estate. Double-click again to expand.

For more information on these and all other input controls, see Channel Focus.

Software Input

The Software Inputs section shows fader strips for all "internal" inputs (software inputs from Pro Tools). In Pro Tools, these appear as MBOX Send 1–2, MBOX Send 3–4, and so on. These controls mirror those in Channel Focus when a Software Input is selected.

Double-clicking on a channel strip collapses it to a narrow view, to conserve screen real estate. Double-click again to expand.

Software Input

Hardware Output

The Hardware Output section shows fader strips for all MBOX hardware outputs.

Hardware Output

Clicking to select an output shows the current levels and settings for that output mix. Fader caps change color to match that of the selected output. Double-clicking a channel strip collapses it to a narrow view, to conserve screen real estate. Double-click again to expand.

Hardware Outputs can be controlled from their fader strip controls (Trim, Volume, Mute, when available), and from the Monitor section. The following are available from output fader strips.

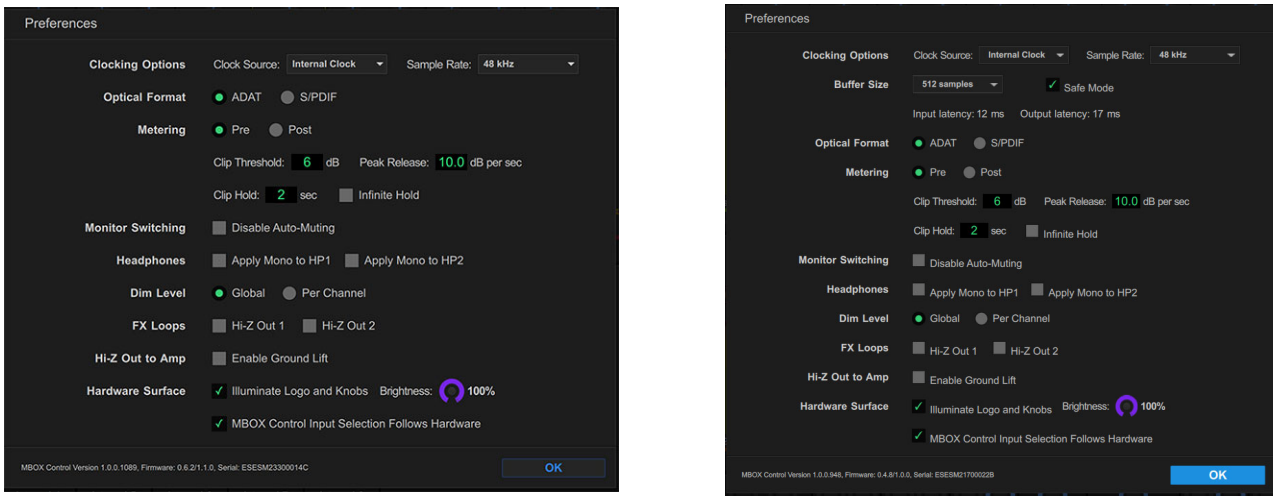
Hardware Output Controls

Item	Description
Trim	Adjusts (trims) volume level for Main, Alt, and Bluetooth outputs so that they all have the same audible loudness. This is most useful for speaker calibration and level matching when Main/Alt/BT levels are linked, or when they are not linked.
Volume	Adjusts the overall hardware output level of a given output channel.
Mute	Silences the output.
Right Offset	Lets you level balance the left and right outputs separately on supported outputs. On Main or Alt, right-click the Trim knob to access Right Offset.

Main, Alt and Bluetooth Output levels can be controlled by the Monitor knob, or from the Vol knob in their fader strip. If Monitor Link is enabled, the Main, Alt and Bluetooth output levels all follow the Monitor knob and show the same levels. If you need to adjust an individual output (Main, or Alt, or Bluetooth) use their fader strip Trim knobs, or unlink the outputs.

Preferences

Preferences let you optimize MBOX hardware and MBOX Control settings.



Preferences on Mac (at left) and WIndows (at right

Clocking Options

(Sample Rate and Clock Source)

Clocking Options let you set the MBOX Sample Rate, and choose a Clock Source.

MBOX Clocking Options

Item	Description
Sample Rate	MBOX supports 44.1, 48, 88.2, 96, 176.4, and 192 kHz.*
Clock Source	Choose an available clock source: Internal, S/PDIF, or ADAT.

* Sample rates of 88.2 kHz and above affect some MBOX capabilities. For example, Loopback is not available at 176.4 and 192 kHz.

Buffer Size (Windows Only)

The Buffer Size (Hardware Buffer Size) on Windows controls the size of the buffer used to handle host processing tasks such as processing with host-based, or “Native” plug-ins. Use low HW Buffer settings for audio recording (low latency). Use high buffer settings for mixing and plug-in processing (high latency).

Safe Mode
(Windows Only)

On some Windows systems, the use of a large number of effects can cause Pro Tools or other DAWs to cause high CPU usage, which can lead to drop-outs during playback.

To avoid drop-outs, make sure Safe Mode is enabled.

If drop-outs contiune even with Safe Mode enabled, try reducing the number of Avid FX and/or plug-ins in your session.

Input / Output Latency
(Windows Only)

These indicators provide latency values for MBOX Studio when used on a Windows computer.

MBOX Input and Output Latency

Item	Description
Input Latency	Shows the input latency of the audio driver.
Output Latency	Shows the output latency of the audio driver.

Optical Format

The Optical ports on MBOX support both ADAT and S/PDIF formats. Use the Optical Format settings to specify which format you are using.

For more information, see Audio Input and Output.

Metering

Metering preferences let you optimize MBOX hardware and MBOX Control metering.

MBOX Metering Preferences

Item	Description
Pre/Post	Sets meters to indicate pre- or post-fader levels. When pre-fader metering is selected, the level meters show levels independent of fader position. With post-fader metering, the level meters respond to fader position.
Clip Threshold	Sets the level in decibels (dB) at which meters indicate clipping (red).
Peak Release	Sets how long meter peaks are displayed. Enter a value for the number of dB per second for meter peaks to recover.
Clip Hold	Sets how long clips are indicated in meters.
Infinite Hold	If you clip, you're gonna have to look at it for your whole session.

Monitor Switching

When enabled, Disable auto-muting makes on-screen Monitor output selection latching (no auto-mute of other outputs). When not enabled, Monitor output selection is non-latching (selecting a new output automatically mutes all others).

Headphones

Headphones preferences are available to fold either or both Headphones 1 and 2 stereo outputs to mono. This can be useful when you are recording talent that likes to keep headphones off of one ear to hear their instrument or voice acoustically. If you had already configured a stereo mix for headphones, folding to mono can let them hear everything they need.

Dim Level

Lets you configure DIM to apply globally (all outputs) or per channel (only Dim the currently selected output).

FX Loops

Lets you switch FX 1 or FX 2 outputs to Hi-Z (high impedance) to integrate guitar pedals (“stomp boxes”), many of which expect a high-impedance signal at their input. When using rack mount or other Line level devices in MBOX effects loops, disable these settings.

Hi-Z Out to Amp

(Ground Lift)

Enables a ground lift (also known as “earth lift”) on the front panel **Hi-Z Out to Amp** output. If you are connected for re-amplification but there is excessive buzz or other electrical noise, try enabling the Ground Lift.

Hardware Surface

These settings let you control how MBOX looks, and how its top panel does or does not affect MBOX Control.

Hardware Surface Settings

Item	Description
Illuminate Logo and Knobs	Enable to have the Avid logo and encoders lit. Disable for stealth mode.
Brightness	Controls the brightness of the Avid logo and encoders.
MBOX Control Input Selection Follows Hardware	When enabled, MBOX Control Hardware Input selection is linked to MBOX hardware top panel input selection.

About MBOX Control

Across the bottom of Preferences is the About MBOX Control area, showing MBOX Control software and firmware versions, and the hardware serial number.

Part III: Using MBOX

Using MBOX Studio

MBOX Studio Basics

The following are some basics to get you started learning your way around MBOX Studio and MBOX Control software.

Top Panel

The top panel provides input controls on the left, meters and global controls in the center, and output controls on the right.

MBOX Studio top panel

Left and Right Dual-Function Encoders

The large left (input) and right (output) encoders on the top panel are dual-function rotate/press controls. The encoders and their other associated input or output controls provide direct access to many of the most often used functions such as phantom power and stereo linking for inputs, monitor volume and mute, and Talkback.

For both the input and output sections, you first *focus* on a hardware input or output, then use the top panel controls to affect whichever input and output channels are their respective Hardware Focus.

Hardware Focus

The top panel controls affect the currently *focused* hardware input or output. For example:

To focus and adjust a vocal mic input:

1. Press the left encoder repeatedly until the connected input (1, 2, 3, or 4) lights green above the input meters.
2. Press the top panel **INPT** button repeatedly until MIC is lit green above the input gain indicator, which is also lit green.
3. Rotate the left encoder to increase or decrease input gain.

For more information see Audio Input.

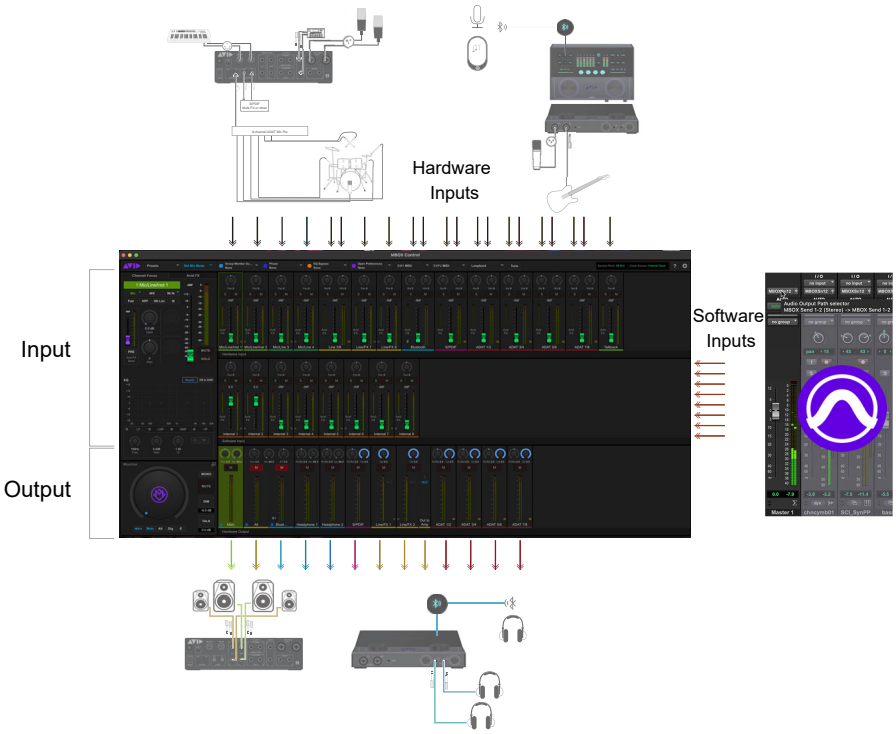
To focus and adjust a Monitor output:

1. Press the right encoder repeatedly until the desired output (such as MAIN for the Main Left/Right monitor outputs) is lit green above the output meters, which are also lit green.
2. Rotate the right encoder to increase or decrease volume.

