



Live Recording with M7CL-48ES & AuviTran Network ASIO Streamer

Using **Steinberg Cubase 5** or **Nuendo 5**.



Ether
ES
Sound 100

ASIO

CUBASE 5
NUENDO 5

CO
commercial audio

Summary:

This guide shows how quick and easy it is to achieve a high quality, live multi-track recording using Yamaha M7CL-48ES, stage-boxes equipped with EtherSound, and a Personal Computer.

An elegant solution can be built using just one cable between mixer and stage, and one cable between mixer and recorder (Digital Audio Workstation).

Such a system is ideal for use as a virtual sound-check tool, and to create a concert archive for later mix-down using Steinberg or other professional DAW software.

CONTENTS

	Page
Introduction	3
Equipment List	3
Computer Requirements	3
Hardware Setup	4
M7CL-48ES Setup.....	5
FROM STAGE BOX	5
FROM DAW.....	6
“Network ASIO Streamer” Setup	6
Nuendo 5 / Cubase 5 Setup	9
Device Setup	9
Templates.....	10
Start Recording	12
Playback	13
Appendix	14
Create a new Nuendo / Cubase Template	14

Introduction

The live recording solution outlined in this document is the simplest and quickest method using a Yamaha digital mixer. Alongside a standard M7CL-48ES setup with stage-boxes equipped with EtherSound, just one additional cable is needed to connect the computer.

Using Auvitran's "Network ASIO Streamer", the audio signals from the stage-boxes are routed via the M7CL-48ES 3rd port to the computer's Ethernet adapter. No additional hardware is required. Apart from the recording software and the ASIO streamer, no additional software is needed: the setup can be made from the mixer's touch-screen. For additional information about "Network ASIO Streamer", please visit Auvitran's website: www.auvitran.com.

Equipment List

Auvitran's "Network ASIO Streamer" will only work with a small number of EtherSound devices that are equipped with a 3rd port. V3.5 firmware for M7CL-48ES introduces this feature to Yamaha products. Here is a list of the equipment necessary for a simple live recording / playback system:

1. Yamaha M7CL-48ES with v3.5 (or later) firmware. Also, the internal EtherSound module must have firmware 0x0C18 or later.
2. A 48-input stage-box system with EtherSound connection, such as 3x SB168-ES.
3. One PC running Windows Vista or Windows 7 (32-bit or 64-bit version) equipped with a Gigabit Ethernet adapter. A dual core CPU with a clock speed greater than 2GHz is strongly recommended, with at least 2GB of RAM, and a high-speed storage disk (such as 7200rpm).
4. Steinberg Cubase 5 or Nuendo 5 software.
5. One CAT5e or CAT6 cable from the M7CL-48ES "3rd port" to the PC, maximum of 100 metres long.

Computer Requirements

It is strongly recommended to use a computer running Windows 7, with at least 2GHz processing speed, and at least 2GB RAM. Also a Hard Disk Drive with a speed of 7200rpm or faster is recommended for recording and playback of more than 16 channels at 48kHz 24-bit.

As an example, a PC running Windows 7 (32-bit) with a 2.66GHz Intel® Core™2 Quad CPU (Q9400), 4GB RAM, a 7200rpm Seagate disk drive, and a Broadcom NetXtreme Gigabit Ethernet adapter, could manage 64 tracks of recording and playback with Nuendo 5.

A notebook PC running Windows 7 (32-bit) with a 2.2GHz Intel® Core™2 Duo CPU (T7500) processor, 2GB of RAM, a 7200rpm disk drive, and a Intel® 82566MM Gigabit Ethernet adapter is also capable of 64 tracks of reliable recording and playback. Other laptops with a similar spec may not work so well, depending on the performance of their Ethernet adapters and drivers.

With regard to disk storage, allow 500MB per hour for each mono track at an audio quality of 48kHz 24-bit. So for example, 120GB will be able to record 60 tracks for 4 hours. Or for a 2 hour show consisting of 48 tracks, allow 50GB of storage.

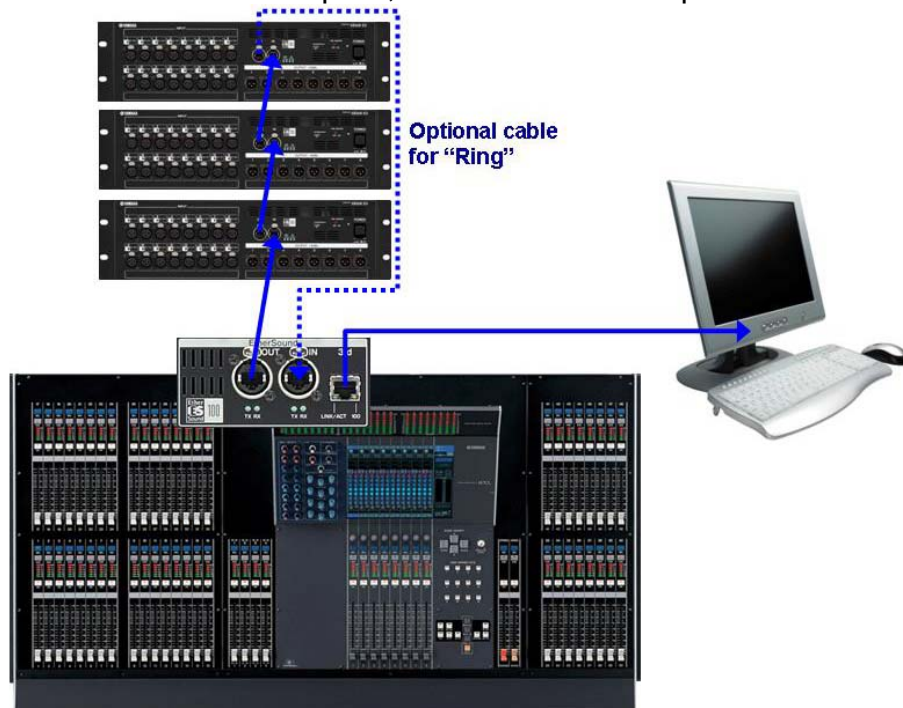
Tip:

Multi-track recording can be a very demanding task for a computer. To ensure high quality and reliability, it is best to use a computer dedicated to this purpose, without any unnecessary software or drivers installed. Tips for optimizing the computers' performance are listed on [page 7](#).

Hardware Setup

Setup the M7CL-48ES with the stage-boxes (such as SB168-ES x3) in the normal way, using either an EtherSound ring or a daisy-chain. See the "M7CL-48ES Auto Configure Guide" on Yamaha's website for an example: http://www.yamahaproaudio.com/training/self_training/index.html.

