

MadiXtreme. Hi-speed MADI I/O

Multichannel Digital Audio Interface for PC and Macintosh based Digital Audio Workstations

Reference Guide

MadiXtreme. This is SSL.

Solid State Logic
S O U N D | | V I S I O N

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Document History

October 2008	Rev oA	Initial Release
December 2008	Rev oA	Addition of latency figures & minor corrections
November 2014	Rev oB	Addition of new information regarding drvsetup.exe

1. Introduction

Congratulations on your purchase of an SSL MadiXtreme PCIe audio card.

Please be assured that the SSL MadiXtreme will provide you with many years of reliable service and, in conjunction with the SSL XLogic Alpha-Link converter series, the pristine audio quality you expect from any SSL product. Should you ever need assistance in setting up or using your MadiXtreme, Solid State Logic's worldwide customer support team is easy to contact via the Support section of the SSL website and is always happy to help.

Please register your SSL MadiXtreme audio card on our website. This will ensure that you receive notifications of future software upgrades and other important information, and that your guarantee is registered. Registration will also make you eligible for technical support. The Solid State Logic home page is at: www.solid-state-logic.com

Solid State Logic is committed to the development and marketing of top-class solutions for native PC and Mac based digital audio recording systems.

The SSL MadiXtreme PCIe card, used in combination with our XLogic Alpha-Link audio converter products, provides a flexible, top quality, high channel count audio solution for PC and Macintosh-based audio recording and editing systems.

How to use this manual

The aim of this Reference Guide is to describe the MadiXtreme installation procedure as well as its advanced features, functionalities and setup options. Specific setup and recording examples are provided for a selection of popular DAW applications.

The SSL range of workstation partner products has been designed to make your recording life easy. As such, installing the MadiXtreme is simple and straightforward. If you are familiar with the computer environment, installing PCIe cards and the basics of recording and playing back digital audio, you can probably set your system up and feel comfortable running a session within minutes. However, reading this Reference Guide is highly recommended to make the most of the MadiXtreme's capabilities.

Initially, please make sure you understand the Master Clock and Sample Rate concepts, and that you also understand the routing possibilities and functionalities of the Alpha-Link (or other device connected to the MadiXtreme). It is also a good idea, after installation, to have the system switched on while you read this Reference Guide, so that you can experiment with the features you read about. We trust that you will soon feel comfortable using your system. However, should you need further help, the comprehensive Table of Contents and Index (located respectively at the beginning and end of the manual) will provide convenient ways to check specific information whenever you need it.

Reading conventions

Key commands, key combinations and key sequences

Software functionalities may be accessed through the use of computer keyboard keys or key combinations or sequences, as well as by using a mouse or other input device. In this manual computer keys will be shown in a different font. For example, the key for the letter 'A' will be written: **A**. Key combinations will be written using '+' signs. For example, pressing the 'A' key while holding the 'Control' key will be written as **Ctrl + A**. Successive key presses will be written as a succession of key names. For example, pressing the '3' key and then pressing the '*' key will be written as **3 ***.

Screenshots

The appearance of the SSL and other software on your computer screen may be different from the screenshots in this manual. This could be because your SSL Soundscape hardware configuration is different, because you are using a different version of the operating system, or because you are using different display settings. The screenshots themselves were not always made using the software's default settings.

Safety and Installation Considerations

This section contains definitions, warnings, and practical information to ensure a safe working environment. Please take time to read this section before installing or using this unit. Please do not dispose of these instructions.

General Safety

- Read these instructions.
- Keep these instructions.
- Heed all warnings.
- Follow all instructions.
- Do not use this apparatus near water.
- Do not expose this apparatus to rain or moisture.
- Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.
- Do not install near any heat sources such as radiators, heat registers, stoves or other apparatus (including amplifiers) that produce heat.
- There are no user-adjustments, or user-serviceable items, on this apparatus.
- Adjustments or alterations to this apparatus may affect the performance such that safety and/or international compliance standards may no longer be met.

Caution

- To reduce the risk of electric shock, do not perform any servicing other than that contained in these Installation Instructions unless you are qualified to do so. Refer all servicing to qualified service personnel.

Installation Notes

- When installing this apparatus, place the host system into which it is to be installed on a secure level surface.
- To prevent damage from static electricity when installing this apparatus, either to the host system or to this apparatus, always take proper anti-static precautions. Always use an anti-static wristband. If in doubt, please refer to qualified service personnel.
- Take care of rough or sharp edges when accessing the inside of the host system.
- Never install or remove this apparatus whilst the host system is powered. Always remove the power cord from the host system prior to accessing this apparatus.
- If in doubt about installing this apparatus, please refer to qualified service personnel.

Disclaimer

This manual has been written with great care and attention to detail, and we have attempted to cover every operational aspect of the SSL MadiXtreme. However, it is not a contractual document. Solid State Logic and/or the writer(s) of this manual cannot be held responsible for any loss or damage arising directly or indirectly from any error or omission in this manual.

Trademarks

All trademarks are the property of their respective owners and are hereby acknowledged.

Website

The URL for the Solid State Logic website is: www.solid-state-logic.com

2. MadiXtreme Overview

Hardware

The MadiXtreme is available in two versions; MadiXtreme 64 and MadiXtreme 128.

- MadiXtreme 64 features one MADI input and one MADI output, providing 56 or 64 simultaneous inputs and outputs at up to 48kHz, 28 or 32 simultaneous inputs and outputs at up to 96kHz, or 14 or 16 simultaneous inputs and outputs at up to 192kHz.
- MadiXtreme 128 features two MADI inputs and two MADI outputs, providing 112 or 128 simultaneous inputs and outputs at up to 48kHz, 56 or 64 simultaneous inputs and outputs at up to 96kHz, or 28 or 32 simultaneous inputs and outputs at up to 192kHz.

Software Drivers

The SSL MadiXtreme PCIe cards and associated software are compatible with the following operating systems and driver protocols:

Platform	Operating System	Driver Protocols
PC	Windows XP SP2 or later (<i>32bit only</i>)	ASIO 2, WDM, MME, GSIF2, DWave
	Windows Vista SP1 or later (<i>32bit only</i>)	
Macintosh	OS X 'Tiger' Version 10.4.11 or greater	Core Audio
	OS X 'Leopard' Version 10.5.4 or greater	

PC

The SSL MadiXtreme comes with Low-latency MME drivers, WDM drivers, ASIO-2 drivers, DWave drivers and GSIF drivers for Windows XP and Vista. It can be used with any PC based MIDI & Audio sequencer, recording and editing software or other audio applications. The Soundscape drivers are truly multiclient, allowing you to share your SSL audio hardware between several applications that use different driver models.

Macintosh

The MadiXtreme Macintosh driver is compliant with the Core Audio architecture.

MADI

As world leader in large format analogue and digital mixing consoles, it was natural for SSL to be among the companies that initiated the development of MADI (Multichannel Audio Digital Interface).

The MADI standard was finalized by the AES as AES10, first published in 1991 and revised in 1993. A PDF copy of the specification can be obtained from the [AES website](#).

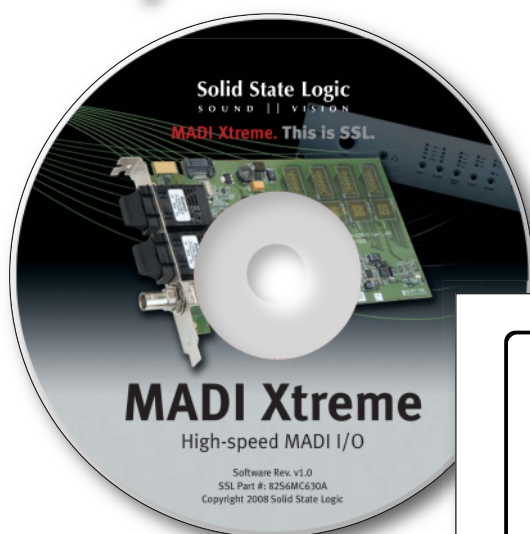
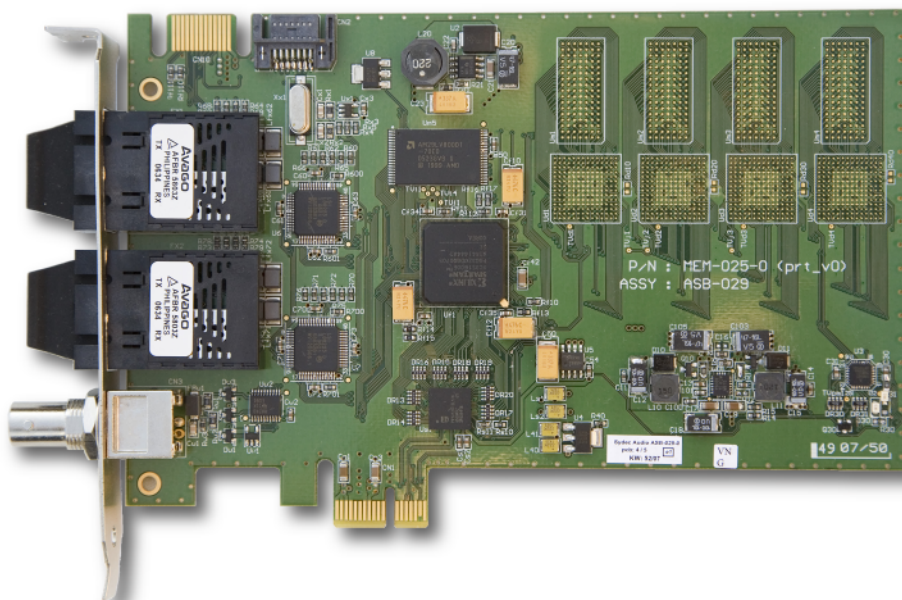
With outstanding digital audio workstation systems and innovative DSP-powered multichannel audio cards, the Soundscape product line has always been at the cutting edge of professional studio technology in terms of sonic performance, processing power and multiple inputs/outputs.

Featuring SSL's revolutionary PCIe-Core Audio Pipeline technology and supported by the legendary Soundscape drivers, MadiXtreme builds on this heritage as one of the first audio devices to take full advantage of the high speeds and incredible bandwidth offered by the PCIe bus on modern computers.

3. Package Contents

Your MadiXtreme box should contain:

- The MadiXtreme card (*MadiXtreme 128 version shown here*)
- The MadiXtreme CD
- Printed Installation Guide



MadiXtreme. Hi-speed MADI I/O

Installation Guide
Installations-Handbuch
Guide d'Installation
Guía de Instalación
Guida di Installazione
インストールガイド

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ES
IT
JP

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Solid State Logic
SOUND | VISION

4a. Installation (PC)

Hardware and Software Installation Overview (PC)

Before proceeding with the hardware installation, please read and understand the Safety and Installation Considerations on page 2 of this manual. In addition to this, please ensure that the host computer meets the minimum system requirements listed in the Technical Specifications section before you begin.

For easy installation please follow these steps in the order indicated:

1. Make sure you have the SSL Soundscape Driver ready. The driver is available on the installation CD supplied with your MadiXtreme. However, if you have an internet connection, please download and use the most recent version, available from the SSL website.
2. Preinstall the SSL Soundscape Driver to prepare Windows Plug and Play to identify the card automatically after it has been physically installed in the computer.
3. Shut down the computer and install the MadiXtreme hardware. Connect the Alpha-Link unit(s) (or other MADI hardware) to the MadiXtreme via the MADI ports. At this point you can also connect the WordClock.
4. Start the computer again. In Windows XP, install the drivers when prompted by Windows Plug and Play (main driver files, then WDM/KS driver). In Windows Vista, this will happen automatically.

Multiple SSL MadiXtremes can be installed at the same time during step 3. If several MadiXtremes are installed in this way, the driver installation (step 4) will need to be repeated for each card. Windows XP will prompt you for that. Windows Vista will handle it automatically (assuming that you have pre-installed the driver in step 2).

All the steps above are described in greater detail on the following pages.

Preparing Windows Plug and Play (Windows 32 bit only)

WARNING: DO NOT launch the `drvsetup.exe` program on a Windows 64 system, as this could make it impossible for the card to be detected unless Windows is reinstalled. Just clicking `drvsetup.exe` once can cause this, even though the Driver Setup dialogue will not open. On a 64 bit Windows system, physically install the card first, then restart the computer, and let Windows plug and play detect the card and install the driver. When prompted by the plug and play system, browse to the driver download folder, where the plug and play system will find the `ssdev.inf` file that it needs to read.

In order to make driver installation as easy as possible, we recommend that you prepare the Windows Plug and Play system to recognize your SSL hardware automatically.

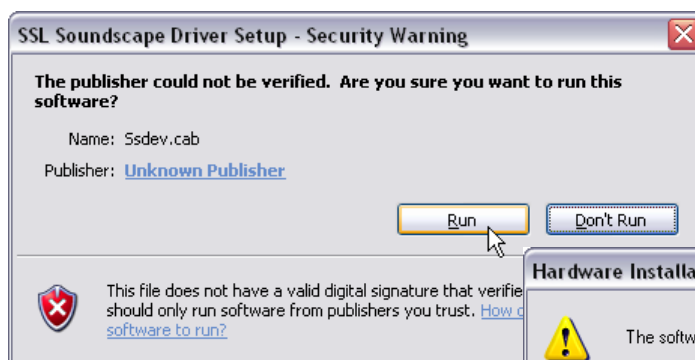
To do this, run the SSL Soundscape Driver Setup application (**DrvSetup.exe**) before physically installing the card in the computer. This application can be found on the Installation CD that came with your card but, if possible, please use the latest version that can be downloaded from our website.

The description below shows the procedure in Windows XP. In Vista the procedure is similar but more warnings are displayed. The first one appears as soon as you launch the `DrvSetup` application. Subsequent warnings may look different from the ones shown in XP. Always click the option that allows the procedure to continue.

- In the application window, press the **Update** button to copy the driver data to your Windows installation.



- Windows will display a security warning: click **Run...**



...followed by a warning regarding **Windows Logo testing**; click **Continue Anyway**.





- At the end of the process you will see **SSL Soundscape Driver Setup – Completed** in the title bar. Click **Done**, shut down the computer and move on to installing the hardware.

Hardware installation (Windows XP and Vista)

The guidelines below are general and apply in most cases. However, since all PCs are different it is advisable to check your computer's instruction manual for specific information. For example, on some PC cases the front panel needs to be removed first in order to access the cover mounting screws.