For more information see Audio Output.

MBOX Control

MBOX Control software provides a row of hardware inputs across the top, a row of software inputs (“internal” sources from Pro Tools or other application) in the middle, and a row of hardware outputs across the bottom.



MBOX Control display of hardware inputs (top row), Pro Tools sources (middle row), and hardware outputs (bottom row)

Channel Focus

On MBOX Studio, the encoders and buttons in the input and output sections affect the currently focused (selected) MBOX Hardware Input or Hardware Output channel (for more information see Hardware Focus).

In MBOX Control the *Channel Focus* tab shows all parameters for the currently selected channel or bus. That selected channel or bus is indicated on-screen with a lit colored border. The color corresponds to the currently selected Output mix. For example, when Main is selected in the Hardware Output section, all input fader caps light in the same green color as Main.

Channel Focus with Input 1 Mic/Inst/Line selected

Pro Tools Sources

Audio from Pro Tools or other DAW can be mixed into the currently selected output using the Internal 1–8 channel strips in the Software Input section.

Custom Headphone Mixes

To create custom cue mixes for headphones or any hardware output, see Output Mixes for Speakers and Headphones. Custom headphone mixes can be saved as an MBOX Control Preset (see Presets).

Output Mixes for Speakers and Headphones

In MBOX Control, select any output to set up its own unique mix.

To set up and control Main and Alt monitor mix:

1 Begin playing or playback.

2 Select Main by clicking its strip in the bottom row. All input fader caps are colored to match that of the currently selected output mix (such as green for Main).

3 Adjust input channel levels and other parameters as desired.

- To include a hardware input, adjust that input in the top row of channels (Hardware Input).
- To include audio from Pro Tools or other DAW, adjust the Software Input. Note that Pro Tools tracks must be routed to MBOX Studio Internal 1–2, 3–4, 5–6, or 7–8. For more information see Configure Pro Tools for MBOX Studio.
- To access all controls for an input channel, click on a channel strip to focus it, then use the controls in Channel Focus.

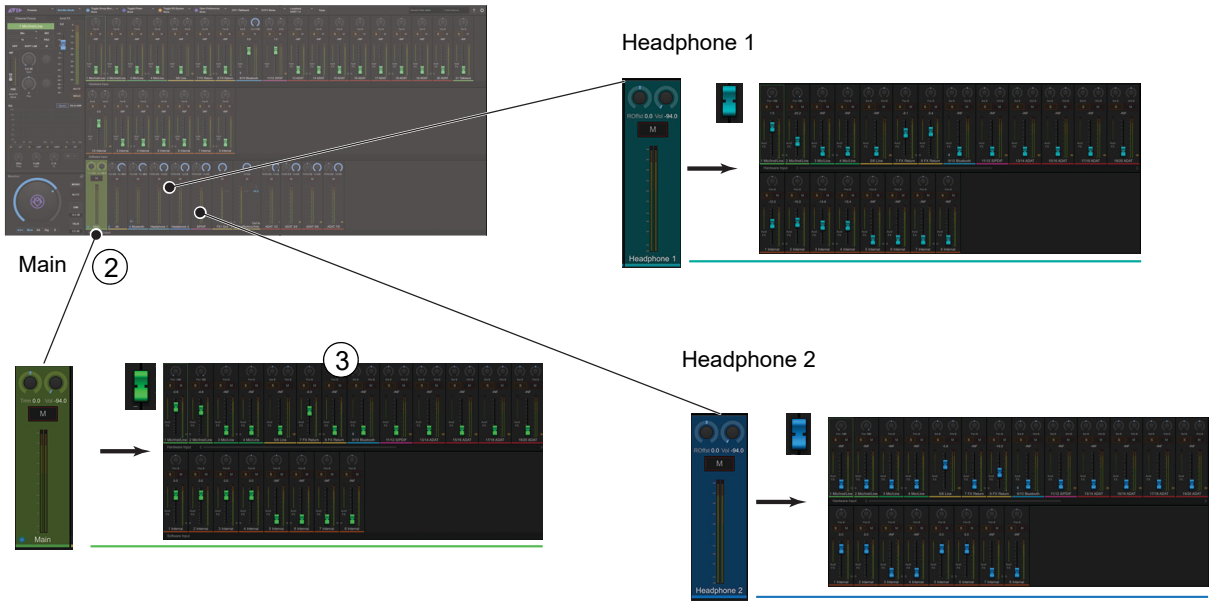
4 Optional: Adjust settings for the focused output mix using its channel strip controls such as Vol (volume) and Trim. Additional Monitor controls are available in the Monitor section of MBOX Control.

5 Click to select a different output (such as Alt) then repeat the previous steps. Input level settings are saved uniquely per output mix.

To set up Heaphone 1 or 2 mix:

- Click to select Headphone 1 or Headphone 2. and repeat the previous steps to set input levels feeding the cue mixes for each headphones output.

To learn how to have reverb and/or delay in headphone mixes, see Using AVID FX.



Output selection, fader cap colors, and discrete mixes

Stereo Linking

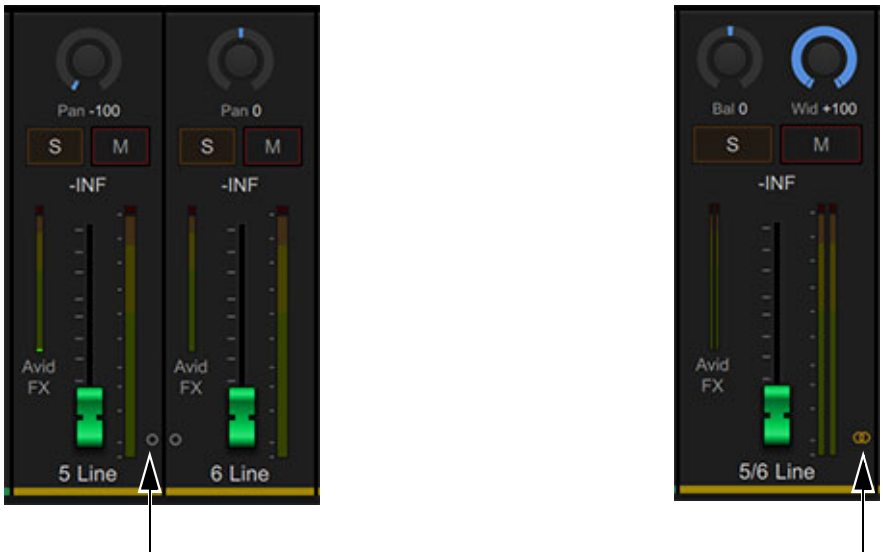
All input channels and some Hardware Output channels provide Link buttons. When enabled, the parent channel is stereo linked to its adjacent channel. When two channels are linked, their single level, gain, and other input controls affect both channels identically.

When two mono channels are initially linked to become stereo, settings for the left channel are copied to the right channel. When a stereo channel is unlinked, settings are copied to both resulting mono channels.

Channels can be linked and unlinked from MBOX Control, and from the MBOX Studio top panel.

To link or unlink channels using MBOX Control:

- Click the Link icon in either adjacent channel strip.



Channel Link button in unlinked channels (Line In 5 and 6, shown at left) and linked (shown at right)

To link or unlink channels using MBOX Studio top panel:

1. Press the left encoder repeatedly to cycle through available hardware inputs until one of the desired inputs is selected.
2. Press the **LINK** button to link (it lights green) or unlink (unlit).

When linked, both the selected channel (such as 5) and the adjacent channel (6) light green above the input meters, and the **LINK** button also lights green.

Reset and Fine Control

When adjusting on-screen controls in MBOX Control:

- To reset a control to its default setting, Option-click (Mac) or Alt-click (Windows) on the control.
- To adjust a knob or fader with finer resolution, hold Command (Mac) or Control (Windows) while adjusting the control.

Naming Channels

MBOX Control input and output channels can be renamed by clicking their displayed name.

Audio Input and Output

You can select (focus), configure, and control MBOX Studio audio inputs and outputs from the top panel and from MBOX Control. Some parameters and settings are only available from MBOX Control.

Connect microphones, guitars, and other input sources to MBOX Studio (see Example Audio Connections).

Audio Input

This section shows how to select and adjust inputs.

Quickstart

- Focus on a hardware input (press the left encoder repeatedly, each press selects the next input).
- Set the input type for mic, line, or instrument (press the **INPT** button repeatedly).
- Set other input settings (use top panel buttons for some, use MBOX Control for all input controls).
- Adjust input gain (rotate the left encoder).

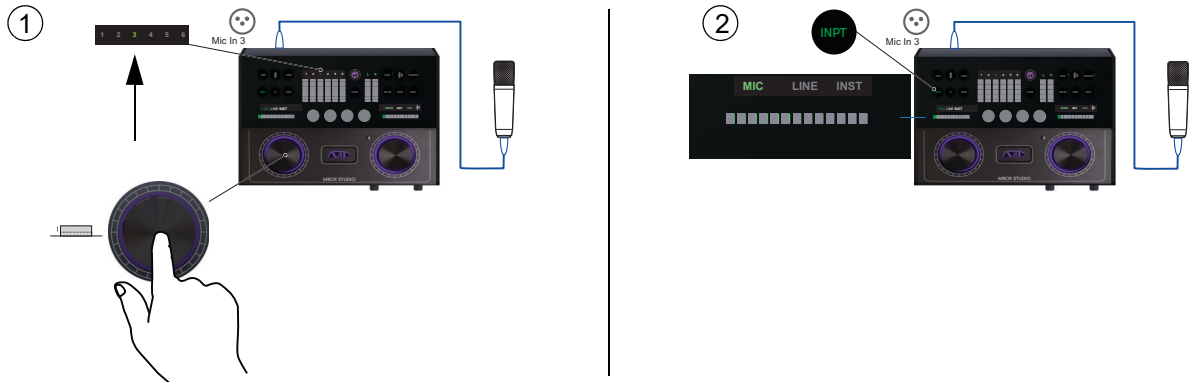
Microphones

To use a mic input:

1 Select the desired hardware input (1–4, whichever input your mic is connected to) by repeatedly pressing the left Encoder to cycle through available inputs. The number of the currently selected input is shown above the meter.

For example, if you connected a microphone to Mic/Line Input **3** on the back panel, repeatedly press the left Encoder until 3 is lit green above the channel 3 Input meter.

2 Make sure MIC is selected and lit green above the input gain indicators. If it is not, select the appropriate input type (MIC, LINE, or INST) by pressing the **INPT** button to cycle through types. Depending on the currently selected hardware input, choices include Mic (green), Line with gain control (yellow), and Inst (amber) for input 1.



