USB 2.0

0202

Audio Interface

Owner's Manual

CREATIVE
PROFESSIONAL

E-MU

USB 2.0

0202

A u d i o   I n t e r f a c e

Owner's Manual

Revision: D

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JAPAN

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INTRODUCTION

Thanks for your purchase of the E-MU 0202 USB 2.0 Audio/MIDI Interface. This interface brings an unparalleled level of USB audio quality to the Mac or PC, with pristine 24-bit/192kHz A/D and D/A converters, ultra-low jitter clock, and Class-A, ultra-low noise mic/line/hi-Z preamps. The signal-to-noise specs of the E-MU 0202 USB 2.0 are unmatched by any other USB interface on the market! From its plug-and-play functionality and hands-on ergonomic design, to professional features like zero-latency direct monitoring, the USB will forever change your expectations of USB audio. The USB also comes complete with the powerful E-MU Production Tools Software Bundle so that you have everything you need to create, record, edit, mix and burn your music right out of the box.

Some of the other key features are detailed below:

• Record and Playback support for a multitude of sample rates : 44.1k, 48k, 88.2k, 96k, 176.4k, 192k. *(176.4k &192k available on PC version only)*

• Independent ground lift switches for both analog inputs help to solve potential ground loop problems

• Studio-Grade Headphone Amplifier with level control

PACKAGE INCLUDES

- E-MU 0202 USB 2.0 AudioPod
- USB Cable
- Quick Start Installation Guide

E-MU Software/Manual CD-ROM *(OS X /Windows)*
- Window XP and x64 Drivers
- Mac OS X Drivers
- Owner's Manual and Tutorials

E-MU Production Tools Software Bundle CD-ROM *(Windows)*
- Cakewalk Sonar LE
- Steinberg Cubase LE
- Steinberg Wavelab Lite
- Celemony Melodyne essential
- IK Multimedia AmpliTube LE
- SFX Machine LT
- Minnetonka diskWelder BRONZE (5-burn trial)

E-MU Proteus VX CD-ROM *(Windows)*
- E-MU Proteus VX (with over 100 sounds)

E-MU Production Tools Software Bundle CD-ROM *(OS X)*
- BIAS Peak Express
- Celemony Melodyne essential
- IK Multimedia AmpliTube LE
- SFX Machine LT
- Minnetonka diskWelder BRONZE (5-burn trial)

Ableton Live Lite for E-MU CD-ROM *(OS X, Windows)*
- Ableton Live Lite

COMPUTER REQUIREMENTS

The minimum computer system requirements for the E-MU 0202 USB 2.0 are listed below.

Windows

- Intel® or AMD® processor — 1.2 GHz or faster
- Intel, AMD, or 100% compatible motherboard & chipset
- Microsoft® Windows® XP (SP 2 or greater) or Windows XP x64
- 1 available (Hi-Speed) USB 2.0 port *
- 256 MB System RAM
- 900 MB of free hard disk space for full installation
- CD-ROM/CD-RW or DVD-ROM drive required for software installation
- XVGA Video (1024 x 768)

OS X

- Apple® Macintosh® G4 —800 MHz or faster

  NOTE: For more information on Intel Mac support see the included ReadMe file, and/or www.emu.com for latest information.
- Apple Macintosh OS X (10.4.3 or greater)
- 1 Available (Hi-Speed) USB 2.0 port †
- 512 MB System RAM
- 500 MB of free hard disk space for full installation
- CD-ROM/CD-RW or DVD-ROM drive required for software installation
- XVGA Video (1024 X 768)

* When using a USB 1.1 port, performance is limited to16-bit and 44.1/48 kHz recording and playback.

† USB 1.1 is not supported on the Macintosh

SOFTWARE INSTALLATION

Windows XP

Follow these instructions to install the 0202 USB 2.0 software and E-MU Production Tools software bundle on a Windows XP computer.

1. First connect the 0202 USB 2.0 to your computer using the supplied USB cable, and turn it on.

2. If Windows prompts you with an Add New Hardware Wizard, click **Cancel**.

3. Insert the E-MU software Installation CD into your CD-ROM drive. If Windows AutoPlay mode is enabled for your CD-ROM drive, the CD starts running automatically. If not, from your Windows desktop, click **Start**->**Run** and type **d:\setup.exe** (replace **d:** with the drive letter of your CD-ROM drive). You can also simply open the CD and double-click **Setup.exe**.

4. The installation splash screen appears. Follow the instructions on the screen to complete the installation. You will have the option to install 0202 USB 2.0, and Adobe Acrobat Reader.

5. Choose "Continue Anyway" when you encounter the "Windows Logo Testing" warning screen. See the note below.

6. When prompted, restart your computer.

7. Be sure to register your 0202 USB 2.0 so we can advise you of future software updates and special offers. You can register online at: www.emu.com/register

8. Your 0202 USB 2.0 is now ready to use.

9. Insert the **Windows Production Tools Software Bundle CD-ROM** into your CD-ROM drive.

10. The installation splash screen appears. Follow the instructions on the screen to complete the installation.

Note About Windows Logo Testing
When you install the 0202 USB 2.0 drivers, you will see a dialog box that informs you that the driver has not passed Windows Logo testing.

However, the 0202 USB 2.0 drivers have been rigorously tested using the same test procedures that a signed driver requires, and it passes in all important categories, including those that measure the relative stability of the driver. So, it is perfectly safe to install these drivers on your computer.

Uninstalling all Audio Drivers and Applications
At times you may need to uninstall or reinstall the 0202 USB 2.0 application and device drivers to correct problems, change configurations, or upgrade outdated drivers or applications. Before you begin, close the E-MU USB 2.0 Audio control application. Applications running during the uninstallation will not be removed.

1. Click **Start** -> **Control Panel**.

2. Double-click the **Add/Remove Programs** icon.

3. Click the **Install/Uninstall** tab (or **Change or Remove Programs** button).

4. Select the **E-MU 0202 USB 2.0** entry and then click the **Change/Remove** button.

5. In the **InstallShield Wizard** dialog box, select the **Remove ALL** option.

6. Click the **Yes** button.

7. Restart your computer when prompted.

You may now re-install existing or updated E-MU device drivers or applications.

Macintosh OS X

Follow these instructions to install the 0202 USB 2.0 drivers and software on a Macintosh OS X computer. First, connect the 0202 USB 2.0 to your computer as shown on page 12.

Install the 0202 USB 2.0 Software

1. Insert the **E-MU Software/Manual CD-ROM** into your CD-ROM drive.

2. Double-click on the **E-MU** icon on the desktop.

3. Double-click on the **Install** icon to start the installation.

4. The installation Welcome screen appears. Follow the instructions on the screen.

5. When the **Authenticate** dialog box appears, enter the administrator password you chose when you installed OS X.

6. Continue to follow the instructions on the screen to continue the installation. You will be given the option to install:

   • **Easy Install:** Installs the following applications and drivers.
      E-MU 0202 USB 2.0: USB Drivers and Control Application

   • **Custom Install:** allows you to choose which components are installed.

7. **Easy Install** is recommended. The software will be quickly installed. When prompted, restart your computer.

8. Be sure to register your 0202 USB 2.0 so we can advise you of future software updates and special offers. You can register online at: www.emu.com/register

*Set-up the 0202 USB 2.0 as your Default Audio Device*

9. Click **Go -> Utilities** from the menu bar.

10. Double-click **Audio MIDI Setup**, then click the **Audio Devices** button if it's not already selected. The window shown on the following page appears.

11. Select the 0202 USB 2.0 for the following: **Default Input**, **Default Output**, **System Output**, **Properties For**.

12. Play a song on **iTunes** to verify that the 0202 USB 2.0 is the default device for audio playback.

13. Quit iTunes.

Setup the MIDI Devices

If you plan to use a MIDI keyboard, now would be a good time to set up your MIDI devices. Connecting a MIDI keyboard will allow you to use the virtual instruments provided in the software bundle and get the most out of your purchase. You'll also need a MIDI interface such as the E-MU Xmidi 2x2 or Xmidi 1x1.

14. Click the **MIDI Devices** button. The window shown below appears.
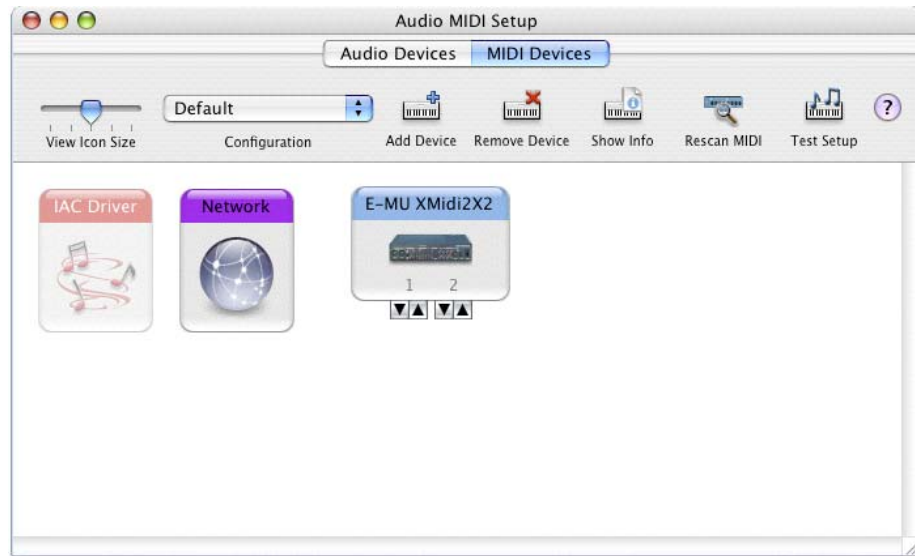
15. Click the **Add Device** button. A new external device icon like the one shown at left appears.

16. Double-click on the new external device if you want to set the MIDI Keyboard Properties. You have the option to name and change the icon for the device. Click **Apply**, then click the **Close** button ⊖ to close the Properties window.

17. Connect the new external device to the E-MU 0202|USB by dragging between the input and output connectors.

18. The window below shows a properly connected MIDI device.
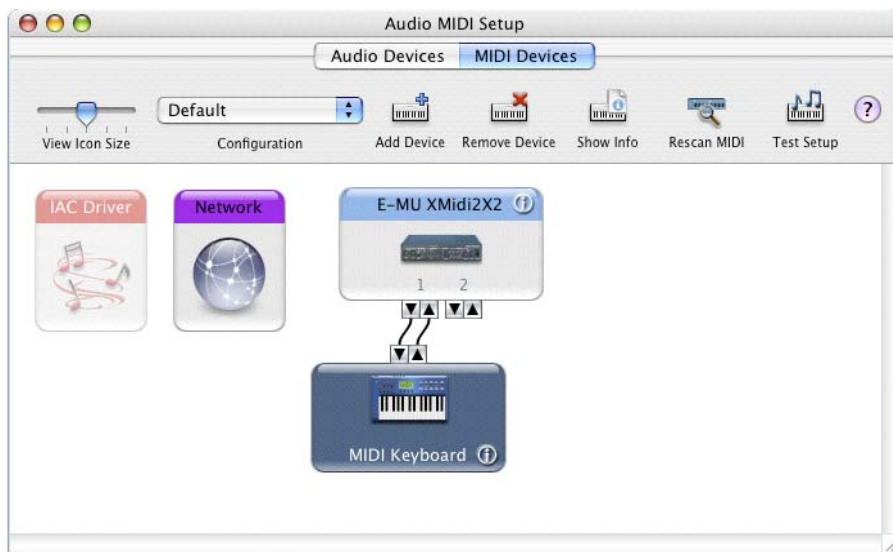
19. Press the close button ⊖ to close the Audio MIDI Setup window.

Install the Production Tools Software Bundle

20. Insert the **Macintosh Production Tools CD** into your CD-ROM drive.

21. Double-click on the installer package.

22. The installation splash screen appears. Follow the instructions on the screen.

23. Continue to install applications from the bundle as desired,

Uninstalling the Audio Drivers and Applications

At times you may need to uninstall or reinstall the 0202 USB 2.0 application and device drivers to correct problems, change configurations, or upgrade outdated drivers or applications. Before you begin, close the E-MU USB 2.0 Audio control panel application. Applications running during the uninstallation will not be removed.

1. Open the **Applications** folder.
2. Open the **Creative Professional** folder.
3. Open the **E-MU USB Audio** folder.
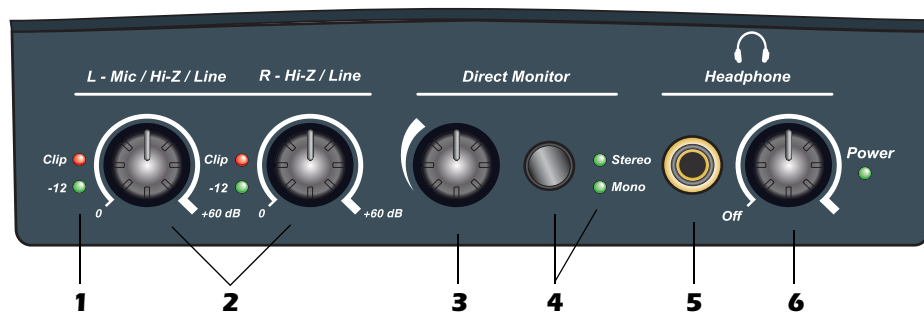4. Click the **E-MU USB Audio Unistaller** and follow the instructions.

CONNECTION DIAGRAM

Stereo Headphones

Instrument or Line

Microphone or Line

(Headphone Jack on Front)

Outputs

USB 2.0

R　**L**　*Stereo*

Inputs

R - *Hi Z / Line*

L - Mic　**L - Line** ─⊙─ **Mic**

USB 2.0

Stereo

Powered Desktop Speakers

Computer

1/4" male to 1/4" male *(unbalanced)*

To Mixer Inputs

Mixer & Powered Speakers

or...

