

# Mbox Basics Guide

**Version 6.4 for LE Systems on Windows XP and Mac OS X**

## **Digidesign**

2001 Junipero Serra Boulevard  
Daly City, CA 94014-3886 USA  
tel: 650-731-6300  
fax: 650-731-6399

### **Technical Support (USA)**

tel: 650-731-6100  
fax: 650-731-6384

### **Product Information (USA)**

tel: 650-731-6102  
tel: 800-333-2137

### **International Offices**

Visit the Digidesign Web site  
for contact information

### **Web Site**

[www.digidesign.com](http://www.digidesign.com)



**digidesign**

**Copyright**

This guide is copyrighted ©2004 by Digidesign, a division of Avid Technology, Inc. (hereafter "Digidesign"), with all rights reserved. Under copyright laws, this guide may not be duplicated in whole or in part without the written consent of Digidesign.

DIGIDESIGN, AVID and PRO TOOLS are trademarks or registered trademarks of Digidesign and/or Avid Technology, Inc. All other trademarks are the property of their respective owners.

Product features, specifications, system requirements and availability are subject to change without notice.

PN 932013286-00 REV A 04/04

# Introduction

Welcome to the *Mbox Basics Guide*. This guide is designed to give new users specific methods for accomplishing common tasks with the Mbox desktop audio interface and Pro Tools LE software.

Once you are familiar with basic Mbox operation, we recommend that you read the “Working With Pro Tools” tutorial in the *Getting Started with Mbox Guide*. For the most complete resource for using Pro Tools software, please refer to the *Pro Tools Reference Guide*.

Many resources for learning to use Pro Tools are also available online at the Digidesign Web site ([www.digidesign.com](http://www.digidesign.com)), including the following:

**DiSK (Digidesign Sound Knowledge)** Instructional material about how to use Pro Tools, including DiSK Flix movies that show how to do a number of popular tasks using Pro Tools.

**DigiZine** A magazine for and about Pro Tools users, providing all the latest product news, user stories, and hundreds of tips and ideas.

Before proceeding, make sure you have:

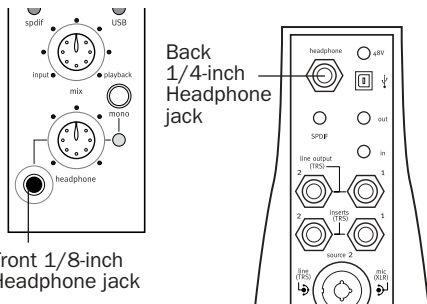
- Connected the Mbox to your computer with the USB cable
  - and –
- Installed Pro Tools LE software as described in the appropriate Windows or Macintosh installation chapter of the *Getting Started with Mbox Guide*.

# Getting Sound In and Out of your Mbox

To hear audio recorded into a Pro Tools session, you will need to connect headphones or an external sound system (such as powered monitors or a home stereo) to Mbox. Sound from Mbox cannot be played through your computer's speakers or your computer's sound output.

## Connecting Headphones


There are two headphone jacks on the Mbox, an 1/8-inch mini plug jack on the front, and a 1/4-inch jack on the back. You cannot use both jacks at once.



Headphone jacks on front and back of Mbox

### To connect headphones:

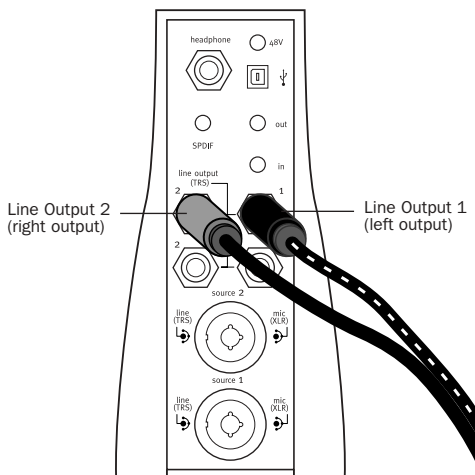
- Connect headphones with an 1/8-inch stereo mini connector (or an adapter) to the front Headphone jack.  
– or –
- Connect headphones with a 1/4-inch stereo connector (or adapter) to the back Headphone jack.

 *The front panel Headphone control adjusts the volume level of both the front and back Headphone jacks.*

## Connecting a Sound System

The outputs on the back of the Mbox support 1/4-inch plugs. These connections can be balanced, TRS style connectors, or unbalanced. To listen to your Pro Tools session, these outputs can be connected to any amplification system: powered speakers, home stereo system, or a music mixer.