Selecting a hardware input (shown at left) and specifying the input type (shown at right)

3 If your microphone requires phantom power, press the **48V** button so it becomes lit.

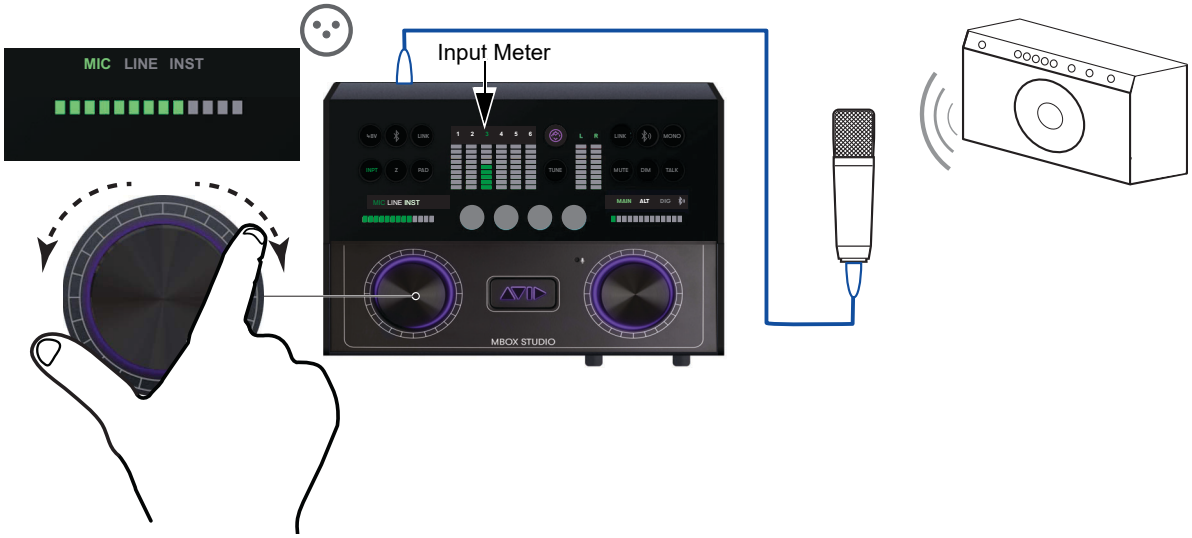
4 Optional: Select a Variable Z impedance setting by pressing the top panel **Z** button. When a hardware input is set to Mic, choices include 1k (Z lights magenta), 5k (white), and 10k.

If you are not sure which setting to use, start at the 5k setting (white). For more information, see About Variable-Z.

5 To invert polarity, apply the Soft-Limiter, or engage the HPF (high-pass filter), do the following in MBOX Control:

- Make sure the desired channel is selected and shown in Channel Focus.
- Click the desired controls so they become lit. For polarity click Ø, for the Soft-Limiter click Soft Lim, and for the high-pass filter click HPF.

6 Adjust input gain by rotating the left Encoder while singing or playing into the microphone. Gain value is indicated by the horizontal LEDs above the encoder. Use the top panel input meter and your ears to set a level that sounds good to you.



Adjusting input gain

7 If the input signal is too high even with MBOX Studio input gain set low, press the **PAD** button to apply a –10db pad.

8 To start recording in Pro Tools, see Using MBOX Studio and Pro Tools. To start using the built-in Avid FX for EQ, reverb, and delay, see Using AVID FX.

Electric Guitar and Bass

Connect electric guitar and bass to hardware inputs 1 and 2 on the front panel. Each of these hardware inputs accept 1/4-inch TS (tip/sleeve) instrument connections, and provide Variable-Z impedance selection for compatibility, tone, and "feel."

Variable-Z alters the frequency response of a guitar signal by loading the pickups in the same manner as plugging into a real amp or effect. This setting only affects instruments with passive pickups. Generally, the lower the impedance setting the darker it might sound (not all pickups respond in the same way).

To use an electric guitar:

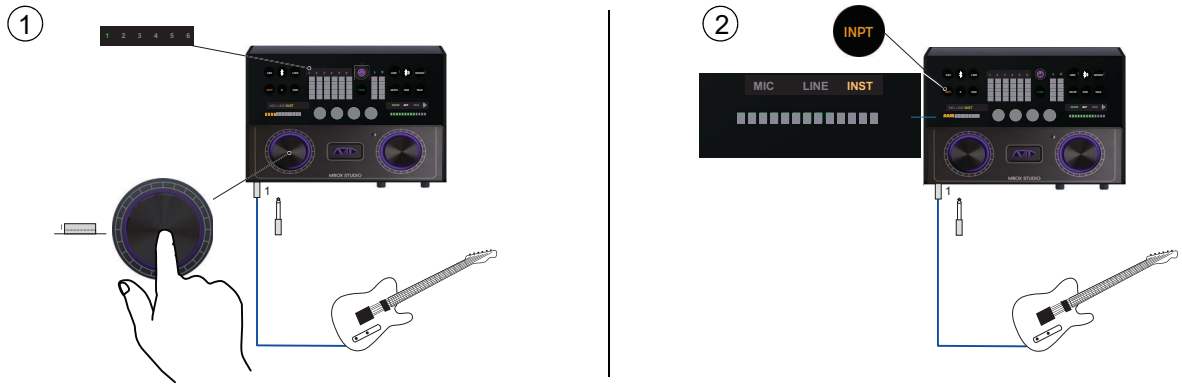
1 Select the desired input (1–2, whichever input your guitar is connected to) by repeatedly pressing the left Encoder to cycle through available inputs. For example, if you plugged your electric guitar into Mic/Line/Inst **1** on the front panel, repeatedly press the left Encoder until **1** is lit above the Input meters.

2 Select the appropriate input type by repeatedly pressing the **INPT** button to cycle through types until INST is selected (lit amber).

3 Experiment with different input impedance settings by doing the following:

- Press the **Z** button repeatedly to cycle through available impedance-only settings (the button changes color for each available setting).
- To use an impedance + capacitance (Cap) setting, select any impedance setting then press and hold the **Z** button (it begins to slowly pulse, indicating "+ CAP" mode). For more information, including a list of available settings, see About Variable-Z.

4 Adjust gain by rotating the left Encoder while playing. Use the front panel input meters to set a level that sounds good to you.



Selecting a hardware input (shown at left) and specifying the input type (shown at right)

Stereo Line Input

In addition to inputs 1–2 and 3–4, MBOX Studio provides Line **Inputs 5–6** on the back panel, to connect stereo sources such as samplers, turntables, and synthesizers.

To use a stereo source:

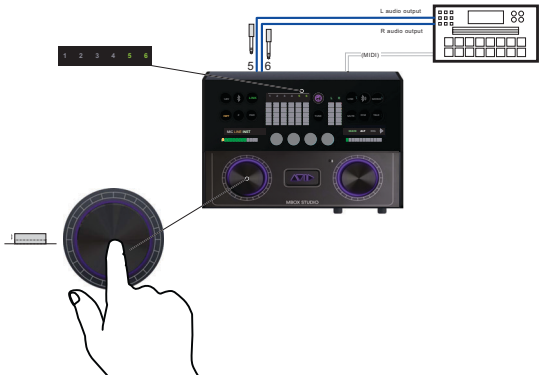
1 Connect the left and right outputs of your stereo source device:

- Use MBOX Studio **LINE IN 5–6** inputs for the left and right outputs from synths, drum machines/samplers, turntables, external sub-mixers, and similar "line level" sources.
- To use a stereo pair of microphones or other sources, connect them to any pair of MBOX Studio inputs. For example, for two XLR microphones use inputs 1 and 2 on the front panel, or 3 and 4 on the back panel.

2 Press (or press and rotate) the left encoder until 5 and 6 light green above the Input meters. Line Inputs 5 and 6 are linked by default, so you only need to select input 5 to automatically select both 5 and 6.

If you need independent control over input 5 (mono) and 6 (mono) press the **LINK** *button in the Input section so it becomes unlit.*

Input type (LINE) is automatically selected for hardware inputs **LINE IN 5–6**.



Selecting hardware inputs 5–6

3 Rotate the left encoder to adjust input gain.

4 To start recording in Pro Tools, see Using MBOX Studio and Pro Tools.

See also Integrating an External MIDI Device.

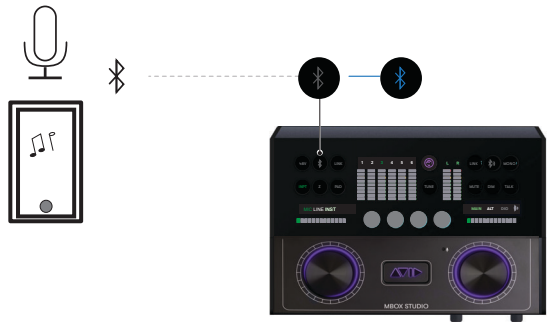
Bluetooth Input

MBOX Studio can be paired with other Bluetooth devices for wireless audio input and output.

To use a Bluetooth source:

1 Make sure Bluetooth is enabled on the tablet, computer, or other source device.

2 Press and hold the Bluetooth button in the Input section for 2 seconds. The Bluetooth button flashes blue while waiting to be paired.



Pairing MBOX Studio with a Bluetooth source device

3 On the Bluetooth source device, select MBOX in its list of discovered connections (such as MBOX IN 84EF). When the connection is established the MBOX Studio Bluetooth (input) button stops flashing and lights blue.

4 To disconnect Bluetooth press and hold the MBOX Studio Bluetooth (input) button for 2 or more seconds. Or turn off Bluetooth on your source device.

Audio Output

Connect speakers and headphones to MBOX Studio (see Example Audio Connections). The following section shows how to select and adjust audio outputs.

Main and Alt Monitor

Use the controls on the right side of the MBOX Studio top panel to focus and adjust outputs.

To select and adjust MAIN or ALT output from MBOX Studio:

1 Repeatedly press the right encoder until MAIN or ALT is selected. MAIN lights green and ALT lights yellow.

2 Rotate the right encoder, or the Monitor encoder on-screen, to adjust output volume.

Adjusting output level

3 Press **MUTE** or **DIM** to silence (Mute) or soften (Dim) the selected output.

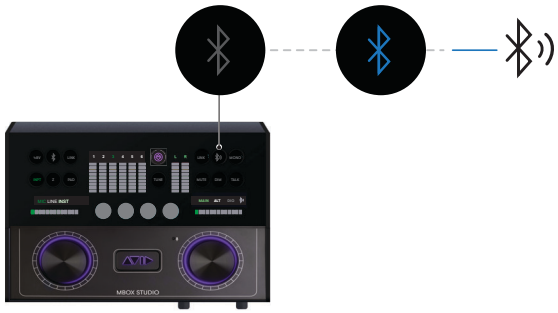
Bluetooth Output

MBOX Studio can be paired with other Bluetooth device for wireless audio input and output.

Bluetooth output always mirrors the ALT mix.

