



TOOLS for i88X/mLAN16E, TOOLS for MY16-mLAN, Plug-in Effect

Installation Guide/Installationshandbuch/Manuel d'installation

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- Les logiciels tels que le pilote mLAN sont susceptibles d'être révisés et mis à jour sans avertissement préalable. Veuillez toujours à vérifier la version du logiciel utilisée et à télécharger la dernière version en date sur le site suivant :
<http://www.yamahasynt.com/down/index.htm>
- Les remises à jour du programme et du système ainsi que toute modification des caractéristiques et fonctions seront annoncées séparément.

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CAUTION

Noise may be generated during the following operations. Before performing these operations, lower the output level of each device.

- Turning the power to the computer and mLAN devices on or off
- Connecting or disconnecting an IEEE1394 (mLAN) cable
- Making an mLAN connection in mLAN Auto Connector
- Changing the wordclock master and slave status in mLAN Auto Connector or mLAN Graphic Patchbay
- Selecting On or Off in mLAN Manager (Windows)
- Starting or quitting the OS
- Installing/uninstalling mLAN software

For Windows users

- Do not turn on the power to the mLAN devices during installation until the computer displays the following message.

mLAN Initialize

Turn on the mLAN device and connect to the computer using an IEEE1394 cable.

After completion of "Found New Hardware Wizard", click [OK] to continue.

OK

Important Notices about the CD-ROM

Operating System (OS)

The data content and installation procedure is different for Windows and Macintosh. Please read the section that applies to your operating system.

● i88X/mLAN16E users:

The CD-ROM contains software for Windows and Mac OS 9.

Windows → please read from page 5.

Mac OS 9 → please read from page 28.

● MY16-mLAN users:

The CD-ROM contains software for Windows. Software for Macintosh is not included.

Windows → please read from page 5.

Regarding Mac OS X support, refer to page 42.

CD-ROM Installation Procedure

Before breaking the seal on the software packaging, please read carefully the Software Licensing Agreement at the end of this guide.

1 Verify that your system meets the operating requirements of the software (mLAN Tools, driver, etc.).

Windows: page 6; Mac OS 9: page 30

2 Install the appropriate driver on your computer, and make the necessary settings.

Windows: page 9; Mac OS 9: page 31

3 i88X Users: Install the Plug-in Effect.

Windows: page 5; Mac OS 9: page 28

4 Start up the software.

For subsequent operations, refer to the owner's manual for each software program (online help/PDF manual).



- To view PDF files, you must install Adobe Reader on your computer. If you do not have Adobe Reader, you can download the application from the Adobe website at the following URL:
<http://www.adobe.com>

Most of the computer display examples in this guide are taken from the English version OS/software.

Quick solutions/Reference materials

- Setting the sampling frequency page 19, 36
- Determining the number of mLAN audio channels page 19, 36
- Changing the settings of the mLAN Driver page 15, 34
- Determining the latency page 15
- How can I delete or re-install the driver? pages 8, 25, 33
- Connecting multiple mLAN devices page 19, 36

For Windows Users

CD-ROM Contents

Software for Windows is included on CD-ROM(s). (i88X users should begin by installing TOOLS for i88X/mLAN16E.)

● TOOLS for i88X/mLAN16E

● TOOLS for MY16-mLAN

Folder Name	Application Name	Contents
mLAN_	mLAN Applications for YAMAHA mLAN Tools	This software includes mLAN drivers and applications required to make mLAN connections between the mLAN devices and the computer. Install the software while the power to the mLAN devices is off (page 9). A single installation procedure installs all applications necessary for mLAN communications. Software to be installed includes mLAN Auto Connector and mLAN Graphic Patchbay, which are used to set up audio and MIDI connections for an mLAN network.

● Plug-in Effect (included only with i88X)

- This software can be used as plug-in software within a VST compatible program.
- To call up the PDF manual for each program, select [Start] → [All programs] → [YAMAHA VST Plugins] → (the relevant software) → [Online Manual].
- For instructions on installing the Plug-in Effects, see page 26.

Folder Name	Application Name	Contents
VST_	01X Channel Module* ¹	This software reproduces the EQ and Dynamics effects built into each channel of the YAMAHA Digital Mixing Studio 01X, and uses the processing power of the computer for the effects. You can use the Dynamics and 4-band EQ functions (that can be also found on Yamaha Digital Mixing consoles) as effects software. You can also import the 01X settings, thus reproducing the songs created on the 01X.
	Pitch Fix* ¹	This program is used to edit the pitch of recorded vocals. More than just a pitch processor, it can also be used to change the character of the vocals. Moreover, you can use MIDI data on the host application to control the Pitch Fix effect. For more information on setting up with the host application, refer to the Pitch Fix PDF owner's manual.
	Vocal Rack* ¹	This is a multi-effect program for processing vocals. The plug-in features various effects, including a high-pass filter, compressor and a 3-band equalizer.
	Final Master* ¹	This is a multi-effect program for mastering purposes. It features a compressor, limiter and soft-clip function, and allows you to split the signal into three bands for separate multi-band processing.

*1 These applications are supplied with online/PDF manuals.


■ About Open Plug-in Technology

You can start mLAN Graphic Patchbay as either stand-alone software or as a plug-in for an Open Plug-in Technology compatible application.

Open Plug-in Technology (OPT) is a new software format that enables you to control MIDI devices from a music software sequencer. For example, OPT enables you to start and operate various parts of your music system, such as Plug-in Board editors and mixing control editors, directly from an OPT-compatible sequencer. OPT also makes it unnecessary to set MIDI drivers for each application, streamlining your music production system and making all operations more convenient and seamless.


About OPT Levels

The client application and its compatibility with OPT can be divided into three levels, as shown below.




PANELS

Level 1 (OPT Panels) provides basic support for opening and displaying OPT control panels that can transmit data via a clients' external MIDI connectors. Typically, this enables basic hardware editor control panels to operate properly.



PROCESSORS

Level 2 (OPT Processors) provides support for real-time MIDI processors and panel automation. Typically, this enables both real-time and offline MIDI effects (e.g., arpeggiators, transposers, etc.) to operate properly and supply automation to OPT panels.






VIEWS

Level 3 (OPT Views) provides support for edit views and MIDI processors and panels that require direct access to client sequencer storage structures. Typically, this enables support of sophisticated MIDI edit views (e.g., list editors, auto accompaniment, data checkers, etc.).

OPT Level Implementation for the mLAN Graphic Patchbay

This chart shows the OPT-compatibility of mLAN Graphic Patchbay.

OPT levels of the client application		mLAN Graphic Patchbay operation	
		Operation support	Operation limits
VIEWS (Level 3)		Yes	None
PROCESSORS (Level 2)		Yes	None
PANELS (Level 1)		Yes (with limitations)	None

All mLAN Graphic Patchbay functions work under the client applications of any OPT level (Panels (Level 1), Processors (Level 2), and Views (Level 3)).



- Certain operations may not work as expected if there is no corresponding function in the client application (sequencer, etc.). The highest level of implementation for the client application is indicated in the OPT logo (which appears along with the version information in the application).