When connecting to a stereo system, connect the left channel (often the black plug) to Line Output 1, and right channel (often the red plug) to Line Output 2.

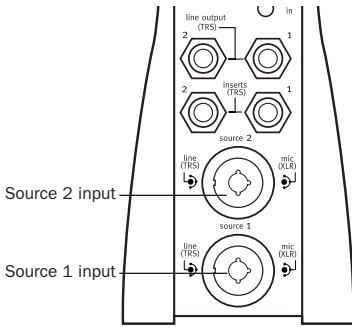


Stereo output from the Mbox

Line Outputs 1 and 2 play the audio that is routed to analog outputs 1 and 2 within Pro Tools.

## Connecting Audio Inputs

Mbox inputs (sources) support microphones, guitars, keyboards, and other types of instruments.



### Source Inputs on back of Mbox

Mbox has two audio inputs, labeled Source 1 and Source 2. For stereo inputs, use Source 1 for the left input, and Source 2 for the right input.

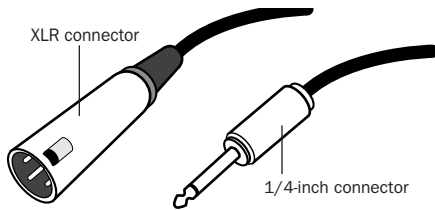
For information about connecting specific audio sources, see “Attaching a Microphone to the Mbox” on page 4, and “Connecting Instruments to the Mbox” on page 6.

# Connecting a Microphone

## Attaching a Microphone to the Mbox

There are several ways to use Mbox with a microphone, depending on the type of microphone and cables that you use.

Some microphone cables use an XLR connector to attach a microphone to an input (such as those on the Mbox); other microphones use a 1/4-inch connector. If you have a choice, use an XLR connector to connect the microphone to the Mbox to yield better results.



XLR and 1/4-inch Connectors

## Phantom Power

Some microphones require power to operate. This power, called *phantom power*, is supplied either by a battery in the microphone, or through an audio interface (such as Mbox) that can supply power through the microphone cable.

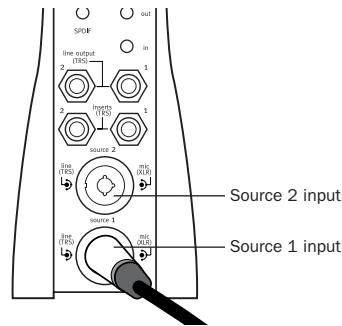
Most *condenser* microphones (such as an AKG C3000) require phantom power to operate. *Dynamic* microphones (such as a Shure SM57) do not require phantom power to operate, but are not harmed by it.

**⚠** Although phantom power can be used safely with most microphones, it is possible to damage some ribbon microphones with it. Always turn off phantom power and wait at least ten seconds before connecting a ribbon microphone.

The Mbox can only supply power through a microphone cable with XLR connectors. If you are not sure about the phantom power requirements for your microphone, consult your microphone's documentation or contact the manufacturer.

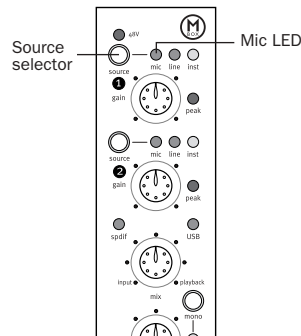
### To use a microphone that has an XLR connector:

**1** Plug your microphone cable into one of the Source inputs on the back of Mbox. The inputs are numbered from the bottom up, so Source 1 is the bottom input.



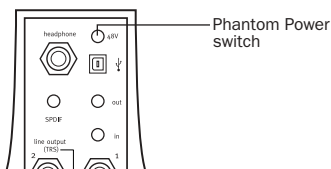
XLR connector plugged into the Source 1 input

**2** Set the Source to Mic (microphone) by pressing the Source selector on the front of Mbox until the Mic LED is lit.



Channel 1 Source controls on the Mbox front panel

**3** If your microphone requires phantom power, make sure the microphone is connected, then press the Phantom Power switch on the back of the Mbox (labeled 48V). This switch sends 48V to *both* mic inputs. The 48V LED on the front of the Mbox will light when phantom power is being supplied.