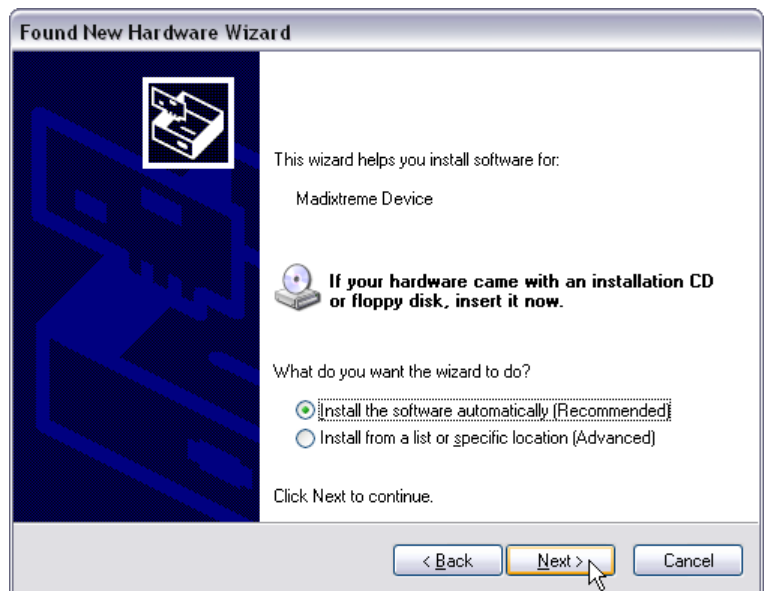
1. Turn off all power to your computer, unplug it from the mains and disconnect all peripheral devices.
2. Remove the computer cover.
3. Position the computer so that you can easily see and access its motherboard.
4. Locate a free PCIe expansion slot and remove the corresponding expansion slot cover from the back of the computer. This may involve removing a screw, which will be used later to secure the card into place.
5. With the MADi connectors facing towards the rear panel of the computer, offer up the card to the chosen socket. Gently push the card into the slot until it fits into place – do not use excessive force but ensure that the card is fully inserted into the slot before proceeding to the next step.
6. If applicable, use the screw which held the expansion slot cover to secure the card.
7. Replace the computer cover.
8. Reconnect your peripheral devices, connect the computer to the mains, and switch it on.

Installing the SSL Soundscape Device Driver (Windows XP)

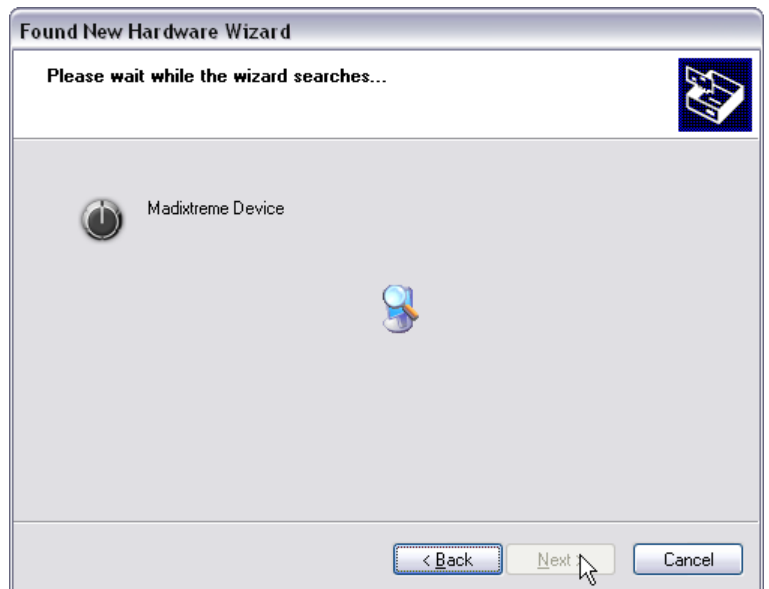
- The SSL MadiXtreme card is 'plug and play', and is automatically detected by Windows when the computer is started. A series of dialog boxes will be displayed. The first one allows you to choose whether to allow Windows to connect to Windows Update to search for software. Select **No, not this time**, and click **Next**:



- Windows will then invite you to insert the installation CD for your hardware and let you choose an automatic or manual installation. Having pre-installed the driver as described earlier, just make sure that **Install the software automatically (Recommended)** is selected, and click **Next**.



- Further windows will be displayed while Windows copies the driver files. Depending on the specification of your system, this could take a few seconds or a few minutes.



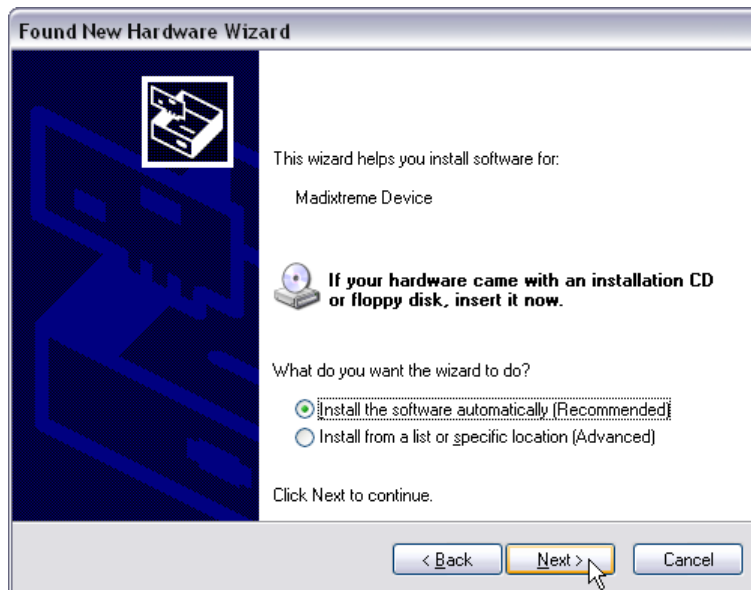
- Eventually, the dialog box below will confirm that the installation has been completed. Clicking **Finish** closes the Wizard:



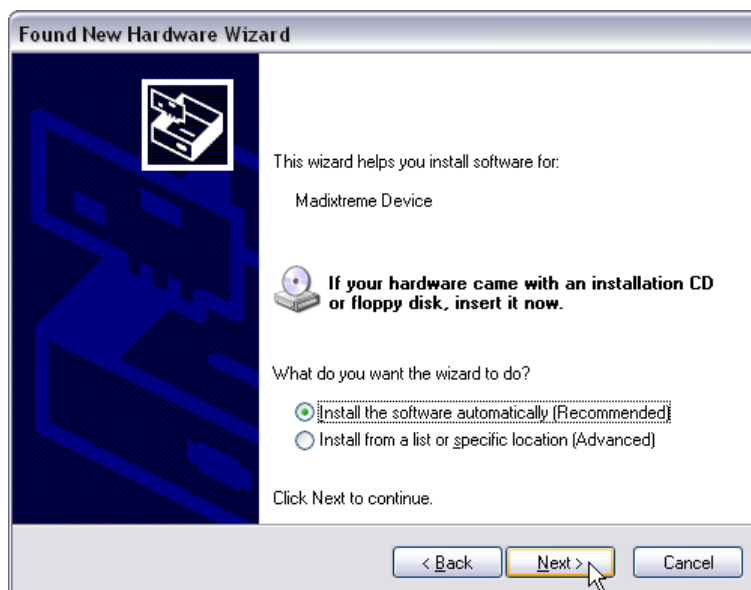
Installing the WDM/KS Driver (Windows XP)

Immediately after installing the main driver files, the **Found New Hardware Wizard** will start again. This time the WDM/KS driver will be installed. The series of dialogue boxes is almost identical to the one displayed for the main driver files, with the exception of a warning regarding **Windows Logo testing**.

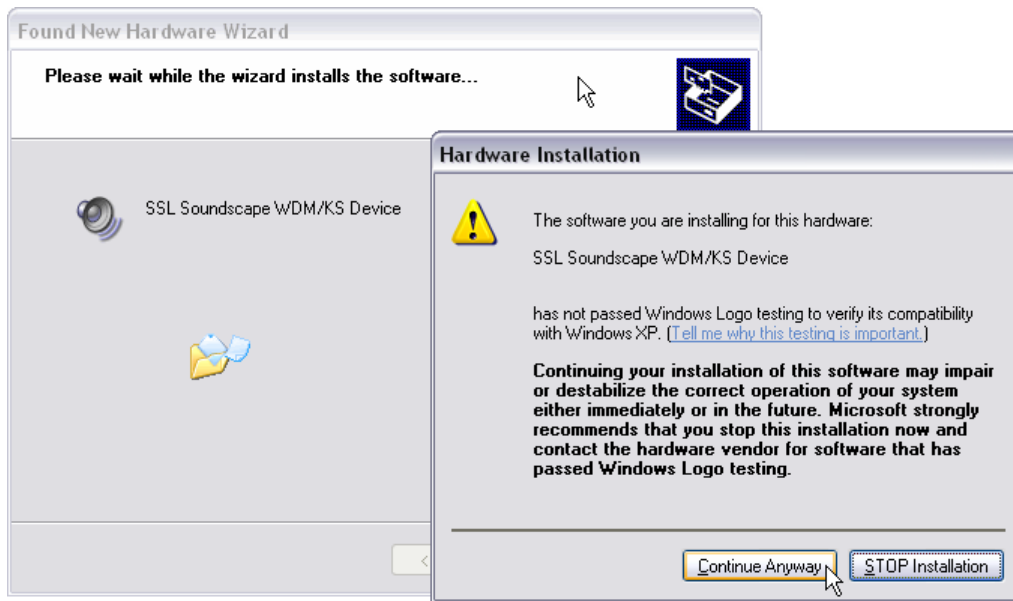
- In the first dialogue box, select **No, not this time**, and click **Next**.



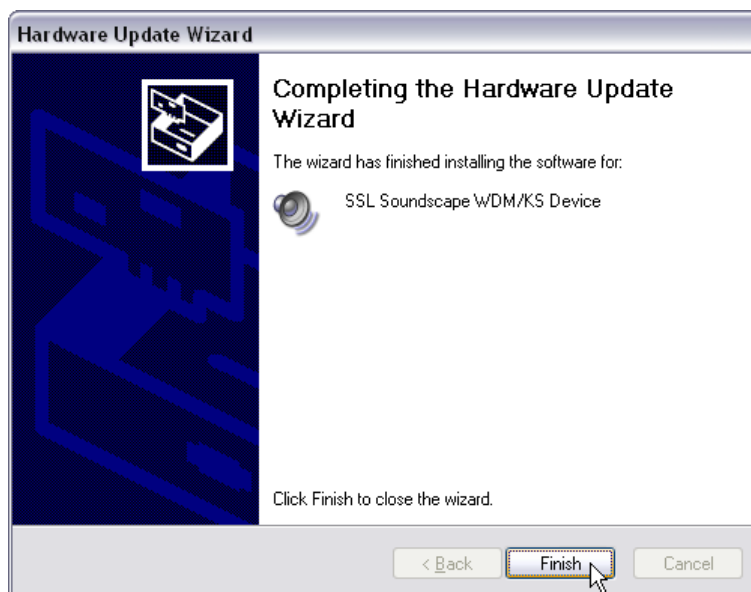
- In the second dialogue box, ensure that **Install the software automatically (Recommended)** is selected, and click **Next**.



- Further windows will be displayed while Windows copies the WDM/KS driver files. At one point, Windows will display a warning regarding **Windows Logo testing**. Click **Continue Anyway**:



- Eventually, a dialog box confirms that the installation has been completed. Clicking **Finish** closes the Wizard.

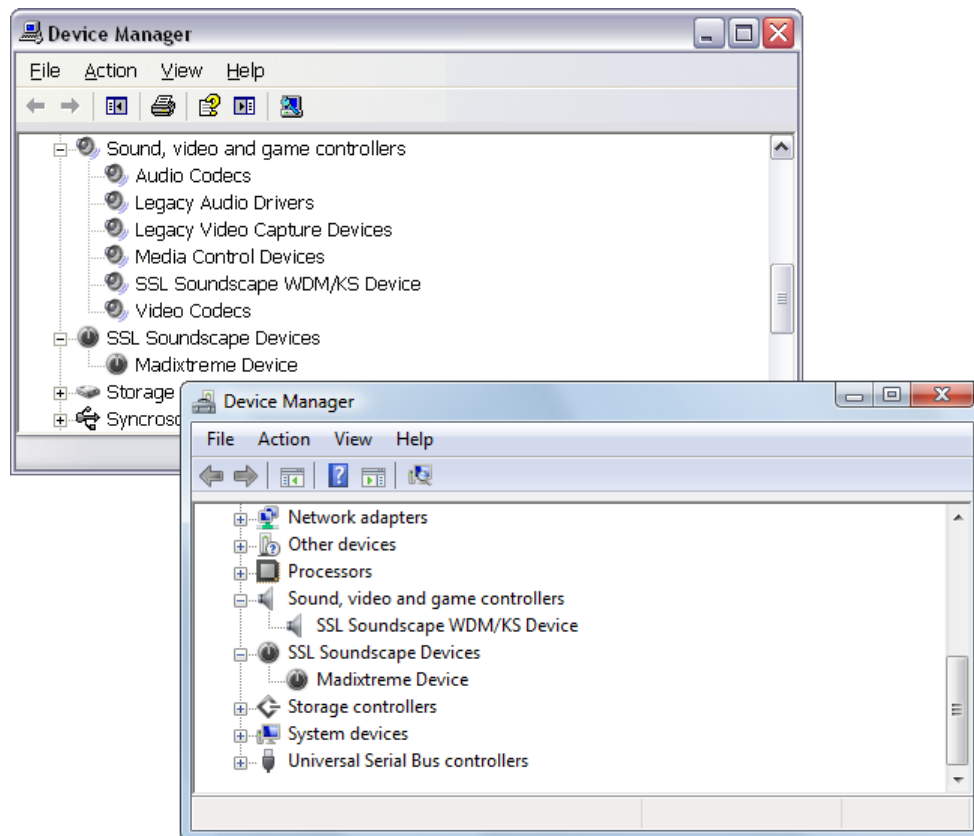


Installing the SSL Drivers (Windows Vista)

If you have run the **DrvSetup.exe** application as described in the **Preparing Windows Plug and Play** section, then Windows Vista will install the drivers automatically when you restart the computer after physically installing the MadiXtreme. This will happen in the background and you will not need to take any further action.

Device Manager (Windows XP and Vista)

After a successful installation, the SSL MadiXtreme appears in the **SSL Soundscape Devices** category in the Windows Device Manager. The SSL Soundscape WDM/KS Device is listed under **Sound, video and game controllers**.



4b. Installation (Macintosh)

Hardware Installation (Macintosh)

Before proceeding with the hardware installation, please read and understand the Safety and Installation Considerations on page 2 of this manual. In addition to this, please ensure that the host computer meets the minimum system requirements listed in the Technical Specifications section before you begin. The following instructions are general and provided for guidance only.

1. Turn off all power to your computer, unplug it from the mains and disconnect all peripheral devices.
2. Remove the side panel to gain access to the motherboard.
3. Position the computer so that you can easily see and access its motherboard.
4. Locate a free PCIe expansion slot and remove the corresponding expansion slot cover from the back of the computer. This may involve removing a screw, which will be used later to secure the card into place.

MadiExtreme is a x1 PCIe card which will fit in any available PCIe slot, irrespective of the length of slot.