Mono 1/4" male to male Cinch (RCA) adapter

Aux Inputs

Integrated Amp & Speakers

1/4" male to 1/4" male *(unbalanced)*

Powered Speakers
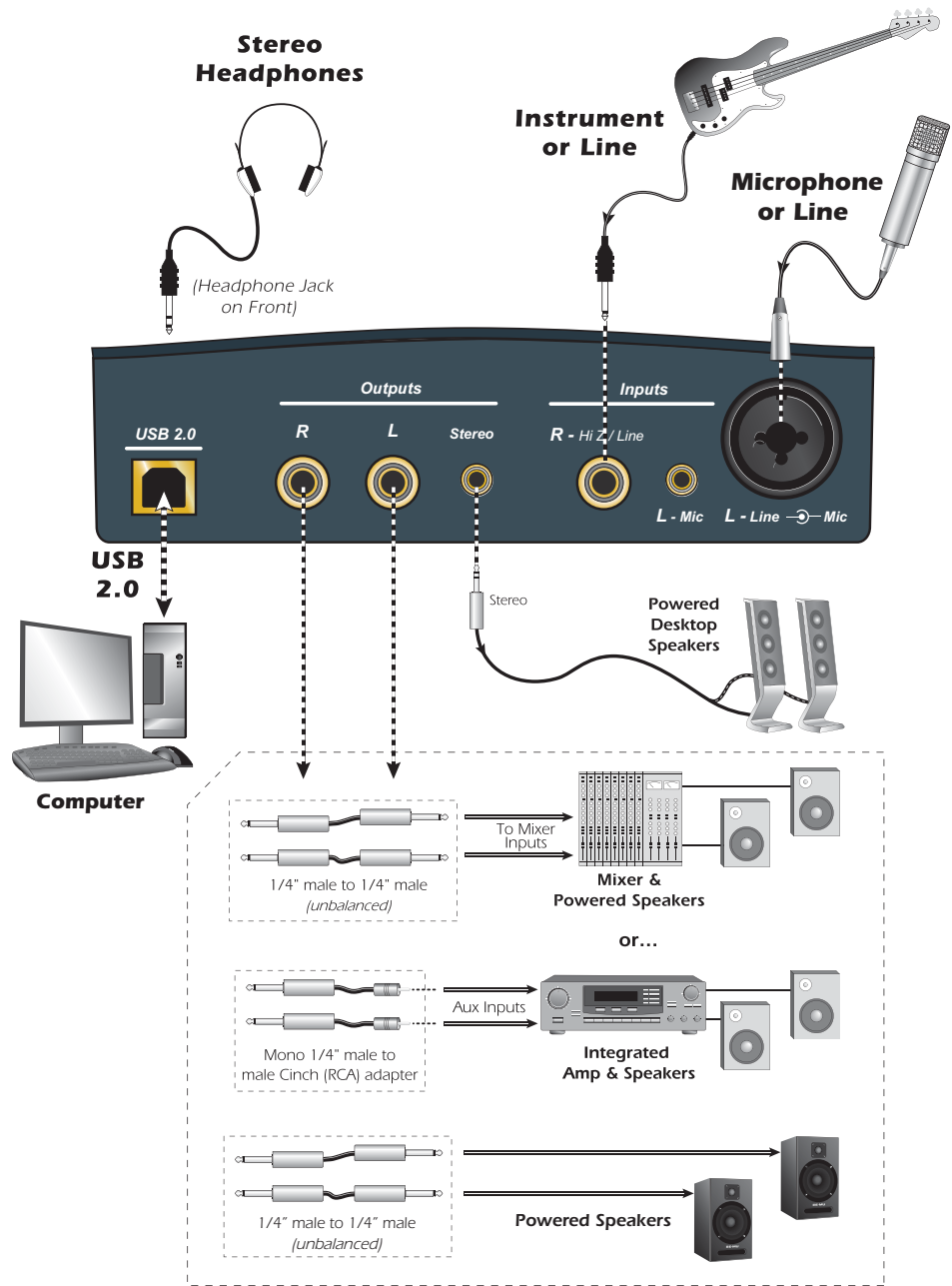
CONTROLS & HEADPHONE OUTPUT

1. **Signal Level & Clip Indicators**

    The LED signal level indicators show that you are inputing a proper signal level. With a proper input level, the green signal LED should be flickering, but the red clip indicator should NOT ever be lit.

    The clip indicators light and show that the input level has exceeded0 dBFS.

2. **Left/Right Gain Controls**

    These controls set the input gain from 0dB to +60dB for the two inputs.

3. **Direct Monitor Level Control**

    This encoder controls the amount of direct monitor signal mixed into the outputs. The level is adjustable from -24dB to off.

4. **Direct Monitor On/Off & Mono-Stereo Switch**

    Press the button to turn Direct Monitoring on and off and to switch modes. The stereo LED illuminates. The left and right channels are passed through to their respective outputs at the level set by the Direct Monitor Level control. Press the button again to sum the left and right direct monitor channels to mono. Mono mode is useful when the two inputs are being used for separate instruments. See "Direct Monitoring" on page 16.

5. **Headphone Jack**

    Connect your stereo headphones here.

6. **Headphone Level Control**

    This knob controls the volume of the headphone output. This switch also turns the 0202 USB 2.0 on or off.

INPUT/OUTPUT

7. USB

Connects the 0202 USB 2.0 to your computer via the supplied USB cable. The USB connection provides two-way communication when connected to the computer.

The 0202 USB 2.0 receives its power from the USB. Always connect to the USB jack on the computer itself and NOT to a low-power USB connection that may be present on your computer keyboard or other USB peripheral.
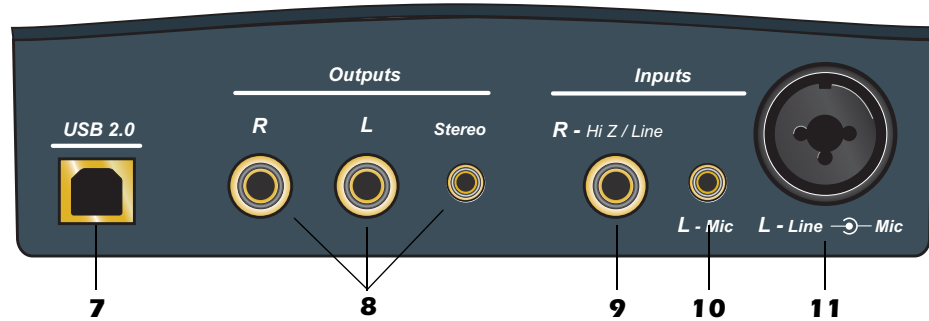
NOTE to PC Users:

When using a USB 1.1 port, performance is limited to 16-bit and 44.1/48 kHz recording and playback.

8. Main Outputs

The unbalanced outputs are normally connected to your monitoring system. The signal is duplicated on a stereo 1/8¨ jack for easy connection to desktop stereo speakers. The outputs are designed using a special noise-cancelling circuit which reduces problems relating to ground loops.

9. R - Hi Z / Line Input

This 1/4¨ input can be used as a Hi-Z instrument input (guitar/bass, etc.) or a line level input. The input is balanced, but accepts either balanced or unbalanced signals.

10. L - 1/8¨ Mic Input

Connect microphones with 1/8¨ plugs to this jack.

11. L - Hi-Z / Line / Mic Input

Use the XLR connector for microphones or balanced line level signals. Use the 1/4¨ in the center of the XLR jack as a Hi-Z input for guitar/bass, or as a line level input. The input is balanced, but accepts either balanced or unbalanced signals.

- ### Ground Lift Switches

  There are "ground lift" switches for both analog inputs located on the bottom of the unit. These switches can be used to safely stop the hum if a ground loop occurs in your setup. See for more information.
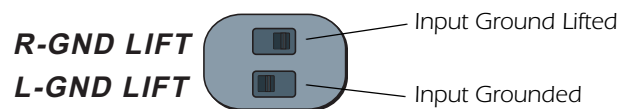

The input ground is lifted when the A or B slide switch is closest to the GND LIFT label.

E-MU USB AUDIO CONTROL PANEL

After you have successfully installed the audio drivers, launch the E-MU USB Audio control panel. The E-MU USB Audio control panel is shown below.

- **Windows:** The E-MU USB Audio control icon will be visible in the Taskbar, which is normally located in the bottom right of the screen. It can also be launched from the Start Menu
(All Programs, Creative Professional, E-MU USB Audio Application).

- **OS X** The E-MU USB Audio control application is located in the **Applications** folder . You can also open the E-Control Application using the icon on the desktop.
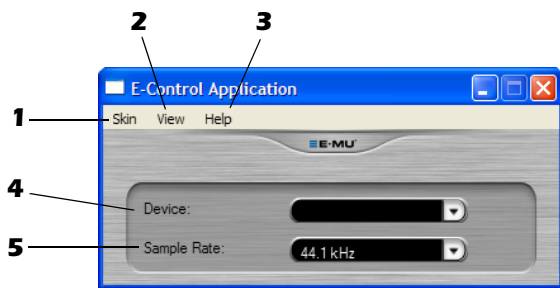
1. Skin
Choose between different appearances for the E-MU USB Audio control panel.

2. View
Hide the application (Ctrl+H, Windows) You can restore the application by clicking the E-MU icon in the System Tray (Windows), or by clicking the E-MU icon in the Dock (OS X).

3. Help
About E-MU 0202 USB 2.0, Audio control, Launch Manual, Check Updates

4. Device
If you are using more than one E-MU USB Audio device, you can choose which unit is currently being controlled.

5. Sample Rate
Allows you to set the system sample rate: 44.1kHz, 48kHz, 88.2kHz, 96kHz, 176.4kHz or 192kHz.

NOTE
There are some limitations when operating at 176.4/ 192k sample rates.

PC - *No Direct Monitor*

Mac - *Disabled*

DIRECT MONITORING

Direct monitoring allows you to monitor inputs without having any software open. It can also be used as an alternative to software monitoring if you desire the lowest latency monitoring possible.

When using a computer for digital recording, an audible time delay occurs while the audio signal is being input to the computer, processed by the software and then returned to the output for monitoring. This time delay is called *Latency*.

Latency becomes a problem when you have to use high buffer settings to conserve CPU resources. Because the 0202 USB 2.0 has hardware direct monitoring, you can enjoy zero latency regardless of your buffer setting.

The Direct Monitor feature connects the input signals to the output when recording so that you can hear your performance without delay. The Direct Monitor level control lets you adjust the volume of the input signal in relation to the recorded tracks.

Direct monitoring is controlled manually from the Direct Monitor switch on the 0202 USB 2.0. It's not necessary to turn it on in your recording application

Latency (delay)

USB

———— Software Monitoring
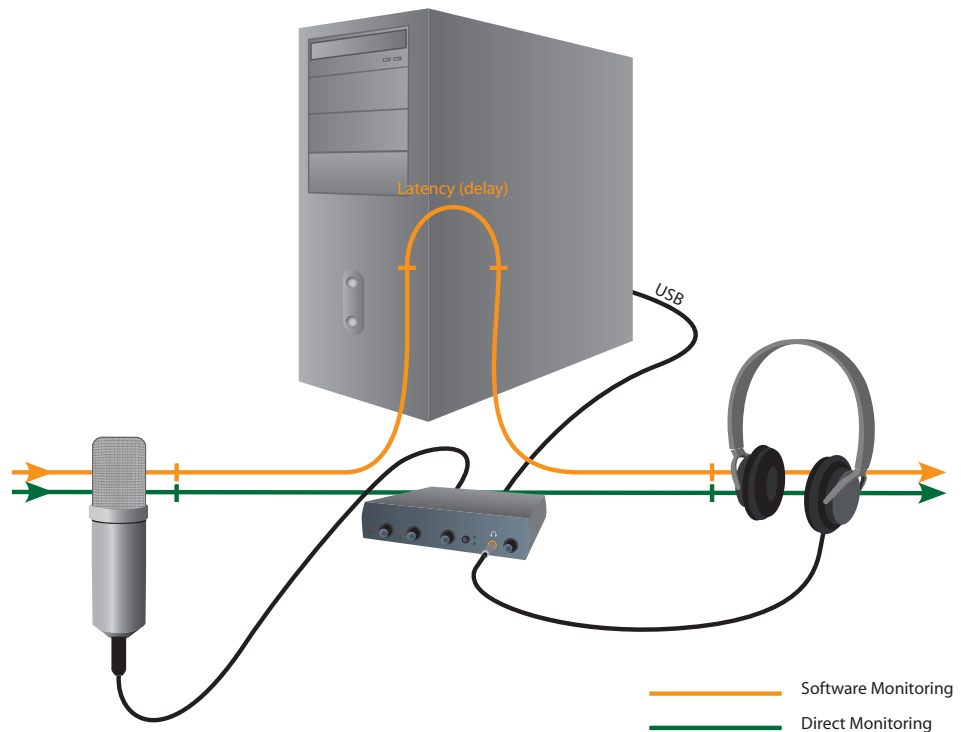
———— Direct Monitoring

*Direct Monitoring allows you to listen to the **direct** sound of your instrument during recording, without the delay incurred by going to the computer and back.*

Direct Monitoring vs. Software Monitoring

Direct monitoring is lower latency and can also be used without software running (or even without a computer!).

Software monitoring has the advantage of allowing audio effects or EQ added in the host software to be heard on the output. Its roundtrip latency depends on what latency is chosen in the ASIO configuration. If you choose to software monitor, make sure to disable direct monitoring. If both are enabled, you will experience a 'comb filter' or doubling effect.

TUTORIALS

Introduction

This guide contains step-by-step walk-throughs of basic recording operations using your E-MU 0202 USB 2.0 interface with software applications for your Windows computer. We encourage you to perform the steps on your computer as you read so that you become familiar with the process. The first tutorial only takes about half an hour to complete, by which time you'll know how to make a multitrack recording.