System Requirements for i88X/mLAN16E/MY16-mLAN Software

The system requirements below are necessary for using the included software.



- The system requirements below may differ slightly depending on the particular operating system.
- The minimum requirements for included software not listed below may differ. For details, refer to the relevant online manual or documentation of the software.
- For details on minimum requirements for each DAW (Digital Audio Workstation) software, refer to the respective owner's manual.

● i88X/mLAN16E/MY16-mLAN (mLAN Tools 2.0/mLAN Applications for YAMAHA)

These are the total system requirements, including the audio sequencer, mLAN software and the plug-in effects.

OS	: Windows XP Professional/XP Home Edition
Computer	: Intel Pentium or Celeron family processor, with the S400 (400 Mbps) IEEE1394 (FireWire) or i.Link terminal (*1).
Hard Disk	: Free disk space of 250 MB (i88X)/ 50 MB (mLAN16E, MY16-mLAN) or more; high-speed hard disk

● Recommended system (*2)

- Connecting a single mLAN device to a computer peer-to-peer:

Computer	: 2.2 GHz or higher; Intel Pentium 4 processor
Available Memory	: 512 MB or more

- Connecting a computer and three mLAN devices in an mLAN network:

Computer	: 2.6 GHz or higher; Intel Pentium 4 processor
Available Memory	: 512 MB or more

● Minimum system requirements (*2)

Computer	: Intel Pentium 1.2 GHz or Intel Celeron 1.7 GHz (or higher)
Available Memory	: 384 MB or more

*1 The computer must have an IEEE 1394 (FireWire) or i.Link terminal. If there is no terminal, install an IEEE 1394 interface card (PCI or PC).

For more details on system requirements and recommended PCI or PC cards, see

<http://www.yamahasynt.com>

*2 The system requirements listed here apply when using the included software and when playing audio/MIDI data detailed below on standard sequencer software. This may differ depending the particular sequencer software you are using.

● Plug-in Effect (included only with i88X)

OS	: Windows XP Professional/XP Home Edition/2000/Me/n98SE/98
----	--

Recommended system requirements (Connecting a single mLAN device to a computer peer-to-peer)

Fs=44.1kHz/24-bit
Audio Driver
18In/18Out (i88X)
16In/8Out (mLAN16E)
16In/16Out (MY16-mLAN)

MIDI Driver
1In/1Out (i88X, MY16-mLAN)
3In/3Out (mLAN16E)

16 MIDI and 12 Audio playback tracks
2 Audio recording tracks
2 Sends for Plug-in Soft Effect
10 Inserts for Plug-in Soft Effect
2 Channels for Plug-in Soft Synthesizer
Latency of 5msec or less

Recommended system requirements (Connecting a computer and three mLAN devices)

Fs=44.1kHz/24-bit
Audio Driver 32In/32Out (total)
MIDI Driver 4In/5Out (total)
16 MIDI and 8 Audio playback tracks
2 Audio recording tracks
2 Sends for Plug-in Soft Effect
10 Inserts for Plug-in Soft Effect
2 Channels for Plug-in Soft Synthesizer
Latency of 5msec or less

Minimum system requirements

Fs=44.1kHz/16bit
Audio Driver
8In/20Out (i88X)
2In/20Out (mLAN16E, MY16-mLAN)
MIDI Driver
1In/1Out (i88X, MY16-mLAN)
2In/20Out (mLAN16E)
16 MIDI and 12 Audio playback tracks
2 Sends for Plug-in Soft Effect
6 Inserts for Plug-in Soft Effect
No Plug-in Soft Synthesizer
Latency of about 50msec

NOTE

- Up to two PCI or PC cards can be used. However, you can use only one card at a time.
If you are using an IEEE1394 interface built into the computer, you can use only one IEEE1394 PCI or PC interface card.
- When using a laptop or notebook computer, a built-in IEEE 1394 terminal may not be available. If this is the case, install an appropriate PC interface card.

To use mLAN, turn mLAN on each time you start the computer by using the mLAN icon (mLAN Manager) in the task bar (page 14).

Software Installation

For instructions on how to install the software other than one referred to below, see page 5 in the section "CD-ROM Contents."

Uninstall (removing the installed application)

You can remove the installed application software. Select [START] (→ [Settings]) → [Control Panel] → [Add/Remove Programs] → [Install/Uninstall], then select the application to be removed and click [Add/Remove...]. Follow the on-screen instructions to uninstall the application.

NOTE

- The button names or menus may differ depending on the computer OS.
- In order to uninstall the mLAN software, the following two items must be deleted. Delete them in order, 1 then 2.
 1. mLAN Applications for YAMAHA
 2. mLAN Tools 2.0

For information on uninstalling the plug-in effect, see page 27.

Check beforehand the drive name (D:, E:, etc.) corresponding to the CD-ROM you are using. The drive name is indicated under the CD-ROM icon of [My computer]. (The root directory of the CD-ROM driver is indicated as D:\, E:\, etc.)

mLAN Tools 2.0 and mLAN Applications for YAMAHA

mLAN Tools 2.0 software includes a driver that enables you to connect mLAN devices to a computer. mLAN Applications for YAMAHA enables audio and MIDI signals to be transferred between a computer and mLAN devices via mLAN cables.

This software enables you to connect the i88X, mLAN16E, MY16-mLAN, or 01X to a computer via mLAN. 01X users should uninstall the older version of the mLAN software before installing this software. (Refer to the 01X Installation Guide.)

Follow the steps below to install these software applications.



- For explanations on error messages, see page 43.

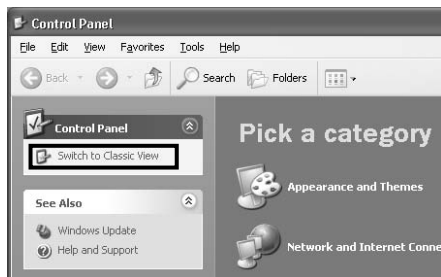
Preparing to install

- 1 Disconnect all MIDI cables that connect MIDI devices to MIDI IN/OUT connectors on the mLAN device.
- 2 Using an IEEE1394 (FireWire/iLink) cable, connect the mLAN device directly to the computer (without using a hub), and disconnect all other IEEE 1394-connected devices from the computer.
- 3 Make sure that the power to the mLAN device is turned off.
- 4 Start the computer and log in to the Administrator account.



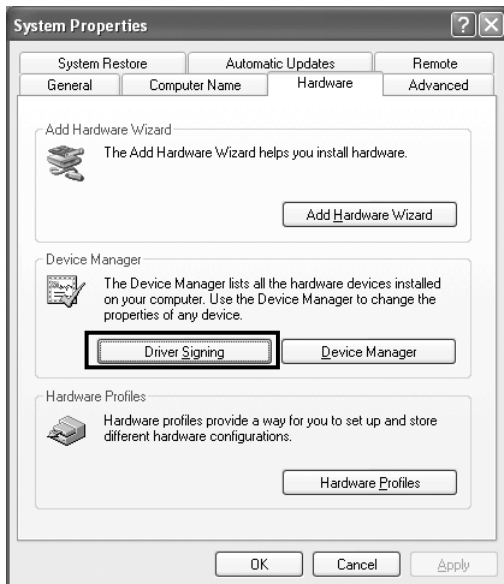
- If you are using the S200 data transfer rate standard (check the rear panel of your particular device, or refer to the specifications in the owner's manual), make sure to uninstall the old version of mLAN Tools beforehand. For more information on uninstalling the software, refer to the owner's manual for the corresponding device.