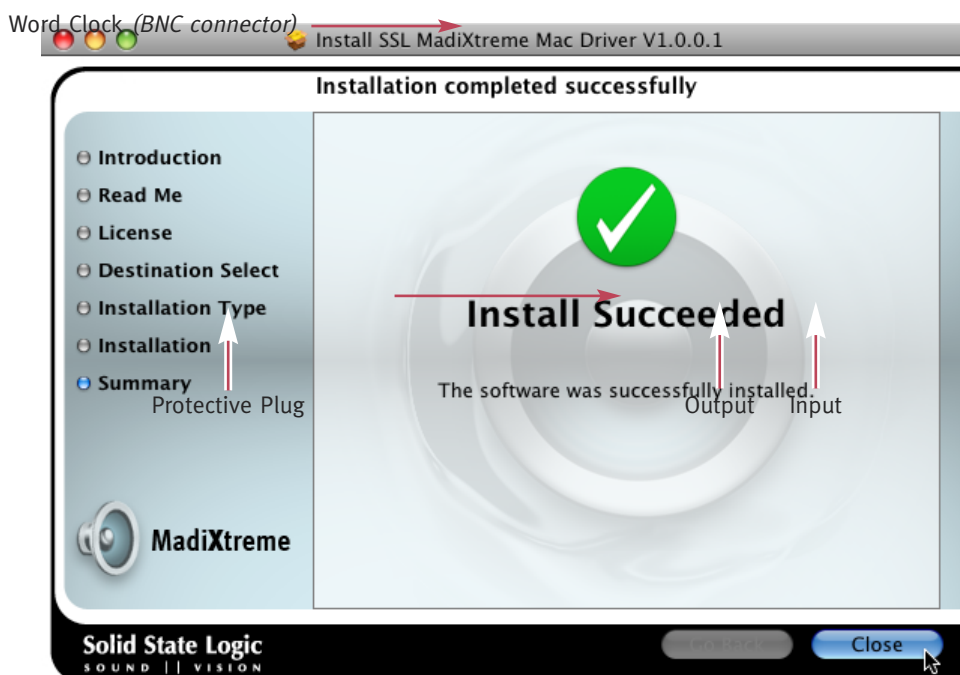
5. With the MADI connectors facing towards the rear panel of the computer, offer up the card to the chosen socket. Gently push the card into the slot until it fits into place – do not use excessive force but ensure that the card is fully inserted into the slot before proceeding to the next step.
6. If applicable, use the screw which held the expansion slot cover to secure the card.
7. Replace the side panel.
8. Reconnect your peripheral devices, connect the computer to the mains, and switch it on again to proceed to the next step: installing the drivers.

Software Installation (Macintosh)

Locate and run the MadiXtreme Macintosh Driver Installer. This application can be found on the Installation CD that came with your card but, if possible, please use the latest version that can be downloaded from our website.



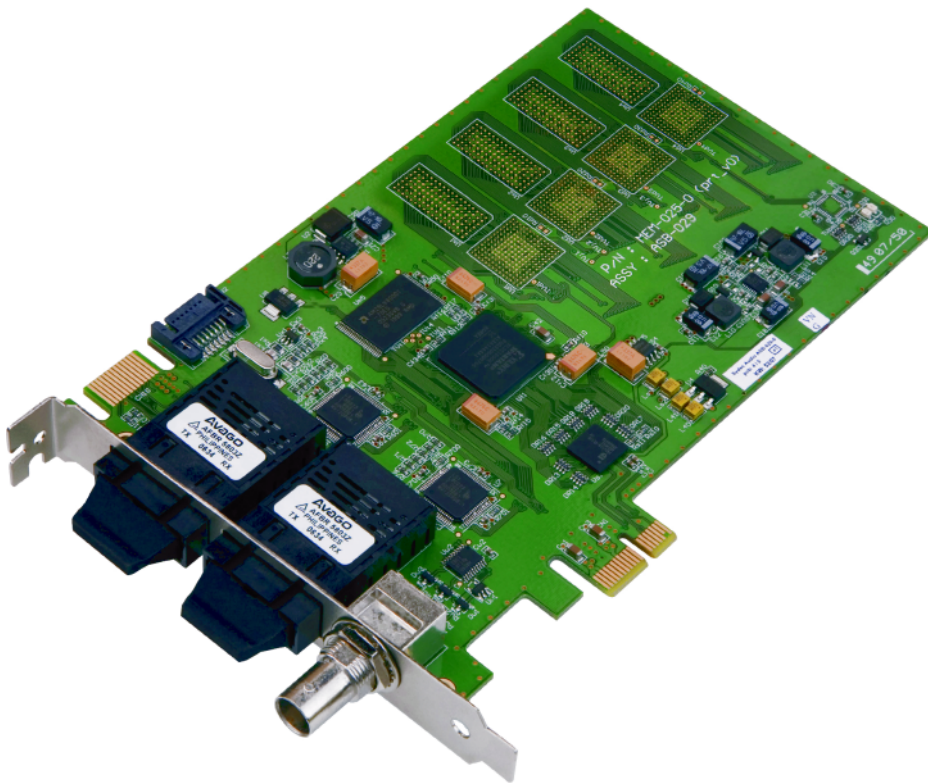
Click **Continue** or **Install** as necessary to continue the procedure, and enter your log-in password if prompted. Eventually a summary screen should confirm that the installation was successful. Click **Close**.



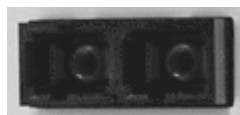
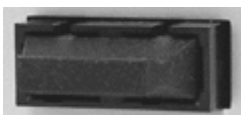
5. Audio and Clock Connections

Audio Connections

The MadiXtreme 64 features one MADI input connector and one MADI output connector. The MadiXtreme 128 (pictured below) features two MADI input connectors and two MADI output connectors.



Pull out the protective plugs from the MADI ports on the MadiXtreme and Alpha-Link(s) to gain access to the connectors:



Use multimode optical fibre cables to connect MadiXtreme's MADI input and output port(s) to the XLogic Alpha-Link(s)'s MADI output and input ports respectively.

The MADI connectors are presented as an adjacent input/output pair (MADI head). There are no distinctive marks on the backplate of the card to identify which of the pair is the input and which is the output. Standard MADI cables come as a pair and the SC connectors on the cables are keyed so that they can only fit one way into the MADI head. The cable's input and output connectors will therefore always connect correctly to the corresponding connector of the MADI head. However, there are cases where you may want to use a single cable (for instance, if you only want to use the MADI output). In this case, please remember that for each MADI head, the input connector is located closest to the BNC WordClock connector. Note also that MADI B is the one closest to the BNC.

Clock Connections

Digital audio devices that exchange audio data must be synchronized to the same clock reference. This clock reference signal can either be a 'WordClock' signal, transmitted and received via dedicated coaxial connectors (BNC or RCA), or an embedded clock signal transmitted via a digital audio connection such as TDIF Clock, ADAT Clock, MADI Clock, etc.

The device that provides the clock reference signal for the whole system is called the clock master, and any device that locks to this signal is called a clock slave. The SSL MadiXtreme can operate either as clock master or clock slave:

- When MadiXtreme is used as a clock master, the BNC WordClock connector functions as an output, providing a reference signal for external devices.
- In all other cases, the BNC WordClock connector functions as an input, with the MadiXtreme locking to the incoming clock signal (or to the MADI clock).

Use a 75 Ohm WordClock cable to connect the MadiXtreme's BNC WordClock connector to the BNC WordClock input or output connector of the Alpha-Link (or other device).

If you are using a MadiXtreme 64 with an Alpha-Link MADI AX or Alpha-Link MADI SX, either device may be the clock master.

If you are using two Alpha-Links with a MadiXtreme 128, or a combination of several MadiXtremes and external MADI devices, please make sure that all the devices are locked to the same clock signal.

WordClock connections should always be 'point to point'. When a signal is distributed to multiple devices, a distribution amplifier must be used to guarantee reliable operation.

WARNING

Do not enable the monitoring system before the Clock connections have been made and the appropriate clock settings selected for both MadiXtreme and the external device(s). Failure to do so may result in full-scale digital audio noise which could cause damage to your monitors and/or your hearing!

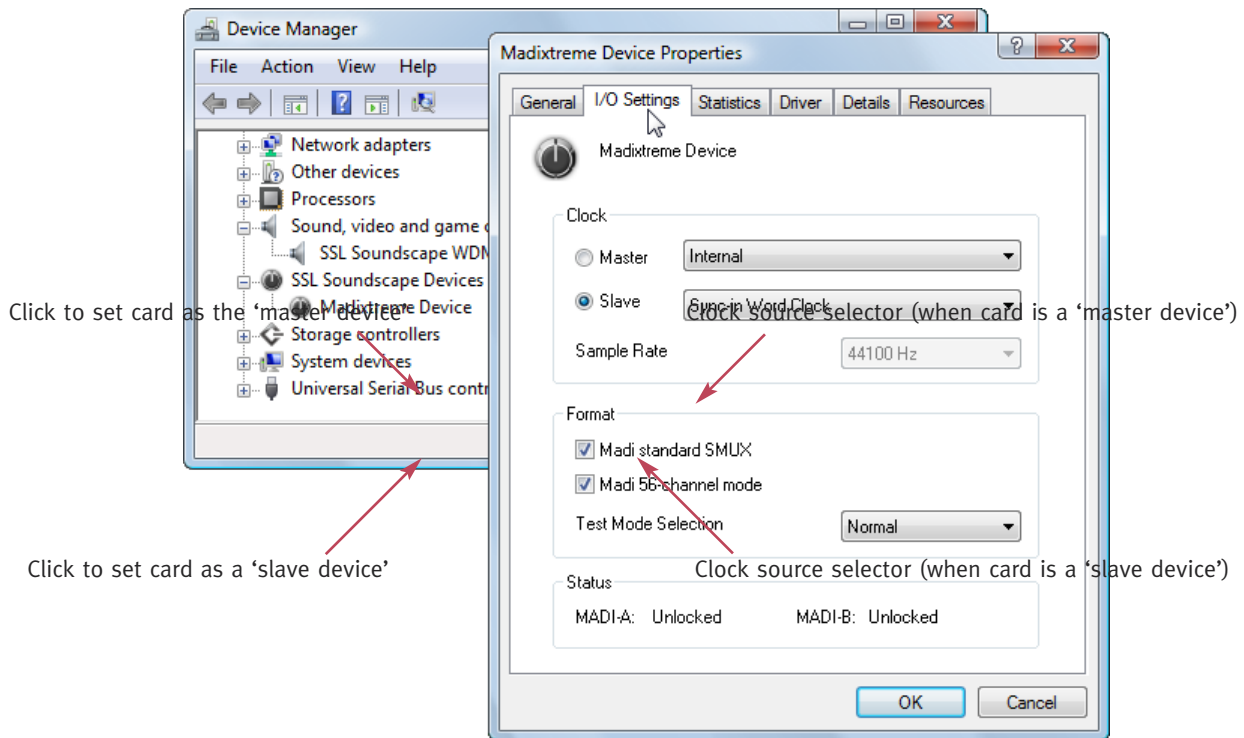
6. Audio and Clock Settings (PC)

Accessing the Audio and Clock Settings (PC)

For Windows XP and Vista, the MadiXtreme audio and clock settings can be accessed via the Device Manager, or by using the **TRack.exe** application which is included in the driver download package.

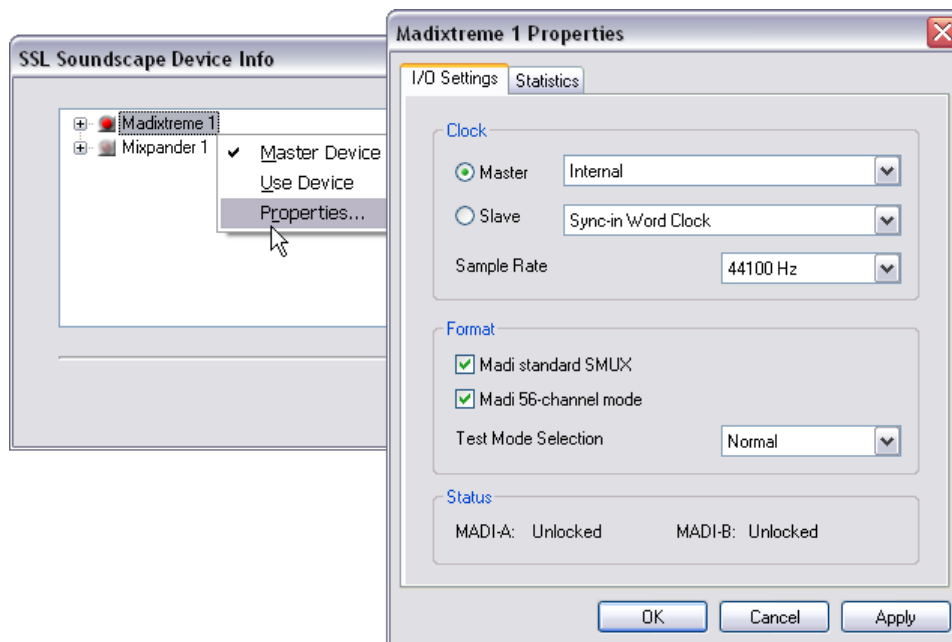
- **From the Device Manager:**

Open the Device Manager, expand **SSL Soundscape Devices**, double-click **Madixtreme Device**, and click the **I/O Settings** tab.



- **Using TRack:**

Run **TRack.exe**, right-click **Madixtreme n** (where 'n' is the number of the card, ie., **Madixtreme 1** if you use a single MadiXtreme), and click **Properties**.



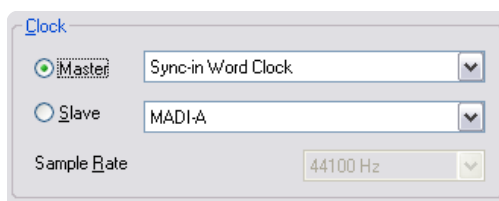
- The MadiXtreme Properties window is divided into three sections. The top section (**Clock**) allows you to define the clock settings you require for your studio. The middle section (**Format**) controls the audio configuration. The bottom section (**Status**) shows whether the MadiXtreme is correctly synchronized to a clock signal and whether the MADI inputs are locked to a valid incoming MADI signal.

Clock Settings

Master and Slave option boxes

When multiple MadiXtremes are used in the same host computer, they must all be locked to the same clock signal. One of the cards must be set as the 'master device', the other(s) must be set as 'slave device(s)' by ticking the **Master** or **Slave** option box. If a single MadiXtreme is used, only the **Master** setting can be selected.

*Please note that setting a card to **Master** does NOT mean that the card is used as a 'clock master'. It simply means that it is the 'Soundscape Master Device', and that other Soundscape cards must receive its clock reference signal (directly or indirectly), or be clocked from the same source. The 'Soundscape Master Device' can itself be clocked from an external clock source.*



The ability to set one SSL audio card as master device, and pre-select a clock source for each card according to its master/slave device status, means that whenever a new card is set to master, the previous master automatically switches to slave and to the corresponding pre-selected clock source. There is no need to change the settings of each card manually, it is all done automatically according to your clock pre-selections.