NEED MORE HELP?

If you need additional help with the bundled applications, please see:

- **Windows:** Program Files\Creative Professional\E-MU 0202 USB\Documents\3rdParty.htm.
- **OS X:** Applications Drive\Library\Documentation\E-MU 0202 USB\3rdParty.htm

Before you Begin...

- You should have already installed the E-MU software on your computer
- You should hear the computer sounds coming out of the E-MU 0202 USB 2.0 and your speakers when you play a CD or an MP3 using Windows Media Player or iTunes. If not, make sure your E-MU 0202 USB 2.0 is properly connected according to the diagram on .
- A source of audio should be connected to the inputs (a microphone, musical instrument, or CD/MP3 player).

Getting Started with Steinberg Cubase LE *(Windows)*

Steinberg Cubase LE is a 24-bit, multi-track audio/MIDI sequencer with high-quality effects, automation, virtual instruments (VSTi), and many other professional features.

The following step-by-step tutorials are designed to get you recording as quickly as possible.

1 - Setting up Cubase LE

Follow these instructions carefully to ensure that Cubase LE runs smoothly the first time. Cubase LE will remember these settings, so you'll only have to do this once.

1. **Open Cubase LE** from the Start menu. An ASIO multimedia driver test dialog box will pop up to ask if you want to run the ASIO test. Choose **No,** because you won't be using the driver anyway.

2. Select **New Project** from the **File** menu.

3. Select **Empty** and click **OK.**

4. A **Select Directory** pop-up dialog box will appear. Choose a location on your hard disk where you want to store your audio files, then click **OK.**

5. The Cubase LE Project window appears.
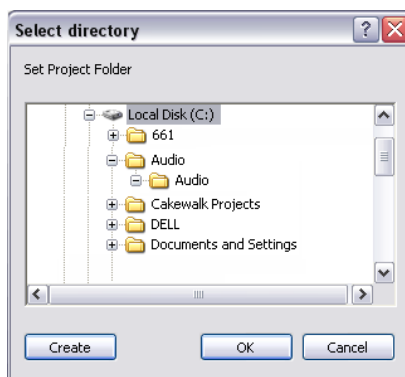
WARNING!
Windows Users - After checking your audio, be sure to quit Windows Media Player.

TIP . . .
If you have two or more hard disks, it's better to store audio files on a disk that isn't running your OS.
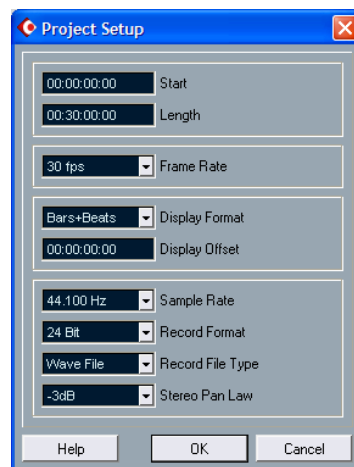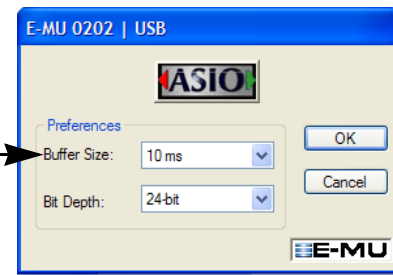
6. Select **Device Setup…** from the **Devices** menu.
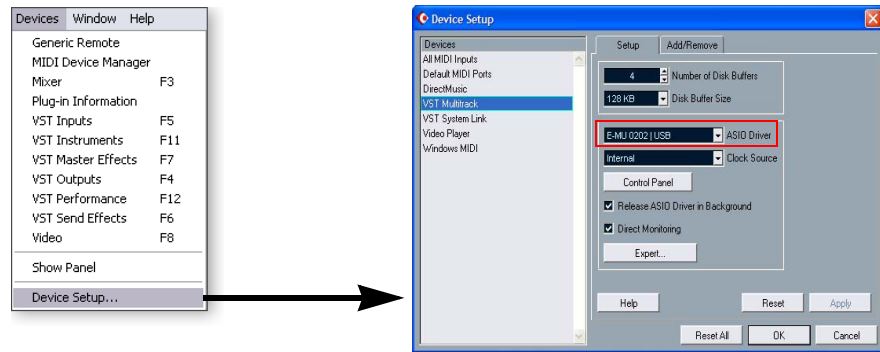
7. Select **VST Multitrack** from the Devices list.

8. In the **Setup** section of the dialog box, select **ASIO E-MU 0202|USB.** A pop up dialog box asks, if you want to keep or switch the ASIO driver. Select **Switch**.

Buffer Latency Setting

9. Click the **Control Panel** button. The pop-up dialog box shown at right appears.

10. Set the **ASIO Buffer Latency** as low as your computer will allow and click **OK**.
(10ms is a good starting point.)
A low latency setting is important to assure fast response when using virtual instruments and to minimize delay when monitoring through Cubase. If you hear crackles or other audio problems, try increasing the Buffer Size.

11. Close the **Device Setup** screen by clicking **OK**.

12. **Note:** If the Cubase LE application crashes for any reason, it is recommended that you re-boot the computer.

13. Select **Project Setup** from the **Project** menu. This is where you set the Sample Rate and Record Format (bit depth), among other things. Set the Record Format to **24-bits** and the Sample Rate to **44.1kHz.**

14. Select **VST Inputs** from the **Devices** menu. This is where you enable the inputs you wish to use. Make the inputs active.
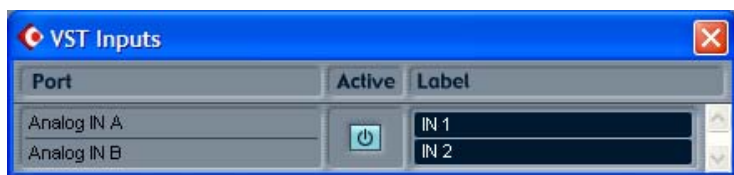
2 - Basic Multitrack Recording

This tutorial assumes you're using a single input or a pair of inputs. For more advanced recording, refer to the Cubase LE manual.

Add an Audio Track

1. From the Cubase LE menu bar, select **Project**, **Add Track**, **Audio.** An audio track is added to the project window.

Inspector button   Stereo/Mono button

Monitor   Track Input
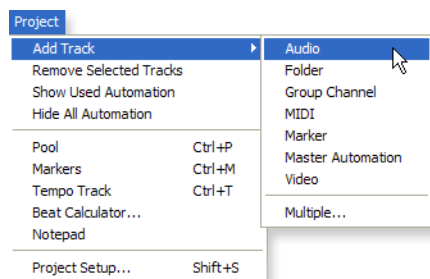
2. The screen shows the "L" input of the 0202|USB. Note that **IN 1** is shown in the **Track Input** field (Input L =IN1, Input R =IN2). If you want to record in stereo, turn the **Stereo/Mono** button On and select IN 1 + IN 2 for the Track Input.

3. Make sure the Monitor button ▣ is **OFF.** You will be monitoring the input through the 0202 USB 2.0.

NOTE
If the Inputs aren't available, check Devices, VST Inputs.

Direct Monitor

● Stereo
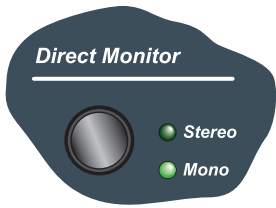
● Mono

NOTE

Turning on the metronome adds a 2-bar lead-in before recording begins.

4. Press the **Direct Monitor** button on your E-MU 0202|USB 2.0. If you are recording a mono track, set Direct Monitor to **Mono** by pressing the Direct Monitor button again.

Get Ready To Record

5. Plug in your instrument or microphone and set the input gain control for a good signal level. The green -12 signal LED should come on, but the clip LED should never come on.

6. You should be hearing your instrument or microphone through your monitor speakers or headphones. If not, go back to steps 4 and 5.

7. **Optional Step - Metronome:** To toggle the Metronome on and off, press **C** on the computer keyboard. To adjust the metronome output level, press the transport **Play** control, then select **Metronome Setup...** from the **Transport** menu. Use the volume slider to set the desired metronome level.

8. Press the **Go to Start** button |◀.

9. Make sure the **Record Enable** button on the track is on (it should be by default).

Record Enable

10. Press the **Record** button on the Cubase transport control panel. The button turns red and you're recording.

Go to Start   Stop   Play   Record
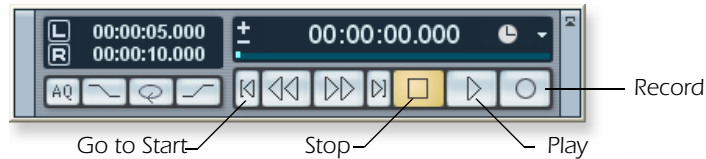
11. When you're finished recording your track, press the **Spacebar**, or press the **Stop** button on the Cubase Transport Control.

12. Press the **Go to Start** button |◀.

13. Press the **Spacebar** or press the **Play** button to play back your new Track.

Record Another Track

14. Press the **Go to Start** button |◀.

15. Drag the audio chunk you just recorded down below itself and release the mouse button. A new track is automatically created with your recording. This is a quick and easy way to set up a new track in Cubase. Now you're all set to record again on Track 1.


Drag
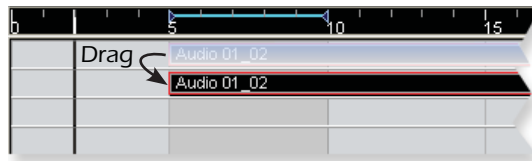
16. Press the **Record** button on the Cubase transport control panel and you're recording again. You'll hear your first track playing along with you.

17. **Repeat steps 12-14** to record more audio tracks.

18. Press the **Mute** button ☒ to silence any tracks you don't want to hear.

3 - Recording a MIDI Track using Proteus VX

You'll need a MIDI interface and a MIDI keyboard (or other MIDI input device) for this tutorial.
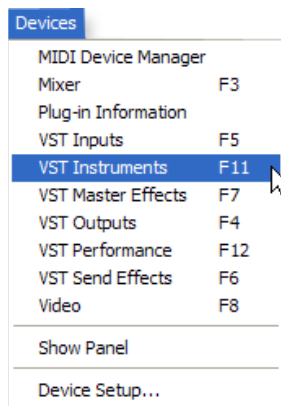
Make the Connections

1. Connect the MIDI out of your MIDI keyboard to the MIDI input of your MIDI interface.

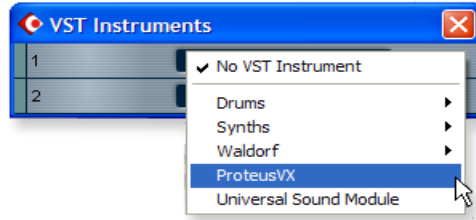2. From the **Project** menu, select **Add Track**, **MIDI**.
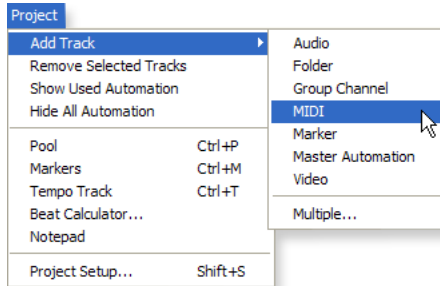
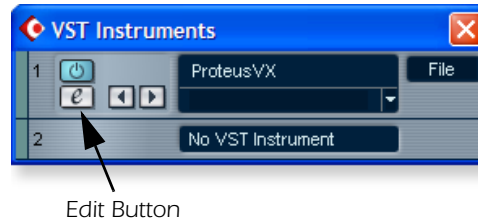The Cubase Project Window should now look more or less like the one below with one or more Audio tracks and one MIDI track:

3. Click the **Devices** menu, and select **VST Instruments**.

4. From the **VST Instruments** window, select **E-MU**, then **ProteusVX.**

The VST Instruments window now looks like this.

Edit Button

5. Take a look at the **Inspector** area on the left side of the Cubase LE project window. Make sure the input to the MIDI track is connected to the input of your MIDI Interface or USB MIDI controller.

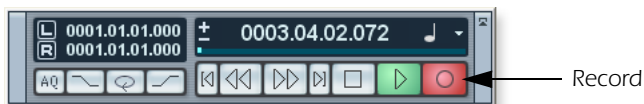6. The Output is not yet connected to anything. Click on the Output and select **ProteusVX.**
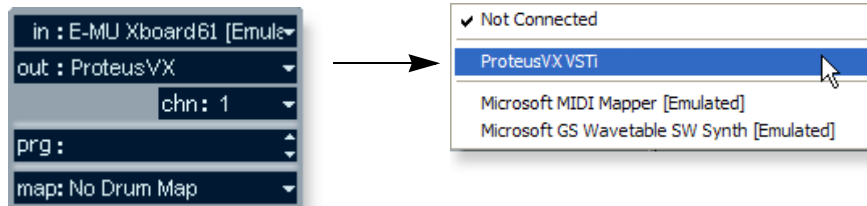
7. Click the **Edit** button 𝑒 of the **VST Instruments** window to open the Proteus VX. Alternatively, you could click on the **Edit** button of the track **Inspector** to open Proteus VX.

8. Next, you need to load the Proteus X Composer bank. Select Proteus VX from the File menu. The banks is installed here: "Program Files/Creative Professional\ E-MU Sound Central\Proteus X Composer." Loading takes a few seconds.

9. Bring up the **mini keyboard** 🎹 by clicking the icon on Proteus VX and play a few notes. You should be hearing sound. If not, verify that the 0202 USB 2.0 is properly configured.

10. **Play your MIDI controller** and verify that it plays Proteus VX.