- 5 Select [Start] → [Control Panel]. If the control panel appears as shown below, click "Switch to Classic View" in the upper left of the window. All control panels and icons will be displayed.



Proceed to the next step.

- 6** Go to [System] → [Hardware] → [Driver Signing] → [File Signature Verification], and check the radio button to the left of “Ignore - Install all files, regardless of file signature” and click [OK].



NOTE

- After completing the installation, make sure to restore the original setting if necessary.

- 7** Check that no “!” or “x” marks appear next to “IEEE 1394 Bus host controllers” (in [System] → [Hardware] → [Device Manager]). If one of these marks is shown, the mLAN (IEEE 1394/i.Link) connection cannot be used. Refer to the owner’s manual of your computer for details.

8 Click [OK] to close the System Properties window, then click the Close button ([X]) at the top right of the window to close the Control Panel.

9 Exit from any open applications and close all open windows.

10 Insert the included CD-ROM into the CD-ROM drive.

Starting up the Installer for the mLAN Software

The installer will install the following two programs to your computer.

- mLAN Tools 2.0
- mLAN Application for YAMAHA

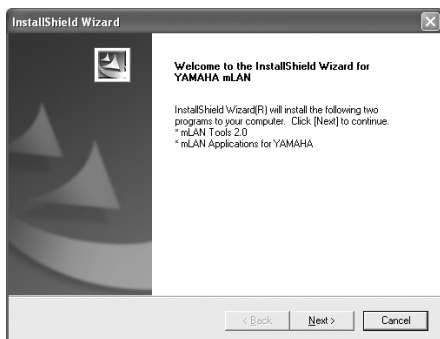


- Use the Cancel button or Close button to quit the installation. Quitting by using the [CTR]+[ALT]+[DEL] buttons or by turning off the power while installation is in process can result in problems since the installation is terminated without performing a proper uninstall.

11 Double-click on the “mLAN_” folder. Various files are shown, including “Setup.exe.”

12 Double-click on “Setup.exe.”

13 A series of confirmation messages appear. If there are no problems, click [OK] in each message. When finished, a “Welcome” display appears.



Installation of mLAN Tools

14 Click [Next]. The display for installing mLAN Tools appears.

15 Click [Next]. The “Destination Directory” window appears, letting you determine the desired drive and folder name for installing mLAN Tools. The destination directory is automatically set; however, if you wish to change it, click the [Browse...] button and select the desired folder (drive:\folder name). Click [Next] after making or confirming the selection.



- In general, there is no need to change the destination directory.

16 Confirm the drive and folder name and click [Next] to start installation.



- To cancel the installation, click [Cancel].

17 When installation is finished, a “Completed” message appears. Click [Finish].

Proceed to the next step.

Installation of mLAN Applications for YAMAHA (mLAN Software)

When the mLAN Tools 2.0 installation is complete, the computer automatically displays a window that enables you to start the installation of Applications for YAMAHA. Click [Next].

- 18** Determine the desired destination drive and folder name for installation in the “Destination Directory” window. The destination directory is automatically set; however, if you wish to change it, click the [Browse...] button and select the desired folder (drive:\folder name).



- To cancel the installation, click [Cancel].

- 19** Confirm the drive and folder name and click [Next] to start installation.



- To cancel the installation, click [Cancel].

- 20** When the installation process is complete, a message will prompt you to restart the computer. Click [Next].

When canceling the installation

If you've cancelled an installation before it is complete, the software may not have been installed properly. Follow the instructions below to properly install the software.

- 1 Click on “Add or Remove Programs” in the Control Panel (page 8) and find “mLAN Applications for YAMAHA” and “mLAN Tools 2.0” in the list.
- 2 Delete the two programs in order: first, “mLAN Applications for YAMAHA,” then “mLAN Tools 2.0.”
- 3 Start installation again from step 12 (page 11).

mLAN Driver initial settings

After you restart the computer, complete the mLAN driver initial settings. Select [ON] in mLAN Manager to activate the mLAN driver (page 14).

- 21** A dialog box prompts you to turn on the power to the mLAN device. Connect the mLAN device to the computer, then turn on the power to the i88X, mLAN16E, or MY16-mLAN (or 01X).

- 22** Installing the mLAN device
The “Found New Hardware Wizard” window is displayed.

Check the radio button next to “Install the software automatically [Recommended],” then click [Next].



- Depending on the version of Windows you are using, the “Found New Hardware Wizard” may display a screen asking you whether you want to find the appropriate software by connecting to Windows Update. In this screen, choose the radio button next to the selection indicating that you don't want to connect to Windows Update, and then click [Next].
Even if such a screen should appear subsequently in this procedure, choose the radio button indicating that you don't want to connect, and then click [Next].



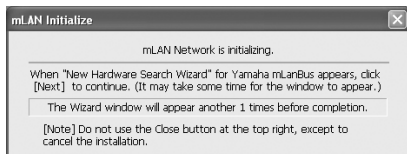
- 23** After you finish installing the connected mLAN device, click [OK] in the dialog box that appeared in Step 21.

- 24** The “Make the driver initial settings” dialog box is displayed. Click [OK].

NOTE

- During Steps **25** and **26**, and Steps **28** and **29**, the computer displays a window indicating that you are now making the initial settings for each driver. This window also indicates the number of times the “Found New Hardware Wizard” will be displayed during the procedure. Unless you wish to cancel installation, do not close this window.

Example:



mLAN Network initial settings

- 25** The computer automatically displays the “Found New Hardware Wizard.” Check the radio button next to “Install the software automatically [Recommended],” then click [Next].



- 26** When the installation is complete, the computer displays a message indicating that installation is complete. Click [Finish].
- 27** Repeat Steps **25** and **26** until the window (indicating that you are making the mLAN Bus driver initial settings) closes.

mLAN MIDI Port initial settings

- 28** The computer automatically displays the “Found New Hardware Wizard.” Check the radio button next to “Install the software automatically [Recommended],” then click [Next].



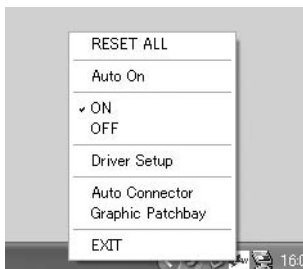
- 29** When the installation is complete, the computer displays a message of indicating that installation is complete. Click [Finish].
- 30** Repeat Steps **28** and **29** until the window (indicating that you are making the mLAN Stream driver initial settings) closes.
- 31** The computer displays a message indicating that the initial settings for mLAN driver are complete. Click [OK].
To use an audio sequencer via mLAN, you must connect the computer to the mLAN device using mLAN audio Connector or Graphic Patchbay (page 19).