Also, when used as a master device and slaved to an external clock signal, MadiXtreme checks for changes to the sample rate of that clock signal and changes its own sample rate setting accordingly. These sample rate changes are applied automatically to the Soundscape slave devices.

Clock Source Selectors

Separate selection menus are provided to select the clock source for the card when used as a Soundscape Master Device or as a Soundscape Slave Device.

The selection menus provide the following options:

- **Internal:** If this option is selected, MadiXtreme locks to its own on-board clock generator. It also means that the BNC connector operates as a WordClock output, suitable to provide a clock reference to the slave devices.

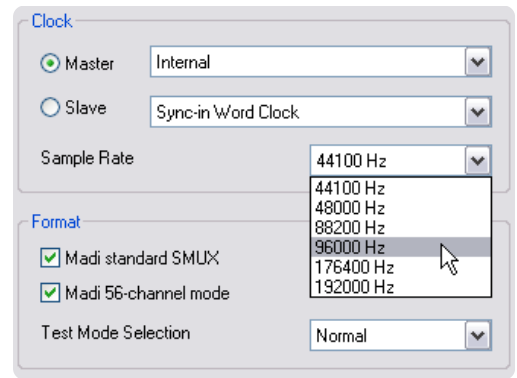
*The **Internal** setting is only available when **Master** is selected.*

- **Sync-in Word Clock:** If this option is selected, MadiXtreme will lock to a WordClock signal received via its BNC connector, which will operate as an input.
- **MADI-A** or **MADI-B:** If either of these options is selected, MadiXtreme will lock to the MADI clock signal received via the corresponding MADI input port. (*MADI-B is applicable only to the MadiXtreme 128.*)

Sample Rate Selection Menu

When the card is set as a **Master** Soundscape device and the **Internal** clock setting is selected, this menu allows a sample rate to be selected. The available sample rates are 44100Hz, 48000Hz, 88200Hz, 96000Hz, 176400Hz and 192000Hz.

In all other cases, the Sample Rate menu is greyed-out and cannot be used.



The screenshot shows the 'Clock' and 'Format' settings. Under 'Clock', 'Master' is selected with 'Internal' as the clock source. 'Slave' is unselected with 'Sync-in Word Clock' as the source. The 'Sample Rate' dropdown is open, showing a list of rates: 44100 Hz, 48000 Hz, 88200 Hz, 96000 Hz, 176400 Hz, and 192000 Hz. Under 'Format', both 'Madi standard SMUX' and 'Madi 56-channel mode' are checked. 'Test Mode Selection' is set to 'Normal'.

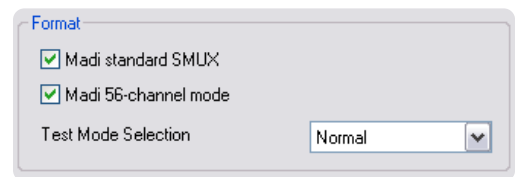
Format Settings

MADI Standard SMUX

When the **MADI standard SMUX** box is checked and the card is operating at high sample rates (88200Hz or higher), the data for each audio channel is transmitted or received over two or four channels of the MADI interface (ie., two at 88200 or 96000Hz, four at 176400 or 192000Hz). The number of available channels is divided by two or four accordingly at these sample rates.

When the **MADI standard SMUX** box is not checked, if operating at high sample rates (88200Hz or higher), the frame rate is multiplied by two or four and the frame size divided by two or four. The same restrictions to the number of channels apply as in SMUX mode.

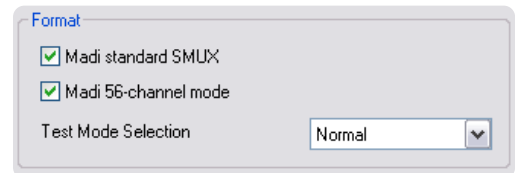
For MadiXtreme 128 these settings apply to both MADI ports – they can not be set independently. For either card, please ensure MadiXtreme is set to the same mode as the external device(s) connected to its MADI port(s).



The screenshot shows the 'Format' settings. Both 'Madi standard SMUX' and 'Madi 56-channel mode' are checked. 'Test Mode Selection' is set to 'Normal'.

MADI 56-Channel Mode

When the **MADI 56-channel mode** box is checked, the MADI interface can transmit or receive up to 56 audio channels (reducing to 28 channels when operating at 88200 or 96000Hz and 14 channels when operating at 176400 or 192000Hz). When the **MADI 56-channel mode** box is not checked, the MADI interface can transmit or receive up to 64 audio channels (reducing to 32 channels when operating at 88200 or 96000Hz and 16 channels when operating at 176400 or 192000Hz). For MadiXtreme 128 these settings apply to both MADI ports – they can not be set independently.



The screenshot shows the 'Format' settings. Both 'Madi standard SMUX' and 'Madi 56-channel mode' are checked. 'Test Mode Selection' is set to 'Normal'.

Test Mode Selection *(may not be present)*

This selection is for diagnostic and test purposes and may not be present. If this option *is* present, it should be left set to **Normal**.

Status

In the Status section, the MADI-A and MADI-B input ports are shown as locked or unlocked (*MADI-B is applicable only to MadiXtreme 128*).

A port is shown as locked if a valid MADI input signal is detected and clock synchronization has been established. If a MADI input signal is detected but clock synchronization has not been established, the displayed status alternates between **Locked** and **Unlocked**.

If no MADI input signal is detected, or if the MADI signal detected is not valid, the port will be shown as unlocked. The later case might occur if 56-channel mode is selected for the MadiXtreme but the device connected to the port is set to 64-channel mode.



The screenshot shows the 'Status' section. It displays 'MADI-A: Unlocked' and 'MADI-B: Unlocked'.

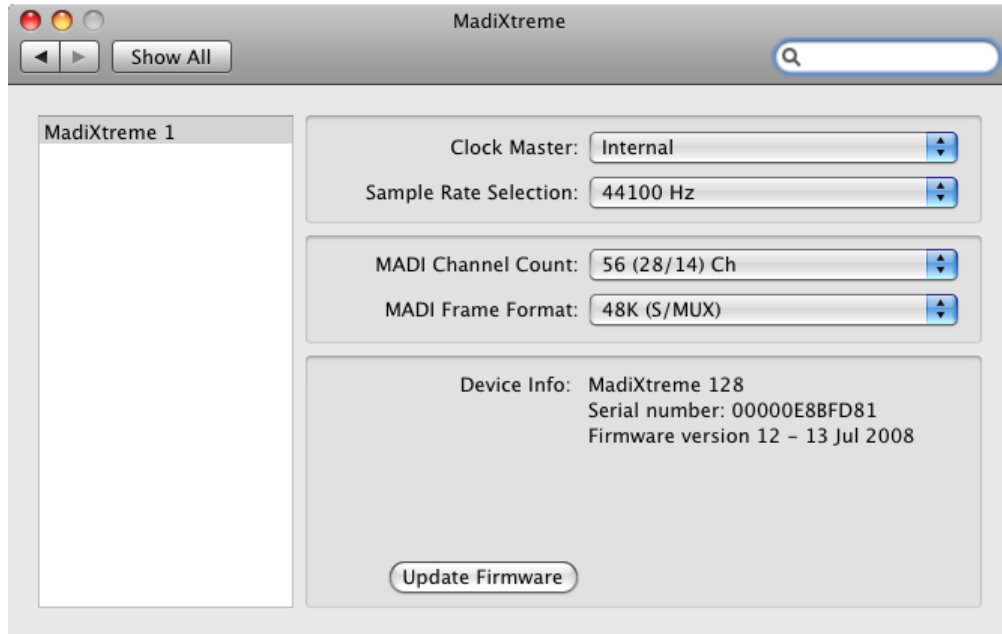
7. Audio and Clock Settings (Macintosh)

Accessing the Audio and Clock Settings (Macintosh)

Click the **Apple** (🍏) icon and select **System Preferences....** In the System Preferences window click the **MadiXtreme** icon to display the **MadiXtreme Preferences** pane.



MadiXtreme Preferences Pane (Macintosh)



Clock Master

Use this drop-down to set the master clock source for the selected MadiXtreme card:

- **Internal.** If this option is selected, MadiXtreme locks to its own on-board clock generator. Additionally, the BNC connector operates as a WordClock output suitable to provide a clock reference to a slave device.
- **WordClock.** If this option is selected, MadiXtreme will lock to a WordClock signal received via its BNC connector, which will operate as an input.
- **MADI A or MADI B.** If either of these options is selected, the MadiXtreme will lock to the MADI clock signal received via the corresponding MADI input port. (*MADI-B is applicable only to the MadiXtreme 128.*)

Sample Rate Selection

This drop-down allows a sample rate to be selected. The available sample rates are 44100Hz, 48000Hz, 88200Hz, 96000Hz, 176400Hz and 192000Hz.

MADI Channel Count

When **56 (28/14) Ch** is selected, the MADI interface can transmit or receive up to 56 audio channels (reducing to 28 channels when operating at 88200 or 96000Hz and 14 channels when operating at 176400 or 192000Hz). When **64 (32/16) Ch** is selected, the MADI interface can transmit or receive up to 64 audio channels (reducing to 32 channels when operating at 88200 or 96000Hz and 16 channels when operating at 176400 or 192000Hz). For MadiXtreme 128 these settings apply to both MADI ports – they can not be set independently.

MADI Frame Format

When **48K (S/MUX)** is selected and the card is operating at high sample rates (88200Hz or higher), the data for each audio channel is transmitted or received over two or four channels of the MADI interface (ie., two at 88200 or 96000Hz, four at 176400 or 192000Hz). The number of available channels is divided by two or four accordingly at these sample rates.

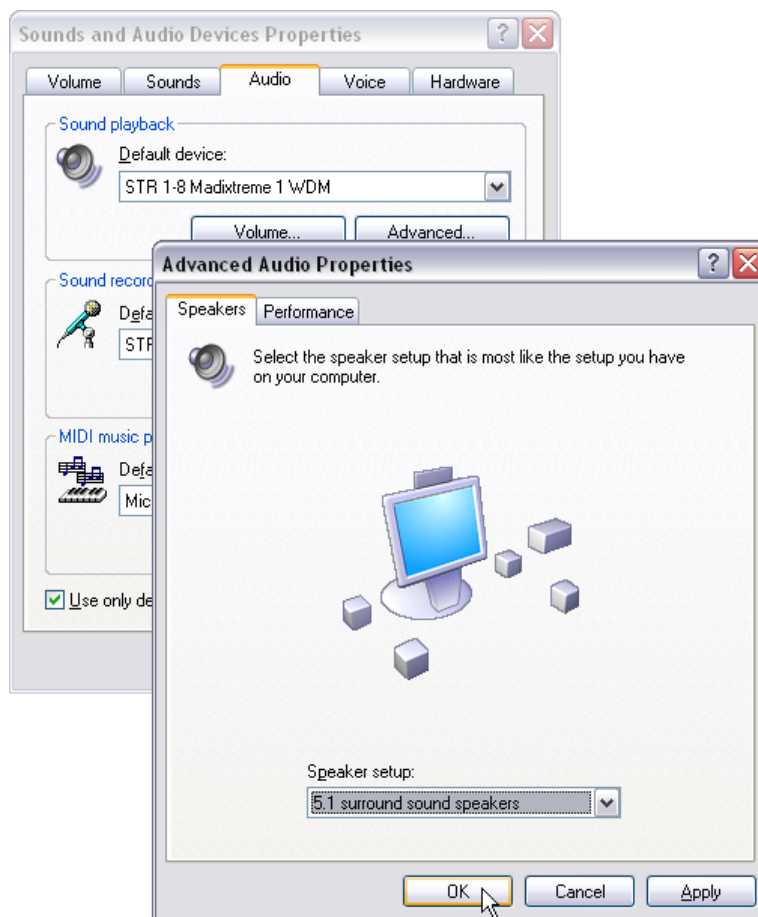
When **96K / 192K** is selected and the card is operating at high sample rates (88200Hz or higher), the frame rate is multiplied by two or four and the frame size divided by two or four. The same restrictions to the number of channels apply as in S/MUX mode.

For MadiXtreme 128 these settings apply to both MADI ports – they can not be set independently. For either card, please ensure MadiXtreme is set to the same mode as the external device(s) connected to its MADI port(s).

8. Driver Settings (PC)

Using the WDM/KS Drivers (Windows XP)

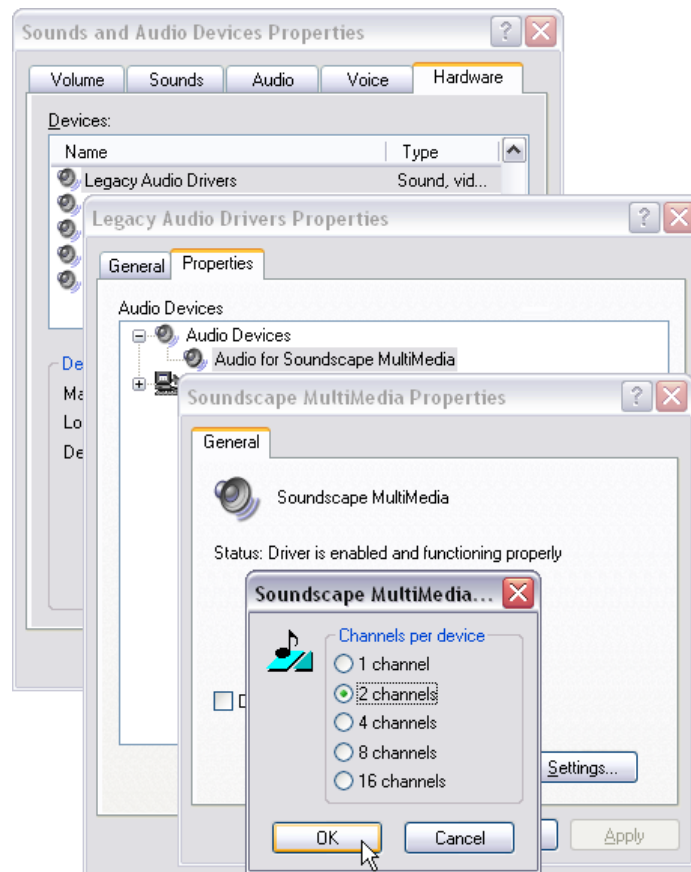
The WDM/KS drivers are loaded during log on. These drivers can be set up in the **Windows Control Panel, Sounds and Audio Devices, Audio** tab. The individual inputs and outputs are always listed as pairs. However, multichannel audio can be used. Note that **MadiXtreme n WDM** (where 'n' is the unit number) must be selected as the default audio device for sound playback. The speaker configuration must be selected in the **Advanced Audio Properties** window, which can be opened by clicking the **Advanced** button in the **Sounds and Audio Devices Properties** window:



Multichannel compatible applications will output multichannel audio via the selected group of streaming channels and according to the selected speaker configuration.