11. Change the Preset using the inc/dec keys ⬍ of the **prg:** field of the inspector. `prg:Dynamic Grand` The preset on Proteus VX should change to follow the one in Cubase LE. If not, make sure the **Receive Program Changes** box is checked in Proteus VX (Options, Preferences..., MIDI).

12. Feel free to play around for awhile and don't worry about losing anything. Nothing is made permanent until you **Save** the bank, so have fun.

Getting Started with Cakewalk Sonar LE *(Windows only)*

Sonar LE is a 24-bit multi-track audio/MIDI sequencer with high-quality effects, automation, virtual instruments (VSTi/DXi), and many other professional features.

IMPORTANT: During installation of Sonar LE you will be asked to run the Cakewalk VST Adapter. You must do this in order for Sonar to recognize Proteus VX or any other VST plug-ins.

The following step-by-step tutorials are designed to get you recording on Sonar LE. After you finish the tutorial we encourage you to read the Sonar LE PDF manual in order to learn about the many features of this comprehensive program.

1 - Setting up Sonar LE

Follow these instructions carefully to ensure that Sonar LE runs smoothly the first time. Sonar LE will remember these settings, so you'll only have to do this once.

Run Sonar LE for the first time

1. **Open Sonar L**E from the Start menu or by double-clicking on the desktop shortcut. The first time you run Sonar LE, the following dialog box appears:
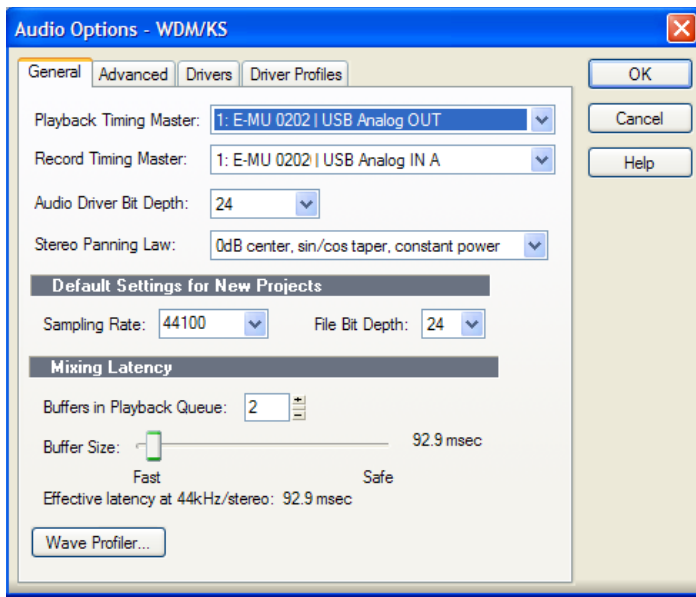

2. Click **No** to close the dialog box. (The tests do not apply to the 0202 USB 2.0.) Sonar LE opens and the following dialog box appears.
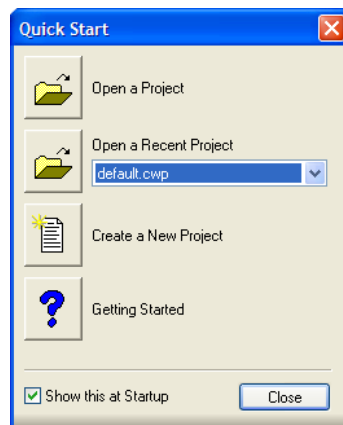
3. Click **Close** to close the dialog box. The Sonar Project Window appears.

Set-up the Audio Options

4. From the **Options** menu, select **Audio.** The following dialog box appears.

5. Click on the **Advanced** Tab to access the next window.
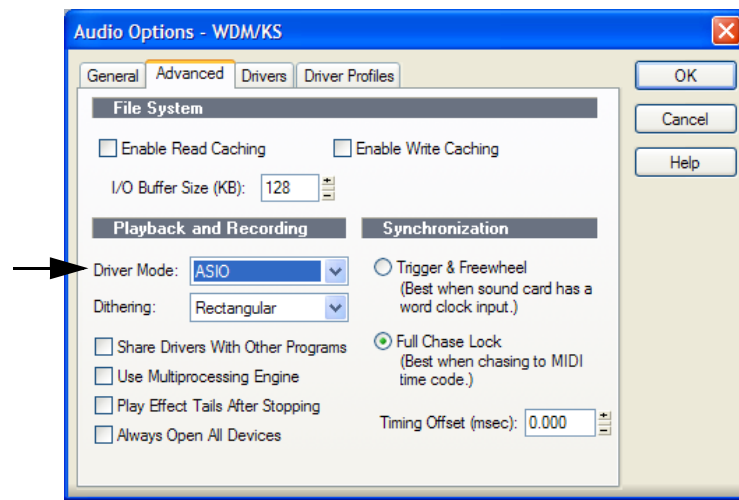
6. Select **ASIO** as the Driver Mode and click **OK**. You'll get a pop-up dialog box explaining that the ASIO settings won't take effect until the next time you start Sonar LE.

7. **Close Sonar LE** completely and restart the application.

Return to the Audio Setup Options

8. Once Sonar LE has restarted, select **Audio** from the **Options** menu.
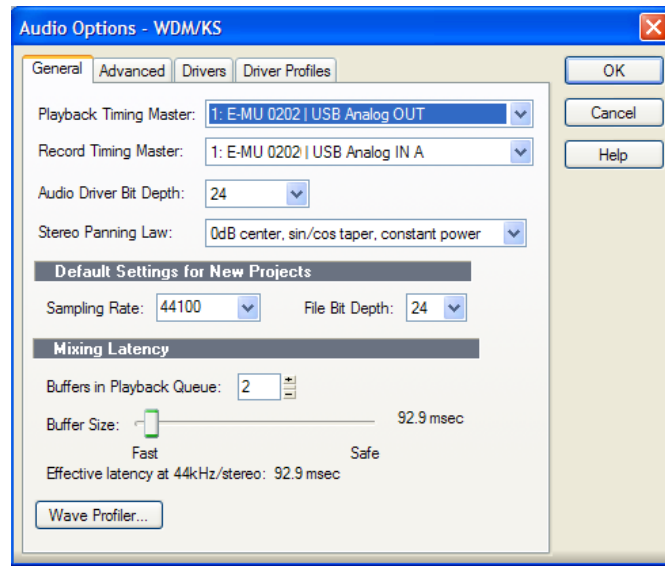

9. Click the ASIO Panel. The pop-up dialog box shown at right appears.

10. Set the **ASIO Buffer Latency** as low as your computer will allow. A low latency setting is important to assure fast response when using virtual instruments and to minimize delay when monitoring through Sonar LE. If you hear crackles or other audio problems, try increasing the Buffer Size.

11. Close the **Audio Options** screen by clicking **OK**.

    Note: If the Sonar LE application crashes for any reason, it is recommended that you re-boot the computer.

Set the Location of your Audio Files

12. From the **Options** menu, select **Global**.

13. Select **Audio Data**, then select a location for the **Global Audio Folder**.

TIP . . .
If you have two or more hard disks, it's better to store audio files on a disk that isn't running your OS.

2 - Basic Multitrack Recording

This tutorial assumes you're using a single input or pair of inputs. For more advanced recording, refer to the Sonar LE manual. Sonar opens by default with with 2 audio tracks and 2 MIDI tracks.

The Sonar Project Window

Inspector   Restore Strip Size

Track Record Enable
Step 3
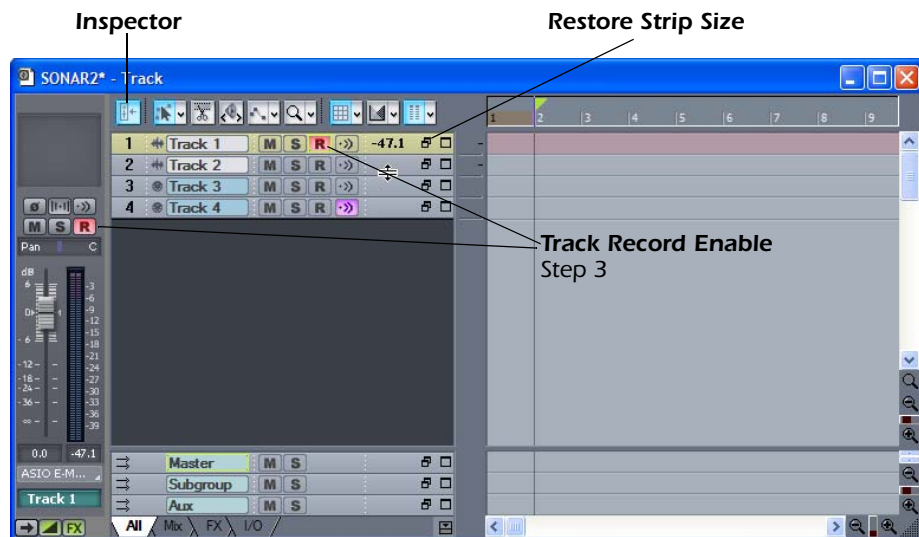
1. Click the **Restore Strip Size** button for Track 1. This reveals the input and output routing of the track. The E-MU **0202** USB 2.0 will already be selected as the output destination.
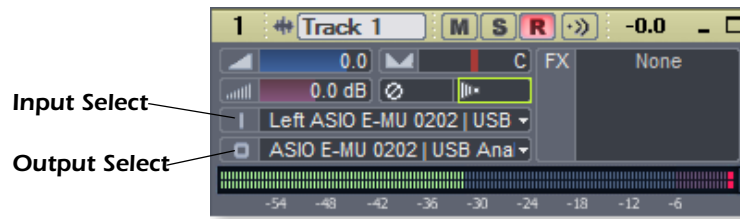

Input

Output

Click Here
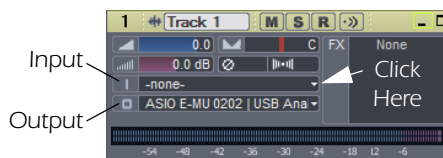
2. Select the input source by clicking on the small triangle on the input field. If you wish to record a mono signal on the Left input of the 0202 USB, select **Left ASIO E-MU 0202|USB Analog In A**. To record both inputs in stereo select **Stereo ASIO E-MU 0202|USB Analog In A.**
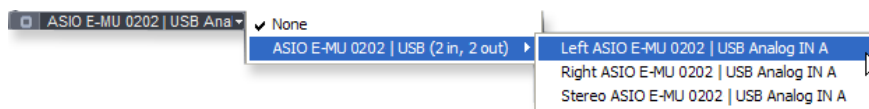
3. The Input Echo button should be **OFF.** You will be monitoring the input through the E-MU **0202**.

4. Press the **Direct Monitor** button on your E-MU **0202** USB 2.0. If you are recording a mono track, set Direct Monitor to **Mono** by pressing the Direct Monitor button again.

5. Press the **Track Record Enable** button for the track. (See the diagram above.) The track turns a dull red color to indicate that it is record-enabled. You should now see activity on the Track Input Meter when feeding a signal into the 0202 USB 2.0.

TIP . . .
If you don't see meter activity on the track, check the Input for the track. Make sure you are selecting the proper input source.

Input Select

Output Select

6. If your input signal is either too weak or too strong, adjust the input level control on the 0202 USB 2.0.

7. **Optional Step - Metronome:** First, select **Toolbars** from the **View** menu and check the **Metronome** Toolbar. Next turn **Metronome During Record** On by clicking the 🎵 button.

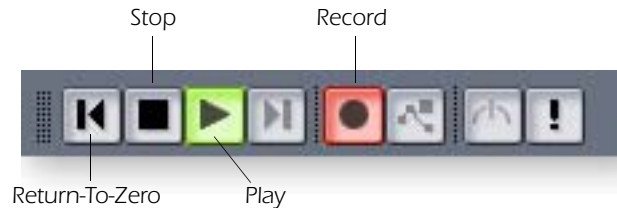## Record a Track

8. Press **Record** on the Sonar LE Transport control and start playing.

Stop   Record

Return-To-Zero   Play

9. Press **Stop** when you're finished recording the first track.

10. Press **Play** on the Sonar LE Transport to play back your track.

11. If you want to dump the track and start over, **Right-click over the waveform display** in the track and choose **Delete**.

Record Another Track

TIP . . .
You can create a new track by selecting Clone, from the Track menu. This handy feature duplicates the currently selected track complete with input/output routings.

12. **Select Track 2** and click the **Restore Strip Size** button 🗗 to expose the input and output routing.

13. **Set the Input source** for the track. Click on the little triangle ▼ on the right side of the track **Input** box.

14. Disable record for Track 1 by clicking on the **Track Record** button Off. 🅁

15. Enable recording for Track 2 by clicking on the **Track Record** button **On**.

16. Press the transport **Record** button and you're recording.

Hot Tip: A quick way to record additional tracks using the same input is to simply drag the Part (audio region) you just recorded up or down to another track in the Sonar Project Window, then just hit **Record** again and go. (Choose **Blend Old and New** when asked in the Drag & Drop Options.)

Save your Project

17. Choose **Save As...** from the Sonar LE **File** menu to save your project. Choose a name and location that will make the project easy to find later.

3 - Recording a MIDI Track using Proteus VX

These instructions explain how to start Proteus VX from within Sonar LE. You'll need a MIDI interface and a MIDI keyboard (or other MIDI input device) for this tutorial.

- **Important:** If Sonar was installed BEFORE Proteus VX VSTi, you will have to run the Cakewalk VST Adapter before Sonar can use the VSTi. (Start, Programs, Cakewalk, Cakewalk VST Adapter).