Confirming the installation

Task bar (mLAN Manager)

If the installation is successful, an mLAN icon (mLAN Manager) is added to the task bar. To call up the menu, right-click on the icon.

When using mLAN, right click on the mLAN icon (mLAN Manager) in the task bar and select "ON" (start mLAN).



RESET ALL

Restores the settings saved in all mLAN devices to their factory-set state, and initializes the connections in Auto Connector and Graphic Patchbay.

NOTE

- You can't execute **RESET ALL** if **Auto Connector** or **Graphic Patchbay** are running.

Auto On

If this is checked, mLAN Start will also be started up when Windows starts up.

ON

Enables mLAN operation for data transfer (Run the "mLAN Start application").

OFF

Disables mLAN operation (Run the "mLAN Stop" application). You can lessen the CPU load by not using mLAN.

Driver Setup

Starts mLAN Driver Setup (page 15).

Auto Connector

Starts mLAN Auto Connector (page 19).

Graphic Patchbay

Starts mLAN Graphic Patchbay. For more information, refer to the mLAN Graphic Patchbay Online Manual.

EXIT

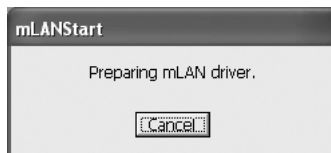
This deletes the mLAN icon from the task bar, maintaining the current mLAN ON/OFF status. To display it again, select [Start] → [(All) Programs] → [Startup] → [mLAN Manager].

NOTE

- *Auto Connector and Graphic Patchbay may not run correctly on some computers if Auto On is checked (ON). In such case, uncheck (Turn OFF) Auto ON.*
- *To use mLAN without Auto ON, after you start the computer, right-click the mLAN icon (mLAN Manager) in the Task bar, then select [ON] to activate mLAN connections.*
- *You can use the mLAN Driver Setup (page 15) to check whether data is being properly transmitted and received via mLAN.*

When starting up the mLAN

The message below appears when mLAN is being started.



To cancel mLAN startup, click [Cancel] in the mLAN Start window. To use mLAN, right-click on the mLAN icon (mLAN Manager) in the task bar, and select [ON].

Device Manager (Operating System)

- 1 Select [Control Panel] from the Start menu.
- 2 Double-click on the System icon to call up the System Properties window.
- 3 Select the Hardware tab and click [Device Manager].
- 4 Click the [+] symbol located at the left of "Sound, video and game controllers," and verify that "YAMAHA i88X," "YAMAHA mLAN16E," or "YAMAHA MY16-mLAN" etc. is shown. Also verify that "YAMAHA mLANBus" is shown.

Changing settings after installation

The mLAN-related settings can be changed after installation from the mLAN Driver Setup window.

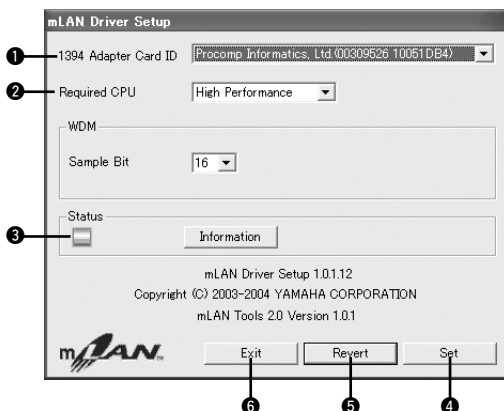
mLAN Driver Setup

(Right-click the mLAN icon in the task bar → DriverSetup)

This window lets you check and change the mLAN settings for receiving/transmitting data. Make sure to close any application (DAW, etc.) using the mLAN connection before making changes.



- To change the wordclock (sample rate) and the number of channels used, right-click on the mLAN icon in the task bar and start the mLAN Auto Connector and Graphic Patchbay.



① 1394 Adapter Card ID

This indicates the particular ID of the IEEE 1394 (FireWire/iLink) interface card installed to the computer. When several cards are installed, this is used to select the desired card. Cards not recognized by the mLAN driver are not displayed.



- The correct name of the manufacturer or vendor may not be displayed depending on the particular card you are using.

② Required CPU

Determines the computer's required processing power (the amount of processing load applied to the computer by the mLAN driver).

You can also control the processing load by adjusting the latency in "ASIO mLAN Control Panel." (see below)

Latency and Required CPU

A particular computer configuration (i.e., processing speed and system memory size) may affect the computer's ability to properly record and play back audio data in your audio sequencer, resulting in noise or other audio problems.

In most cases, you can solve these problems by adjusting the latency (delay time). (See "Latency of mLAN" on page 16.)

However depending on the performance of your computer and on how it is being used (i.e., whether other applications are being used simultaneously, or whether multiple mLAN devices are connected, etc.), you may still experience noise or sound interruption even after increasing the latency. In this case, change the “Required CPU” setting to “Medium Performance” or “Low Performance” to lighten the processing load on your computer, and then adjust the latency (the Preferred Buffer Size setting below) once again.

- Lower latency values result in shorter delay times and work better for real-time recording and playback.
- Higher latency values result in longer delay times, but allow for use of more audio channels and plug-in effects (thus reducing the computer’s momentary processing load).

● Latency of mLAN

Audio latency (msec)

Audio latency is determined by the “Preferred Buffer Size” setting in the “ASIO mLAN Control Panel.” The audio latency value is shown in the “ASIO mLAN Control Panel” (see below).

MIDI latency (msec)

The MIDI latency value varies with the mLAN driver version.

For information on the MIDI latency of your mLAN driver version, refer to the “MIDI_Latency.txt” file, which you can access by selecting [Program files | mLAN Tools | YAMAHA].

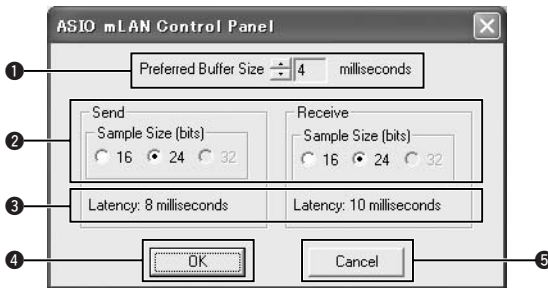
● ASIO mLAN Control Panel

When you start the ASIO mLAN Control Panel, the system displays the following dialog box.

When using the mLAN ASIO Driver, open the ASIO Control Panel within the driver settings of the DAW software (the particular menu depends on the software you are using) and set the Preferred Buffer Size as needed.



- Also, when using the mLAN WDM driver, adjust as necessary the latency value of the WDM driver (which corresponds to the latency of the ASIO driver in this chart) within the driver settings of the DAW software.
- The initial setting of the Preferred Buffer Size of the mLAN ASIO driver is the smallest value.



① Preferred Buffer Size

This parameter enables you to specify the size of the buffer inside the mLAN ASIO driver.

② Sample Size

This parameter enables you to specify the bit resolution for audio data transmission and reception.

③ Latency

This field indicates the audio latency value for transmission and reception.

Audio latency is determined by the “Preferred Buffer Size (②)” setting.

④ OK

Click to enable the settings and close the dialog box.

⑤ Cancel

Click to close the dialog box without changing the settings.