Using the Multimedia (MME) Drivers (Windows XP)

The legacy MME drivers are loaded during log on and are still available for compatibility with certain applications:



The default setting is for multiple stereo input and output devices (ie., one SSL MadiXtreme 64 = thirty-two stereo devices). This setting however can be changed in the **Windows Control Panel, Sounds and Audio Devices** dialog:

- Click the **Hardware** tab,
- Select **Legacy Audio Drivers**,
- Double-click the **Properties** button to open the **Legacy Audio Drivers Properties** window,
- Click the **Properties** tab,
- Expand **Audio Devices**,
- Select **Audio for Soundscape Multimedia**,
- Click the **Properties** button to open the **Soundscape Multimedia Properties** window,
- Click the **Settings** button and use the dialog box to enter your choice of configuration.

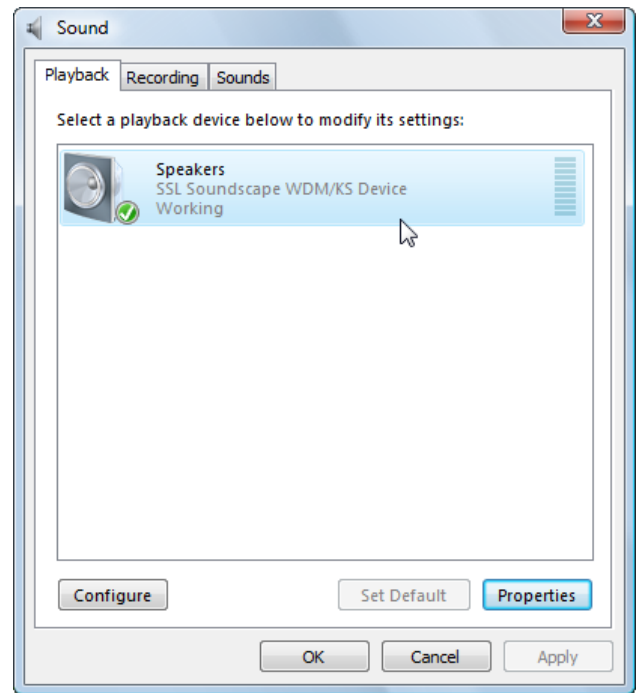
Close the windows using the **OK** buttons.

Using the WDM/KS drivers (Windows Vista)

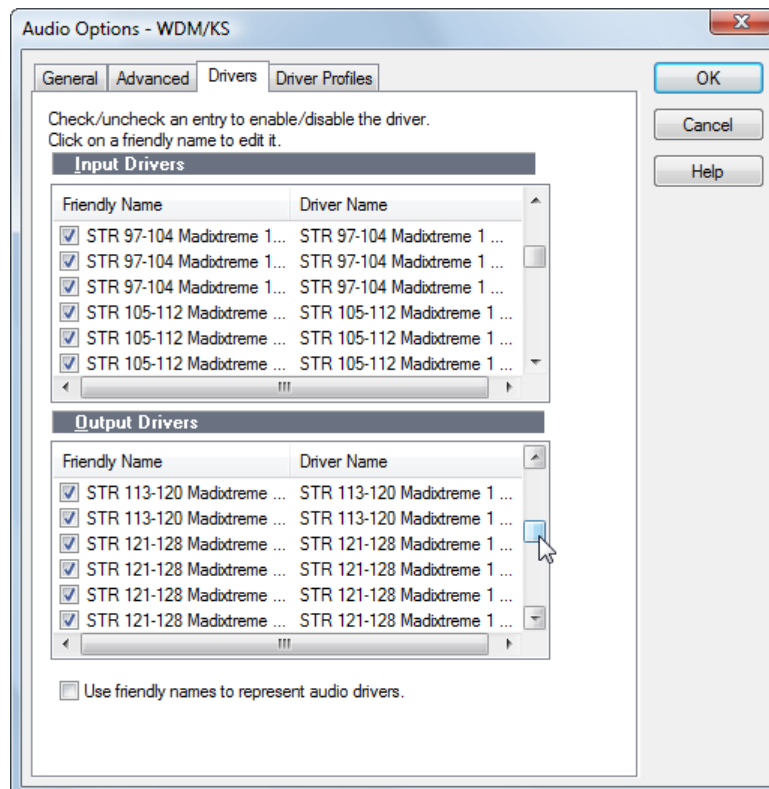
In Windows 2000 and XP, multichannel audio cards were treated as surround devices. A 16 input/output audio card such as the Soundscape Mixtreme would be seen as a 16 channel surround device, a 64 channel audio card (such as the Soundscape Mixpander) would be seen as a 64 channel surround device.

Since this was not suitable for DAW software, the Soundscape driver implemented stereo and/or eight channel 'virtual devices' on top of the actual audio device.

In Vista, the way audio devices are handled has been changed several times by Microsoft. At the time of writing, only the first input and output virtual devices are seen by Vista.



Despite this, DAW applications should still be able to see all the WDM/KS devices, as shown here in Cakewalk Sonar:



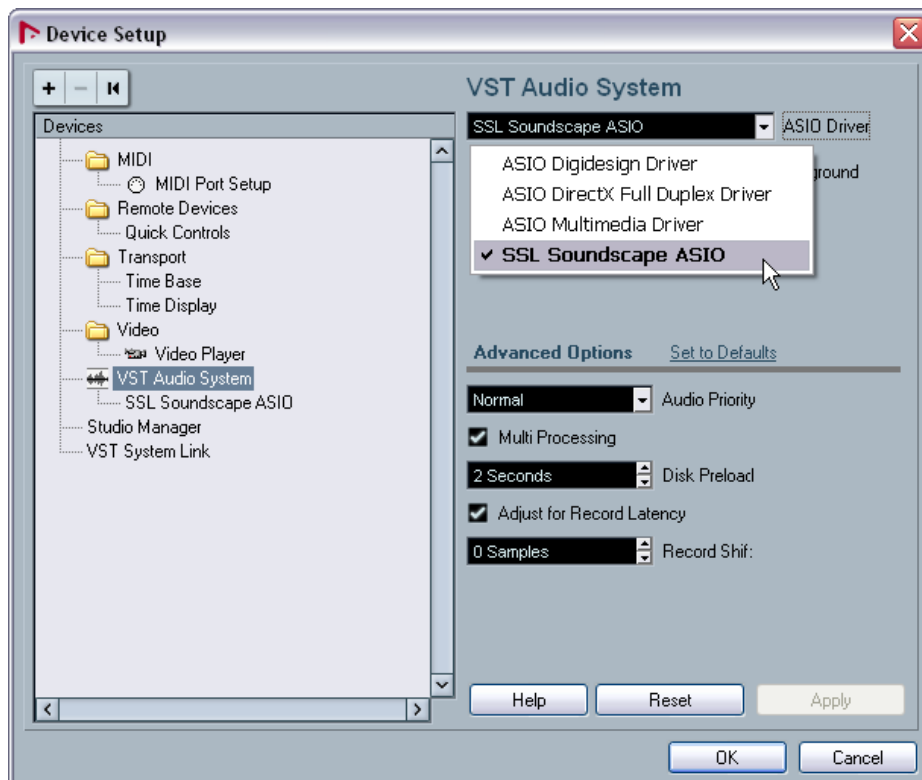
Note however that most current audio applications can use the SSL Soundscape ASIO-2 drivers (including Sonar).

Using the SSL Soundscape ASIO-2 Driver (Windows XP and Vista)

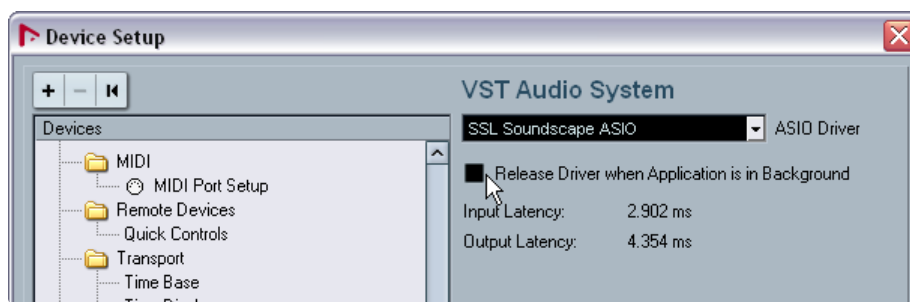
ASIO (Audio Streaming Input Output) is a Steinberg specification, originally developed for Cubase VST and used thereafter in subsequent versions of Cubase and Nuendo. This driver provides a more direct interface for multi-channel audio streaming than the legacy Multimedia drivers and most PC-based software DAWs (for instance Cakewalk Sonar, Magix Samplitude or Cockos Reaper) now also support ASIO as an option.

ASIO-2 expands upon the original specification to provide additional features for compatible audio cards. One such feature allows the monitoring to be switched from play to record so that there is no delay in monitoring the input signal through the PC. Another feature is the ability to use accurate hardware synchronization capabilities via the card and ASIO-2 driver.

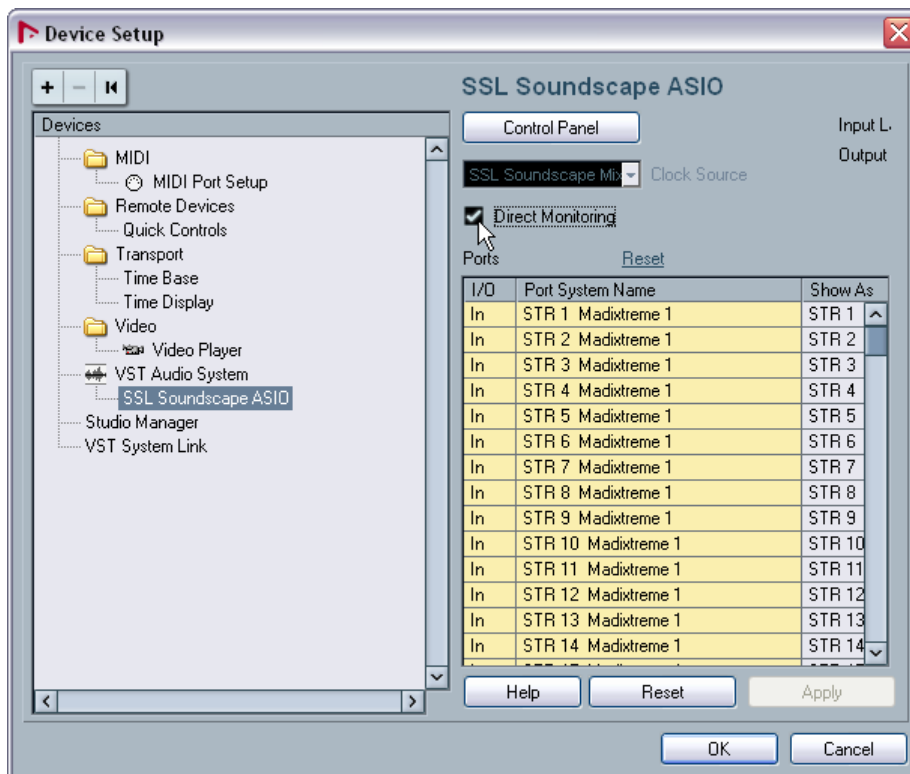
The SSL Soundscape ASIO-2 driver is automatically installed as part of the SSL Soundscape Device Drivers and should be available for selection in Cubase or Nuendo under the name **Soundscape ASIO**. In Nuendo 4 select **Device Setup** under the **Devices** menu, select **VST Audio System** and use the **ASIO Driver** drop-down menu:



- The **Release ASIO Driver in Background** box should be unchecked – if it is checked, the audio output from Cubase SX or Nuendo will stop when the window is minimized.



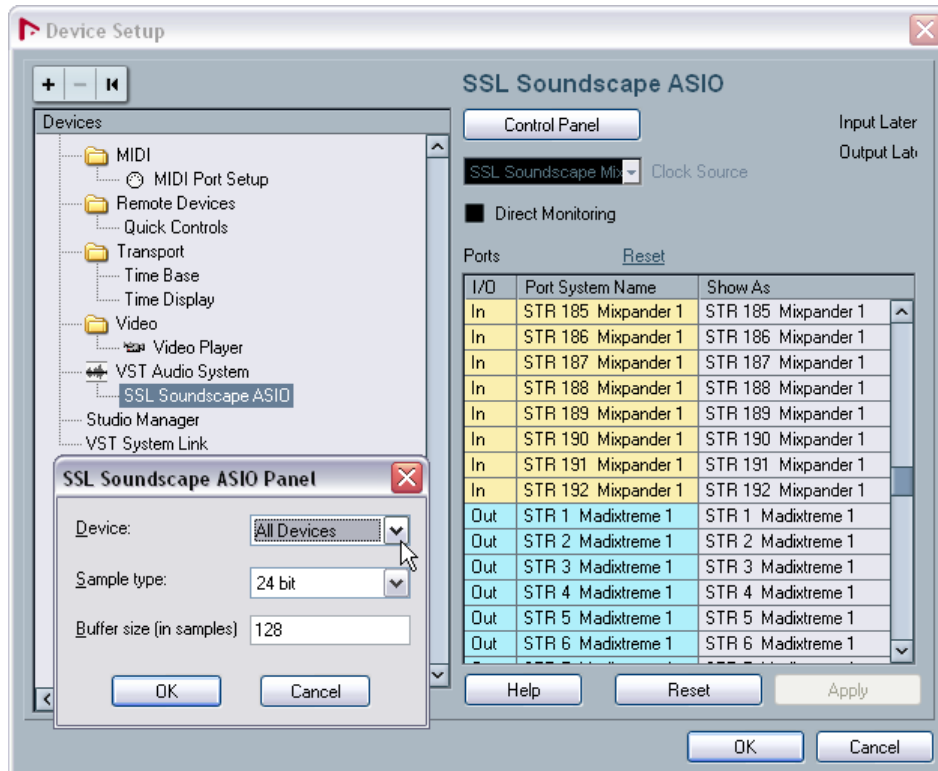
- To access the Direct Monitoring option, select **Device Setup** under the **Devices** menu, then select **SSL Soundscape ASIO** under **VST Audio System**. The **Direct Monitoring** box should be checked to switch monitoring between the input (for recording) and output (for playback) from Cubase or Nuendo.



Please note that at the time of writing, Direct Monitoring has not been implemented for MadiXtreme.

Multiple SSL Audio Cards and ASIO-2

The ASIO-2 driver specification allows for only one audio card to be used at any single time. However, the current implementation of the SSL Soundscape Device Driver allows multiple SSL audio cards to be used simultaneously under ASIO-2 by presenting them to the application as a single device. In order to use multiple cards simultaneously, **All Devices** must be selected in the SSL Soundscape ASIO Panel. To open the SSL Soundscape ASIO Panel in Nuendo 4, click **Device Setup** under the **Devices** menu, select **SSL Soundscape ASIO** under **VST Audio System** and click the **Control Panel** button. In the example below, a MadiXtreme 128 is used with an SSL Mixpander, for a total of 192 input streams and 192 output streams.