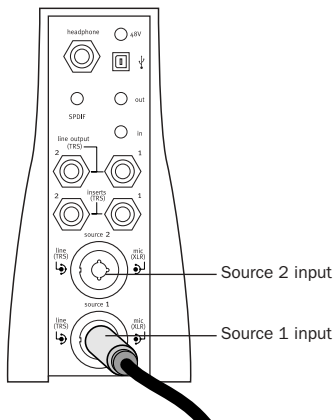
**Phantom Power switch**

**4** On the front of the Mbox, turn the Mix control fully left to Input.

**5** On the front of the Mbox, carefully turn the Gain control to the right to increase the input level of your microphone signal.

**To use a microphone that has a 1/4-inch connector:**

**1** On the back of the Mbox, plug the 1/4-inch connector from your microphone into one of the Source inputs. The inputs are numbered from the bottom up, so Source 1 is the bottom input.



**1/4-inch connector plugged into the Source 1 input**

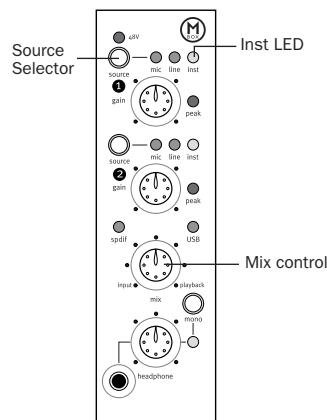
**⚠** Do not plug the microphone into the 1/4-inch jacks labeled “Inserts.” These are not inputs. (They are special connectors for using an external effects processor such as a compressor or EQ.)

**2** On the front of the Mbox, set the source to Inst (instrument) by pressing the Source selector until the Inst LED is lit.

**⚠** If you are using a microphone with a 1/4-inch connector, do not choose the “Mic” input source because the Mbox will not register any signal.

**3** On the front of the Mbox, turn the Mix control fully left to Input.

**4** On the front of the Mbox, carefully turn the Gain control to the right to increase the input level of your microphone signal.



**Channel 1 controls and the Mix control on the Mbox front panel**

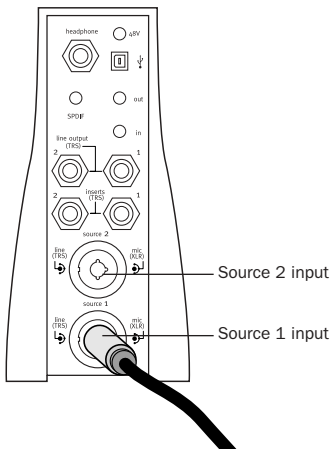
# Connecting Instruments

## Connecting Instruments to the Mbox

Mbox provides two switchable line input types that correspond to the different signal strengths output by different types of instruments. Instruments such as electric guitar or electric bass usually have a lower level of output than instruments and electronic audio sources such as mixers, samplers, keyboards, turntables, and synthesizers.

### To use a guitar with Mbox:

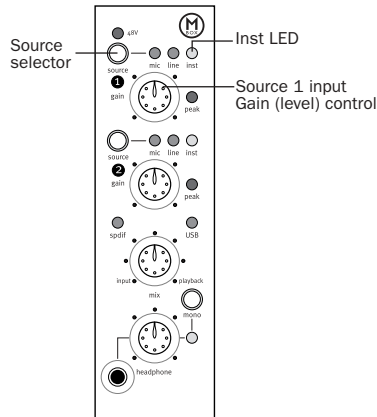
**1** On the back of your Mbox, plug your guitar cable into one of the Source inputs. The inputs are numbered from the bottom up, so Source 1 is the bottom input on the back of your Mbox.



Guitar cable plugged into the Source 1 input

**⚠** Do not plug the guitar into the 1/4-inch jacks labeled “Inserts.” These are not inputs. They are special connectors for using an external effects processor such as a compressor or EQ.

**2** On the front of the Mbox, set the Source to Inst (instrument) by pressing the Source selector until the Inst LED is lit.



Source selector and Gain control for the Source 1 input

**3** On the front of the Mbox, turn the Mix control fully left to Input.

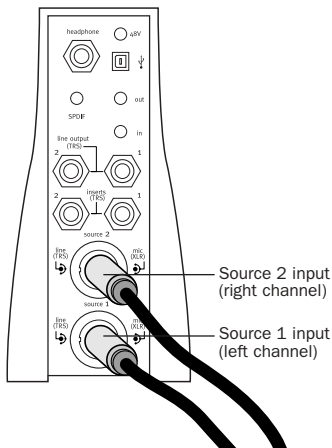
**4** On the front of the Mbox, carefully turn the Gain control to the right to increase the input level of your guitar.