③ Status

If you are using mLAN Auto Connector, this parameter indicates the current data (MIDI/Audio) reception status (from the mLAN device to computer) of the mLAN connection. If there is an error in transmission, the computer displays an error message.

If you are using mLAN Graphic Patchbay, refer to the Graphic Patchbay Online Manual for information on the error messages.

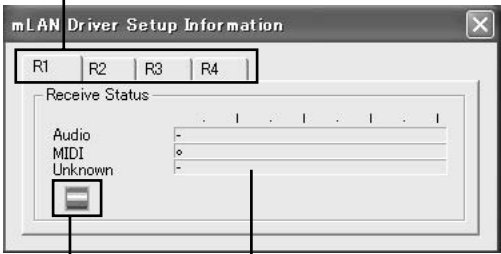
- Blue Data is being properly transmitted.
- Yellow ... Only one type of data (MIDI or audio) is being received.
- Red Error in reception.
- Gray No reception.

About the Information window

This window indicates the MIDI and audio data reception status (from the mLAN device to computer).

R1, R2, etc.

This indicates the data reception status. "R1" corresponds to MIDI reception while "R2" corresponds to audio reception from the mLAN device. The number of tabs shown differs depending on your particular computer configuration.



Icon

- Blue Reception is normal.
- Red Error in reception.
- Gray No reception.

Receive Status

This mark indicates the order in which the data of each format is received. The symbol "o" indicates that data in the corresponding format is being received. The symbol "-" indicates that data in a different format is being received. For example, the symbol "oooooooo-" in the "Audio" field indicates that nine sequences have been received, and the first eight sequences are in the audio data format. The "Unknown" field displays symbols if sequences in unknown formats are received. These fields are blank if no mLAN data is received. If an error occurs during reception, a red warning message flashes. In this case, check the transmission device.

④ Set

Clicking this button actually applies the settings made in this window. Changes to the settings do not take effect unless [Set] is clicked.

⑤ Revert

If you've made changes to the settings (but not yet clicked [Set]), clicking this button restores the settings made the last time [Set] was clicked. Once you click [Set], [Revert] cannot be used.

⑥ EXIT

Click to close the dialog box.

If the computer's system sound is output to mLAN audio channels:

The computer's system sound (such as an alarm sound) will be output to mLAN audio channels if the following settings are made:

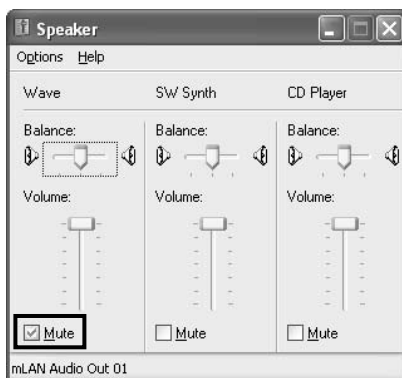
- The WDM driver is selected in mLAN Auto Connector or mLAN Graphic Patchbay.
- mLAN WDM driver (mLAN Audio Out/In 01) has been selected for the Windows system audio device.

Follow the steps below to prevent the system sound from being output to mLAN audio channels.

NOTE

- The following setting cancels output of all Wave sounds from the computer speakers.

- 1 Select [Start] → [Control Panel] → [Sounds and Audio Devices] → [Voice], and click [Volume...] in the "Voice playback" section to call up the Master Volume window.



- 2 Check the Mute checkbox in the Wave column.

Connecting a Computer to an mLAN device via mLAN

This section describes the procedure for connecting a computer to a single mLAN device peer-to-peer in mLAN Auto Connector. In mLAN Auto Connector, you can easily connect an mLAN device by setting up the wordclock and the number of audio I/O channels. To connect multiple mLAN devices to a computer, use mLAN Graphic Patchbay. For more information on mLAN Graphic Patchbay, refer to the mLAN Graphic Patchbay Online Manual.

CAUTION

Noise may be generated during the following operations. Before performing these operations, lower the output level of each device.

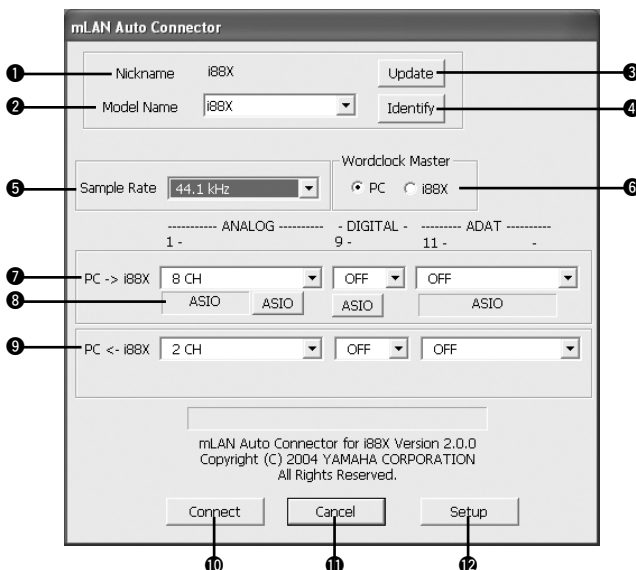
- Turning the power to the computer and mLAN devices on or off
- Connecting or disconnecting an IEEE1394 (mLAN) cable
- Making an mLAN connection in mLAN Auto Connector
- Changing the wordclock master and slave status in mLAN Auto Connector or mLAN Graphic Patchbay
- Selecting On or Off in mLAN Manager (Windows)
- Starting or quitting the OS
- Installing/uninstalling mLAN software

NOTE

- If you use Auto Connector after you make connections in mLAN Graphic Patchbay, the connections made in mLAN Graphic Patchbay will be cancelled.
- You can also use mLAN Graphic Patchbay to connect a computer to a single mLAN device peer-to-peer.
- The mLAN Auto Connector windows may appear different when certain mLAN devices are connected.

- 1 Connect a computer to an mLAN device using an IEEE1394 cable.
- 2 Right-click the YAMAHA mLAN Manager icon in the Task bar, then select [Auto Connector].
- 3 Set up the wordclock and specify the number of audio channels (see below), then click the [Connect] button. The computer and mLAN device are connected via mLAN.

Connecting the i88X



1 Nickname

This field indicates the nickname of the connected i88X. To change the nickname, refer to “Node Information” in the mLAN Graphic Patchbay Online Manual.

2 Model Name

This parameter enables you to select an mLAN device to which you wish to make an mLAN connection in a multiple mLAN device network.

3 [Update] button

Clicking this button updates the information on the mLAN devices connected to the mLAN network. Use this button when you add an mLAN device to the network while mLAN Auto Connector is running.

4 [Identify] button

Clicking this button causes the i88X ACTIVE indicator to flash for a few seconds.

5 Sample Rate

This parameter enables you to specify the sampling frequency (wordclock frequency).

6 Wordclock Master radio buttons

These buttons enable you to specify the computer or i88X as the wordclock master.