To use Bluetooth output:

1. Make sure Bluetooth is enabled on the tablet, computer, or other receiving device.
2. Press and hold the Bluetooth button in the Output section for 2 seconds. The Bluetooth (output) button flashes blue.



Pairing MBOX Studio with a Bluetooth device (speaker, headphone, or other)

3. Put your external Bluetooth speaker or headphones into Bluetooth pairing mode. When the connection is established the MBOX Studio Bluetooth (output) button stops flashing and lights blue.
4. To disconnect Bluetooth press and hold the MBOX Studio Bluetooth (input) button for 2 or more seconds. Or turn off Bluetooth on your source device.

Using the Tuner

MBOX Studio provides a built-in tuner that can be used from both the top panel and in MBOX Control.

To use the tuner:

1 On the MBOX Studio top panel, press the **TUNE** button.

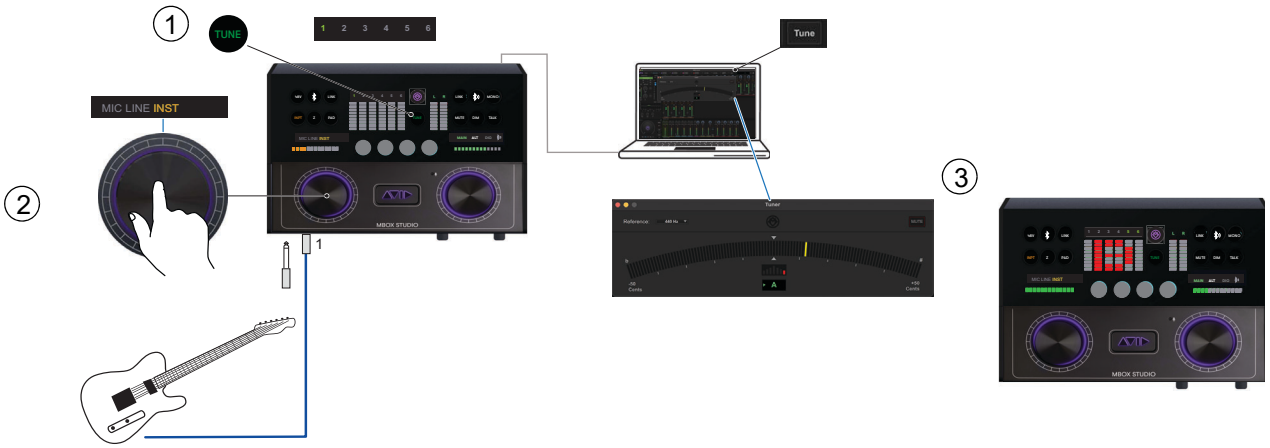
2 Select the Tuner input by pushing the top panel left encoder until the correct input number is shown.

Each press cycles through **INST** input 1 or 2 (MBOX Studio must detect an instrument connection) and the Talkback Mic input. The Talkback Mic will be the Tuner source if nothing is connected to **INST** 1 or 2. When MBOX Studio detects only one Instrument input connection, that input is automatically chosen for the tuner.

3 Begin playing and tuning.

- The on-screen Tuner window shows a traditional tuner bar.
- The detected pitch is shown in the top panel input meters.
- The horizontal input gain LEDs indicate sharp or flat by lighting red from center to the left for flat and to the right for sharp.

4 Press **TUNE** again to exit Tuner mode and close the on-screen Tuner window.



Setting the tuner input (shown at left) and tuning (shown at right)

Tuner Options

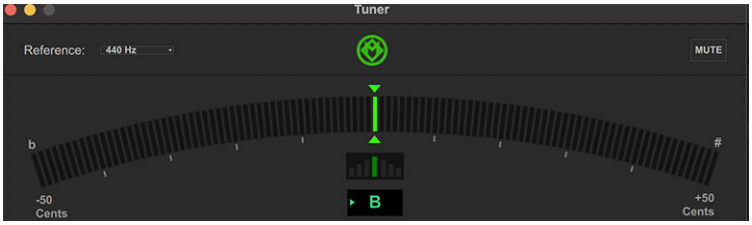
You can vary the Tuning reference pitch, and Mute the Tuner output signal in the MBOX Control Tuner window.

To set the Tuning reference:

- In MBOX Control Tuner window, choose a pitch from the Reference selector.

To mute:

- Click the MUTE button in the Tuner window.



Tuner

About Variable-Z

(Variable Impedance)

MBOX Studio **Mic/Line/Inst inputs 1–2** and **Mic/Line inputs 3–4** provide Variable-Z input impedance selection for mic, instrument, and effect compatibility, tone, and "feel." In addition, **FX Sends 1–2** offer optional Hi-Z output impedance. Using different impedance settings on microphones gives different tonal characteristics to the mic. With guitar, Variable-Z alters the frequency response by loading the pickups in the same manner as plugging into a real amp or effect. This setting only affects instruments with passive pickups. Generally, the lower the impedance setting the darker it might sound.

FX Sends 1–2 on the back panel operate by default at Line/Lo-Z for connection to external, line level devices such as effects processors. These outputs can be individually switched to Hi-Z (high impedance) for connection to stomp boxes and other devices that expect a high impedance signal. The front panel **Hi-Z Out to Amp** connector always operates at high impedance. An optional ground (earth) lift can be applied in MBOX Control Preferences. (The Hi-Z Out to Amp mix always mirrors FX Send 2.)

+ CAP

Impedance settings with "+ Cap" in their name indicate settings that also apply modeled input capacitance. Variable Z is an all analog circuit including the + Cap capacitor. For a basic guideline, try one of the + Cap settings when using an amp simulation plug-in preset that has a tube (valve) amp, or a stomp box as the first device in the chain. In MBOX Control you can choose a **+ Cap** setting from the Z selector in Channel Focus. You can also choose +Cap settings from the MBOX Studio top panel.

To choose + CAP values using the MBOX Studio top panel:

1. Press and hold the **Z** button to enter +CAP mode. The **Z** button pulses slowly to indicate impedance settings are now including **+CAP**.
2. Press **Z** again to exit +CAP mode to cycle through impedance values without +CAP. Button should reflect value selected in software, solid color without +CAP and slight pulsing color with +CAP.

Mic and Instrument Impedance Settings

The following impedance settings are available for mic and instrument inputs. (For a good explanation of input impedance and some specific recommended settings for different equipment, see The Truth about True-Z.)

MBOX Studio Mic and Instrument Input Impedance Settings

Mic			**Instrument**		
Impedance	**Color Indication**		**Impedance**	**Color Indication**	**+ Cap Indication**
1K Ohm			1M Ohm (Hi-Z)	(white)	Light pulses
5k Ohm	(white)		1M Ohm + Cap		
10k Ohm			230k Ohm	(cyan)	
			230k Ohm + Cap		
			90k Ohm	(blue)	
			90k Ohm + Cap		
			70k Ohm	(violet)	
			70k Ohm + Cap		
			32k Ohm	(fuchsia)	
			32k Ohm + Cap		
			22k Ohm	(yellow)	
			22k Ohm + Cap		
			HiZ	(red)	
			HiZ + Cap		

Using MBOX Studio and Pro Tools

Pro Tools and MBOX Studio optimize tracking and mixing workflows by providing tactile control of many frequent tasks including input selection, discrete headphones/cue setup and mixing, and more.

When Pro Tools and MBOX Studio have been installed for the first time, Pro Tools automatically detects MBOX Studio as the Playback Engine, and configures I/O Setup with default MBOX Studio Input, Output, and Bus paths.

When opening sessions created on a different system without MBOX Studio, be sure to check the Playback Engine and if necessary select MBOX Studio.

Recording and Tracking

MBOX Studio provides up to 21 discrete hardware inputs (at 44.1/48k) that are available in Pro Tools as track input paths. In MBOX Control, these are the channels in the Hardware Input section. Use these controls, and the complete set of controls in Channel Focus, to shape the sounds of what you will record in Pro Tools.

Pro Tools Artist can use up to 16 of the available hardware inputs simultaneously. Pro Tools Intro can use up to 4.

MBOX Studio also provides 8 channels of "returns" (outputs) from Pro Tools or other software. In MBOX Control, these are the channels in the Software Input section. Use these for your speakers and headphones.

If you are new to Pro Tools, see the Pro Tools Quick Reference Guide, available from the Getting Started tab of the Pro Tools Dashboard (File > Open Dashboard). For complete Pro Tools documentation, choose Help > Pro Tools Help.

Recording Audio

To record an audio track:

1 Make sure you have already installed Pro Tools, set up the Playback Engine and I/O Setup for MBOX Studio and MBOX Control, and confirmed speakers, headphones, or other Audio Output for monitoring.

2 If not already running, launch MBOX Control (press the MBOX button on the top panel, or manually launch it on your computer). then click the gear icon to open Preferences and do the following:

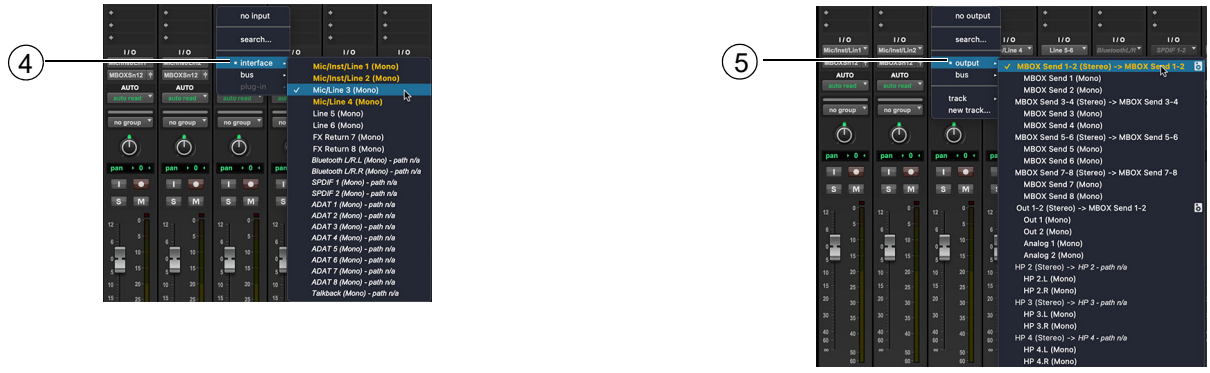
- Configure Clocking Options: Choose a Clock Source and Sample Rate for your session.
- (Optional) Configure Metering.

3 In Pro Tools, create one or more audio tracks for what you want to record.

If recording electric guitar, consider creating and recording to two mono audio tracks: one for the sound of your guitar through any pedals, effects, amps, or microphone(s), and a second track to record a "dry" (direct) signal. Then use the dry track for Re-Amplification through the Hi-Z Output to Amp.

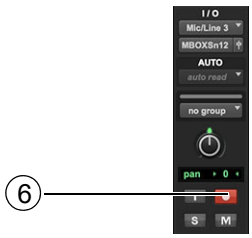
4 From the track's Input Path selector, select the MBOX Studio input(s) you want to record (such as Mic/Line 3).