1. Connect the **MIDI output** of your MIDI keyboard to the **MIDI input** of your MIDI interface.

Select the Virtual Instrument

2. Select **Synth Rack** from the **View** menu. The following window appears:

Click Here
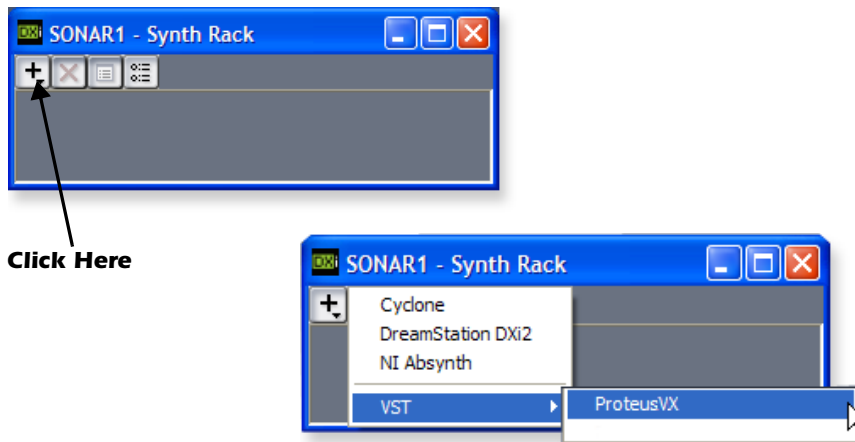
3. Click on the **+** symbol to add an instrument. Follow the path shown above and select **Proteus VX** from the list of VST instruments. The following pop-up dialog box appears.
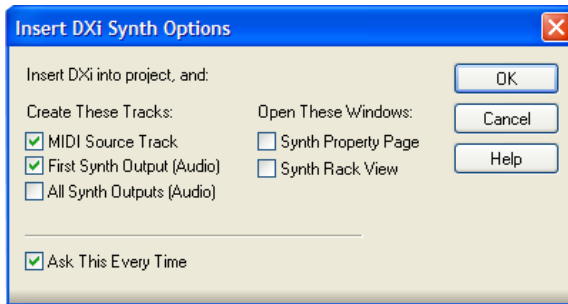
4. Select the default options (MIDI Source Track & First Synth Output) as shown. Click **OK** to continue. (This may a take a few seconds.)

5. Proteus VX now appears in the Synth rack and two new tracks have been added to the bottom of the track list. (You may have to scroll down to see the new tracks.)

New Proteus VX Tracks

Audio Output from Proteus VX

MIDI input to Proteus VX

Click Here to view the strip controls.

The MIDI Connection

6. Select the blue **MIDI Input** track by clicking on it. The MIDI Input connection appears in the strip to the left of the MIDI tracks.
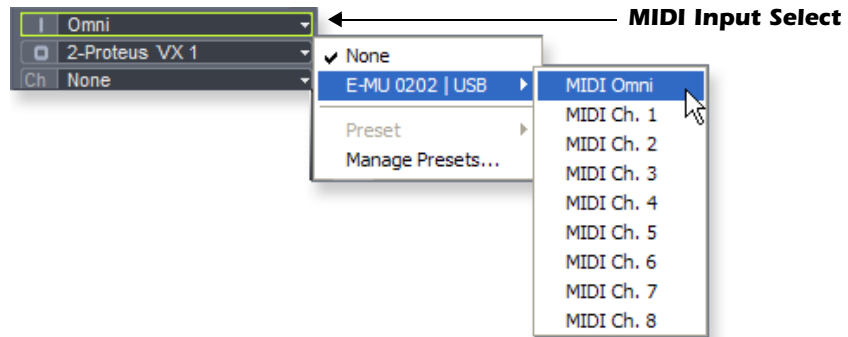
MIDI Input Select

7. **Your MIDI Interface** should already be selected as the MIDI input in **Omni** mode as shown above. "MIDI Omni" allows Proteus VX VSTi to receive on all 16 MIDI channels from your MIDI keyboard. (Proteus VX VSTi is "multi-timbral" and can assign a different preset to each of the 16 MIDI channels.)

8. Set the MIDI Channel for the track to channel 1 as shown at right. This "re-channelizes" the incoming MIDI data on any MIDI channel to channel 1.
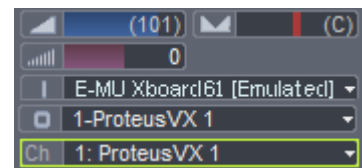
Open Proteus VX

9. Double-click on the number (or on the Proteus VX name) to open the Proteus VX editor.

Synth Rack with Proteus VX

Double-Click Here
to Open Proteus VX
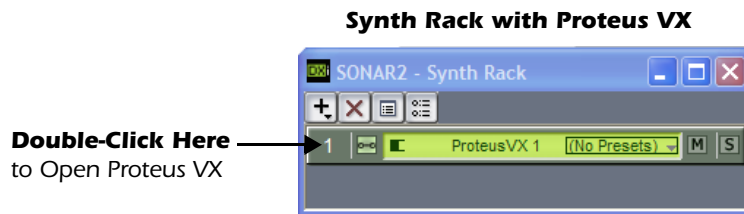
10. After a few seconds, the Proteus VX editor screen shown below appears.
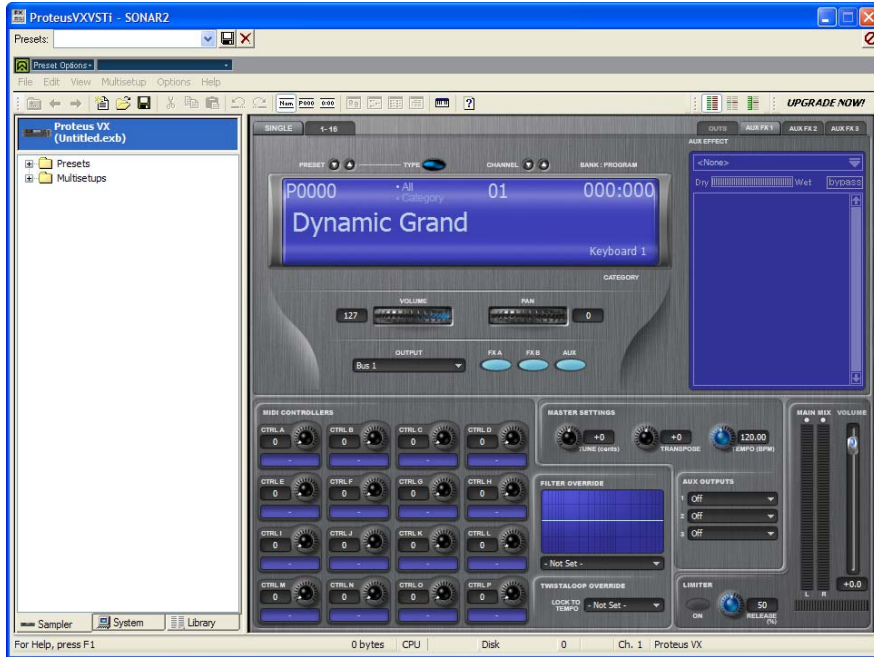
Play the Proteus X Composer Bank.

11. Select the 16 channel tab. This page allows you to select presets for all 16 MIDI channels.

16 Channel Tab⎯   ⎯ Select Preset

12. Select a preset for MIDI Channel 1 by clicking the little triangle.

13. Play your MIDI keyboard and verify that it plays Proteus VX.

14. Feel free to play around for awhile selecting presets and exploring Proteus VX. Don't worry about losing anything. Nothing is made permanent until you **Save the bank**, so don't worry and have fun.

To Record a MIDI Track

15. Minimize the Proteus VX window by pressing the minimize button ⊟.

16. **Record-Enable** the MIDI Track by pressing the track **Record** button (R). The track turns a dull red color to indicate that it is record-enabled.

- **Important:** Be sure to turn Track Record Enable **OFF** for any tracks you don't want to record on, such as previously recorded tracks.

Track Record Enable

17. Press **Record** on the Sonar LE Transport control and start playing.

18. Press **Stop** when you're finished recording the first track.

19. Press **Play** on the Sonar LE Transport to play back your track.

*To Record a MIDI Track on another MIDI Channel*

Proteus VX VSTi can play back up to 16 MIDI tracks at once. It's much better to use several channels on one VSTi than to use multiple VSTi's with one channel each.

20. Select **MIDI Track** from the **Insert** menu.

21. Select the MIDI input for the new MIDI track. Select **MIDI Omni** as you did before.

22. Select **Proteus VX** as the **Output** destination for the track.

23. Select **MIDI Channel 2** in the **Ch.** field as shown below.

Input Select
Output Select
MIDI Ch. Select
Chan. 2 Selected
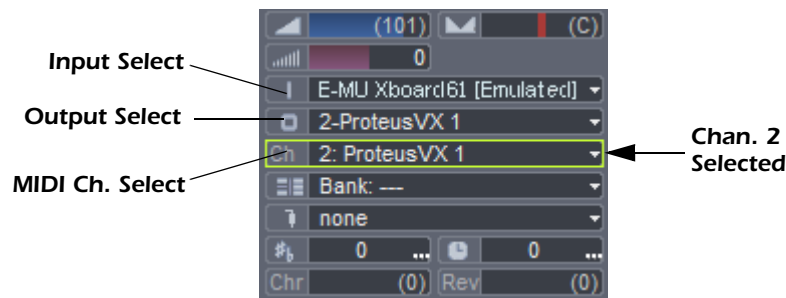
24. Restore Proteus VX by clicking on the **Restore Up** 🗗 button on the minimized Proteus FX window. Select a preset for channel 2 by clicking the little triangle on channel 2 in the 1-16 channel view of Proteus VX.

25. Play your MIDI keyboard to listen to the presets during the selection process. Click **OK** when you've made your selection.

26. Record Enable the track by pressing the **Track Record Enable** button [R]. If you want to record multiple tracks simultaneously, simply turn **Record** Enable on for each track you wish to record.

27. Press **Record** on the Sonar LE Transport control and start playing.

28. Press **Stop** when you're finished recording the second track.

On Your Own

Now that you've had a taste of what Proteus VX can do, please read the Proteus VX Operation Manual PDF to learn all about this exceptional instrument.

Sonar LE also includes useful online documentation and help files to help you learn about the features of this powerful program.

Getting Started with Ableton Live Lite 4 *(Windows/OS X)*

This guide contains a basic walk-through of Ableton Live Lite 4 (E-MU Edition) to get you recording and playing back audio. A Proteus VX tutorial is also included for Windows users. We encourage you to perform the steps on your computer as you read so that you can "learn by doing."

Ableton Live Lite 4 is an innovative composition and performance tool. Live combines digital recording, virtual instruments, and digital effects with an original interface design that many people find more intuitive than traditional designs.

The following step by step tutorials are designed to get you recording as quickly as possible. After you've finished the tutorial we encourage you to follow Ableton Live's excellent interactive Lessons and read the Ableton Live reference manual pdf in order to learn more about the program.

Before you Begin:

- You should have already installed the 0202 USB 2.0 and software on your computer according to the instructions in your printed "Getting Started" manual.
- You should have already installed the Ableton Live Lite 4 software on your computer according to the instructions provided with the Ableton software.
- You should hear sounds from Ableton Live Lite 4 when you play the Ableton demo.
- You should have your MIDI interface and keyboard connected if you want to record MIDI.

1 - Setting up the Preferences

Unlock Ableton Live Lite 4 for E-MU by following the instructions in the Preferences menu. *(Windows - Options menu, Preferences; OS X - Live menu, Preferences)* Read the following instructions to configure the Audio and MIDI preferences. Live will remember these settings, so you'll only have to do this once.

Set up the Plug-ins

The following steps allow Ableton Live Lite 4 to find the VST Plug-ins and Proteus VX.

1. Click on the **Plug-ins** tab of the **Preferences** dialog box under the **Options** menu (Windows) or **Live** menu (OS X). The following screen appears.
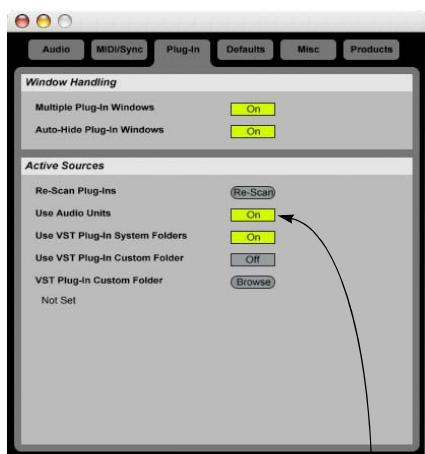
OS X   *Windows*
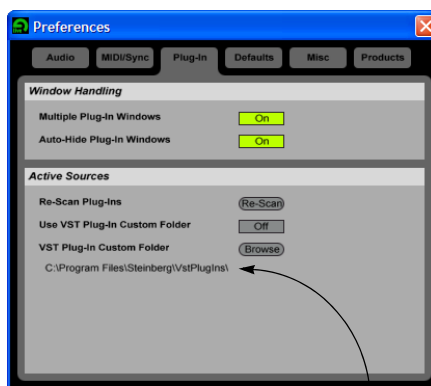
Locate: *Steinberg\VSTplugins*

1. Turn On: *"Use Audio Units " & "VST Plug-in System Folders"*
2. Re-Scan Plug-ins

NOTE
The first time you run Live, you may get the message, "Audio is disabled. Please choose an audio output device from the Audio Preferences." Simply follow the instructions in "1-Setting up the Preferences" to correct the situation.