7 PC → i88X

This parameter enables you to specify the number of channels of audio data routed from the computer’s audio output (mLAN driver’s audio output) into the i88X. Signals input in the i88X are output from the i88X’s OUTPUT 1-8 jacks (analog), DIGITAL STEREO COAXIAL or OPTICAL OUT jack (digital), or ADAT OUT jack (ADAT).

8 [ASIO/WDM] button

Select the ASIO or WDM driver as appropriate for your environment.



- With analog connections, WDM will use the last two of the selected ASIO channels. The WDM channel signals will be output from OUTPUT 7 and 8.

9 PC ← i88X

This parameter enables you to specify the number of channels for audio data that is input at the i88X’s INPUT 1-8 jacks (analog), DIGITAL STEREO COAXIAL or OPTICAL IN jack (digital), or ADAT IN jack (ADAT) and output to the computer.

10 [Connect] button

Click this button to connect the i88X to the computer via mLAN. When the connection is completed, the mLAN Auto Connector window will close automatically.

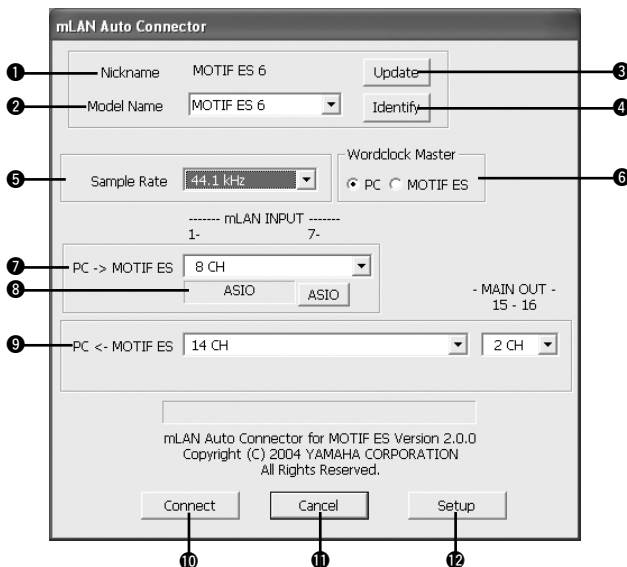
11 [Cancel] button

Click this button to cancel the settings and close mLAN Auto Connector.

12 [Setup] button

Click this button to open the i88X Control Panel window, which enables you to set the wordclock transition speed.

Connecting the mLAN16E (MOTIF ES)



① Nickname

This field indicates the nickname of the connected mLAN16E. To change the nickname, refer to “Node Information” in the mLAN Graphic Patchbay Online Manual.

② Model Name

This parameter enables you to select an mLAN device to which you wish to make an mLAN connection in a multiple mLAN device network. When the mLAN16E is connected, select the name of the device equipped with an mLAN16E.

③ [Update] button

Clicking this button updates the information on the mLAN devices connected to the mLAN network. Use this button when you add an mLAN device to the network while mLAN Auto Connector is running.

④ [Identify] button

Clicking this button causes the mLAN16E ACTIVE indicator to flash for a few seconds.

⑤ Sample Rate

This parameter enables you to specify the sampling frequency (wordclock frequency).

⑥ Wordclock Master radio buttons

These buttons enable you to specify the computer or mLAN16E as the wordclock master.

⑦ PC → MOTIF ES

This parameter enables you to specify the number of channels of audio data input into the mLAN16E from the computer’s audio output (mLAN driver’s audio output).

⑧ [ASIO/WDM] button

Select the ASIO or WDM driver as appropriate for your environment.



- With the MOTIF ES, WDM will use the last two of the ASIO channels selected via “mLAN INPUT.” The WDM channel signals will be routed to the MOTIF ES as “mLAN IN 7/8CH.”

9 PC ← MOTIF ES

This parameter enables you to specify the number of channels of audio data input into the computer from the mLAN16E's output.



- The number of audio transmission channels and MIDI ports varies on different mLAN16E-compatible devices.
- For more information on audio and MIDI connections for a MOTIF ES with an mLAN16E installed, refer to "System Examples" in the mLAN16E Owner's Manual.

10 [Connect] button

Click this button to connect the mLAN16E to the computer via mLAN.

When the connection is completed, the mLAN Auto Connector window will close automatically.

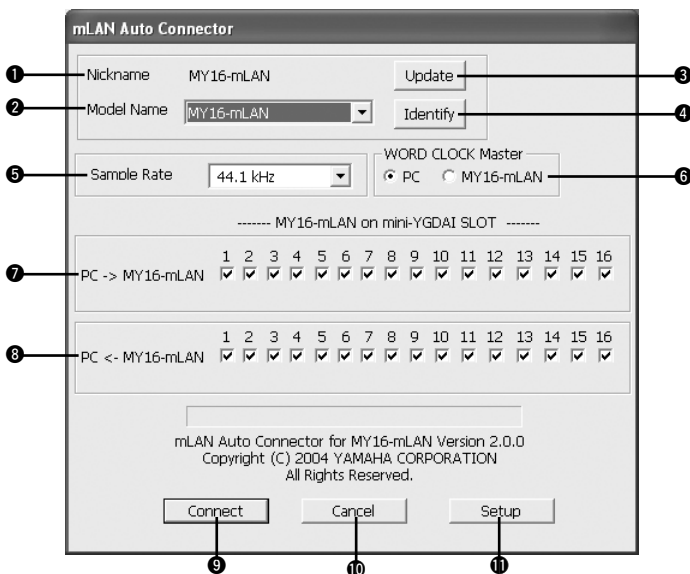
11 [Cancel] button

Click this button to cancel the settings and close mLAN Auto Connector.

12 [Setup] button

Click this button to open the mLAN16E Control Panel window, which enables you to set the wordclock transition speed.

Connecting the MY16-mLAN



1 Nickname

This field indicates the nickname of the connected MY16-mLAN. To change the nickname, refer to "Node Information" in the mLAN Graphic Patchbay Online Manual.

2 Model Name

3 [Update] button

These are the same functions as for the i88X or mLAN16E (page 20).

④ [Identify] button

Clicking this button causes the MY16-mLAN ACTIVE indicator to flash for a few seconds.

⑤ Sample Rate

This parameter enables you to specify the sampling frequency (wordclock frequency).

⑥ Wordclock Master radio buttons

These buttons enable you to specify the computer or MY16-mLAN as the wordclock master.

⑦ PC → MY16-mLAN

This parameter enables you to specify the number of channels of audio data routed from the computer's audio output (mLAN driver's audio output) into the MY16-mLAN.

⑧ PC ← MY16-mLAN

This parameter enables you to specify the number of channels of audio data routed from the MY16-mLAN's output into the computer's input.

⑨ [Connect] button**⑩ [Cancel] button****⑪ [Setup] button**

These are the same functions as for the i88X or mLAN16E (page 20).

Setting the wordclock transition speed (in the mLAN Control Panel)

When you click the [Setup] button in the Node Information window in mLAN Auto Connector or mLAN Graphic Patchbay, the mLAN Control Panel opens. This panel enables you to set the wordclock transition speed.

The Wordclock Transition Speed parameter enables you to specify how fast the initial wordclock setting will change to a new setting if the mLAN device is operating as a slave in an mLAN network.