**💡** When you record a guitar (or any mono instrument that uses only one source input) you will hear the sound in only one side of the stereo field. Pushing the “mono” button on the front of the Mbox brings the sound from one side of the stereo field to both.



## To use a keyboard or mixer with Mbox:

**1** Plug your keyboard, mixer, or other audio source into either the Source 1 or Source 2 input on your Mbox. If your source is stereo (such as a stereo keyboard or the stereo output from a mixer,) connect the left channel (often the black plug) to Source 1, and right channel (often the red plug) to Source 2. The inputs are numbered from the bottom up, so Source 1 is the bottom input on the back of your Mbox.

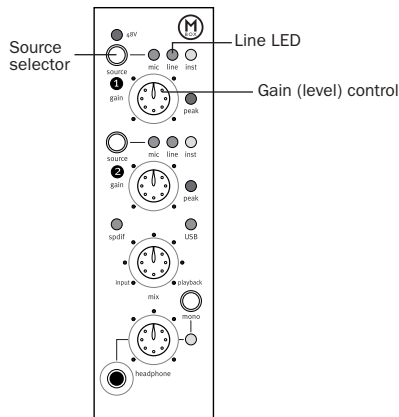


**Mbox configuration for stereo input**

**⚠** Do not plug any sound source into the 1/4-inch jacks labeled “Inserts.” These are not inputs. They are special connectors for using an external effects processor such as a compressor or EQ.

**2** On the front of Mbox, set the source to Line (line level) by pressing the Source selector until the Line LED is lit.

**3** On the front of the Mbox, turn the Mix control fully left to Input.



**Source selector and Gain control for the Source 1 input**

**4** Set your instrument's volume to its optimal level. For example, the optimal level for most keyboards is between 80% and 100% of maximum volume.

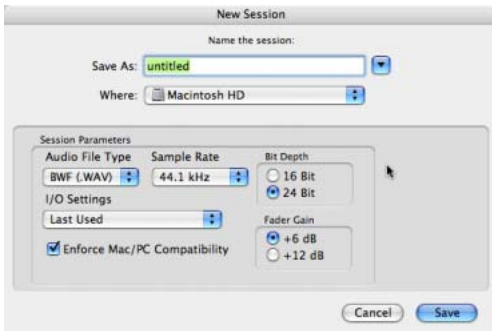
**5** On the front of the Mbox, carefully turn the Gain control to the right to increase the input level of your keyboard.

# Recording a Pro Tools Session

Recording with Pro Tools and the Mbox involves creating a Pro Tools session, preparing an audio track for recording, and recording.

## To create a session in Pro Tools:

- 1 Verify the connections between the Mbox and your instrument or microphone.
- 2 Launch Pro Tools.
- 3 Choose File > New Session.
- 4 Set Session Parameters in the New Session dialog as needed, or leave them at their default settings. (For details, see the *Getting Started with Mbox Guide*.)



New Session dialog

- 5 Select where you want to save your session.
- 6 Type a name for your session.
- 7 Click Save. Pro Tools creates a new session.


## To prepare an audio track for recording:

- 1 Create a new track to record on by choosing File > New Track.

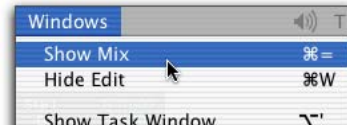
- 2 Specify 1 Mono Audio Track if your source is mono, or 1 Stereo Audio Track if your source is stereo, and click Create.



Creating a new mono audio track

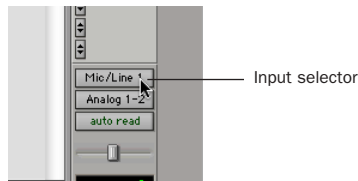
 A mono instrument uses one input on the Mbox, and a stereo instrument uses two. Creating a stereo track in Pro Tools will not make a mono instrument into a stereo instrument. If a mono instrument is recorded on a stereo track, one of the sides of the stereo track will show no signal.