5 From the track's Output Path selector, select the MBOX Send 1–2 (Stereo) monitoring path.



Assigning track input and output

6 Click the Record Enable button for the audio track. It lights red. (You can also enable Input Monitoring, and record enable later.)



Assigning track input and output, and record enabling a track in the Mix window

7 Begin performing to check levels.

- Adjust MBOX Studio gain and other settings for Audio Input as appropriate for your source(s).
- Monitor the track's meter levels in Pro Tools. Signals should meter green most of the time, only light yellow for the loudest passages, and never light red (clipped).

8 In Pro Tools, adjust track volume and pan. These settings are for monitoring purposes only and do not affect the recorded material.

See also Setting Up Pro Tools for Headphone Mixes.

9 If you are performing to any pre-recorded material but it or your input signal sounds late or delayed (known as "latency") choose Options > Low Latency Monitoring.

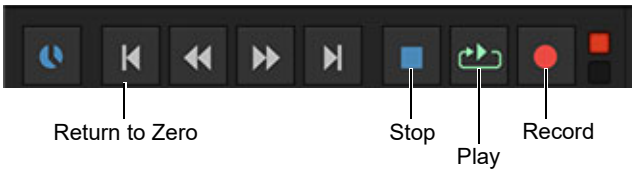
For more information see Reducing Monitoring Latency.

Any plug-ins and sends on record-enabled tracks are automatically bypassed.

To use reverb and delay in headphone mixes, see Using AVID FX.

10 Click Record in the Transport window to arm Pro Tools for recording. The Record button flashes red.

11 When you are ready to start recording, make sure the track is record enabled, click Play or press the Spacebar, and record your performance.



Stop, Play, and Record buttons

12 Click Stop in the Transport window or press the Spacebar when you are finished recording.

To play back the audio track:

1 Click the Record Enable button for the audio track so that it is no longer record-enabled. Track volume faders now function as playback level controls.

If a record-enabled track is in Auto Input Monitor mode, you will hear "through" the input while the Transport is stopped. The track automatically switches to playback when you press play, then back to Input mode when you either stop, or punch into record. For more information about Auto Input Monitor mode, see Help > Pro Tools Help.

2 To have playback start from the beginning of the session, click Return to Zero in the Transport.

3 To start playback, click Play in the Transport or press the Spacebar.

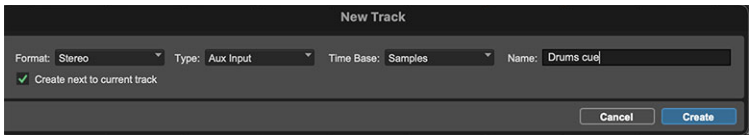
4 Use the MBOX Studio right encoder to adjust overall listening volume (for more information, see Main and Alt Monitor).

Setting Up Pro Tools for Headphone Mixes

MBOX Studio provides 8 channels of inputs from Pro Tools in the Software Input section. The following example suggests one way you can configure Pro Tools signal routing for maximum flexibility when creating and managing headphone mixes.

To configure Pro Tools for headphone mixes:

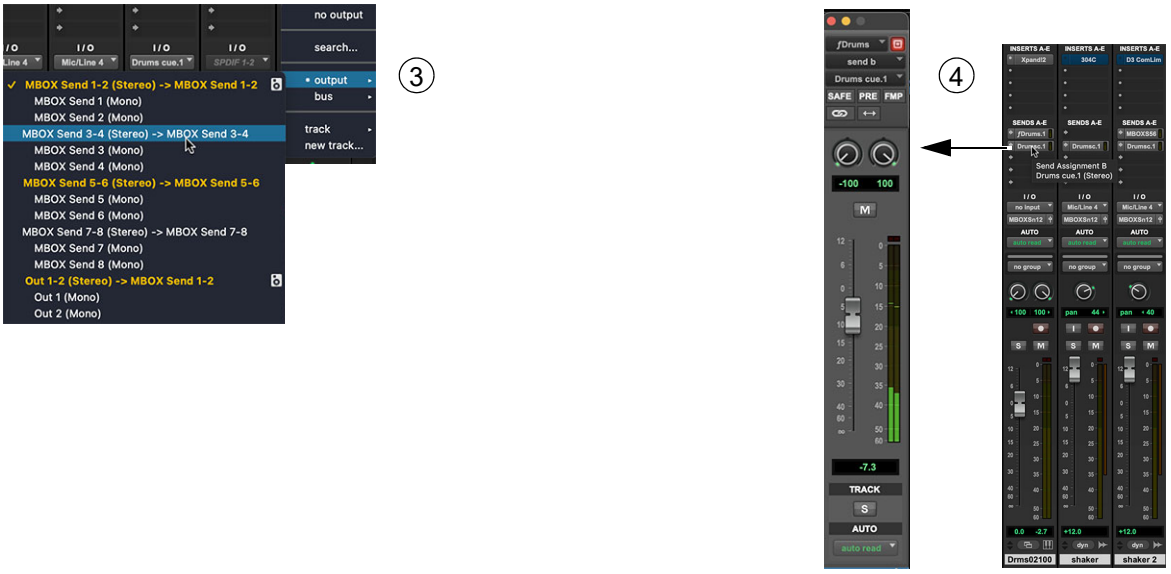
1. Include an "everything" mix by making sure your stereo Pro Tools mix is assigned to MBOX Studio Internal 1–2. This could be from an Auxiliary Input that is submixing all Pro Tools audio, or directly from each Pro Tools track output.
2. Next, use Pro Tools Sends and Auxiliary Inputs to set up submixes for up to 6 mono or up to 3 stereo sends that need to be individually adjustable in each different mix. For example, to create an Auxiliary Input for a stereo submix of all drums do the following:
   - Select all the drum tracks.
   - Hold Option+Shift (Mac) or Alt+Shift (Windows) and click an available Send selector on any of the drum tracks.
   - Choose new track...
   - The New Track dialog opens pre-configured to create one new stereo Auxiliary Input track. Enter a custom name for the new track (such as "Drums cue") and click OK.



Creating a new stereo Aux Input in the New Tracks dialog

Pro Tools adds a new Send to each selected track, creates a new stereo bus, creates a new Auxiliary Input, and automatically assigns its input to the newly created bus.

3. Assign the new Auxiliary Input track's output to an available MBOX Send (such as MBOX Studio Internal 3–4 for a stereo send, or an available sub-path such as MBOX Studio Internal 3 for a mono send).
4. For each track (each drum track in this example) click the newly added send to open its control window, then raise the fader to set how much of the track signal is sent to the Auxiliary Input.



Assigning track output to an available MBOX Send (shown at left) and the Send window (shown at right)

5. Raise the Auxiliary Input fader as needed to send sufficient signal back to MBOX Studio.
6. In MBOX Control, make sure to select the desired output mix (such as Headphone 1) then raise the appropriate Software Input fader (such as Internal 7) to include its Pro Tools source audio in the selected output mix.
7. Repeat for other instruments, submixes, or tracks.

Using AVID FX

MBOX Reverb and Delay

MBOX Studio includes built-in EQ, delay and reverb using AVID FX.

- Use built-in 4-band EQ on input channels. Channel EQ can be applied to headphone and other MBOX Studio monitoring outputs only, or applied to the channel send going to Pro Tools.
- Use AVID FX Delay and Reverb to have effects in headphones or other mixes for low latency monitoring.

AVID FX send faders are available on all input channels to set the level being sent to effects (all channels share the same delay and reverb settings).

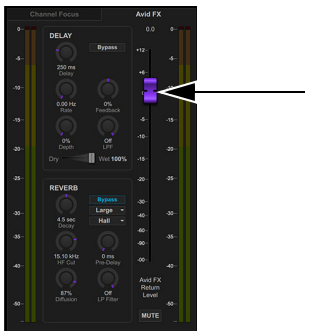
Using AVID FX for Headphone Mixes

To apply AVID FX delay and reverb to a headphone mix:

1. In MBOX Control, click to select Headphone 1 or Headphone 2 in the Hardware Output section.
2. Adjust Hardware Input and Software Input levels and pan.
3. Click to select the first desired input channel. That channel is shown in Channel Focus.
4. In Channel Focus, raise the Avid FX Send fader until you see levels on its meter. The Channel Focus AVID FX Send fader controls the FX send level for the currently focused channel.
5. Optional: Enable PRE to make the AVID FX send be tapped at the "top of channel" (meaning without any Channel Focus EQ).

Adjusting the AVID FX Send level for a channel

6. Click AVID FX to open the AVID FX tab.
7. In the Hardware and Software Input sections all fader caps light purple; adjust a purple input fader to set its AVID FX Send level.
8. In the Hardware Output section the knobs at the top of each channel strip light purple; adjust a purple output channel encoder to set the AVID FX Return level to that individual output.
9. Make sure the Avid FX Return Level is not muted, then raise the fader. This fader controls the level of AVID FX being returned in all outputs.



AVID FX Return Level fader

10 Configure delay and reverb parameters as desired (for descriptions see Avid FX Delay and Reverb).

AVID FX Delay and Reverb settings are saved and recalled in MBOX Control Presets.

11 Adjust individual channel AVID FX Send levels using their purple faders in the Hardware Input, Software Input, and Hardware Output sections. Adjusting the AVID FX Return faders on output channels lets you quickly raise or lower all effects in headphones or other mixes.

Using AVID FX EQ

Channel Focus provides a 4-band parametric EQ for each Hardware Input channel. The built-in 4-band EQ can be used either on channel feeds to MBOX Studio outputs such as headphones, or it can be applied to channel feeds going to Pro Tools.

To use AVID FX EQ:

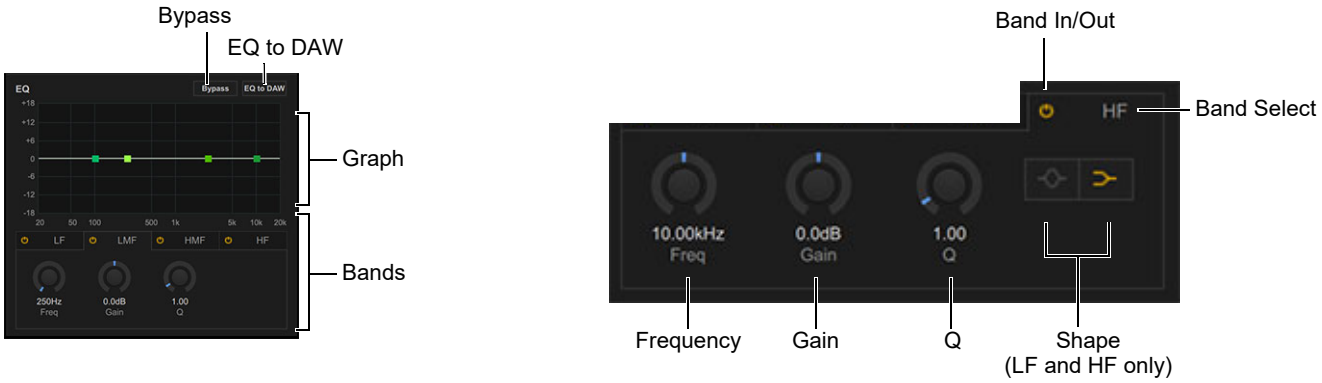
1 Click to select the first desired input channel. That channel is shown in Channel Focus.