Then, using a CAT5e or CAT6 cable, connect the computer's Gigabit Ethernet port to the M7CL-48ES's "3rd port", located on the rear panel.

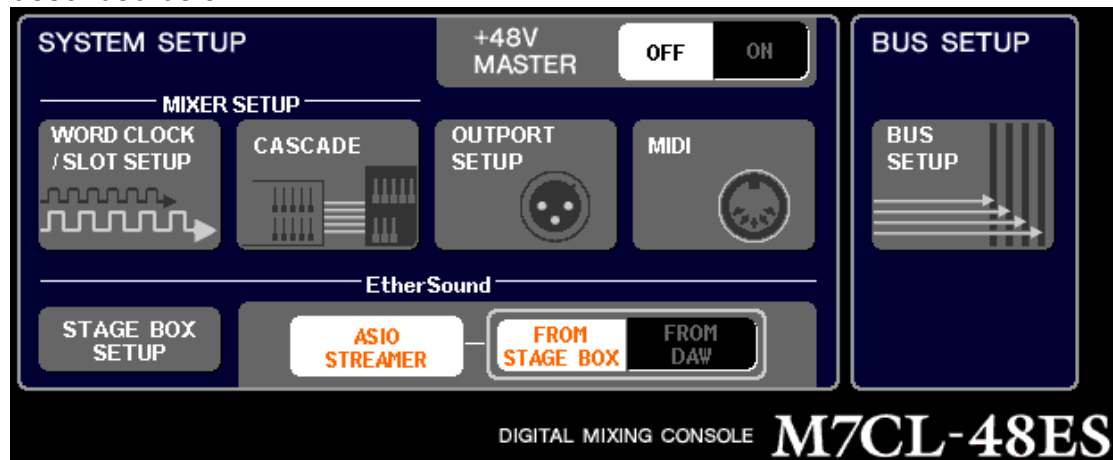


Typical system connection.

Auvitrán's "Network ASIO Streamer" can be downloaded from <http://www.auvitrán.com>, with release notes, installation instructions, and configuration tips.

M7CL-48ES Setup

The ASIO Streamer function is switched on/off in the main Setup menu on the mixer's touch-screen. It has two modes: "FROM STAGE BOX" and "FROM DAW". These two modes automatically set the audio channel routing as described below.

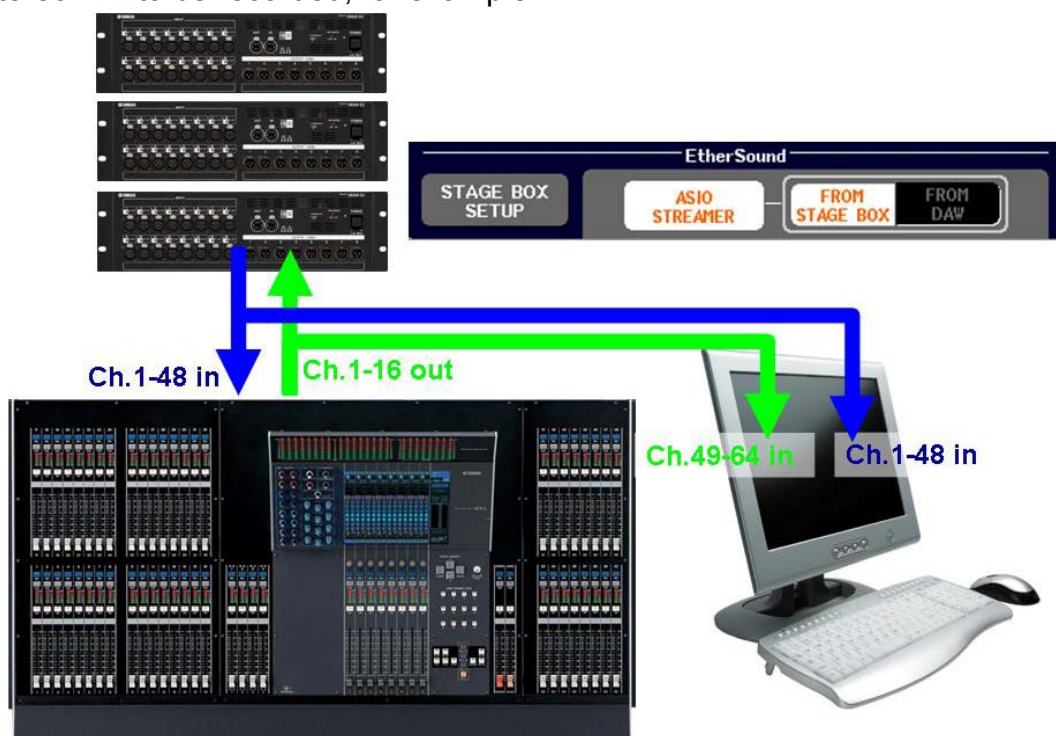


A portion of the SETUP menu of M7CL-48ES.

FROM STAGE BOX

This mode is for live recording. When "From Stage Box" is selected, the 48 channels arriving at the mixer from the stage box are also forwarded through the "3rd Port" to the computer.

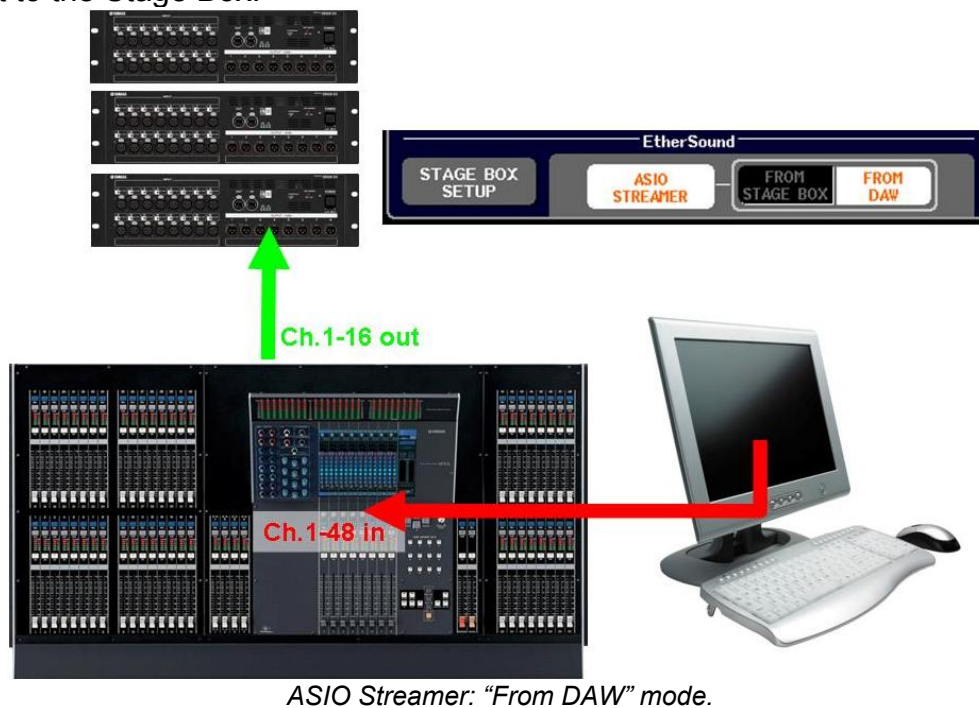
In addition, the first 16 channels sent by the M7CL-48ES back to the Stage Boxes are also forwarded through the "3rd Port", appearing on the computer as inputs 49-64. This enables sub-groups and effect returns, or the complete stereo mix to be recorded, for example.