- 3 Make certain the Mix window is open by choosing Windows > Show Mix



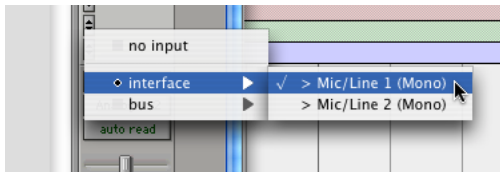
Showing the Mix widow

- 4 In the Mix window, click the Input Selector on the new track.



Choosing an input in the Mix window

5 From the pop-up menu, select the interface input you want to record. For example, select Mic/Line 1 if your audio source is plugged into the Source 1 jack on the back of the Mbox.



**Routing an input to a mono track**

6 Use the Gain controls on Mbox to maximize the signal going into Pro Tools while avoiding clipping.

**A** *Clipping occurs when you feed a signal to an audio device that is louder than the circuitry can accept. To avoid clipping, adjust the Gain control to a level where the Peak LEDs on the front of the Mbox flicker occasionally.*

7 On the front of the Mbox, turn the Mix control fully left to Input (to hear only the input signal). Or, to hear an equal mix of playback and input signals, turn the Mix control to the center. See “Controlling Delay (Latency) During Monitoring” on page 14 for more information on using the Mix control during recording.

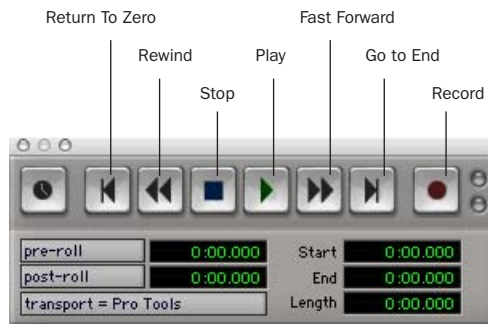
**To record an audio track:**

1 Click the Record Enable button for the track.



**Record enabling a track in the Mix window**

2 Choose Windows > Show Transport to display the Transport window. Click Return To Zero to cue to the beginning of the session.



**Transport window**

3 Click Record in the Transport window to arm Pro Tools for recording. The Record button will flash red to indicate that Pro Tools is ready to record.

4 When you are ready to start recording, click Play or press the Spacebar.

5 Record your performance.

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

**To play back a recorded track:**

1 If the track’s Record Enable button is lit, click on it to take it out of Record mode.

2 On the front of the Mbox, turn the Mix control fully right to Playback (to hear only playback signal). To hear an equal mix of playback and input signals, turn the Mix control to the center. See “Controlling Delay (Latency) During Monitoring” on page 14 for more information on using the Mix control during recording.

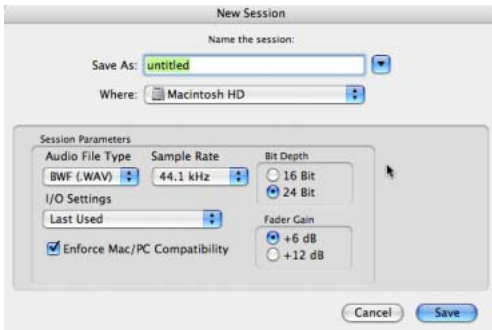
3 Click Play in the Transport window or press the Spacebar to start playback.

4 Click Stop in the Transport window or press the Spacebar to stop playback.

# Importing Audio from a CD

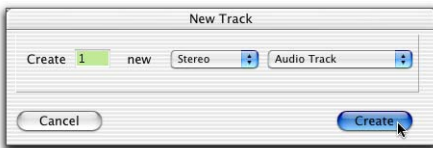
## To import audio from a compact disc:

- 1 Put the source CD into your computer's CD drive.
- 2 Use a third party software program of your choice to extract audio from the CD.
- 3 Launch Pro Tools.
- 4 Choose File > New Session.
- 5 Set Session Parameters in the New Session dialog as needed, or leave at their default settings. (For details, see the *Getting Started with Mbox Guide*.)



*New Session dialog*

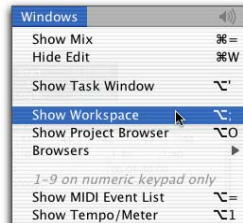
- 6 Select where you want to save your session.
- 7 Type a name for your session and click Save. Pro Tools creates a new session.
- 8 In the session, create a new track by choosing File > New Track.



*Creating a new stereo audio track*

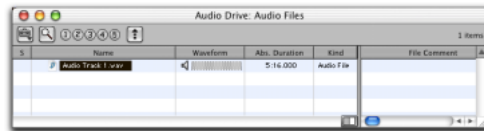
- 9 In the New Track dialog, specify 1 Stereo Audio Track, and click Create.