2 In the EQ section, make sure the Bypass button is off (not lit).

3 Adjust band parameters by clicking and dragging breakpoints in the graph. Or use the controls below the graph (click to select a band (LF, LMF, HMF, or HF) then adjust the available controls).

4 Repeat for other bands.

5 If you want to EQ the input channel going to Pro Tools, click to enable EQ to DAW.



EQ section of Channel Focus (shown at left) and band controls (shown at right)

Re-Amplification

Re-amplification is the process of sending pre-recorded audio to an external amplifier and then re-recording the processed audio to a new track. Often used on guitar tracks that were recorded direct, with no effects or amps, re-amplification can provide the same tonal options, ambiance, and flexibility to vocals, drums, sound effects, and virtual instrument tracks.

Tracks can be sent from Pro Tools through the **Hi-Z Out to Amp** output on MBOX Studio into one or more external amps or processors and re-recorded through an MBOX Studio input.

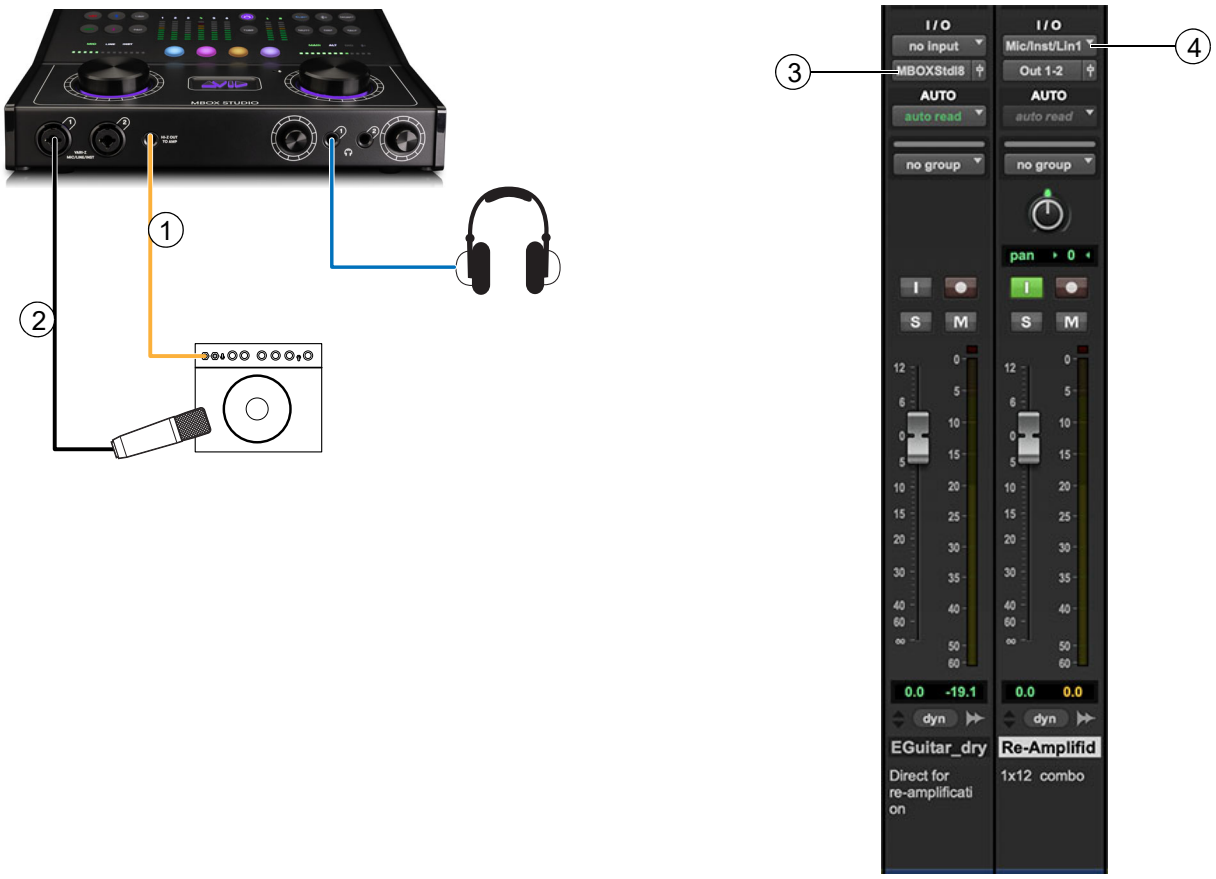
A ground lift is provided on **Hi-Z Out to Amp**, providing the correct type of buzz kill when necessary.

MBOX Studio also provides FX Loops 1–2 for integrating pedals, stomp boxes, and other effects devices. See Using FX Loops.

The **Hi-Z Out to Amp** output and **FX Send 2** always carry the same output mix.

To send a signal out the Hi-Z Output to Amp for re-amplification with an external amp:

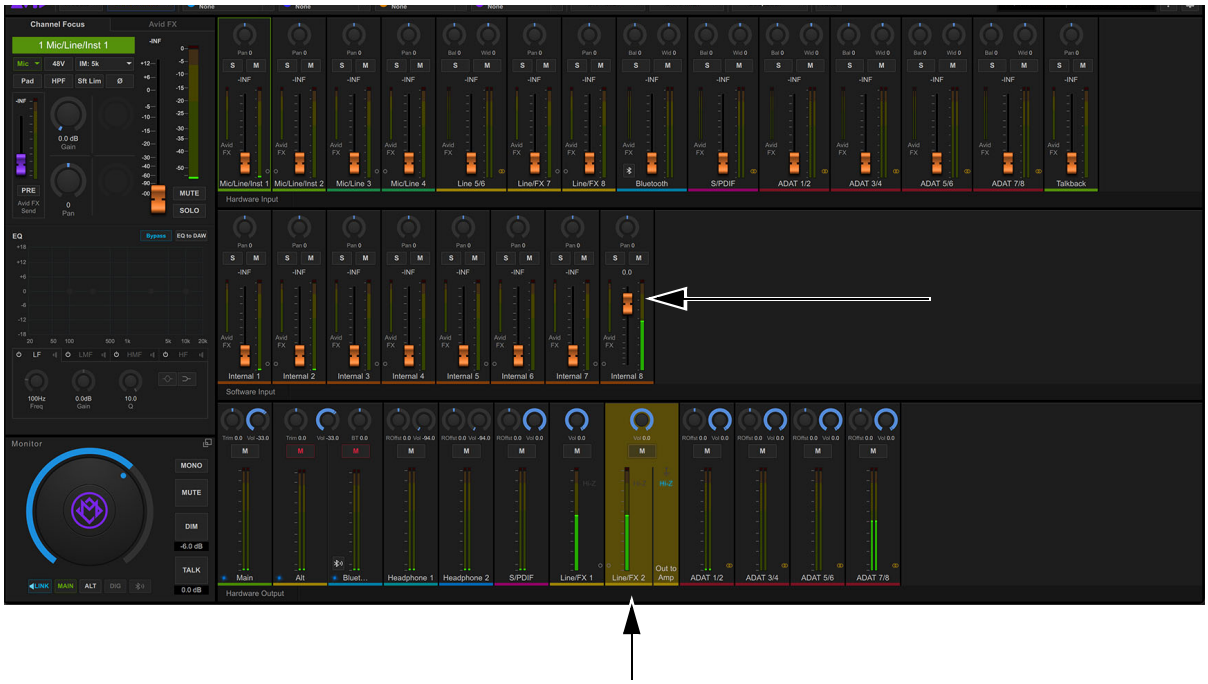
1. Connect a TS (Tip/Sleeve) cable from the **Hi-Z Out to Amp** on MBOX Studio front panel to the input of your amp or other device.
2. Position and connect a microphone to an available MBOX Studio Mic/Line input, such as **Mic/Line/Inst 1** on the front panel. (If you need to change input focus, type, or other parameters, see Audio Input and Output.)
3. In Pro Tools, choose the track to be re-amplified and assign its output to MBOX Studio Internal 8.
4. Create a new audio track and assign its input to the MBOX Studio input you connected the microphone to in step 2, above (such as Mic/Inst/Line 1).



Connections for re-amplification

5 Start Pro Tools playback.

6 In MBOX Control, select the Line/FX2 / Out to Amp hardware output, then slowly raise the fader for Internal 8 (in the Software Input section) to adjust the level going to the amp.



Selecting Line/FX 2 output and adjusting Internal 8

7 While the track and session play, dial in the amp sound (adjust amp gain, volume, and tone controls as desired).

8 Set MBOX Studio input gain so input meters light green most of the time, and only light amber for louder signals.

9 In Pro Tools, record enable the destination (record) track for the re-amplified signal you created in step 4, above. Adjust device levels as needed to have the Pro Tools track meter (on the recording track) only light amber when the loudest parts are playing.

10 When ready:

- Locate Pro Tools to the beginning of the material you want to re-amplify.
- Click Record in the Transport window to arm Pro Tools for recording. The Record button flashes red.
- Make sure the destination track is record enabled (its record button also flashes red) and then click Play or press the Spacebar.

11 Click Stop in the Transport window or press the Spacebar when you are finished recording.

Recording a re-amplified track

Using FX Loops

MBOX Studio provides two FX Loop inserts on the back panel. These four jacks (FX Sends 1 and 2, and FX Returns 1 and 2) let you integrate external effects processors that can be applied to MBOX Studio audio, or to Pro Tools tracks. FX Sends 1 and 2 can be also be used for additional outputs, and FX Returns 1 and 2 as additional inputs.

Both FX Sends 1 and 2 can be switched to high impedance (Hi-Z) when connecting to stomp boxes (guitar pedals) or other devices that expect a high impedance signal at their input. Otherwise FX Sends operate at line level, to integrate rack mount or any other type of device that expects a line level input. You can enable or disable Hi-Z on each FX Send separately in Preferences.

You can also use the S/PDIF Out and In connectors to connect external digital devices such as a multi-effects box. See Using S/PDIF.