ASIO Streamer: "From Stage Box" mode.

FROM DAW

This mode is for playback. When “From DAW” is selected, the first 48 output channels from the computer’s Digital Audio Workstation software are transmitted through the “3rd Port” to the M7CL-48ES inputs, replacing the Stage Box inputs. The console’s patch settings do not need to be changed. This can be useful as a “Virtual Soundcheck”: the console outputs are still sent to the Stage Box.



ASIO Streamer: “From DAW” mode.

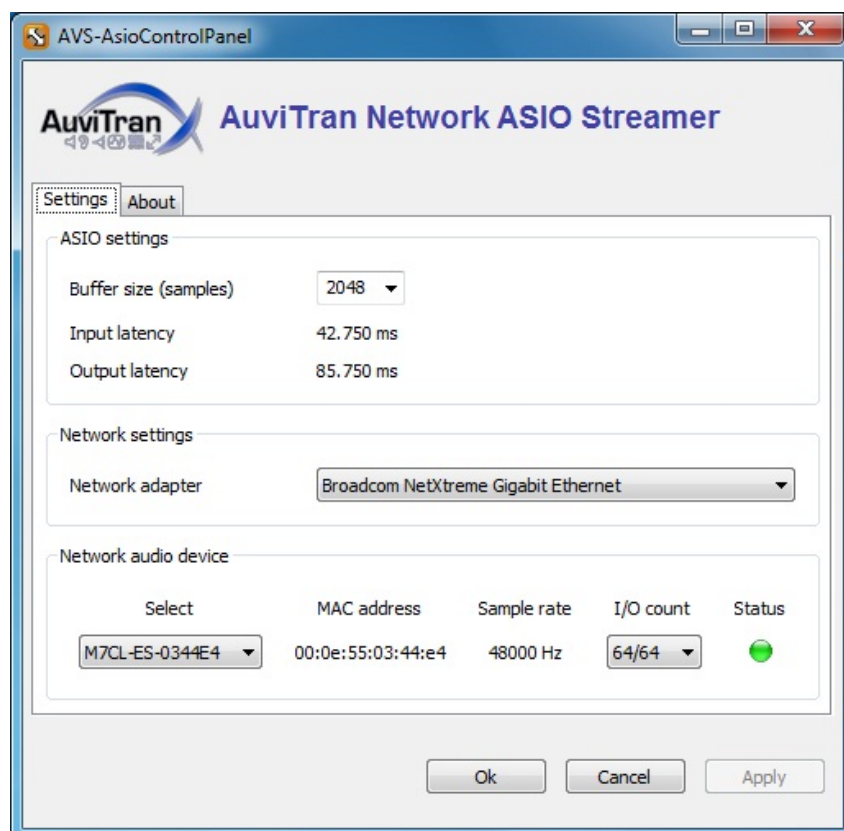
“Network ASIO Streamer” Setup

Download and install “Network ASIO Streamer”. The latest version can be found at <http://www.auvitran.com>, with release notes, installation instructions, and configuration tips. There are no license or registration procedures to follow: just a simple installation. Remember that Mac operating systems do not support ASIO. Only Windows Vista and 7 can be used as the operating system.

In the Settings tab of the AVS-Asio Control Panel, it is recommended to set the Buffer to the maximum available size (2048) to start with. This will increase latency, but will provide maximum stability. Actually, there is no audio monitoring facility while recording with this system, so any input/output latency is not an issue.

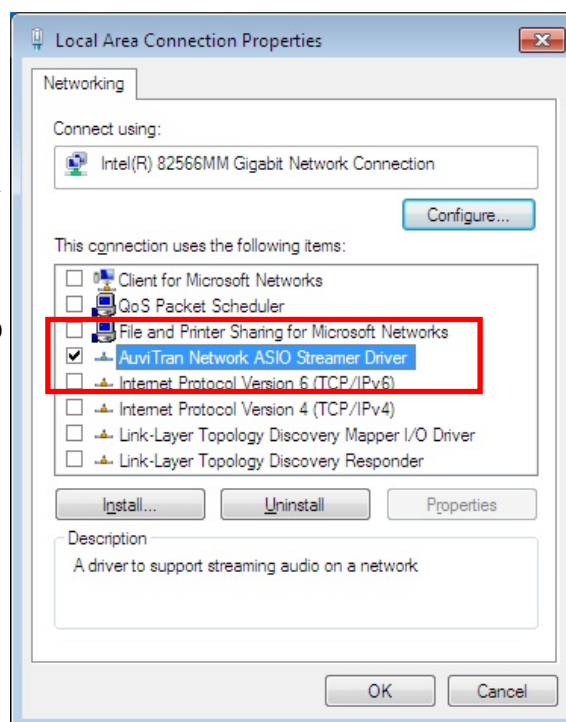
Select the required Gigabit Ethernet port in the “Network adapter” menu, and the correct M7CL-48ES device should automatically be selected below.

Lastly, choose the required I/O count and click [OK]. The options are 2x2, 4x4, 8x8, 16x16, 32x32 and 64x64. Some lower powered computers will struggle with high channel counts, so in some cases a lower option will be needed.



To maximise the Network ASIO Streamer performance on the computer, here are some tips:

1. Open the “Local Area Connection” properties (found in Control Panel>Network and Internet>Network Connections), and disable all items except for the Network ASIO Streamer (as shown on the right). Note that this will cause connection to other networks to stop functioning correctly until the original settings are re-applied.