Although the Soundscape drivers allow multiple cards to be used simultaneously, the total number of input or output streams is currently limited to 254 – if the total number of either stream exceeds 254 the audio application will not be able to see or use any of the streams. For instance:

- Three MadiXtreme 64s could be used simultaneously (providing 192 input streams and 192 output streams)
- One MadiXtreme 128 and one MadiXtreme 64 could be used together (providing 192 input and output streams)
- Any combination of MadiXtremes and Mixpanders could be used, provided that the combination does not exceed 254 channels and streams.
- Two MadiXtreme 128s *cannot* be used simultaneously under ASIO-2, neither can one MadiXtreme 128 and two Mixpanders as both of these configurations would present too many input and output channels and streams.

Selecting a combination of cards that exceeds 254 input streams or 254 output streams will cause the sequencer to fail to detect any streams.

9. Driver Settings (Macintosh)

To select the MadiXtreme as the default Core Audio input and/or output device, click the **Apple (🍏)** icon and select **System Preferences**....



In the System Preferences window click the **Sound** icon to display the **Sound Preferences** pane. In the Sound Preferences pane, use the **Output** and **Input** buttons to view the available output and input devices. Click the **MadiXtreme** name to select it.



10. Driver Updates and Uninstalling Older Driver Versions

Windows XP and Windows Vista

The description below shows the procedure in Windows XP. In Vista the procedure is similar but more warnings may be displayed. Always click the option that allows the procedure to continue.

New versions of the Soundscape Device Driver can be downloaded from our website. To install the new version of the driver, first decompress the downloaded file to a folder of your choice. Then, locate the **DrvSetup.exe** icon in this folder and double-click it to launch the Setup application. Windows will display a security warning: click **Run**, followed by a Windows Logo Testing warning: click **Continue Anyway**. Click the **Update** button to update the driver, or the **Remove** button if you want to remove it, and follow the instructions on screen. Click **Done** to close the SSL Soundscape Driver Setup window at the end of the procedure.



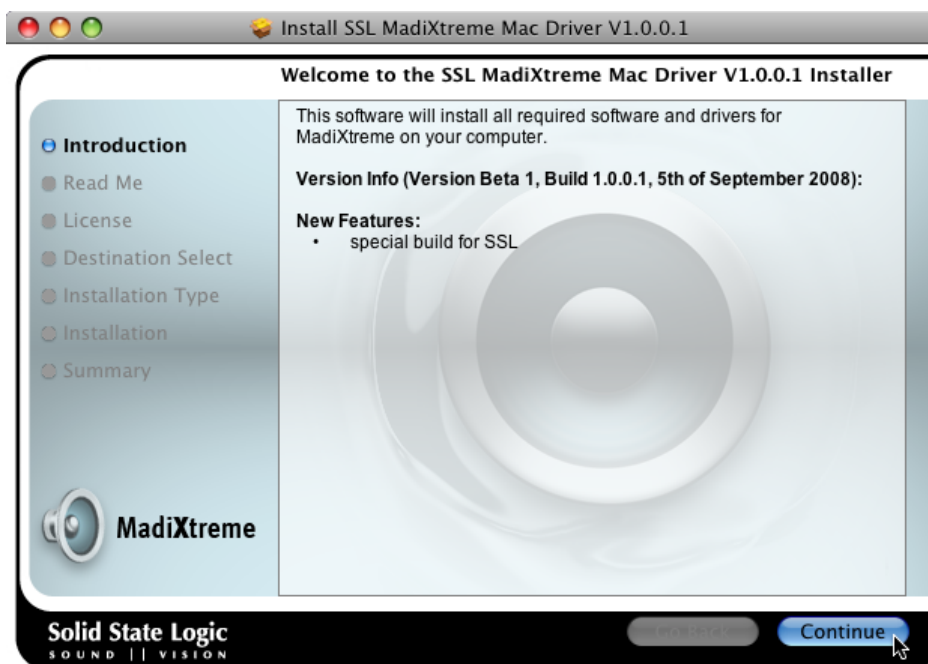
The computer must always be restarted after the SSL Soundscape Device Driver has been updated or removed.

Removing the SSL Soundscape Device Driver (PC)

- In Windows XP, open the Windows Control Panel, click **Add or Remove Programs**, select **SSL Soundscape Driver (remove only)**, click the **Change/Remove** button and follow the on-screen instructions.
- In Windows Vista, open the Windows Control Panel, click **Uninstall a Program** (located near the **programs** icon), double-click **SSL Soundscape Driver (remove only)** and follow the on-screen instructions.

Macintosh

To update the Macintosh driver, simply run the MadiXtreme Macintosh Driver installation application for the new driver version, as described earlier in this manual for the Macintosh software installation.

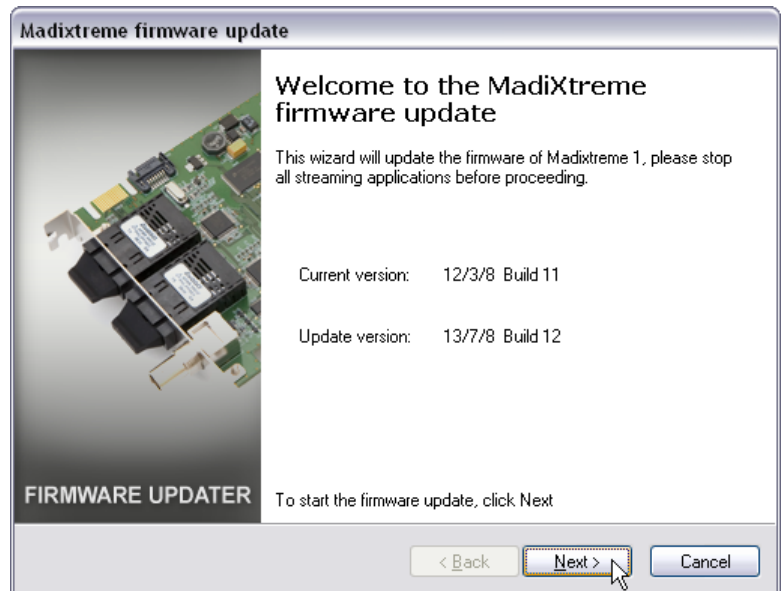


11. Firmware Updates

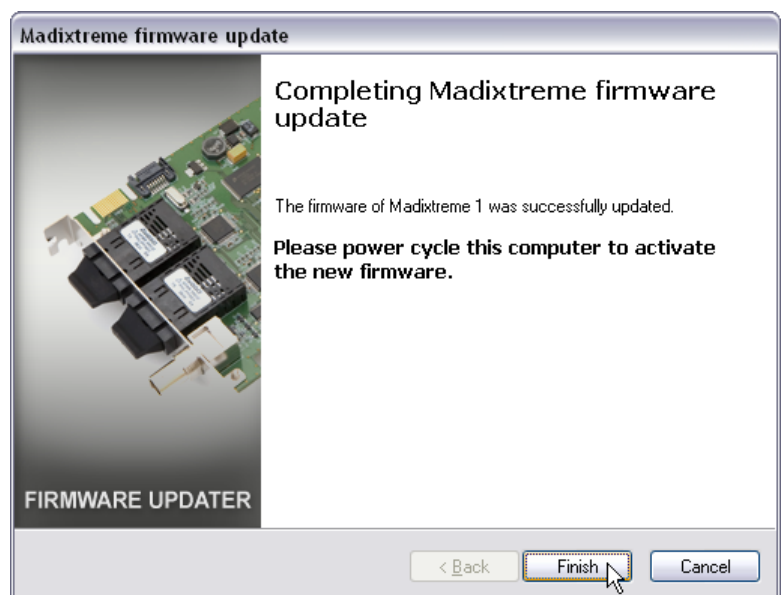
Updated MadiXtreme firmware will be available for download from our website whenever necessary. Typically, any new firmware will be included as part of a new driver package.

Windows XP and Windows Vista

When the TRack software is launched, the Firmware Updater starts up automatically if a MadiXtreme with obsolete firmware is detected. In such cases, click **Next** to proceed.



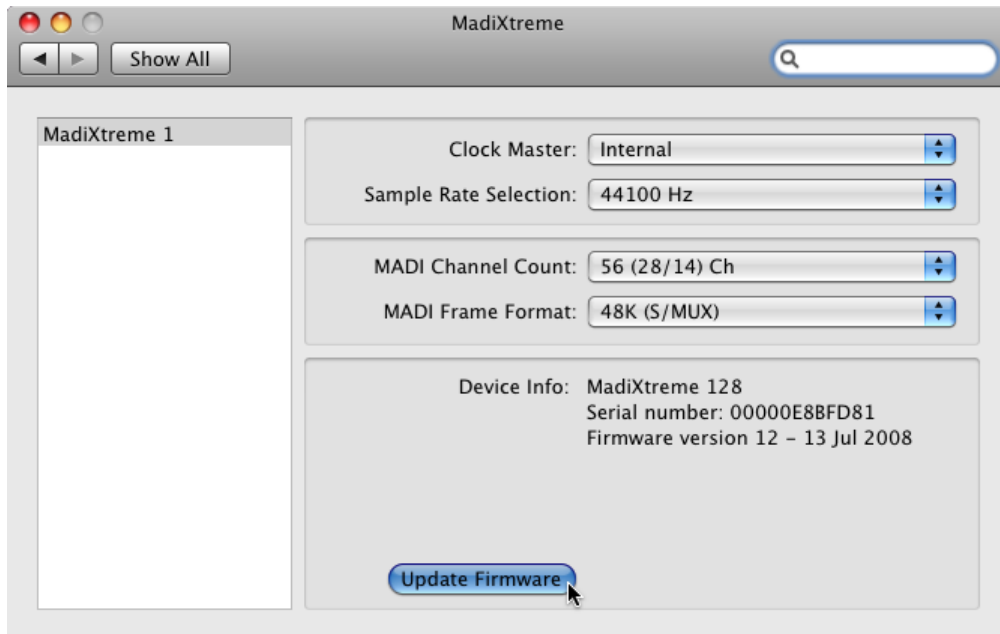
Please close any streaming applications currently running, and wait while the firmware is updated. After the update, click **Finish** and then *power-down and re-start the computer*.



It is most important that power be removed from the computer for a short period after the firmware has been updated. This is because MadiXtreme only loads the new firmware image into the hardware on power-up and if power is not removed your new image will not be loaded...

Macintosh

To update the MadiXtreme firmware, open the MadiXtreme Preferences pane (click the **Apple** (🍏) icon and select **System Preferences....** then in the System Preferences window click the MadiXtreme icon).



In the MadiXtreme Preferences pane, click the **Update Firmware** button and follow the on-screen instructions. You will be prompted to locate the firmware file that you want to load into the card. Once the firmware update process has completed the computer must be shutdown and restarted in order to complete the update process.

It is most important that power be removed from the computer for a short period after the firmware has been updated. This is because MadiXtreme only loads the new firmware image into the hardware on power-up and if power is not removed your new image will not be loaded...

12. Working With Your Audio Applications

In order to use your MadiXtreme effectively, you will need to be familiar with the operation of your sequencer or other audio application(s). If necessary, please spend time reading the manual(s) for your application(s) of choice. In particular, if you are using a sequencer, make sure you understand the basics such as setting up the clock synchronization, configuring the inputs and outputs of the software mixer, arming tracks etc.

This manual could not possibly cover every aspect of every audio application on the market. However, for your convenience, we have provided a few pointers on the following pages for some of the most popular applications. The information provided will help you to record audio using the following applications:

Windows Applications

- [Steinberg Nuendo](#)
- [Cakewalk Sonar](#)
- [Magix Samplitude](#)

Macintosh Applications

- [Apple Logic Pro](#)

I/O Latency

Achievable latency may vary depending on the host computer system and the applications that are running. During testing, we have found that MadiXtreme operates at latencies down to 64 samples (PC) and 32 samples (Mac Pro 8-Core).

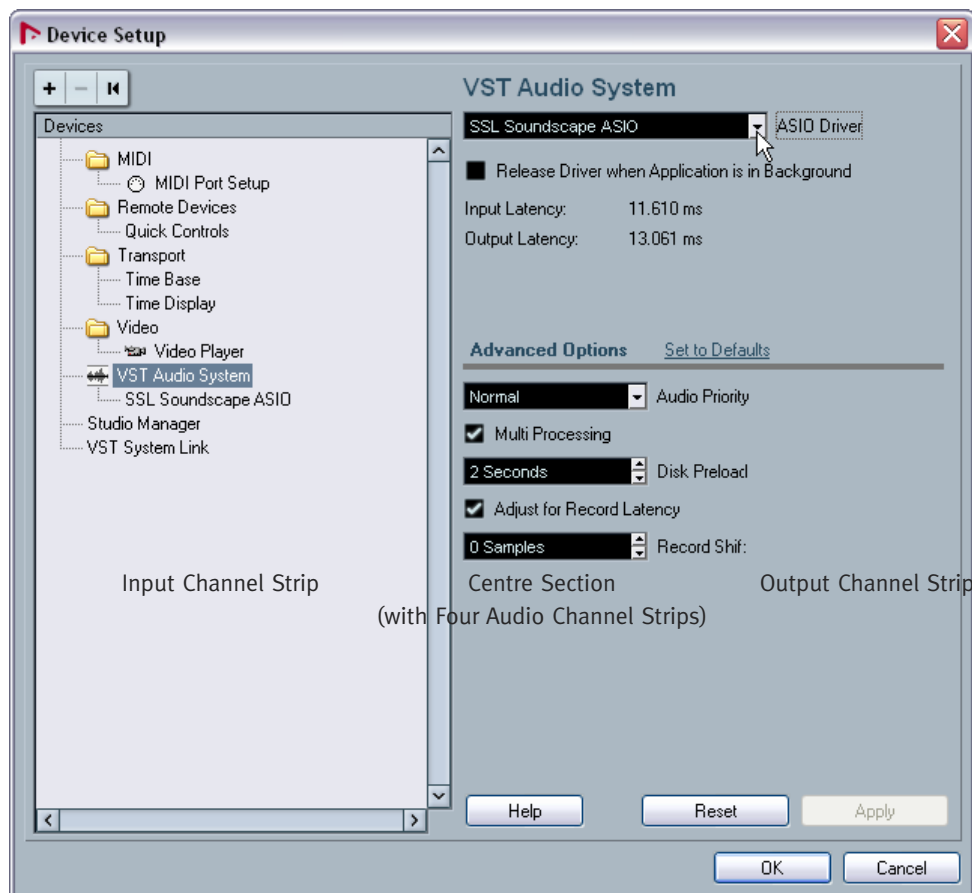
Please refer to the documentation of your audio application if you need information about selecting a latency setting.

Steinberg Nuendo

(Based on Nuendo 4.1.2 Build 851 running under Windows XP)

Selecting the Driver

For this quick-start example, we have chosen to use the ASIO driver (Devices menu, click **Device Setup**, highlight **VST Audio System** in the left-hand pane, select **SSL Soundscape ASIO** in the ASIO Driver drop-down menu then click **OK**).