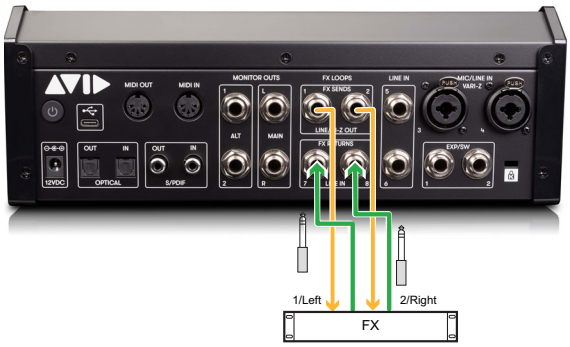
To use FX Loops:

1 Using 1/4-inch TS instrument cables, connect your device(s) to FX Sends 1 and/or 2:

- Connect **FX Send 1** to the input of a mono device (such as a guitar pedal).
- Connect the output of that device to **FX Return 1**.
- If using a 2nd device, repeat the previous two steps to connect it to **FX Send 2** and **FX Return 2**. Or connect multiple mono pedals in series to either **FX Loop 1** or **FX Loop 2**.

Connecting two mono guitar pedals to FX Loops 1–2 (shown at left) and multiple pedals in series to a single FX Loop (shown at right)

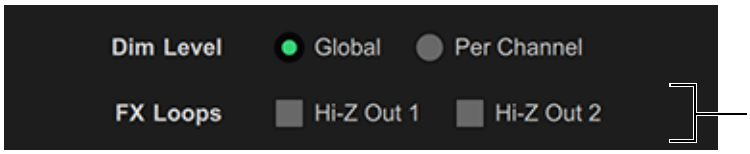
- If your external device is stereo, connect **FX Send 1** to the left input of the device, and **FX Send 2** to the right input. Then connect the L and R outputs of the device to **FX Returns 1** and **2**, respectively.



Connecting a stereo rack mount effects processor

2 If connecting to guitar pedals or other high impedance devices, do the following in MBOX Control:

- Click the gear icon to open Preferences.
- In the FX Loops section, click to enable Hi-Z Out 1 or Hi-Z Out 2, or both.



FX Loops settings in MBOX Control Preferences.

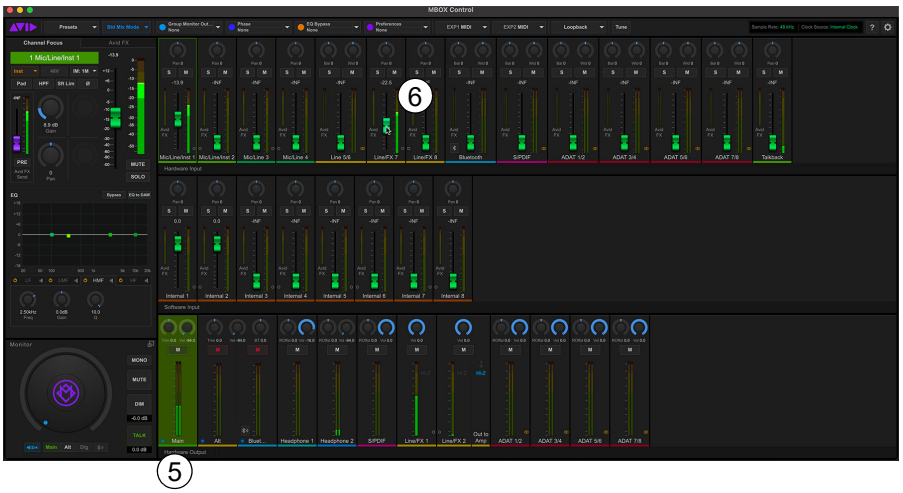
3 Click to select an FX return (Line/FX 1 or Line/FX 2) in the Hardware Output section.

4 In the Hardware Input or Software Input section, raise the input fader for the desired source. For example, if a guitar is connected to **Mic/Line/Inst In 1** on the front panel, use the Mic/Line/Inst 1 fader to raise or lower the level of Mic/Line/Inst In 1 signal being sent to the **FX Send 1** output on the back panel.

Adjusting the FX 1 Send level for Mic/Line/Inst 1

5 Click to select an Output mix (such as Main or a headphone mix).

6 In the Hardware Input section, adjust the fader(s) for Line/FX 7 (FX Return 1) or Line/FX 8 (FX Return 2) to set the overall amount of FX return signal in the selected Output mix.



Adjusting the FX 1 Return level in Main

Using FX Loops 1–2 and Pro Tools

MBOX Studio FX Loops 1 and 2 are available for use in Pro Tools, making it easy to integrate high impedance stomp boxes and other devices.

To use MBOX Studio FX Loops with Pro Tools:

1. Connect your external device(s) to **FX Loop Sends** and **Returns** as previously described.
2. In Pro Tools, assign a Send to the desired source track(s), set it to an available MBOX Studio Send path (such as MBOX Studio Internal 7), then raise the Send fader level in the Send window that opens.
3. Create a new track:
   - To be able to record the signal processed through MBOX FX Loops, create a new audio track (mono or stereo, depending on the external device).
   - If you only need to hear the external effect (and not record it into Pro Tools) create one new Auxiliary Input track.
4. Assign input on the new audio or Auxiliary Input track to the desired MBOX FX Return(s).
5. Begin playback.
6. In MBOX Control, raise the corresponding Internal input in the Software Input section.
7. Adjust the Pro Tools Send to raise or lower the signal being sent to the effect. To raise or lower the signal returning into Pro Tools, adjust the output level of the external device(s).

Using S/PDIF

MBOX Studio provides S/PDIF In and Out connectors to integrate digital devices. Use S/PDIF to connect an external effects unit for send/return processing of MBOX Studio inputs, or use S/PDIF output from MBOX Studio to connect directly to digital speakers. Note that the S/PDIF I/O are unavailable at 176.4/192k.

To connect a S/PDIF pre-amp or effects unit:

1 Make sure all devices are set to the same sample rate.

2 Using RCA cables, connect MBOX Studio **S/PDIF Out** to the S/PDIF input on the external device, then connect the S/PDIF output of that device to the MBOX Studio **S/PDIF In**.

Using S/PDIF to integrate an external digital multi-fx unit

3 In MBOX Control, click the gear icon to open Preferences then set the desired Clock Source.

- Choose **Internal**, if you want the external device to synchronize to (follow) MBOX clock.
- Choose S/PDIF if you need MBOX Studio to synchronize to the external device.

4 Raise the S/PDIF Hardware Input channel fader to include it in the currently select hardware output mix. Adjust other channel parameters, then repeat for other mixes.

You can also have the S/PDIF output always mirror the Main mix by enabling Mirror Main to S/PDIF in the Mix Mode dialog.

5 In Pro Tools, create a stereo audio track and assign its input to MBOX S/PDIF In.

To use S/PDIF for digital monitors:

1 Using RCA cables, connect MBOX Studio **S/PDIF Out** to the S/PDIF input on the first S/PDIF monitor, then use another RCA cable to daisy-chain to the second monitor.

Connecting digital monitors

2 If necessary, configure the digital monitors for the same sample rate as MBOX Studio. (MBOX Studio does not provide sample rate conversion (SRC) on the S/PDIF output, so external devices must be set to either the same sample rate as MBOX Studio, or have SRC applied at their S/PDIF input (if available).

3 In MBOX Control, click Std Mix Mode in the Toolbar then select Mirror MAIN to S/PDIF. The Main mix is mirrored at the S/PDIF output.

Customizing the User Action Buttons 1–4

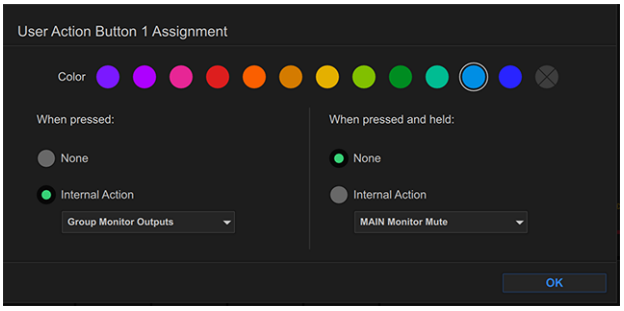
MBOX Studio features four User Action buttons on the top panel, each of which can be custom assigned and colored.

User Action buttons

Each of the four User Action buttons can be assigned to perform two separate functions, one for when the button is pressed and a second function for when that button is pressed and held. The current User assignments are shown in the Toolbar, and stored with Presets. You can customize the User Action buttons using the User Action button Function Assignments dialog in MBOX Control.

To customize a User switch assignment:

1 In MBOX Control, click the current assignment for the desired User button. The Function Assignments dialog is shown.



User 1 Button Function Assignments dialog

2 Click to choose a custom color for the switch.

3 In the When pressed: section, click the Internal Action selector and choose an available action.

4 Repeat for the When pressed and held: section, if desired.

To apply a function using a User button:

1 If necessary, select a track, clip, or other session element.

2 To apply the primary User Action button fuction, press the button. To apply the secondary function, press and hold.

Using Talkback

MBOX Studio provides a built-in Talkback mic on the top panel. This Talkback mic can be mixed just like any other hardware of hardware input (click to select an Output mix then adjust Talkback), processed with and can be routed to Pro Tools to be recorded. High-pass filtering and limiting is applied to the Talkback input signal. This allows audio sources of varying distances from the mic to be heard clearly. The Talkback mic can also be used as the input source for the tuner (for more information, see Using the Tuner).

Talkback mic

Once configured, Talkback can be opened (unmuted) and closed (muted) using the top panel **TALK** button, a footswitch, or a User button.

To set up Talkback:

1. In MBOX Control, choose a Hardware Output for Talkback (such as a headphone mix).
2. Set Talkback level by doing the following:
   - In the Hardware Input section, select the Talkback strip.
   - Start talking and adjust Talkback Gain (in Channel Focus), pan, or other parameters as desired.
3. Repeat for any other mixes you want to include Talkback.

To use Talkback:

1. On MBOX Studio, press **TALK**. The button lights green.
   A single press of **TALK** opens Talkback.
2. Press again to close (mute) the Talkback channel. You can also press and hold **TALK** and it will disengage (close) after a 2 second hold time.

Talkback can also be controlled using Footswitch / Expression Pedal 1 and 2 or by Customizing the User Action Buttons 1–4.

To slate (record Talkback):

1. In Pro Tools, create a mono audio track and assign its input to Talkback (mono). If you do not see this choice in the Input selector for a mono audio track, check I/O Setup.
2. Record enable the track, and click the Record button in the Transport controls to arm Pro Tools for recording.
3. When ready, press Play to begin recording.

Using Loopback

When Loopback is enabled, Software Inputs 7–8 become available for audio from a different application, such as when recording for podcasting, or using a secondary music application on the same computer.

At 48k Loopback routes Software Inputs 7–8 to ADAT Inputs 7–8. At 88.2k or 96k, Loopback uses ADAT Inputs 3–4. Loopback is not available at 176.4/192k.

Integrating an External MIDI Device

MBOX Studio provides standard 5-pin MIDI In and Out ports. These can be used to connect an external MIDI sound module, or MIDI controller keyboard, or other device.

If your computer does not have any available USB ports, use these 5-pin MIDI ports instead.

To integrate an external MIDI device:

1 Using standard 5-pin MIDI cables, connect your external device to the MBOX Studio **MIDI In** and/or **MIDI Out** ports.