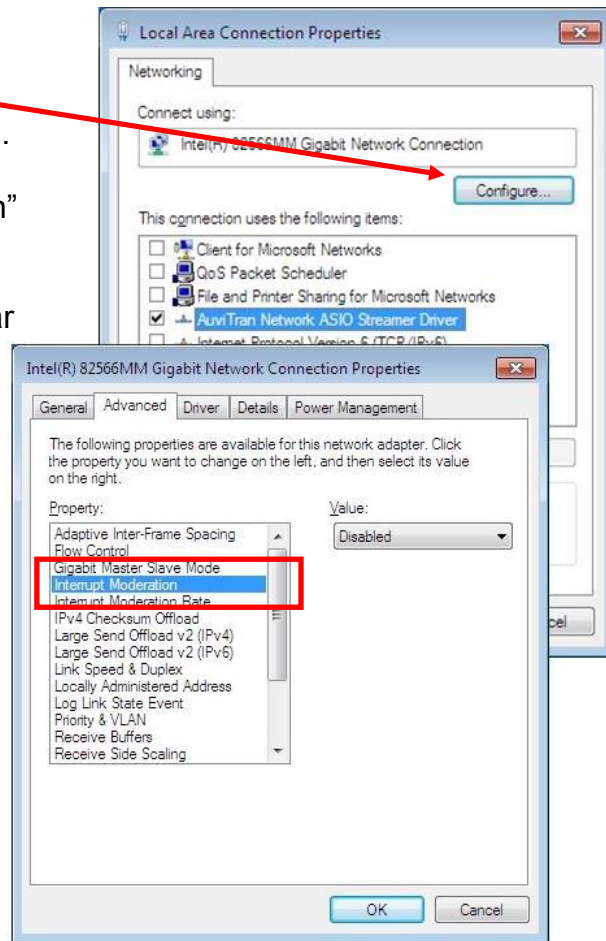


2. In the “Local Area Connection Properties”, click the [Configure] button for the network connection. In the Advanced tab, disable (or turn Off) the “Interrupt Moderation” or “Interrupt Throttle Rate” property.

Disabling this function in particular can improve the consistency of audio playback in FROM DAW mode.

(note that these properties windows might be arranged differently for other makes of driver / network connection).

3. Close any unnecessary applications on the computer. Even any EtherSound software such as AVS-ESMonitor should be closed to save resources: it is not needed for this system anyway.

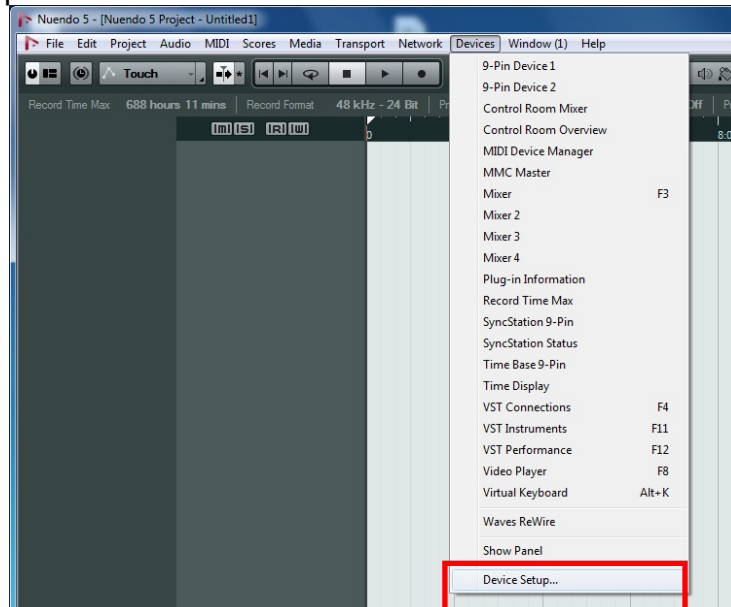


Nuendo 5 / Cubase 5 Setup

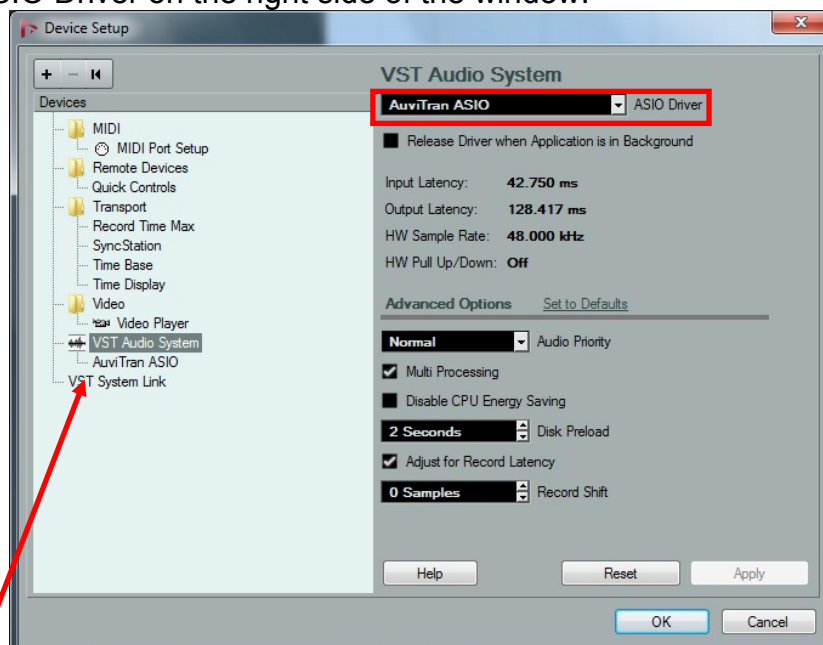
Device Setup

The setup procedures for Nuendo 5 and Cubase 5 are virtually identical. The pictures in this section are from Nuendo 5.

After starting Nuendo 5 (or Cubase 5), open the “Devices” menu, and select “Device Setup...”



Click on “VST Audio System” in the left column, and select “AuviTran ASIO” for the ASIO Driver on the right side of the window.