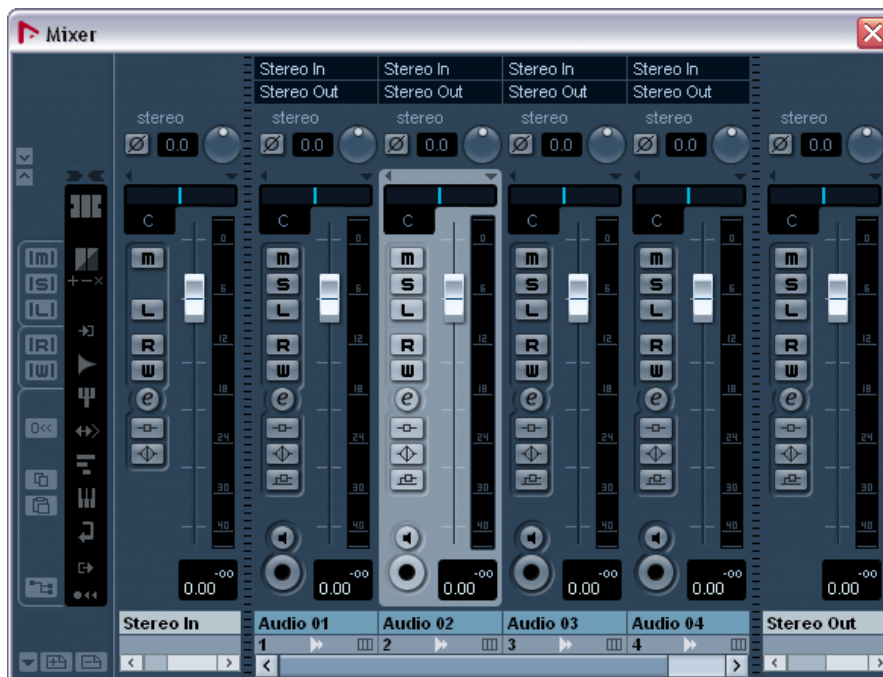


Audio Connections and Clock Settings

We will assume here that the MadiXtreme is connected to an Alpha-Link MADI AX or MADI SX. The Alpha-Link is configured so that its analogue inputs 1 to 24 are connected to its MADI outputs 1 to 24, and vice versa. A stereo test signal is being received via the Alpha-Link's analogue inputs 1 and 2, and its analogue outputs 1 and 2 are connected to a monitoring system. It is further assumed that the MadiXtreme and Alpha-Link clock settings are correct.

Overview

The Nuendo Mixer is divided into three main sections (press function key **F3** to display the Mixer):



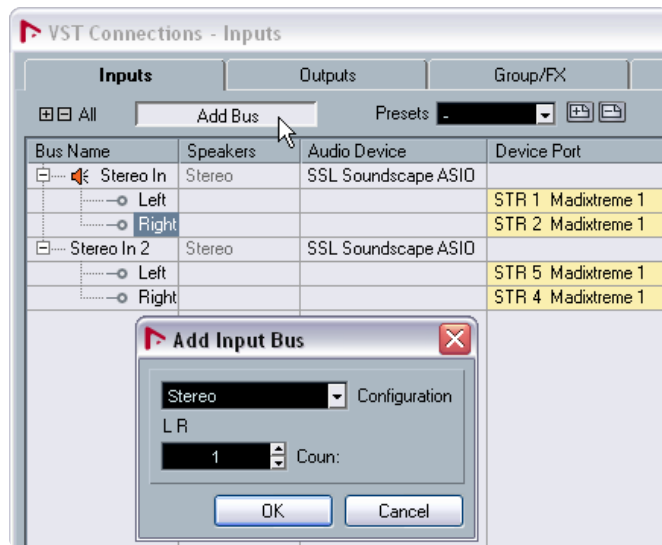
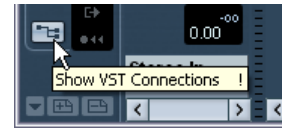
- Input channel strips (or ‘input busses’), to the left of the mixer
- Output channel strips (or ‘output busses’), to the right of the mixer
- Audio channel strips (in the centre section of the mixer)

Input and output channel strips are created automatically when an input or output bus is created in the VST Connections window. They are assigned automatically and incrementally to the MadiXtreme’s inputs and outputs, but can be reassigned manually if required.

Audio channel strips are created automatically in the centre section of the mixer when audio tracks are created in the current Nuendo Project. These audio channel strips can receive signal from any input bus channel strip or from the audio track they were created for, and transmit it to any output channel strip.

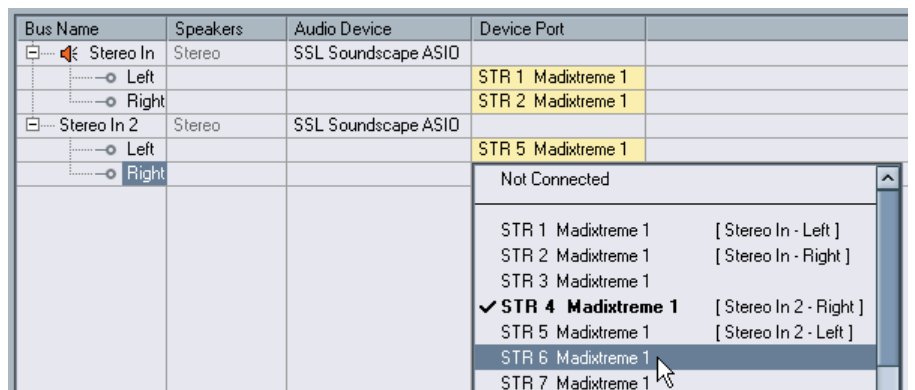
Input Channel Strips

Click the VST connections button (bottom left of the mixer) to open the VST Connections window.



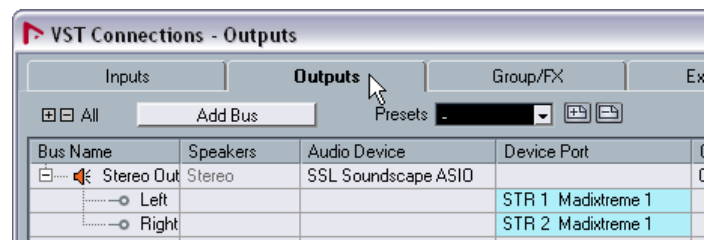
In the VST connections window, check that the **Inputs** tab is selected. Click the **Add Bus** button and use the resulting dialogue box to create input channel strips as required.

To assign an existing Nuendo input bus to a different MadiXtreme input, click the name of the MadiXtreme input in the **Device Port** column and select the required input from the resulting menu.



Output Channel Strips

Output channel strips are created and can be reassigned in the same way as input channel strips. Simply click the **Output** tab to add or assign output busses as required.



Audio Channel Strips

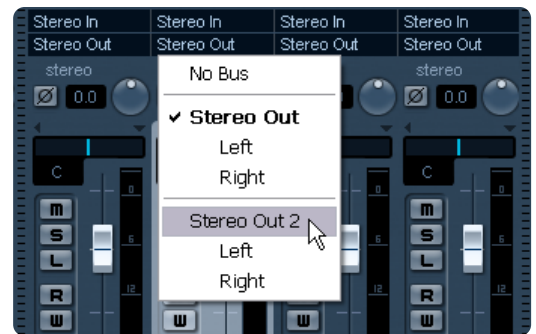
In the **Project** menu select **Add Track** and click **Audio**.



Use the resulting **Add Audio Track** dialogue box to create audio tracks as required. The corresponding channel strips will be added to the mixer.

The input and output channel strips that are currently connected to the audio channel strips are indicated in routing boxes located above the audio channel strips. Click the boxes to connect the audio channel strip to a different input or output channel strip as required.

*If the boxes are hidden, right-click the mixer, select **Window** and then click **Show Routing View** to display them.*



An Example Configuration for Recording

First, create a new Nuendo project by clicking **New Project** under the **File** menu (select **Empty** in the first dialogue box and follow the prompts).

Then, using the information provided in the previous sections, configure the new project so that you have:

- One stereo input bus (and corresponding input channel strip) assigned to **STR 1 Madixtreme 1** and **STR 2 Madixtreme 2**.
- One stereo output bus (and corresponding output channel strip) assigned to **STR 1 Madixtreme 1** and **STR 2 Madixtreme 2**.
- One audio track (and corresponding audio channel strip) with **Stereo In** as its input and **Stereo Out** as its output (the normal default settings).

Monitoring the Signal

Click the **Monitor** button to hear the signal going through the channel strip prior to recording.

The track and output channel strip meters will indicate the signal level, and you will hear it through your monitoring system. If necessary, adjust the level of your audio source.



Recording

When the signal is passing through the channel, you can record it by clicking the **Track Arming** button in the track channel strip, then the **Record** button in the **Transport** area:

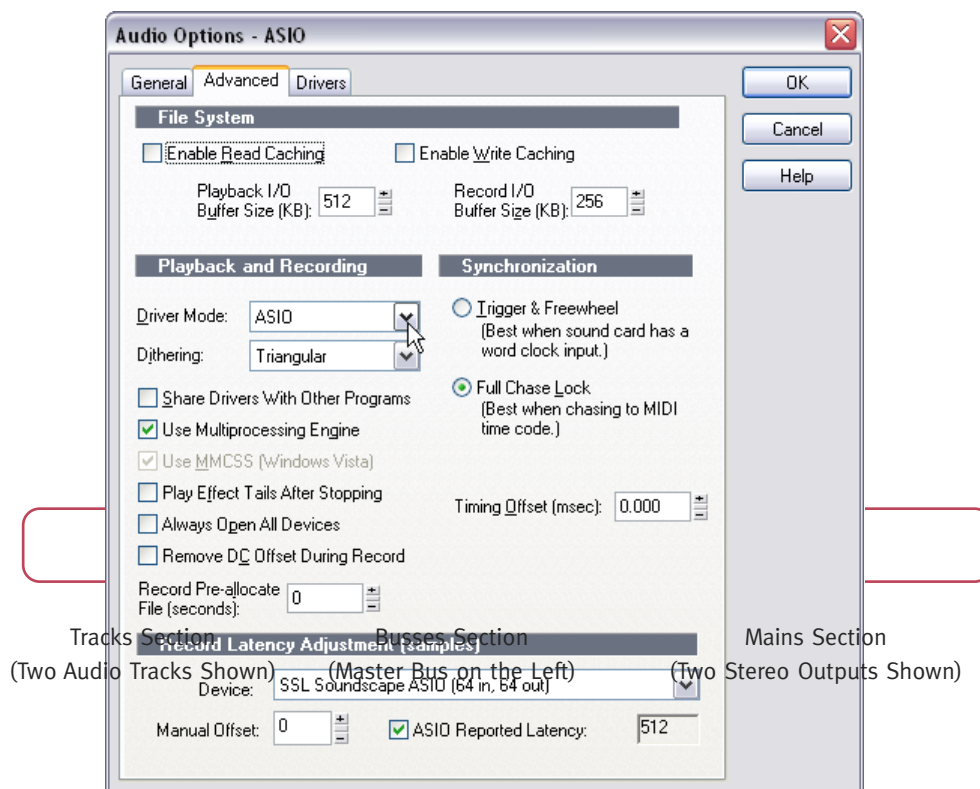


Cakewalk Sonar

(Based on Sonar 7.0 Producer Edition running under Windows XP)

Selecting the Driver

The ASIO driver mode was chosen for this quick-start example (Options menu, click **Audio**, click the **Advanced** tab, select ASIO using the Driver Mode drop-down menu and click **OK** to confirm and close the window).



Audio Connections and Clock Settings

It is assumed that MadiXtreme is connected to an Alpha-Link MADI AX or MADI SX. The Alpha-Link is configured so that its analogue inputs 1 to 24 are connected to its MADI outputs 1 to 24, and vice versa. A stereo test signal is received via the Alpha-Link's analogue inputs 1 and 2, and its analogue outputs 1 and 2 are connected to a monitoring system. It is further assumed that the MadiXtreme and Alpha-Link clock settings are correct.

Overview

The Sonar Console is divided into three main sections (on the keyboard, press **Alt + 3** to display the Console).



For clarity, we have ~~used the~~ buttons on the left of the console to hide the EQ Plot, EQ, FX and Send sections of the channel strips.

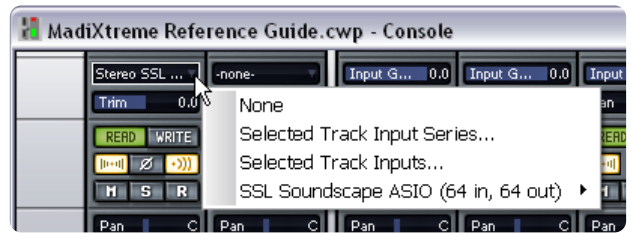
- Tracks Section: includes one channel strip for each track in the project
- Buses Section: includes the Master Bus strip on the left
- Mains Section: includes direct stereo outputs assigned to the audio hardware

When Sonar 7.0 Producer Edition is started, a dialogue offers the option to create a new project. The default configuration of the new project is two stereo audio tracks and two MIDI tracks. This is a good way to start experimenting with MadiXtreme and was used for writing this manual, so please follow the prompts to create a new project and then proceed to the sections overleaf.

Selecting an Input for the Track/Channel Strip

In order to hear the input signal an input must be selected for the channel strip. Click the input field near the top of the track channel strip to display a selection menu.

If you are receiving a stereo test signal via MadiXtreme inputs 1 and 2, highlight **SSL Soundscape ASIO**. A submenu will be displayed: click **Stereo SSL Soundscape ASIO STR 1 Madixtreme 1** in the submenu.



Selecting an Output for the Track/Channel Strip

Next, select the track output by clicking the output field near the bottom of the track channel strip.

Select **SSL Soundscape ASIO STR 1 Madixtreme 1** to hear the signal transmitted via the MadiXtreme's first output pair.