- 10 Open the Workspace Browser by choosing Windows > Show Workspace. The Workspace Browser is a window where you can find, audition, and manage your audio files.

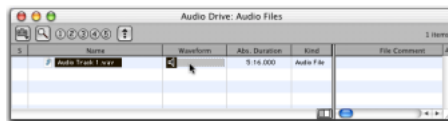


## Opening the Workspace Browser

- 11 In the Workspace Browser, navigate to the location where you saved the audio you extracted from your CD in step 2.

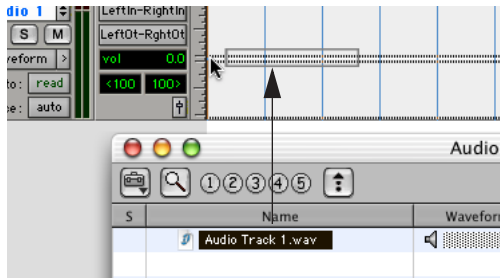


- 12 You can audition the audio file by clicking on the speaker icon in the waveform window.



## Auditioning an audio file in the Workspace Browser

**13** Drag the audio file from the Workspace Browser to the audio track you created in your session.



*Dragging the audio file from the Workspace Browser to an audio track*

**To play back the new track:**

- 1** In the Transport window, click Return To Zero to cue the beginning of the track.
- 2** On the front of the Mbox, turn the Mix control fully right to Playback.
- 3** Click Play in the Transport window to begin playback. The CD track you extracted should begin playing back.

# Creating an Audio CD from a Pro Tools Session

Pro Tools does not create audio CDs directly, but you can create stereo audio files from your Pro Tools sessions that can be used by most common CD burning programs.

Use the Pro Tools Bounce to Disk feature to combine all your audible tracks into a single “master” audio file. After the new audio file has been bounced to disk, you can burn it to a CD.

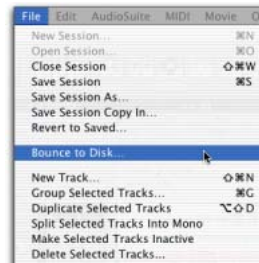
## Bouncing Audio to Disk:

1 After you have finished recording and mixing a session in Pro Tools, highlight the length of the session in the timeline ruler, plus an additional amount of time to avoid cutting off any reverb tails that might continue past the end of the region.



Audio session highlighted and ready to bounce

2 Choose File > Bounce to Disk.



Choosing Bounce to Disk from the file menu

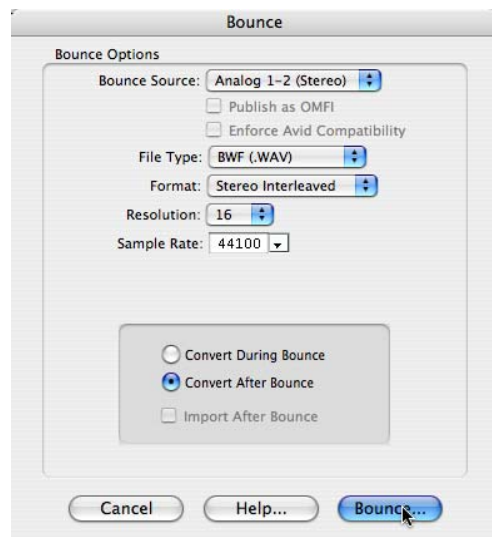
3 In the Bounce Options dialog, choose Analog Outputs 1–2 as the Bounce Source.

4 Choose BWF (.WAV) for the File Type.

5 Choose Stereo Interleaved for the Format.

6 Choose 16 for the Resolution and 44100 for the Sample Rate.

7 Choose “Convert after Bounce,” and click Bounce.



Bounce options for creating CD burnable tracks

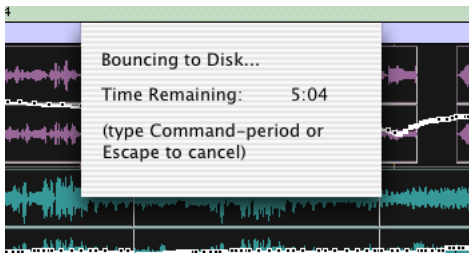
8 In the Bounce dialog, give the bounce tracks a name and choose where they should be saved.