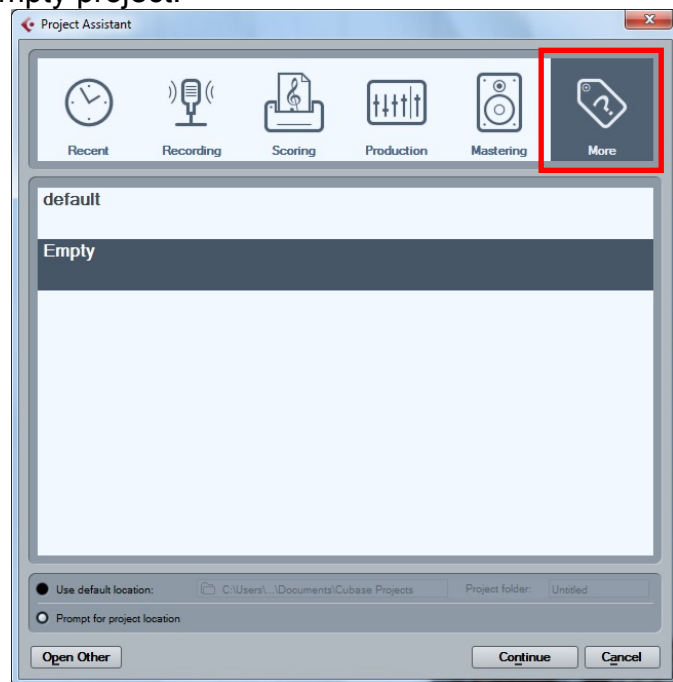


By highlighting the sound-card’s name in the left column, the device’s control panel can be accessed with a button to the right. Also, the state of each input and output is shown. At this stage, most i/o will probably be “Inactive” because they have not yet been assigned to the project.

Templates

When opening a new project in Nuendo 5, the user is offered the chance to open either a template or an empty project.

In Cubase 5, the “Project Assistant” window may appear when opening a new project (depending on the preferences). In that case, the user templates and an empty project are listed in the “More” category.



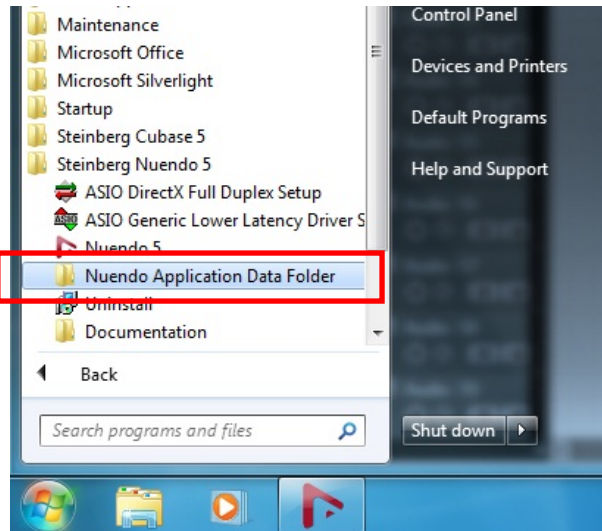
Cubase 5 “Project Assistant”

A Nuendo or Cubase template is a file which contains all relevant set up data for a project. When opened, it allows the user to instantly start working on a suitable project without having to configure a long list of settings from different menus and windows.

A template has been created to accompany this document, for live recording using Nuendo 5 or Cubase 5 and the Auvitrans Network ASIO Streamer. (They are free to download from http://www.yamahaproaudio.com/training/self_training/index.html). There are templates for 32-track and 64-track recording. Each one will record 48kHz 24-bit “Wave 64” files. (The “Wave 64” format is able to cope with recording over long periods of time, creating large file sizes). This audio file type is easy to transfer between Cubase and Nuendo projects. However, the file format may need to be changed to allow compatibility with other audio editing software. More details are included in the Appendix.

A method for creating a new template is outlined in the Appendix. Here follows the procedure for opening an existing template:

Open the Windows “Start” menu, and select the “Steinberg Nuendo 5” folder from the Programs menu. Then select the “Nuendo Application Data Folder” shortcut.

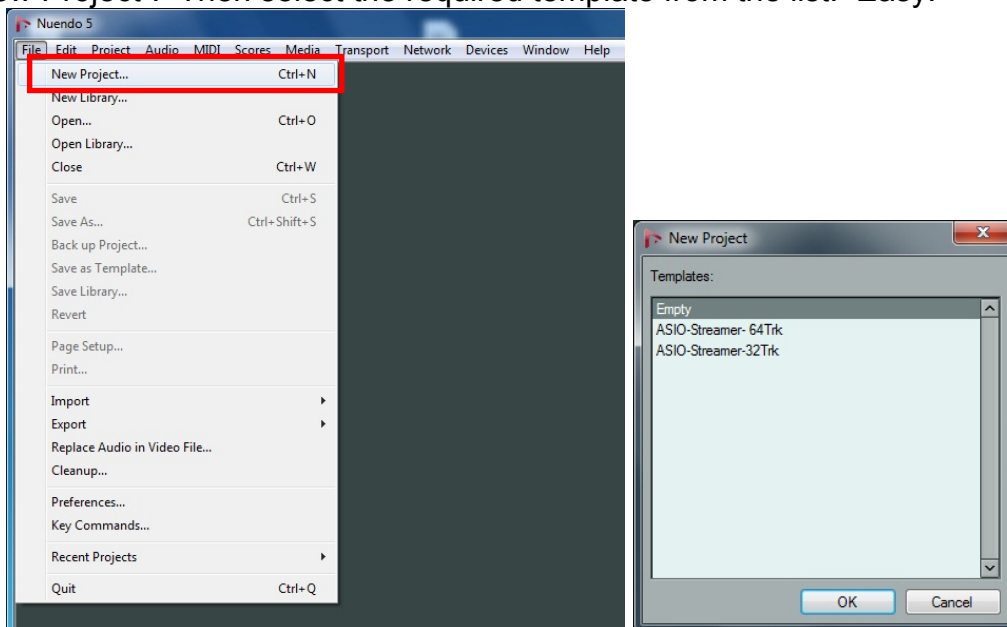


Paste the required templates to the “Project Templates” folder. The full file path is shown below:

C:\Users\<<user name>\AppData\Roaming\Steinberg\Nuendo 5\Project Templates

The Cubase 5 templates should be pasted to a similar location, but in the “Cubase 5\Project Templates” folder instead. There is also a shortcut in the Windows “Start” menu for this location.

To open a template in Cubase 5 or Nuendo 5, open the File menu and select “New Project”. Then select the required template from the list. Easy!