Slow:

Usually, select this option.

Fast:

Select this option if the wordclock master device is referencing timecode, such as MTC, thus changing the wordclock setting.

- 4** Click the [Connect] button. When the mLAN device is connected correctly, mLAN Auto Connector closes and mLAN communications begin.



- If connection fails, right-click the mLAN icon in the Task bar, restart mLAN Auto Connector, then click the [Connect] button again. You do not need to restart the computer.

Hints when using audio data (Windows)

For optimum use of the audio functions, we recommend you make the following settings. These settings minimize possible audio problems, such as drop outs, glitches and noise.

- **Set the DMA mode (high-speed transfer mode) of the hard disk to on**
To set the DMA mode, select [Control Panel] → [System] (→ [Hardware]) → [Device Manager], then change the setting from [Disk drives] or [Hard disk controllers].
- **Set Processor Scheduling to “Background services”**
Select [Control Panel] → [System] → [Advanced] → [Performance] → [Settings] → [Advanced] and check (enable) “Background services” in the “Processor scheduling” section.
- **Set the Visual Effects options to “best performance”**
Select [Control Panel] → [System] → [Advanced] → [Performance] → [Settings] → [Visual Effects] and check (enable) “Adjust for best performance.”
- **Turn Automatic Updates off**
Select [Control Panel] → [System] → [Automatic Updates] and un-check (disable) “Keep my computer up to date.”
- **Set Remote Assistance to off**
Select [Control Panel] → [System] → [Remote] and un-check “Allow Remote Assistance invitations...”
- **Enable the Classic Start menu**
Right click on an empty space in the task bar and select [Properties] → [Start Menu], then check (enable) “Classic Start menu.”
- **Disable transition effects**
Select [Control Panel] → [Display] (→ [Appearance]) → [Effects...] button, and un-check (disable) “Use the following transition effect for menus and tooltips.”

When the settings of the mLAN Auto Connector or Driver Setup cannot be changed, or when the program mLAN Applications for YAMAHA/mLAN Tools 2.0 cannot be uninstalled.

The message below may sometimes appear when changing the settings with mLAN Auto Connector and Driver Setup or when uninstalling.



When using the mLAN driver with a program such as an audio sequencer, the settings in mLAN Auto Connector and Driver Setup cannot be changed, and mLAN Applications for YAMAHA/mLAN Tools 2.0 cannot be uninstalled. Execute these operation only after closing all applications.

There may be times when you are unable to change the settings in mLAN Auto Connector and Driver Setup and unable to uninstall mLAN Applications for YAMAHA/mLAN Tools 2.0, even when applications are not running. This may occur in the following cases.

- The WDM driver is selected in mLAN Auto Connector or mLAN Graphic Patchbay.
- When the mLAN WDM driver ("mLAN Audio Out/In 01") or "mLAN MIDI Out" is selected as the audio device in Windows.

If this is the case, follow the instructions below before changing the settings in mLAN Auto Connector and Driver Setup and/or uninstalling mLAN Applications for YAMAHA/mLAN Tools 2.0.



- In some cases, when you turn on the power to the mLAN devices, Windows may automatically select mLAN Audio/ MIDI.

- 1** Select [Start] → [Control Panel] → [Sounds and Audio Devices] → [Voice]. Make sure that something other than "mLAN Audio Out/In 01" is selected for the "Voice playback" and "Voice recording" settings.
- 2** Select [Start] → [Control Panel] → [Sounds and Audio Devices] → [Audio]. Make sure that something other than "mLAN Audio Out/In 01" is selected for the "Sound playback" and "Sound recording" settings.
- 3** Select [Start] → [Control Panel] → [Sounds and Audio Devices] → [Audio], then select any option other than the items from "mLAN MIDI OUT" through "mLAN MIDI OUT (8)" for the "MIDI Music Playback" setting.

Installing the Plug-in Effect (For i88X Users)

- 1 Double-click on the “VST_” folder. Various files including “Setup.exe” will be displayed.
- 2 Double-click on “Setup.exe.” “Welcome to the installShield Wizard” window will be displayed.
- 3 Click [Next]. In the window that appears, enter the User Name, Company Name, and Serial Number.



- Serial number is provided in the included Users Card.

- 4 Click [Next]. The Registration Confirmation window will be displayed. Make sure the registration information you entered is correct, then click [Yes].



- If the information is incorrect, click [No] and return to step 3 above.

- 5 A window for selecting plug-in effects will be displayed. Select (check) the software you want to install and click [Next].
- 6 A window appears prompting you for confirmation of the plug-in effects to be installed. Make sure the information is correct, then click [Yes].



- When you wish to change the software to be installed, click [Return] and go back to step 5.

- 7 In the window that appears, you can select the drive and folder to which the owner's manual (PDF file) and setup program will be installed. You should avoid changing the installation location.

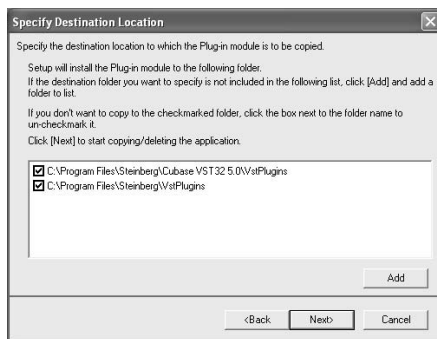


- If you want to change the location, click [Browse...] then select the installation location (drive and folder).

- 8 Click [Next]. In the window that appears, you can select the “VstPlugins” folder to which the plug-in effect will be installed.



- In order to be able to use the VST plug-in software with the SQ01, it is necessary to check “Program Files\YAMAHA\VstPlugins.”
- If no folder is shown in the list, click [Add] then select the folder from the “Browse for Folder” dialog box.



- 9 Click [Next]. The installation starts.
- 10 When the installation is complete, the message “InstallShield Wizard Complete.” appears. Click [Finish].

Using the Installed Plug-in Effect on another host application

Even after you've installed the plug-in effect, if you intend to use it with another VST-compatible host application, you will need to manually copy the effect plug-in module to the "VstPlugins" folder specified by the host application.

- 1** Select [Start] → [(All) Programs] → [YAMAHA VST Plugins] → [(Plug-in Effect name)] → [Setup].
A "Welcome" window appears.

- 2** Select [Modify], then click [Next].

- 3** A window appears allowing you to specify the destination location to which the plug-in effect is to be copied. Select (check) the "VstPlugins" folder corresponding to the host application with which you intend to use the plug-in effect.



- If you remove the checkmark from the folder for the installed host-application, you can remove the installed plug-in effect.
- For details, refer to the owner's manual of each host application.

- 4** Click [Next].
The copy operation is executed.



- To cancel the operation, click [Cancel].

Uninstall (removing the installed plug-in effect)

- 1** Select [Start] → [(All) Programs] → [YAMAHA VST Plugins] → [(Plug-in Effect name)] → [Setup].
A "Welcome" window appears.
- 2** Select [Remove], then click [Next].
A window appears prompting you for confirmation of the file deletion.
- 3** Click [OK] to remove the files.



- To cancel the operation, click [Cancel].