OS X Users

2. Turn on **Use Audio Units**.

3. Turn on **Use VST Plug-in System Folders.**

4. Press the **Re-scan Plug-ins** button. (You may have to wait a few seconds.)

Windows Users

5. Press the **Browse** button, then locate **VST Plug-ins** located in the **Steinberg** folder. (Default path: C:\Program Files\Steinberg\VstPlugIns\)

6. After selecting the VST plug-ins folder, press **OK**. (You may have to wait a few seconds while Ableton locates the plug-ins.)
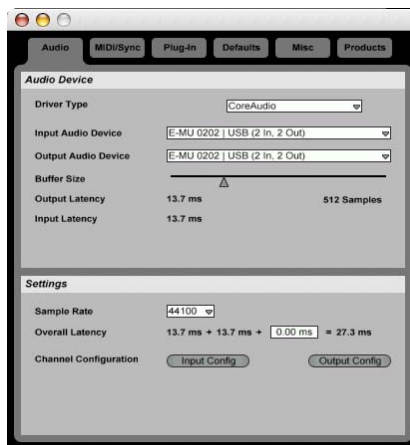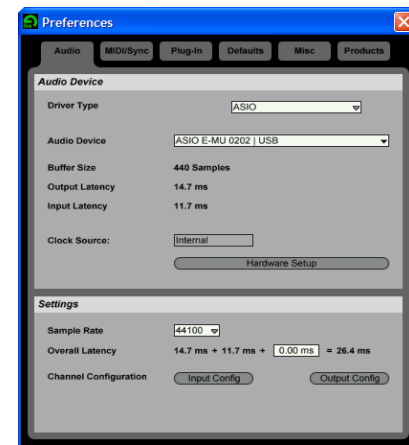
Set up the Audio Parameters

7. Click the **Audio** tab of the **Preferences** dialog box. The Audio Setup page appears.

NOTE
Windows Users: If the plug-ins do not appear after selecting the proper folder, press the Re-scan button.

OS X   *Windows*

Set up the Audio Parameters as shown above.

8. **Windows Users:**Select **ASIO** and **ASIO E-MU 0202|USB** as the **Audio Device**. **OS X Users:** Select **Core Audio** and **E-MU 0202|USB** as the **Audio Device.**

Set up the MIDI Parameters
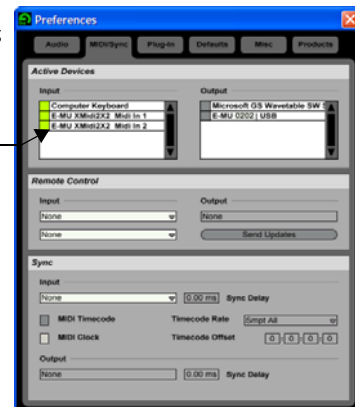
9. Click the **MIDI/Sync** tab of the Preferences dialog box. The MIDI Setup page appears.

NOTE
Live enables every MIDI input by default
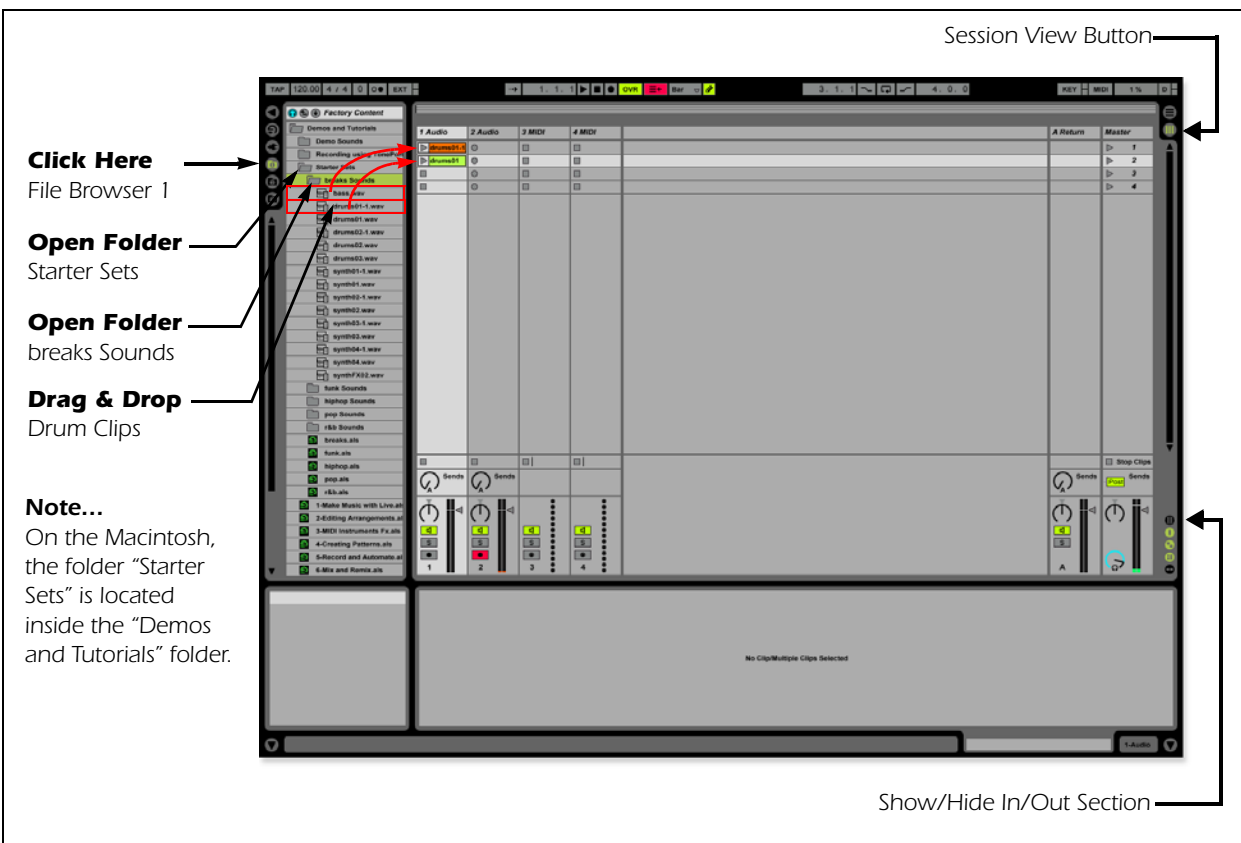
OS X   *Windows*

Select MIDI Interface

10. Your MIDI interface or USB MIDI keyboard should appear in the list. Make sure it's selected.

11. Preference Setup is now complete. Click the **close button** to close the window.

2 - Playing Audio Clips

Ableton Live Lite contains a bunch of great pre-recorded audio clips. In this short section, you'll learn to select and play clips.

1. Select **New Live Set** from the **File menu**. A new Ableton Live set opens with two audio tracks and two MIDI tracks such as the one shown below. If the window doesn't look like the one below, click the **Session View** button.

Click Here
File Browser 1

Open Folder
Starter Sets

Open Folder
breaks Sounds

Drag & Drop
Drum Clips

Note...
On the Macintosh, the folder "Starter Sets" is located inside the "Demos and Tutorials" folder.

Session View Button

Show/Hide In/Out Section

2. Follow the three steps shown above in the diagram to open the "**breaks Sounds**" folder. **Note:** On the Macintosh, the folder "Starter Sets" is located inside the "Demos and Tutorials" folder.

3. Drag and drop the **drums01-1.wav** and **drums01.wav** clips over to Audio Track 1.

4. Now click on the **Clip Launch Button** (little triangle) ▶drums01-1 on one of the clips you just dragged over. The loop begins playing. To stop playing, press the Stop button on the transport.

5. Click the **Clip Launch Button** on the other clip. The new clips begins as soon as the first one is finished.

6. Try out more pre-recorded audio clips. (To delete a clip, just select it and press Delete.)

7. Press the Stop button ▣ in the Transport to stop playing.

8. When you're finished exploring, and are ready to go on to the next tutorial, just make sure that you have at least **one drum clip in Audio Track 1** and **one empty slot in Audio Track 2**.

3 - Recording Audio into Ableton Live

1. Select an empty **Audio Track** with no clips.

2. From the **View Menu** on Ableton Live, select **In/Out**. *(Alternatively, you could also click the "Show/Hide In/Out Section button" as shown in the diagram on the previous page.)* Several more options now appear in the mixer strips.

3. Input channels 1/2 are selected by default (stereo). If you want to record a mono track select input 1 or 2 from the drop-down menu.

4. Feed an input signal into the 0202|USB 2.0 from a guitar, keyboard, CD player or other audio source. A mini-meter appears in the input selection field. The mini-meter should appear green. If not, reduce the input level.

5. Press the Arm Session Record button located at the bottom of the strip. The button turns red. You should now hear your input signal if **Monitor is set to Auto**.

6. Start one of the Drum Clips and practice playing along with a short riff.

7. When you're ready to record, **click on the empty circle** in one of the empty clips in Track 2. Recording begins immediately. After recording a bar or two, hit the **Space Bar to Stop**.

8. Double-click on the audio clip you just recorded and it appears below the mixer section as shown below. Play both clips back by clicking **Play** button above the mixer section. Make sure your recorded loop plays in time with the drums. If not, delete the audio clip and re-record it.
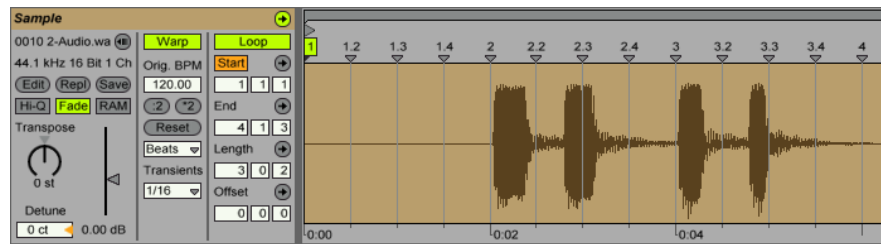
9. **Click and drag the 1 Warp Marker** over to the beginning of your recording as shown below.

1 Warp Marker
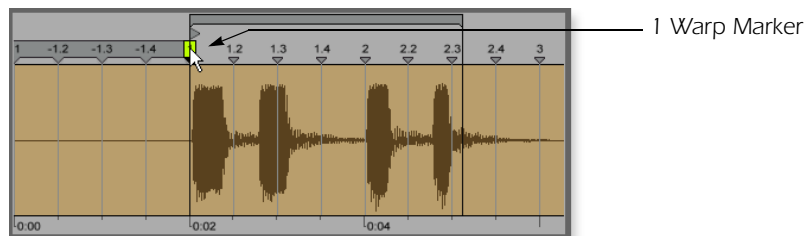
10. **Next, drag the Loop End marker** to make your loop the desired length.

Loop End Marker
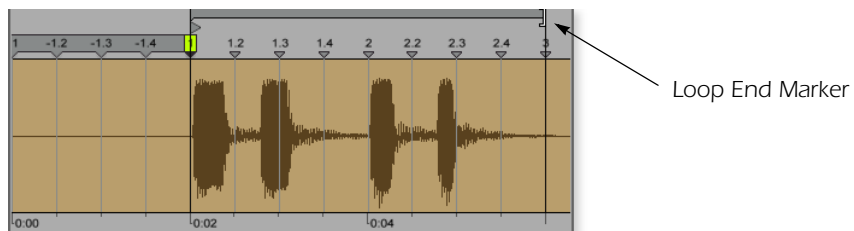
11. **Press Play.** Your loop should now play in time with the drum loop.

Tutorials

4 - Running Proteus VX VSTi from Ableton Live (Windows only)

These instructions explain how to run Proteus VX from within Ableton Live Lite 4. Ableton Live's forte is making it easy to combine pre-recorded audio and MIDI clips in new and exciting ways. In this tutorial, you'll learn how to use a MIDI keyboard or the pre-recorded MIDI loops that come with Ableton Live Lite 4 to play Proteus VX.

1. Select **New Live Set** from the **File menu**. A new Ableton Live set opens with two audio tracks and two MIDI tracks such as the one shown below. If the window doesn't look like the one below, click the **Session View** button.

NOTE
These instructions also apply to Proteus X or Emulator X.
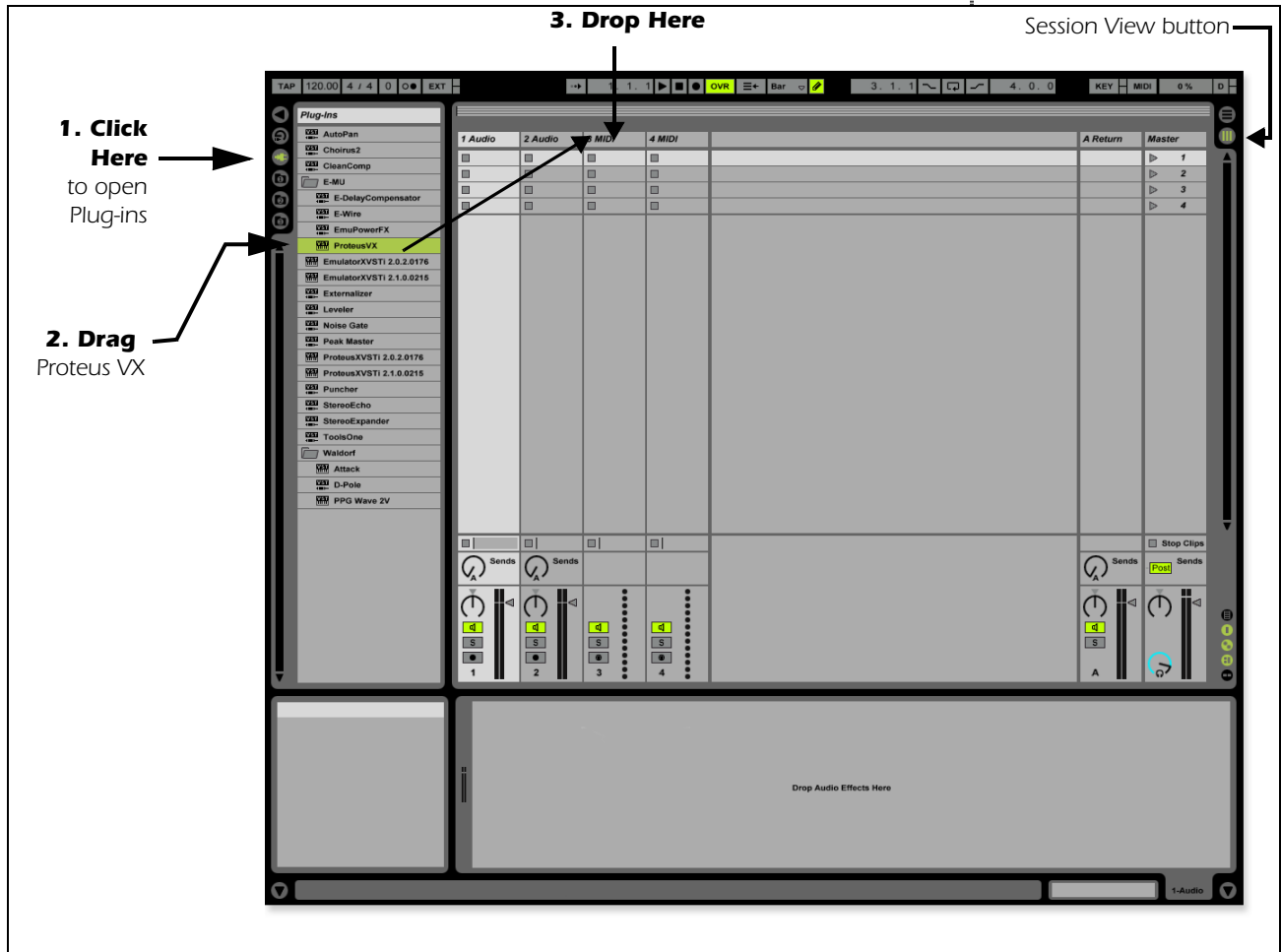
Select Proteus VX as a Virtual Instrument

2. Click on the Plug-in Device Browser button on the left side of the window. The list of Ableton Plug-ins appears at the left side of the window.