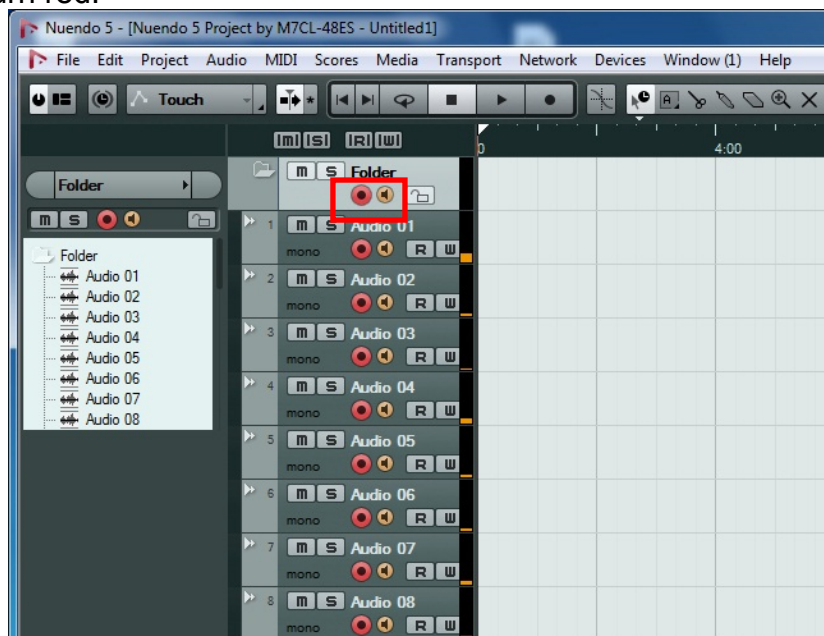


Start Recording

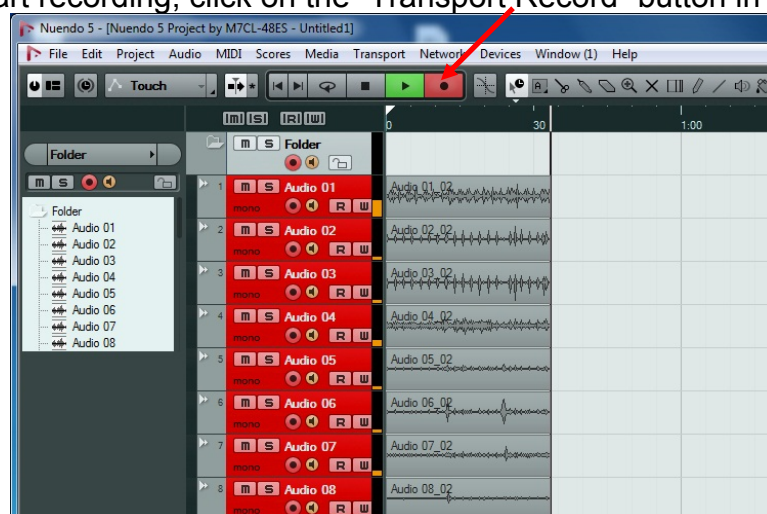
This procedure is the same for Nuendo 5 and Cubase 5. The pictures below show Nuendo 5, but the operation of Cubase 5 is almost identical.

Before recording, check that the M7CL-48ES ASIO Streamer function is in “FROM STAGE BOX” mode. This is found in the main SETUP menu of the console.

To prepare Nuendo/Cubase 5 for recording, switch on the “Monitor” function for the main folder. This will turn the speaker icons orange for all the tracks. That causes the DAW to show the input level meters for each track. Then click on the “Record Enable” button for the folder, so all the “Record Enable” buttons turn red.



Then, to start recording, click on the “Transport Record” button in the toolbar.



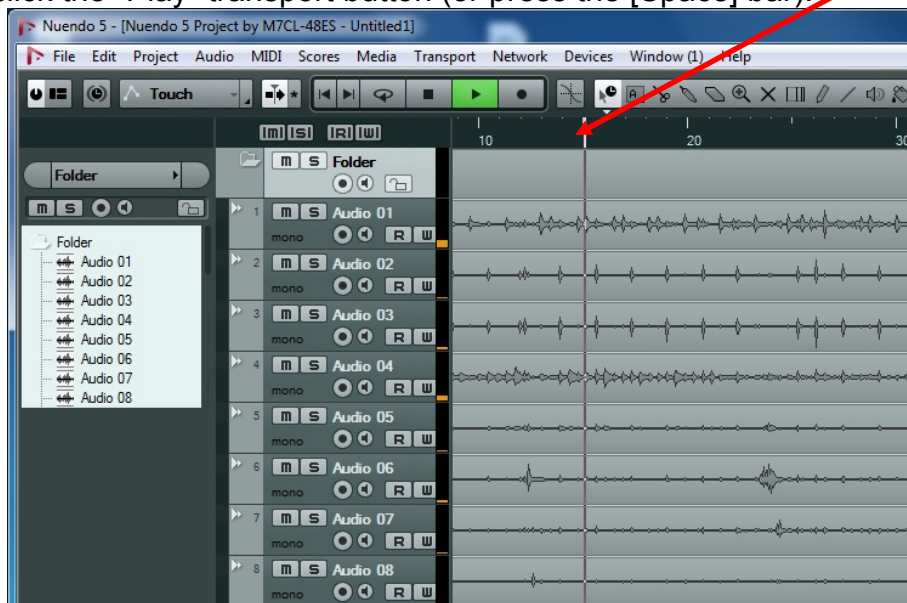
To stop recording, press the [Space] bar on the keyboard (or click the “Stop” button in the Transport area of the toolbar). Then save the project (select “Save” in the File menu).

Playback

After recording, and before playback, switch off the “Record Enable” and “Monitor” buttons in the Folder.

Check that the M7CL-48ES ASIO Streamer function is in “FROM DAW” mode. This is found in the main SETUP menu of the console.

Move the play-marker to the required position by clicking in the “time-line”. Then click the “Play” transport button (or press the [Space] bar).



Remember that only channels 1-48 can be played back through M7CL-48ES, due to the number of input channels on the console.

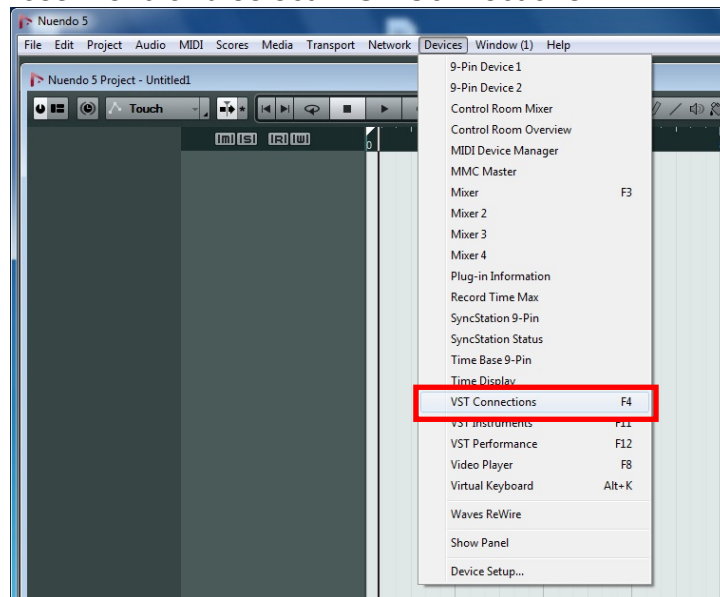
And that completes the instructions: possibly the simplest and quickest way to achieve live multi-track recording!