#### **Save Bounce Dialog**

9 Click Save.


Pro Tools will begin bouncing to disk. Pro Tools bounces are done in real time, so you hear audio playback of your mix during the bounce process (though you cannot adjust it).



#### **Bouncing to Disk dialog**

### **Burning a CD**

After the bounce is completed, you will have an audio file that is ready for burning onto a CD. Quit Pro Tools and launch any common third-party CD burning application to burn your bounced mix to CD.

 *Make certain that you configure your CD burning application to create an audio CD rather than a data CD.*

# Controlling Delay (Latency) During Monitoring

Mbox and Pro Tools LE use your computer for all audio processing, playback, and recording. This causes a small amount of audio delay, or latency.

Latency is most obvious when monitoring during recording. It takes time for the computer to convert an analog input signal to a digital signal and back to an analog output signal. You hear this as a slight delay between when you produce the sound and when you hear the sound through the speakers or headphones.

Mbox gives you the ability to monitor your analog input signals while recording, without hearing any latency. This zero-latency analog monitoring is controlled by the Mbox front panel Mix control, which you can use to blend and adjust the ratio between the Mbox analog input and Pro Tools playback.

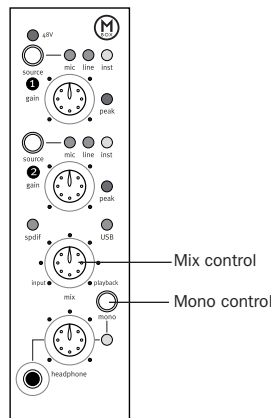
## To use zero latency monitoring while recording:

- 1 Launch Pro Tools and set up a session. “Recording a Pro Tools Session” on page 8
- 2 Mute the track you are recording on. This prevents you from hearing the delayed signal coming back from Pro Tools through the Mbox.




- 3 Use the Mix control on the front of the Mbox to blend the playback tracks with the analog tracks that you are recording.

- 4 If the audio signal that you are recording is mono, press the “Mono” button on the front of the Mbox to bring the sound from one side of the stereo field to both sides.



Mix and Mono controls on Mbox front panel

 The Mix control has no effect when you are using S/PDIF digital inputs.

## Avoiding Latency with Multiple Overdubs

(Macintosh Only)

When you record multiple tracks sequentially in Pro Tools, it is possible to inadvertently build up latency problems, beginning with the second pass.

For example, if you recorded drums on your first pass, the drums will have a delay (of 164 samples) during playback. If you lay down a new track, using the original drums as a timing reference, you will be trying to match your timing to when you hear the drums.



When your new track is played back, it will be 164 samples late. Each subsequent track can compound the timing problems.

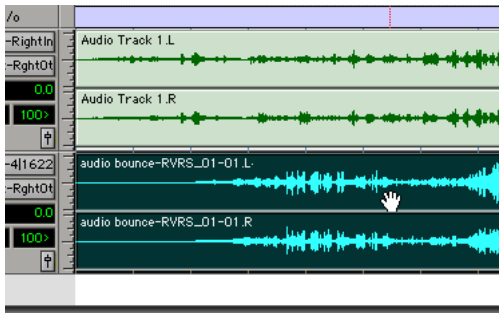
**To compensate for latency:**

1 Click on the Grabber tool.



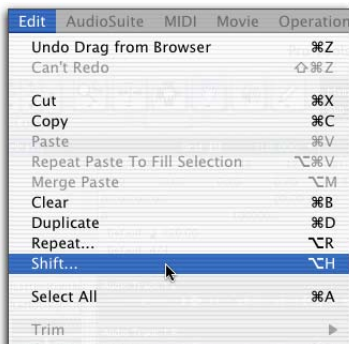
*Grabber tool*

2 Select the second pass of your multitrack recording by clicking on it with the Grabber tool.



*Selecting a track with the Grabber tool*

3 Choose Edit > Shift.



4 In the Shift dialog, select “Earlier” and enter 164 into the samples field.



*Shift dialog*

5 Click OK.

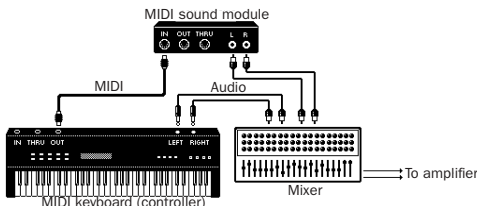
6 If desired, repeat steps 1–4 for every new recording pass.