3. Select **Proteus VX** from the Plug-ins list and **drag it over the MIDI Track heading** as shown above. Wait a second or two, then you'll see the Proteus VX VSTi appear in the MIDI Track View area below the mixer.

Load the Proteus VX Bank

4. Click on the wrench icon on Proteus VX in the area below the mixer. See the image at right.
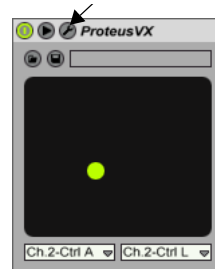
Step 4:
Select Wrench Icon

Step 2:
Plug-in Device Browser

0202 USB 2.0 Owner's Manual   37

5. The Proteus VX application window shown below appears.

Mini Keyboard
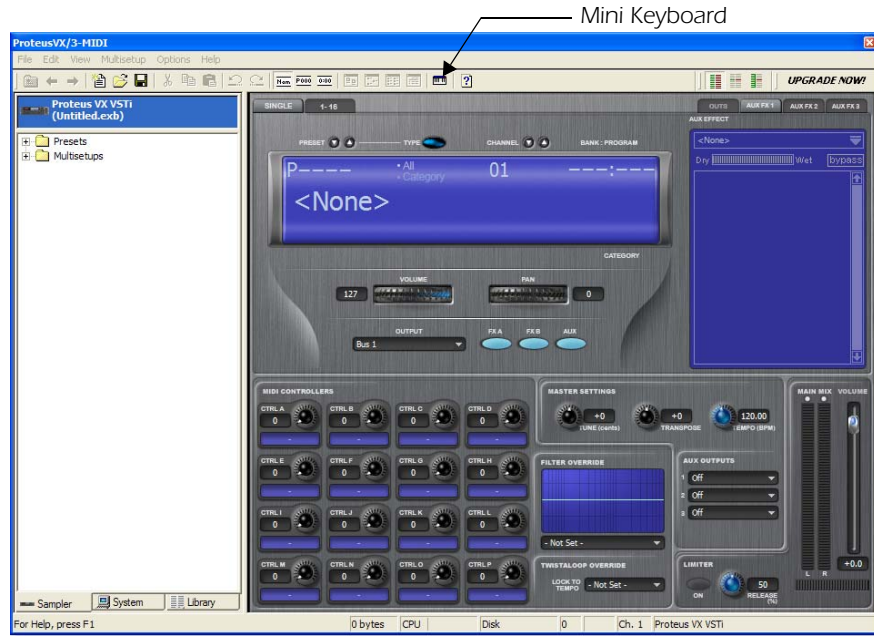
Load the Proteus X Composer Bank

6. Proteus VX is now running, but you need to load a bank of sounds.

7. Choose **Open** from the **File** menu on Proteus VX. Locate and load the Proteus X Composer bank, which is located here: ("Program Files/Creative Professional/E-MU Sound Central"). This big bank takes a few seconds to load.

Play the Proteus X Composer Bank

8. Bring up the **mini keyboard** 📷 by clicking the icon on Proteus VX and play a few notes.

9. **Change the Preset** using the preset inc/dec keys. `PRESET` 📷📷 Cool sounds! Whenever you're ready, drag the Proteus VX window off to the side so you can access the Ableton window.

10. From the **View Menu** on Ableton Live, select **In/Out**. Several more options now appear in the mixer strips.

11. **Select** your MIDI interface in the "MIDI From" field and turn **Monitor On** as shown at right. Now you can use your MIDI keyboard.

12. Feel free to play around for awhile and don't worry about losing anything. Nothing is made permanent until you **Save** the bank.

13. When you're ready to move on, set the **Monitor** to **Auto,** select preset **P0004 A KuStq**, then close the Proteus VX editor by clicking on the close box ⊠.

Play MIDI Clips

14. Locate **MIDI Loops by Keyfax** in the Factory Content section of the Ableton Live Lite 4 Browser.

15. Click on the folder to open it. You'll see a bunch of other folders.

16. Open the first folder, **BRK_120**. Next, open the next folder **BRK-Bass.mid**. Now, you'll see a MIDI file named **BRK-Bass**.

TIP . . .
If you're not hearing sound, go to the Ableton Preferences and make sure that the Driver Type is set to ASIO and the Audio Device is set to ASIO E-MU 0202|USB.
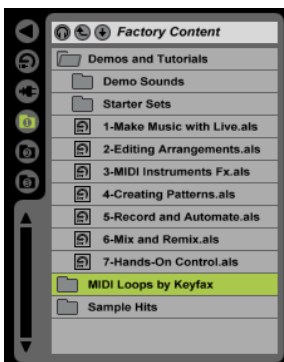
Step 14:
Locate MIDI Loops

---

17. **Click and drag BRK-Bass** over one of the clip slots in the 3 MIDI strip as shown below.

Stop

Show/Hide In/Out Section
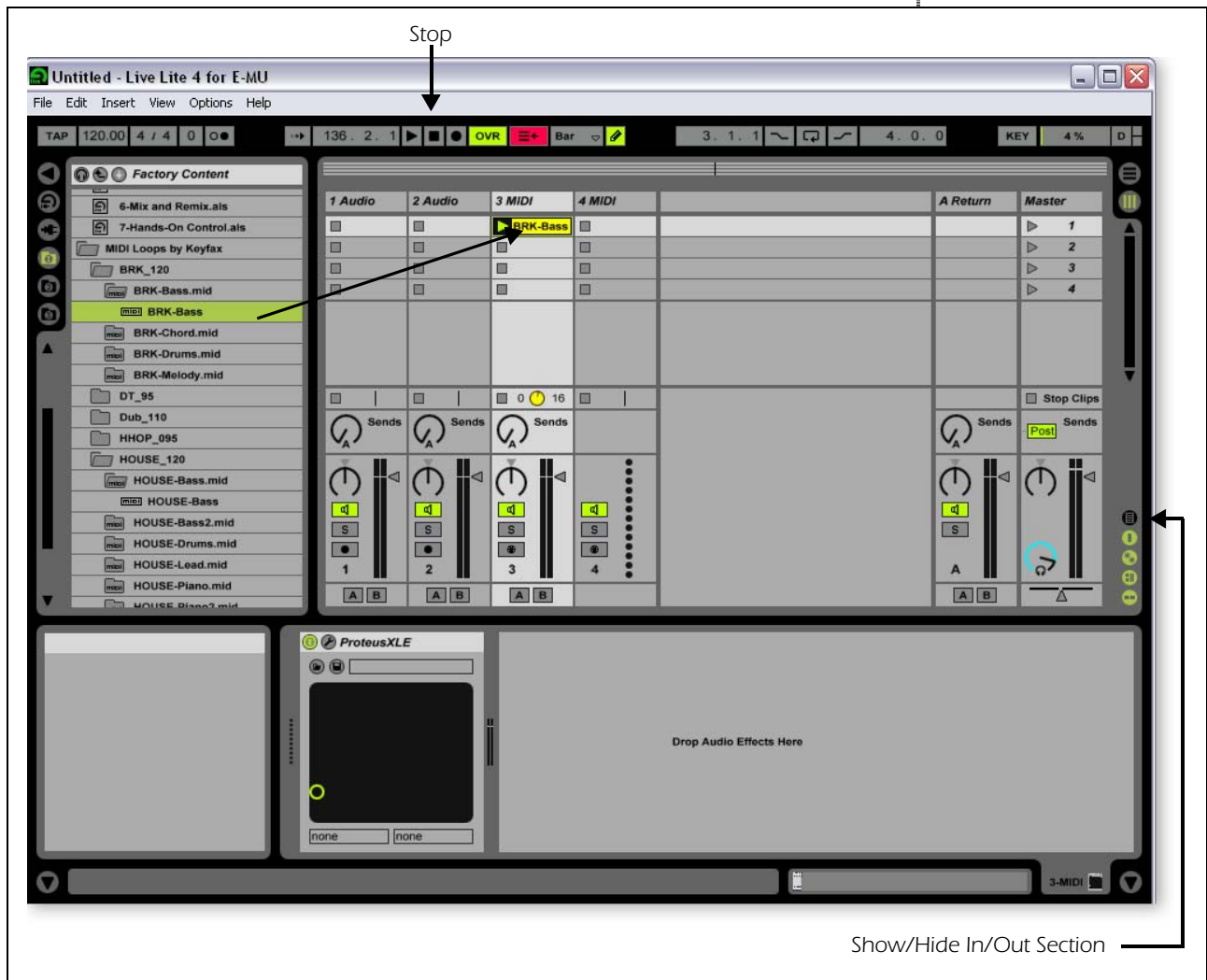
18. Now click on the **Clip Launch Button** (little triangle) ▶ on the MIDI clip you just dragged over. The MIDI bass loop begins playing the bass preset on Proteus VX. To stop playing, press the **Stop** button.

19. Find some other MIDI loops and drop them into the other slots of the track. **Hint:** look in different folders. Click on the Clip Launch Buttons to switch between clips.

Add Another MIDI Track

Ableton Live Lite 4 allows four MIDI tracks, so let's play a different MIDI loop and sound on track 4 MIDI.

20. Choose a different MIDI loop such as **House-Lead**, (located in the **HOUSE-120** folder) and drop it onto one of the **4 MIDI** clip slots.

21. Currently, the **MIDI To** box reads "No Output". Instead, select **3-MIDI**. Another option box labeled "Track In" now appears beneath 3-MIDI.

22. Click on the **Track In** box to see the list of MIDI channels.

Select 3-MIDI
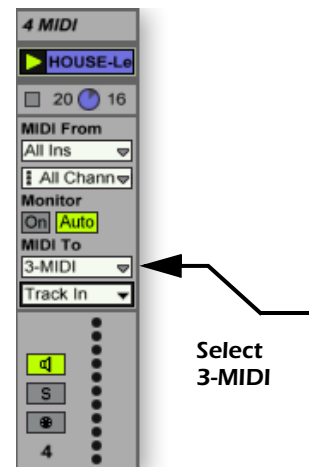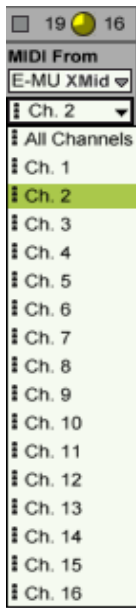
NOTE
Proteus VX sounds are called Presets or Programs. Ableton Live Programs are offset by +1 from Proteus VX.

Notes Box
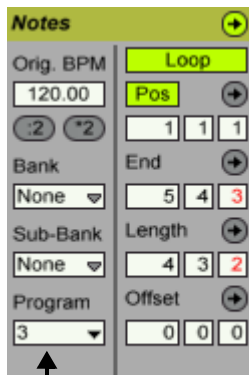
Select
Preset

23. Select **MIDI Channel 2** as shown at right.

24. Click on the **Clip Launch Button** ▶ on the 4 MIDI clip to get it started. You won't hear anything because you haven't yet assigned a preset to MIDI channel 2 on Proteus VX.

Choose a Sound for MIDI Channel 2

25. **Click on the 3 MIDI heading** to show the Proteus VX VSTi. Next, click on the wrench icon 🔧 again (in the MIDI Track View) to open Proteus VX.

26. Select **MIDI Channel 2** using the channel inc/dec keys ⬚CHANNEL⬚.

27. **Select a Preset** on **Channel 2**. Place the cursor in the preset number field and use the up/down arrow keys on your computer keyboard to scroll through the list until you find a preset you like.

• **Note:** There are several ways to select presets. See the Proteus VX Operation manual pdf for details.

28. Now you should be hearing the sound you chose on channel 2. If not, check to make sure both clips are playing (green triangle). Each clip plays a different preset.

Add MIDI Clips

29. Drop a few more MIDI clips into both MIDI channel slots. Play around with the Clip Launch buttons.

Preset Change

Here's another way to change the MIDI Program (Preset in E-MU speak) without going into the Proteus VX editor.

30. **Double-click on one of the currently playing MIDI clips.** The Clip View appears at the bottom of the window.

31. Select the **Show/Hide Notes Box** ⬚🎵⬚ located in the lower left corner of the Clip View window. The Notes box appears in the Clip View section.