Appendix

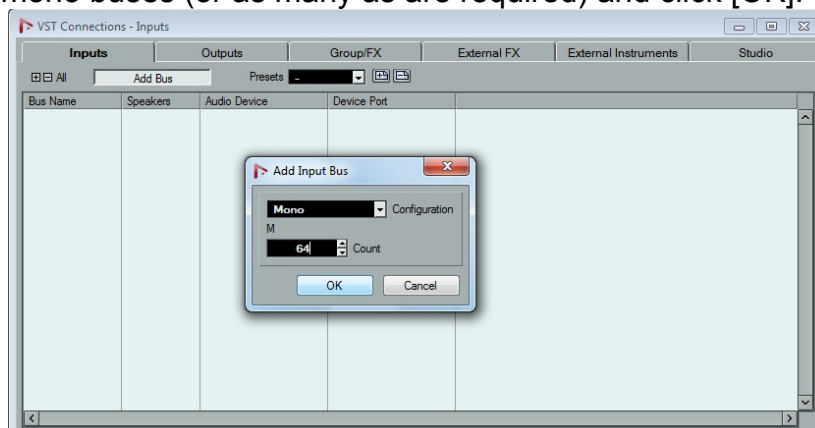
Create a new Nuendo / Cubase Template

If the same project settings need to be used regularly, it is convenient to make a new Template. This procedure is the same for Cubase 5 and Nuendo 5. (The pictures in this section are from Nuendo 5). Open the File menu and select “New Project”. If the Templates window opens, select “Empty” and click [OK]. Browse for a folder to save the audio and data files.

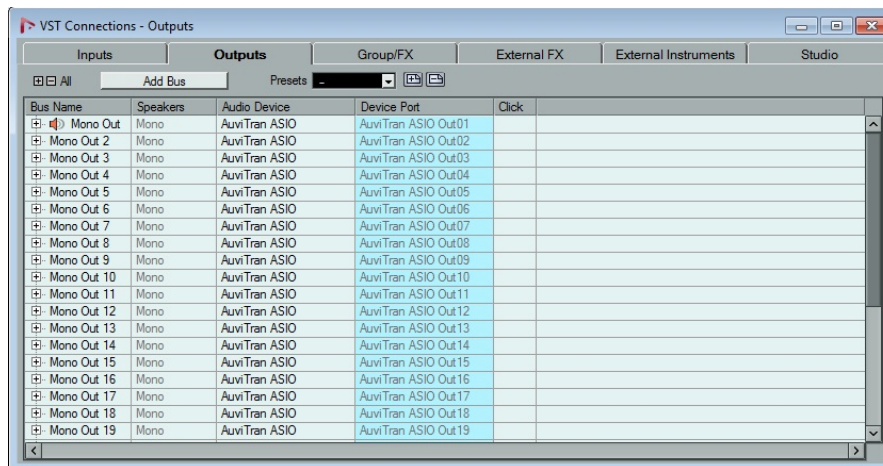
Go to the Devices menu and select “VST Connections”.



Select the “Inputs” tab and delete any buses that are shown: right-click on their name and select “Remove Bus”. Then click the [Add Bus] button and select 64 mono buses (or as many as are required) and click [OK].



Do the same for the “Outputs”:

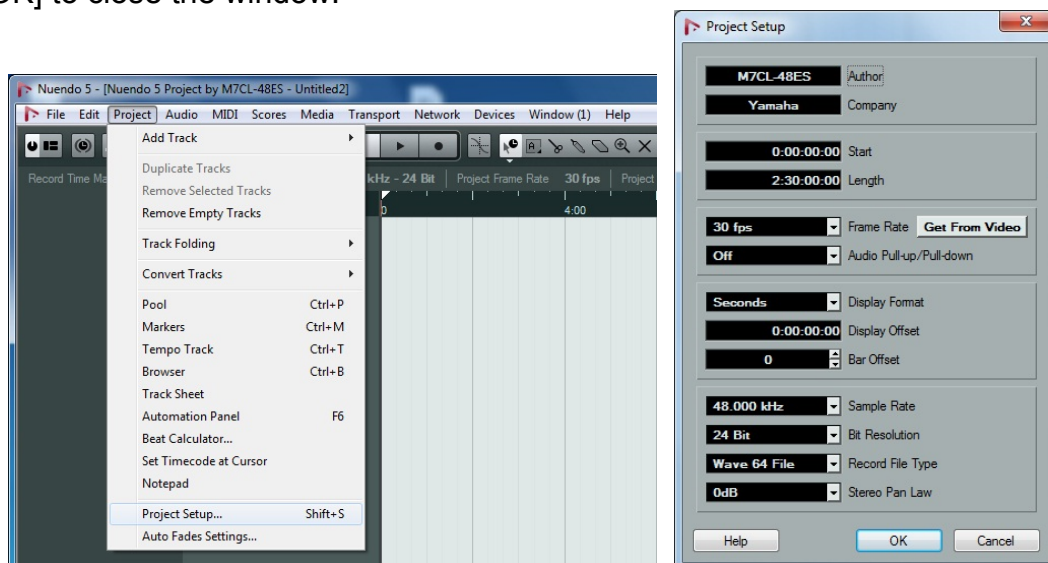


The VST Connections window can now be closed.