Monitoring the Signal

Click the Input Echo button to hear the signal going through the channel strip prior to recording



Recording

When the signal is passing through the channel, you can record it by clicking the Track Arming button in the track channel strip, then the Record button in the Transport:

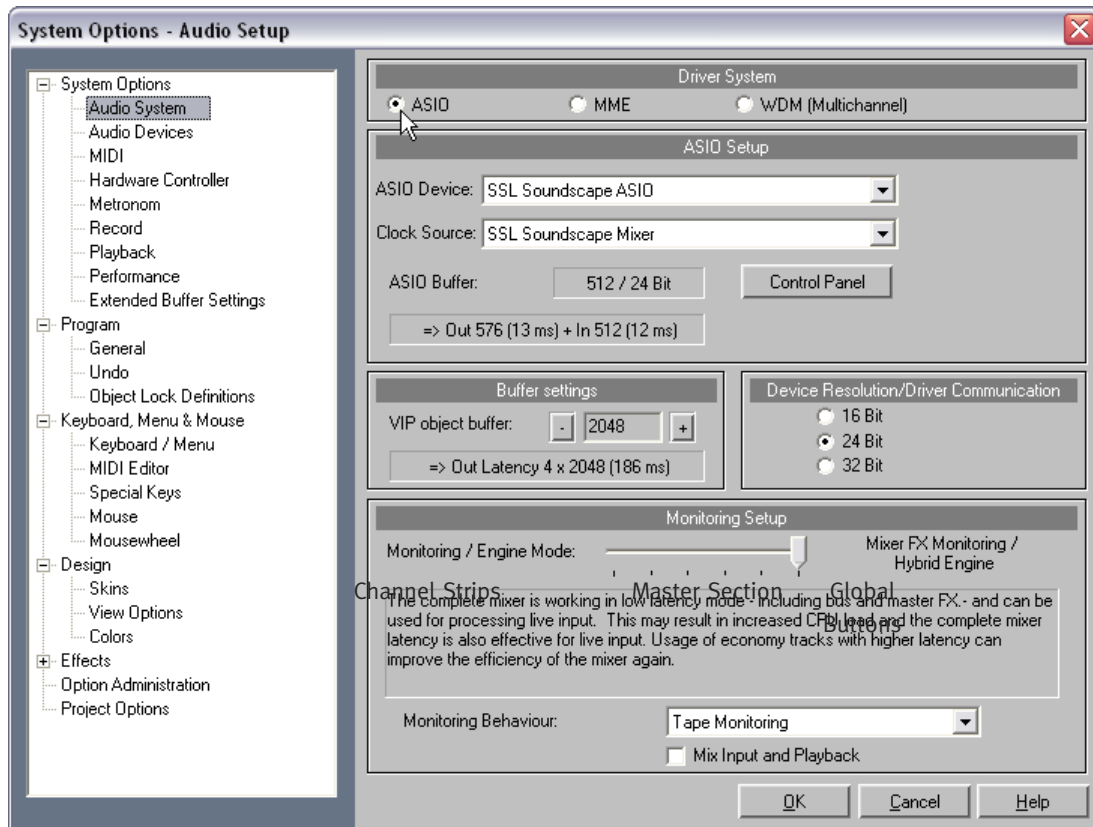


Magix Samplitude

(Based on Samplitude 10 Pro running under Windows XP)

Selecting the Driver

The ASIO Driver System was selected for this quick-start example (Options menu, click **System/Audio**, select the **ASIO** option box. Click **OK** to confirm your selection and close the window.

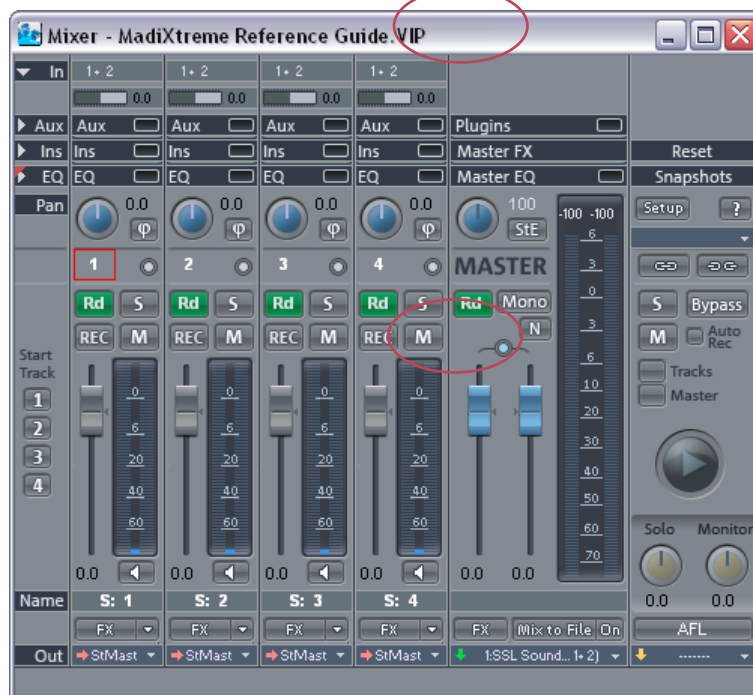


Audio Connections and Clock Settings

It is assumed that the MadiXtreme is connected to an Alpha-Link MADI AX or MADI SX. The Alpha-Link is configured so that its analogue inputs 1 to 24 are connected to its MADI outputs 1 to 24, and vice versa. A stereo test signal is received via the Alpha-Link's analogue inputs 1 and 2, and its analogue outputs 1 and 2 are connected to a monitoring system. It is further assumed that the MadiXtreme and Alpha-Link clock settings are correct.

Overview

The Samplitude Mixer is divided into three main sections (on the keyboard, press **M** to display the Mixer).



For clarity, we have used the buttons on the left of the Mixer to hide the EQ Insert and Aux sections of the channel strips.

The Samplitude Mixer features one audio channel strip for each audio track in the current project. By default, the output of each audio channel strip is routed to the Master section – this can be changed if required.

To get started, create a new Samplitude project by clicking **New Virtual Project (VIP)** under the **File** menu. Name the project in the resulting dialogue window and click **OK** to confirm and close the window.

By default, the project will have four stereo audio tracks and corresponding audio channel strips. We want to record our test stereo signal to track 1.

Selecting an Input for the Track/Channel Strip

In order to hear an input signal the track input must be selected. Click the input field near the top of the track channel strip to display a selection menu. If you are receiving a stereo test signal via MadiXtreme inputs 1 and 2, make sure that **1. SSL Soundscape ASIO In (1+2)** is selected (as it should be by default).



Selecting an Output for the Track/Channel Strip

Next, select the track output by clicking the output field near the bottom of the Track channel strip. Make sure that **1. SSL Soundscape ASIO Out (1+2) (Stereo Master)** is selected (as it should be by default).



Note that the output signal is not routed directly to the MadiXtreme outputs 1 and 2. It is routed to the Master section of the Samplitude Mixer, which itself should be routed to the MadiXtreme outputs 1 and 2.

If you need to change the output routing of the Master section, click the output field at the bottom of the Master section, just like you did for the output of the channel strip, and select the output pair as required.



Monitoring the Signal

Click the Input Monitoring button to hear the signal going through the channel strip prior to recording. The track channel strip meters will indicate the signal level, and you will hear it through your monitoring system. If necessary, adjust the level of your audio source.



Recording

When the signal is passing through the channel, you can record it by clicking the Track Arming button in the track channel strip, then the Record button in the Transport:

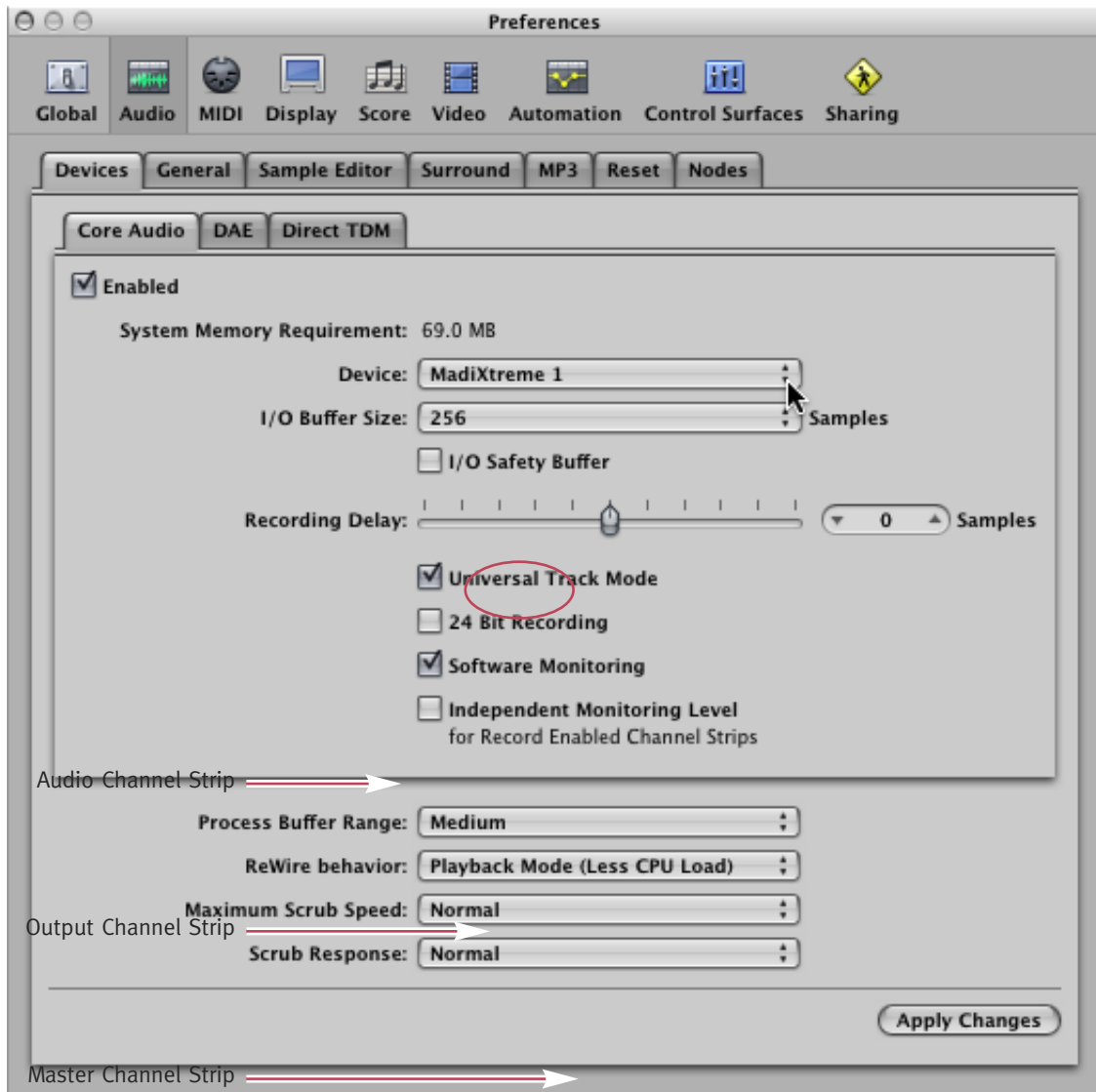


Apple Logic Pro

(Based on Logic Pro 8 running under Mac OS X 10.5.4)

Selecting the Driver

Click the **Logic Pro** menu header, highlight **Preferences** in the menu, click **Audio** in the submenu to open the Logic Preferences window. Click the **Devices** tab if necessary, and under **Core Audio**, select the MadiXtreme in the **Device** menu.



Audio Connections and Clock Settings

For this quick-start example, it is assumed that the MadiXtreme is connected to an Alpha-Link MADI AX or MADI SX. The Alpha-Link is configured so that its analogue inputs 1 to 24 are connected to its MADI outputs 1 to 24, and vice versa. A stereo test signal is received via the Alpha-Link's analogue inputs 1 and 2, and its analogue outputs 1 and 2 are connected to a monitoring system. It is further assumed that the MadiXtreme and Alpha-Link clock settings are correct.

Creating a Logic Project

In the Logic Pro **File** menu, select **New**. In the **New** window and click **Empty Project** – you will be prompted to create new audio tracks.

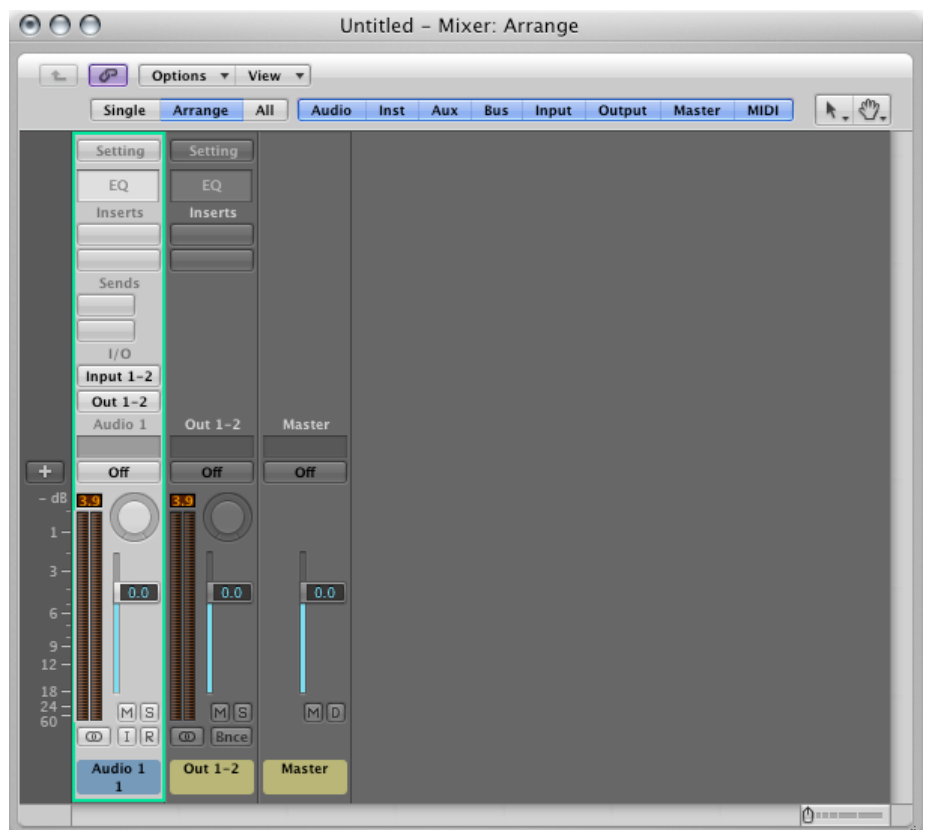
Create a single stereo audio track, assigned to inputs and outputs 1 and 2.

Finally, click on **File** again, select **Save As...**, name your trial project and click **Save**. This way you won't have to do it when you start recording.



Mixer Overview

The Logic Pro Mixer will be configured as shown below (on the keyboard, press $\text{⌘} + 2$ to display the Mixer) If necessary, click the **Arrange** button (near the top of the Mixer) so that it is lit in blue, with **Single** and **All** turned off.



- The Audio channel strip receives the signal from the MadiXtreme input or – after recording – from the recorded track in the Arrange window
- The Output channel strip controls the overall output level for all tracks assigned to the selected output
- The Master channel strip acts as an overall level control for the Mixer

Selecting an Input or Output

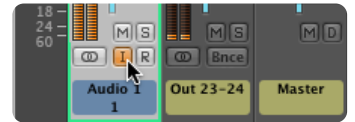
Note that you can select any adjacent pair of MadiXtreme inputs or outputs for the stereo track you have created by clicking the Input and Output slots in the I/O section of the Track channel strip and using the menu and submenus that will thus be displayed.

In this example, it is assumed that you are receiving audio via inputs 1 and 2 and monitoring outputs 1 and 2, so there should be no need to change the settings.



Monitoring the Signal

Click the Input Monitoring button to hear the signal going through the channel strip prior to recording. The Track channel strip meters will indicate the signal level, and you will hear it through your monitoring system.



Recording

In this example, simply click the Record button when you are ready to start recording. Since there is only a single track present in the project, it will automatically be used for recording.



Note that for Projects that contain several recording tracks, you would need to click the Record Enable button for the tracks you want to record before clicking the Record button.



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