32. **Select a Program number.** You'll hear the Proteus VX sound change. Keep selecting until you find one you like.

• **Hint:** Use the **Up/Down Arrow** keys to select Programs. Use **Sub-Banks 2-8** to select presets higher than 128.

33. As an added bonus of selecting programs this way, the program (sound) you selected is now associated with the MIDI clip. Whenever you select this MIDI clip, the sound will also be selected.

34. Select another clip and assign a different program number. Notice that the Preset changes when you switch back and forth between clips.

Save the Set

35. Save your work by selecting **Save Live Set As...** from the File menu. The next time you load the set, the Proteus VX bank will automatically load as well.

Record a MIDI Track using your MIDI Keyboard

36. You can use the MIDI Track you set up on MIDI channel 2. Make sure there is at least one empty slot in the MIDI track. (Select and hit backspace to delete a clip.)

• If your MIDI interface isn't already connected, you'll have to quit Ableton Live Lite 4, connect the MIDI interface, then restart Ableton Live Lite 4 before continuing.

37. Set up the MIDI track as shown at left.
    a. Select your MIDI Interface in the "MIDI from" field.
    b. Set the input to listen to MIDI channel 2.
    c. Monitor should be set to Auto.
    d. This field routes the MIDI data to track 3 (which contains Proteus VX).
    e. Set the output to MIDI channel 2.
    f. Turn record On (red).

38. Set your MIDI Keyboard to transmit on **MIDI channel 2**.

39. **Play the keyboard.** You should hear Proteus VX playing the last sound you selected on channel 2. Go ahead and change the sound if you wish. (Double-click the top of Track 3, then click the **Wrench** icon on the Device Title Bar. Make sure you're changing the sound on channel 2.)

Ready to Record

40. Start up the bass line on track 3 MIDI and practice playing along with it.

41. **Optional:** You can set the **Global Quantization** value to time correct your playing. Set it to anything other than "None".

Quantize

42. Click one of the round **MIDI Clip Record** buttons to begin recording.

43. Click the **Clip Launch** button, the **Clip Stop** button, or the **Spacebar** to stop recording.

On Your Own

Now you've had a taste of what Proteus VX and Ableton Live Lite 4 can do. But don't stop now! Read the Proteus VX Operation Manual pdf to learn all about this exceptional instrument.

Ableton Live Lite 4 includes several excellent hands-on tutorials to help you learn all the features of this ground-breaking music application.

Other Cool Tips

• **To control Proteus VX with the knobs on your MIDI keyboard:**
  Go to the MIDI Preferences on Proteus VX (Options, Preferences, Controllers tab) and make sure the MIDI Continuous Controller numbers match the ones your keyboard is sending. You can change the controller numbers on either your MIDI keyboard or Proteus VX, just as long as they both match.

• **To control Proteus VX with the Assignable X/Y Controls in Live:**
  Simply select the Proteus VX Channel and Proteus VX controller letter A-M for each axis of the X/Y controller. Open Proteus VX to see what controllers A-M are controlling. For more information about MIDI controllers please refer to the Proteus VX pdf manual.

Assign Controllers
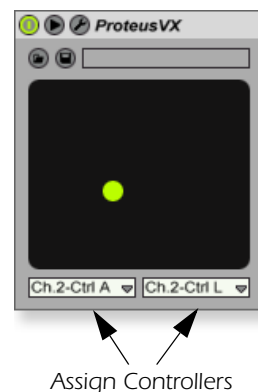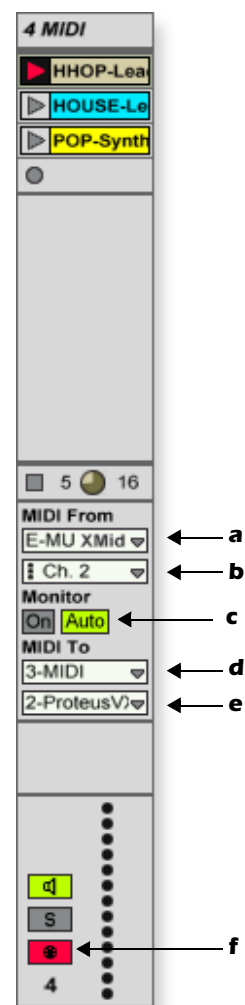
TROUBLESHOOTING

Can't hear Windows Media Player in Windows
If you have, or ever have had, another audio device installed in your PC, you may have to set the E-MU 0202 USB 2.0 as the "Default Audio Device".

1. Open the **Control Panel**, then select **Sounds and Audio Devices.**
2. Click the **Audio** tab and select the **E-MU 0202 USB 2.0** as the Default device under **Sound Playback**.
3. Click the **Volume button** under Sound Playback and turn up **Wave volume**.

You cannot record or monitor ASIO and WAVE at the same time. The first audio application you open controls the E-MU 0202 USB 2.0.

Lost Communication
Should you lose communication between your E-MU 0202 and an audio application (Ableton Live, Cubase, Sonar, etc.), the E-MU 0202 USB 2.0 drivers may need to be re-selected in your application.

1. Go to your application's I/O settings, de-select the **E-MU 0202 USB 2.0** for both input and output.
2. Apply these changes and exit the dialog.
3. Re-enter the application's preference settings and re-select the **E-MU 0202 USB 2.0** drivers. If this doesn't work, the application may need to be restarted.

Ground Loops
In digital audio devices and computers, audio ground loops may appear as pitched tones, digital hash in the background, as well as the familiar 60 cycle hum.

Ground loops are caused by a difference in ground potential between two pieces of equipment. Computer audio devices are particularly susceptible to ground loops because most computers were not designed with high quality audio in mind.

The E-MU 0202 USB 2.0 contains built-in "ground lift" switches for both analog inputs in order to safely break the loop if a ground loop occurs in your setup.

R-GND LIFT — Input Grounded
L-GND LIFT — Input Ground Lifted
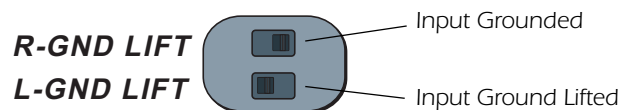
The ground-lift switches are located on the bottom of the unit, close to the rear panel. The input ground is lifted when the A or B slide switch is closest to the GND LIFT label.

Pops & Crackles
Pops and crackling noises in the audio are most often caused by having the **ASIO Buffer Size** set too low. Adding audio tracks and VST plug-ins increases the load on your computer's CPU. If your computer cannot keep up with all the tasks you are asking it to perform, pops and crackles may occur. In effect, increasing the ASIO buffer gives your computer "more time" to complete its assigned tasks. The hardware Direct Monitor feature of the 0202 USB 2.0 allows you to increase the ASIO Buffer setting without the associated latency problems during recording and overdubbing.

USB hubs can create problems with digital audio and should be avoided whenever possible.

Simultaneous WDM/ASIO Playback (PC only)

The 0202 USB 2.0 only supports playing back one stream format at a time on the PC. Each of the three mentioned stream types has an associated priority. If a higher priority stream type is opened while a lower priority stream is already playing, the lower priority stream will stop playing. The stream priorities, from highest to lowest, are ASIO, WDM.

USB 2.0 vs. USB 1.1 Operation (PC only)

The 0202 can operate in USB 2.0 or USB 1.1 mode on the PC. 96 kHz and 192 kHz sample rates are only available while operating in USB 2.0. The included E-MU USB Audio Control panel software includes an indicator to let the user know which mode the device is running in.

0202 USB comes up in USB 1.1 mode (PC only)

Always turn the 0202 USB power off before connecting or disconnecting the USB cable. Hot-plugging the unit with the power on can cause the 0202 to power-up in USB 1.1 mode. If you see the Windows message, "This device could perform faster...", simply turn power off, wait a few seconds, then turn power on again.

INTERNET REFERENCES

The internet contains vast resources for the computer musician. A few useful sites are listed here, but there are plenty more. Check it out.

Software Updates, Tips & Tutorials .. http://www.emu.com/support

Setting up a PC for Digital Audio ..... http://www.musicxp.net

MIDI Basics .... Search for "MIDI Basics" (many sites)

MIDI & Audio Recording .... http://www.midiworld.com

MIDI & Audio Recording .... http://www.synthzone.com

Sonar Users Group .... http://www.cakewalknet.com/index.php

Cubase, ASIO & Digital Audio .... http://www.steinberg.net

ASIO, Cubase & Digital Audio .... http://www.steinbergusers.com/cubasele/
le_support.php

Cubase Users Group .... http://www.groups.yahoo.com/group/
cubase/messages

Forums

Unofficial E-MU Forum .... http://www.productionforums.com/emu

Sound-On-Sound Forum .... http://www.soundonsound.com

Computer Music Forum .... http://www.computermusic.co.uk/main.asp

Home Recording Forum .... http://homerecording.com/bbs

Studio Central Forum .... http://www.tweakheadz.com

KVR Forum .... http://www.kvr-vst.com/forum/search.php

MIDI Addict Forum .... http://forum.midiaddict.com/search.php

Sound Card Benchmarking .... http://audio.rightmark.org

Driver Heaven Forum .... http://www.driverheaven.net

TECHNICAL SPECIFICATIONS

General

Sample Rates: *44.1, 48, 88.2, 96, 176.4, 192kHz from internal crystal with no sample rate conversion*
(Note: 176.4k & 192k sample rates not supported on Macintosh)

Bit Depth: *24-bit I/O, 32-bit processing*

USB 2.0 Hi-Speed
Full 24-bit resolution at all sample rates
2in/2 out channels

Zero-latency direct hardware monitoring *(disabled at 176.4/192kHz)*

ASIO2, WDM MME, Apple Core Audio and Core MIDI drivers

Anti-Pop speaker protection minimizes noise during power on/off

Ultra-low jitter clock subsystem: *<100ps RMS*

Combo Microphone Preamplifier/Hi-Z/Line Input (1)

Type: *Balanced E-MU combo mic preamplifier and Hi-Z/line input*

A/D converter: *AK5385A*

Input Impedance: *1.5 Kohms*

Max Level: *+6.5dBV (+8.7dBu)*

EIN: *(20Hz-20kHz, 150ohm, unweighted) -127dBu*

Signal-to-Noise Ratio: *(A-weighted, min gain) 113dB*

THD+N: *(1kHz at -1dBFS, min gain) -103dB (.0007%)*

Gain Range: *+60dB*

Frequency Response: *(min gain, 20Hz-20kHz) +0.0/-0.16dB*

Stereo Crosstalk: *(1kHz min gain, -1dBFS) < -110dB*

Hi-Z/Line Input (1)

Input Impedance: *1 Mohm*

Max Level: *+12dBV (14.2dBu)*

Dynamic Range: *(A-weighted, 1kHz, min gain) 113dB*

Signal-to-Noise Ratio: *(A-weighted, min gain) 113dB*

THD+N: *(1kHz at -1dBFS, min gain) -101dB (.0009%)*

Technical Specifications

Analog Line Outputs (2)

Type: unbalanced, AC-coupled, 2-pole low-pass differential filter

D/A converter: CS4392

Max Level: Consumer: +6.7dBV max (unbalanced)

Frequency Response: (20Hz - 20kHz) 0.00/-.01dB

Dynamic Range: (1kHz, A-weighted) 111dB

Signal-to-Noise Ratio: (A-weighted) 112dB

THD+N: (1kHz at -1dBFS) -98dB (.0013%)

Stereo Crosstalk: (1kHz at -1dBFS) < -120 dB

Headphone Amplifier

Type: Class-A power amplifier

D/A converter: CS4392 (shared with Line Out)

Gain Range: 60dB

Maximum Output Power: 16mW

Output impedance: 22ohms

Frequency Response: (20Hz–20kHz) +0.02/-0.08dB

Dynamic Range: (A-weighted) 110dB

Signal-to-Noise Ratio: (A-weighted) 108dB

THD+N: (1kHz, max gain): 300ohm load -98dB (.0013%)

Stereo Crosstalk: (1kHz at -1dBFS, 300 ohm load) < -91dB

Dimensions / Weight

Weight: 0.94 lb / 0.43 kg

Dimensions:

    W: 6.5″ **H:** 2.0″ **L:** 5.5″

    W: 165 mm **H:** 50.8 mm **L:** 140 mm

DECLARATION OF CONFORMITY

Trade Name:	E-MU Systems
Model No.:	EM8740
Responsible Party:	E-MU Systems
Address:	1500 Green Hills Road, Suite 101 Scotts Valley, CA 95066 U.S.A.

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.

CAUTION

You are cautioned that any changes or modifications not expressly approved in this manual could void your authority to operate this equipment.

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 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.

The supplied interface cables must be used with the equipment in order to comply with the limits for a digital device pursuant to Subpart B of Part 15 of FCC Rules.

Compliance Information

United States Compliance Information

FCC Part 15 Subpart B Class B using:

CISPR 22 (1997) Class B

ANSI C63.4 (2003) method

FCC Site No. 958979

Canada Compliance Information

ICES-0003 Class B using:

CISPR 22 (1997) Class B

ANSI C63.4 (2003) method

Industry of Canada File No. IC 5933

European Union Compliance Information

EN55024 (1998 w/A1:01 & A2:03)

EN55022 (1998) Class B

Australia/New Zealand Compliance Information

AS/NZS CISPR 22 (2002) Class B using:

EN55022 (1998) Class B

Japan Compliance Information

VCCI (April 2005) Class B using:

CISPR 22 (1997) Class B

ANSI C63.4 (2003) method

VCCI Acceptance Nos. R-2160 & C-2332

Attention for the Customers in Europe

This product has been tested and found compliant with the limits set out in the EMC Directive for using connection cables shorter than 3 meters (9.8 feet).

Notice

If static electricity or electromagnetism causes data transfer to discontinue midway (fail), restart the application or disconnect and connect the USB cable again.

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