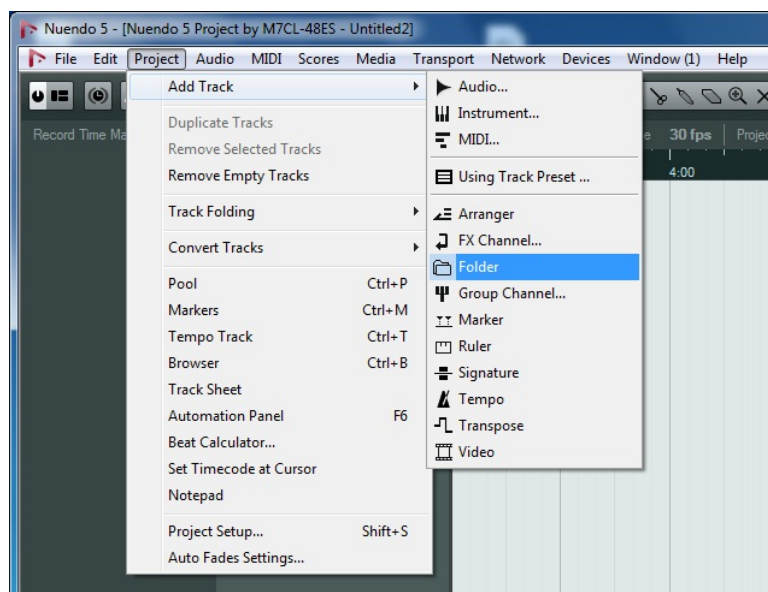
Open the “Project” menu and select “Project Setup...”

Select the length of the project (for example, 2 hours and 30 minutes).

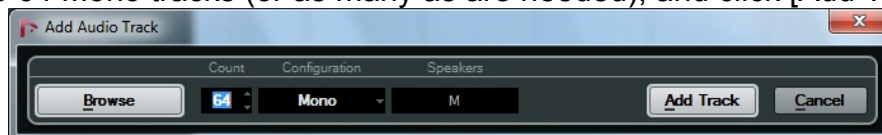
Select the Sample Rate and Bit Resolution (48kHz, 24-bit in this example), and the Record File Type (this selection is important if the recording needs to be compatible with other audio editing software: both “Broadcast Wave File” and “AIFF File” types can be imported into Pro Tools for example). Then click [OK] to close the window.



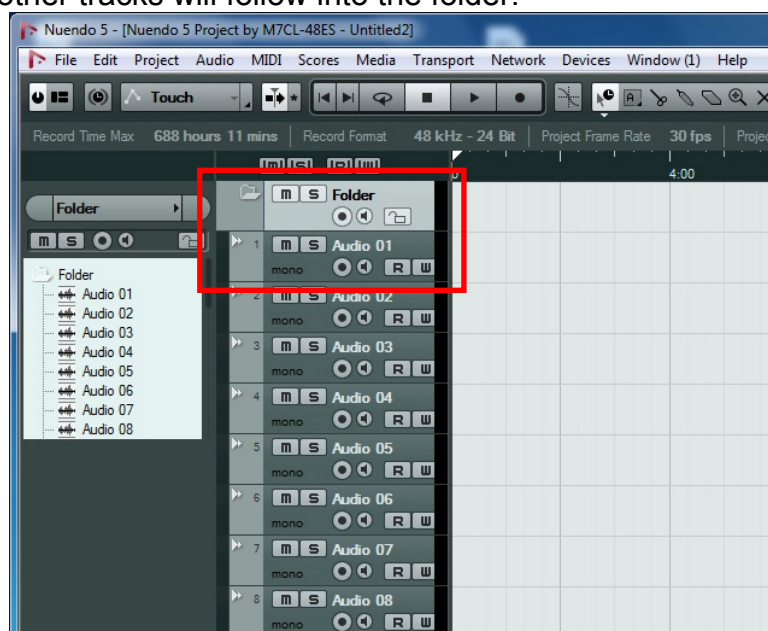
Back in the “Project” menu, select “Add Track” and then “Folder”.



And now in the “Project” menu, select “Add Track” followed by “Audio”. Choose 64 Mono tracks (or as many as are needed), and click [Add Track].

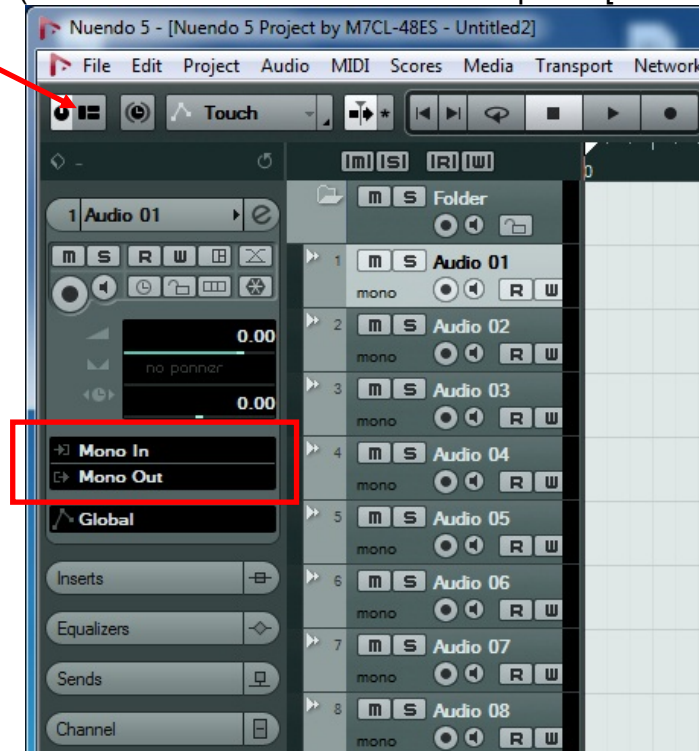


Now all the audio tracks need to be moved into the folder so that they can all be controlled together: click on the first track (called “Audio 01” by default), then scroll down to the bottom, hold [Shift] and click on the last track. All the audio tracks should now be highlighted. Scroll back up to the top, then click-and-drag “Audio 01” into the folder. It should temporarily show a green arrow, and all the other tracks will follow into the folder.

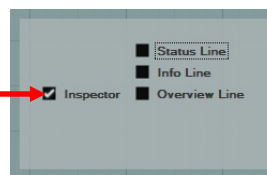


Next each track needs to be assigned an input and an output from the bus list created in the “VST Connections” window. Obviously it makes sense to assign “Mono In 1” and “Mono Out 1” to track 1, “Mono In 2” and “Mono Out 2”

to track 2 and so on... These assignments can be made in the left column of the project window when the “Inspector” is enabled in the “Set up Window Layout” menu (click the button indicated below or press [Shift+F2]).



Check the “Inspector” option, to view the channel information on the left side of the project window.



It will take a while to assign all 64 tracks, selecting each in turn, but it only needs to be done one time. Once completed, a “template” can be saved for future projects.

To save a project template, open the “File” menu and select “Save as Template...” then type a name and click [OK]. Then, whenever a new project is created, the template can be opened to instantly be ready for recording.