2 Using 1/4-inch TRS cables, connect the Left and Right audio outputs of your device to **Line In 5-6**.

Integrating an external MIDI keyboard by connecting MIDI and audio

3 Configure Audio MIDI Setup (Mac) or MIDI Studio Setup (Windows).

4 In Pro Tools, configure Instrument or MIDI tracks as needed. For more information, see the MIDI sections in Pro Tools Help (Help > Pro Tools Help).

Reducing Monitoring Latency

There will inevitably be some audio delay, or *latency*, in the monitoring signal (even if only a few samples) due to the process of converting an analog signal to a digital signal (input) and back again (output). There may be additional latency due to mixer configurations and processing.

Software-only (also known as "Host-based") Pro Tools systems use the host processor in your computer for all audio processing, playback, and recording, so there is always a small amount of latency in the system. For example, there may be some audible delay between the incoming signal and outgoing signal when monitoring recording through Pro Tools.

Low Latency Monitoring

MBOX Studio can use the Low Latency Monitoring option in Pro Tools to record with an extremely small amount of monitoring latency. (Likewise, certain Core Audio and ASIO audio interfaces that have a built-in mixer can use the Low Latency Monitoring option.)

In Pro Tools, enabling Low Latency Monitoring automatically bypasses plug-ins and sends on record-enabled audio tracks. You can use MBOX Control to set up its on-board delay and reverb to be able to provide low latency monitoring with effects.

Configuring Pro Tools for Low Latency Monitoring

To use Low Latency Monitoring:

1. Record enable audio tracks by clicking their Record Enable buttons.
2. Select Options > Low Latency Monitoring.

When Low Latency Monitoring is enabled, any plug-ins and sends assigned to record-enabled tracks are automatically bypassed, and must remain bypassed. Also, these tracks do not register on meters for Master Faders.

Pro Tools Preference to Allow Sends to Persist During LLM

All plug-ins and sends are bypassed by default when Low Latency Monitoring (LLM) is enabled (Options > Low Latency Monitoring). Enable the Allow Sends to persist during LLM preference to maintain sends audio signal output with Low Latency Monitoring.

To maintain (or bypass) sends with Low Latency Monitoring enabled:

1. Choose Setup > Preferences and click the Mixing tab.
2. Select (or deselect) the Allow Sends to persist during LLM option.
3. Click OK.

For more information on Low Latency Monitoring see Help > Pro Tools Help.

Appendix A: Specifications

Analog I/O

Input Specifications

MBOX Studio Input Specifications

Input Channel	Type	Max Input Level minimum dBu	Gain Range (dB)	THD %	Dynamic Range (dB)	EIN dBu A-wt	Frequency Response +/- dB
1,2,3,4	Mic	14	60	0.001	112	-129	20 Hz–20 kHz, ±0.125 dB
1,2,3,4	Line	14	60	0.001	112	na	20 Hz–20 kHz, ±0.125 dB
1,2	Inst	14	60	0.004	108	na	20 Hz–20 kHz, ±0.125 dB
5,6	Line	8	na	0.002	112	na	20 Hz–20 kHz, ±0.125 dB
7,8	FX	8	na	0.002	112	na	20 Hz–20 kHz, ±0.125 dB

Output Specifications

MBOX Studio Output Specifications

Output Channel	Max Output dBu min	THD %	Dynamic Range (dB)	Frequency Response +/- dB	Power into 32 ohm min mW
MAIN_L	19	0.0012	110	0.125	
MAIN_R	19	0.0012	110	0.125	
ALT_1	19	0.0012	110	0.125	
ALT_2	19	0.0012	110	0.125	
FX_SEND_1	19	0.0012	110	0.125	
FX_SEND_2	18.8	0.002	107.5	0.125	
Re-Amp	0	0.002	103	0.3	
HP 1,2	na	na	102	0.2	120

Hardware Inputs and Outputs by Sample Rate

MBOX Studio Hardware Inputs and Outputs by Sample Rate

44.1/48 kHz												**Total I/O**
Inputs	Combo 1-2	Combo 3-4	Line 5-6	Line 7-8	BT L-R	SPDIF L-R	Optical 1-2	Optical 3-4	Optical 5-6	Optical 7-8	Talk-back	21
Outputs	Main L-R	Alt L-R	BT L-R	HP1 L-R	HP2 L-R	Line 7-8	SPDIF L-R	Optical 1-2	Optical 3-4	Optical 5-6	Optical 7-8	22
88.2/96 kHz												
Inputs	Combo 1-2	Combo 3-4	Line 5-6	Line 7-8	BT L-R	SPDIF L-R	Optical 1-2	Optical 3-4	Talk-back	-	-	17
Outputs	Main L-R	Alt L-R	BT L-R	HP1 L-R	HP2 L-R	Line 7-8	SPDIF L-R	Optical 1-2	Optical 3-4	-	-	18
172.4/192 kHz												
Inputs	Combo 1-2	Combo 3-4	Line 5-6	Line 7-8	-	-	-	-	-	-	-	8
Outputs	Main L-R	Alt L-R	BT L-R	HP1 L-R	HP2 L-R	-	-	-	-	-	-	10

Environmental Specifications

Specification		**Units**	**Notes**
Storage Temperature	-0° F to 140° F (-18° C to 60° C)	deg	
Operating Temperature	40° F to 95° F (4° C to 35° C)	deg	
Storage humidity range	5 to 95	%	Non-condensing
Operating humidity range	20 to 80	%	Non-condensing

Appendix B: Compliance

Important

Model: MBOX Studio
Rating: 12vDC, 3.0A

Safety Compliance

This equipment has been tested to comply with safety certifications in accordance with: UL 62368-1 ed.3-2019, CAN/CSA-C22.2 No. 62398-1:19,BS EN 62368-1:2014+A11:2017, EN 62368-1:2014/AC:2015, IEC 62368-1:2018. Avid Technology Inc., has been authorized to apply the appropriate NRTL mark on its compliant equipment.

Important Safety Instructions

1) Read these instructions.

2) Keep these instructions.

3) Heed all warnings.

4) Follow all instructions.

5) Do not use this equipment near water.

6) Clean only with dry cloth.

7) Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.

8) Do not install near any heat sources such as radiators, heat registers, stoves, or other equipment (including amplifiers) that produce heat.

9) Protect power cords from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the equipment.

10) Only use attachments/accessories specified by the manufacturer.

11) For products that are not rack-mountable: Use only with a cart, stand, tripod, bracket, or table specified by the manufacturer, or sold with the equipment. When a cart is used, use caution when moving the cart/equipment combination to avoid injury from tip-over.

12) Unplug this equipment during lightning storms or when unused for long periods of time.

13) Refer all servicing to qualified service personnel. Servicing is required when the equipment has been damaged in any way, such as power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the equipment, the equipment has been exposed to rain or moisture, does not operate normally, or has been dropped.

14) For products that are a Mains powered device: The equipment shall not be exposed to dripping or splashing and no objects filled with liquids (such as vases) shall be placed on the equipment.

WARNING! To reduce the risk of fire or electric shock, do not expose this equipment to rain or moisture.

Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding type plug has two blades and a third grounding prong. The wide blade or the third prong are provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.

15) For products with a power switch: It should remain accessible after installation.

16) The equipment shall be used at a maximum ambient temperature of 40° C.

LED Safety Notices

Avid hardware might contain LED or Laser devices for communication use. These devices are compliant with the requirements for Class 1 LED and Laser Products and are safe in the intended use. In normal operation the output of these laser devices does not exceed the exposure limit of the eye and cannot cause harm.

Environmental Compliance

Disposal of Waste Equipment by Users in the European Union

This symbol on the product or its packaging indicates that this product must not be disposed of with other waste. Instead, it is your responsibility to dispose of your waste equipment by handing it over to a designated collection point for the recycling of waste electrical and electronic equipment. The separate collection and recycling of your waste equipment at the time of disposal will help conserve natural resources and ensure that it is recycled in a manner that protects human health and the environment. For more information about where you can drop off your waste equipment for recycling, please contact your local city recycling office or the dealer from whom you purchased the product.

Proposition 65 Warning

This product can expose you to chemicals including Pb and Pb compounds, which is known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.

Perchlorate Notice

This product may contain a lithium coin battery. The State of California requires the following disclosure statement: "Perchlorate Material – special handling may apply, See www.dtsc.ca.gov/hazardous waste/perchlorate."

Recycling Notice

EMC (ELECTROMAGNETIC COMPLIANCE)

Avid declares that this product complies with the following standards regulating emissions and immunity:

FCC Part 15 Class B, Part 15.247
CAN ICES-003 Class B, RSS-247
ETSI EN 300 328 v2.1.1, ETSI EN 301 489-1 v2.1.1, ETSI EN301 489-17 v3.1.1
EN 55032:2012, BS EN 55032:2012
EN 55035:2017+A11:2020, BS EN 55035:2017+A11:2020
EN 62479:2010
AS/NZS 4268

FCC ID: 2A64A-MBOXSTUDIO

FCC COMPLIANCE STATEMENTs

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation.

This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation.

If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Caution: Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator and your body. This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

CANADA ICES-003 COMPLIANCE

This device meets the IC requirements for RF exposure in public or uncontrolled environments.

Cet appareil est conforme aux conditions de la IC en matière de RF dans des environnements publics ou incontrôlée

IC: 28596-MBOXSTUDIO

Supplier's Declaration of Conformity

Unique Identifier

Trade Name: AVID
Model No.: MBOX Studio
Responsible Party – U.S. Contact Information
US Company Name: Avid Technology Inc.
Address: 75 Network Drive, Burlington MA 01803 USA
www.avid.com

ISED COMPLIANCE STATEMENTS

This device contains licence-exempt transmitter(s)/receiver(s) that comply with Innovation, Science and Economic Development Canada's licence-exempt RSS(s). Operation is subject to the following two conditions:

(1) This device may not cause interference.

(2) This device must accept any interference, including interference that may cause undesired operation of the device.

This equipment complies with IC RSS-102 radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator and your body.

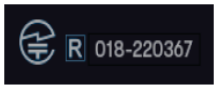
L'émetteur/récepteur exempt de licence contenu dans le présent appareil est conforme aux CNR d'Innovation, Sciences et Développement économique Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes :

(1) L'appareil ne doit pas produire de brouillage;

(2) L'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

Cet équipement est conforme aux limites d'exposition aux radiations IC CNR-102 établies pour un environnement non contrôlé. Cet équipement doit être installé et utilisé avec une distance minimale de 20cm entre le radiateur et votre corps.

Australian Compliance



CE Compliance

(EMC, Safety and RoHS, RED)

Avid is authorized to apply the CE (Conformite Europenne) mark on this compliant equipment thereby declaring conformity to EMC Directive 2014/30/EU, Low Voltage Directive 2014/35/EU, RoHS Directive 2011/65/EC, and RED Directive 2014/53/EU.

Bluetooth Enabled Device

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