# Mbox and MIDI

## What is MIDI?

MIDI (Musical Instrument Digital Interface) is not audio, and has no sound. MIDI is a way for musical devices to communicate. MIDI is data that can trigger a MIDI device (such as a keyboard or software synthesizer.)

In order to create or play a MIDI recording, you must have a MIDI keyboard or sound module (real or virtual) connected to the computer through a MIDI interface. Audio from your MIDI instrument can be sent to an external mixer or monitored through the Mbox.



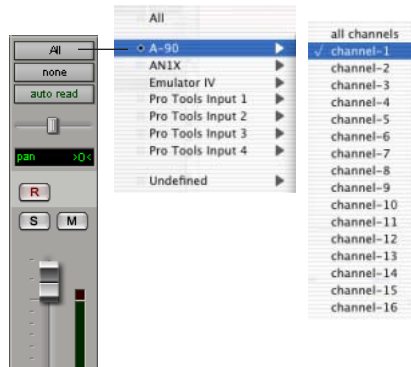
Signal paths for MIDI instruments

For more information on monitoring through the Mbox, see “Monitoring MIDI Instruments Without a Mixer” on page 17.

### To configure a MIDI track for recording:

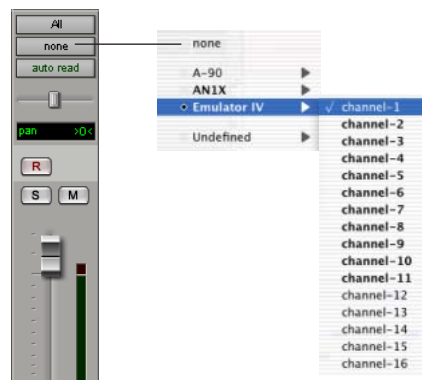
- 1 On Macintosh systems, choose MIDI > Input Devices and make sure your input device is selected in the MIDI Input Enable window.
- 2 Choose File > New Track and specify 1 MIDI Track, then click Create.

- 3 In the Mix window, click the track’s MIDI Input Selector and assign the device and channel that will be recorded.



MIDI Input Selector

- 4 In the Mix window, click on the track’s MIDI Device/Channel Selector and choose the destination (assignment) for that MIDI track by choosing a MIDI interface port, a channel, or a device from the pop-up menu (choices vary depending on the operating system and Pro Tools version).



MIDI Device/Channel Selector

**5** In the Mix Window, record-enable the MIDI track.

**6** Make sure MIDI > MIDI Thru is selected, then play some notes on your MIDI controller. The MIDI instrument assigned to the track should sound, and the track's meters move. Remember, MIDI is not audio, and the meters are not registering sound, but MIDI activity.

#### **To record a MIDI track:**

**1** Verify that the MIDI track you want to record to is record-enabled and receiving MIDI.

**2** In the Transport window, click Return To Zero to start recording from the beginning of the session. You can also record according to a selection or from the cursor location in the Edit window.

**3** Click Record in the Transport window.

**4** Click Play in the Transport window or press the Spacebar to begin recording.

**5** Play your MIDI instrument.

**6** When you have finished recording, click Stop in the Transport window, or press the Spacebar. The newly recorded MIDI data appears as a MIDI region on the track in the Edit window, as well as in the MIDI Regions List.

#### **To play back a recorded MIDI track:**

**1** Click the Record Enable button to take the MIDI track out of Record mode.

**2** In the Transport window, click Return To Zero to play back from the beginning of the track.

**3** Click Play in the Transport window to begin playback. The recorded MIDI data plays back through the track's assigned instrument and channel.

#### **Monitoring MIDI Instruments Without a Mixer**

To monitor your MIDI instrument's analog output in Pro Tools, you can use an Auxiliary Input. Auxiliary Inputs function as inputs for both internally bussed signals and external audio sources.

#### **To configure an Auxiliary Input for MIDI monitoring:**

**1** Connect the MIDI instrument's audio output to the appropriate inputs on your Mbox.

**2** Choose File > New Track and specify 1 mono or stereo Auxiliary Input, then click Create.

**3** Click the Input selector of the Auxiliary Input channel and choose the input to which your MIDI instrument is connected to the Mbox.

**4** Adjust the level of the Auxiliary Input with its volume fader. Now you will hear the audio output of your MIDI device in Pro Tools.