- Processing speeds of computers equipped with Pentium I processors and some computers equipped with Pentium IV processors may be reduced significantly if you use Pitch Fix and Cubase SX2.0.
If this problem occurs, download from the following URL an updated Pitch Fix Version 1.0.2 or higher:
<http://www.yamahasynth.com/down/index.htm>

For Mac OS 9 Users (i88X and mLAN16E only)

NOTE

- Only the i88X and mLAN16E support Mac OS 9. The MY16-mLAN does not support Mac OS 9. Regarding Mac OS X, refer to page 42.

CD-ROM Contents

Software for Macintosh is included on two CD-ROMs (for the mLAN 16E, only TOOLS for i88X/mLAN16E is included). Install TOOLS for i88X/mLAN16E first.

● TOOLS for i88X/mLAN16E

Folder Name	Application Name	Contents
mLAN_	mLAN Applications for YAMAHA mLAN Tools	This software includes mLAN drivers and applications required to make mLAN connections between the mLAN devices and the computer. Install the software while the power to the mLAN devices is off. <ul style="list-style-type: none">• For installation instructions, see page 31. A single installation procedure installs all applications necessary for mLAN communications. Software to be installed includes mLAN Auto Connector and mLAN Graphic Patchbay, which enable you to set up audio and MIDI connections for an mLAN network.
OMS_	Open Music System (OMS) 2.3.8 ²	This software is required to transfer MIDI data (Remote Control and Studio Manager data) between an mLAN device and a computer. <ul style="list-style-type: none">• For instructions on installing, see page 32.
	OMS Setup for YAMAHA (folder)	Contains OMS Setup files for an mLAN device (page 39).

● Plug-in Effect (included only with i88X)

- This software can be used as plug-in software within a VST/Audio Units compatible program.
- For instructions on how to use the application, refer to the PDF manual.
(The destination disk you specified)/YAMAHA/Plug-in Effect/(the relevant software folder)
- For instructions on installing the Plug-in Effects, see page 41.

Folder Name		Application Name	Contents
Mac OS 9 *3	VST_	01X Channel Module* ¹	This software reproduces the EQ and Dynamics effects built into each channel of the YAMAHA Digital Mixing Studio 01X, and uses the processing power of the computer for the effects. You can use the Dynamics and 4-band EQ functions (that can be also found on Yamaha Digital Mixing consoles) as effects software. You can also import the 01X settings, thus reproducing the songs created on the 01X.
		Pitch Fix* ¹	This program is used to edit the pitch of recorded vocals. More than just a pitch processor, it can also be used to change the character of the vocals. Moreover, you can use MIDI data on the host application to control the Pitch Fix effect. For more information on setting up with the host application, refer to the Pitch Fix PDF owner's manual.
		Vocal Rack* ¹	This is a multi-effect program for processing vocals. The plug-in features various effects, including a high-pass filter, compressor and a 3-band equalizer.
		Final Master* ¹	This is a multi-effect program for mastering purposes. It features a compressor, limiter and soft-clip function, and allows you to split the signal into three bands for separate multi-band processing.

*1 These applications are supplied with online/PDF manuals.

*2 Unfortunately, Yamaha makes no guarantee concerning the stability of these programs nor can it offer user support for them.

*3 **Mac OS X Compatibility**

You can download mLAN software compatible with Mac OS X at the following URL:

- mLAN driver (included in OS X 10.3.3 or higher)
<<http://www.apple.com/support/>>
- mLAN Tools, Studio Manager for 01X
<<http://www.yamahasynt.com>>

The following plug-in effects are included in the “Mac OS X” folder and are compatible with VST and Audio Units.

- 01X Channel Module
- Pitch Fix
- Vocal Rack
- Final Master

With Macintosh notebook computers such as the iBook or PowerBook, before you start up the computer, first connect the mLAN device and mLAN cable, then turn on the power to the mLAN device.

System Requirements for i88X/mLAN16E Software

The system requirements below are necessary for using the included software.

NOTE

- The system requirements below may differ slightly depending on the particular operating system.
- For details on minimum requirements for each DAW (Digital Audio Workstation) software, refer to the respective owner's manual.

● i88X/mLAN16E (including the requirements for mLAN Tools 2.0/mLAN Applications for YAMAHA)

These are the total system requirements, including the audio sequencer, mLAN Tools 2.0/mLAN Applications for YAMAHA and the plug-in effects.

OS	: Mac OS 9.2 (Mac OS X and Mac Classic environment are not supported.)
Computer	: System having a built-in S400 (400 Mbps) FireWire terminal. (*1)
Hard Disk	: Free disk space of 250 MB (i88X)/50 MB (mLAN16E) or more; high-speed hard disk

● Recommended system (*2)

- Connecting a single mLAN device to a computer peer-to-peer:

Computer	: G4/G3 signal processor 900 MHz (or higher)
Available Memory	: 512 MB or more (Virtual memory must be turned off)

- Connecting three mLAN devices to a computer:

Computer	: G4 1.25GHz Single processor, 1GHz Dual processor, or higher
Available Memory	: 512 MB or more (Virtual memory must be turned off)

● Minimum system requirements (*2)

Computer	: G4 dual processor 450 MHz or G4/G3 single processor 700 MHz (or higher)
Available Memory	: 320 MB or more (Virtual memory must be turned off)

*1 The computer must have an IEEE 1394 (FireWire) or i.Link terminal. If there is no terminal, install an IEEE 1394 interface card (PCI or PC).

For more details on system requirements and recommended PCI or PC cards, see

<http://www.yamahasynth.com>

*2 The system requirements listed here apply when using the included software and when playing audio/MIDI data detailed below on standard sequencer software. This may differ depending the particular sequencer software you are using.

Recommended system requirements (Connecting a single mLAN device to a computer peer-to-peer)

Fs=44.1kHz/24-bit
Audio Driver
18In/18Out (i88X)
16In/8Out (mLAN16E)
MIDI Driver
1In/1Out (i88X)
3In/30Out (mLAN16E)
16 MIDI and 12 Audio playback tracks
2 Audio recording tracks
2 Sends for Plug-in Soft Effect
10 Inserts for Plug-in Soft Effect
2 Channels for Plug-in Soft Synthesizer
Latency of 5msec or less

Recommended system requirements (Connecting a computer and three mLAN devices)

Fs=44.1kHz/24-bit
Audio Driver 32In/32Out (total)
MIDI Driver 4In/50Out (total)
16 MIDI and 8 Audio playback tracks
2 Audio recording tracks
2 Sends for Plug-in Soft Effect
10 Inserts for Plug-in Soft Effect
2 Channels for Plug-in Soft Synthesizer
Latency of 5msec or less

Minimum system requirements

Fs=44.1kHz/16bit
Audio Driver
8In/20Out (i88X)
2In/20Out (mLAN16E)
MIDI Driver
1In/1Out (i88X)
2In/20Out (mLAN16E)
16 MIDI and 12 Audio playback tracks
2 Sends for Plug-in Soft Effect
6 Inserts for Plug-in Soft Effect
No Plug-in Soft Synthesizer
Latency of about 50msec

NOTE

- Up to two PCI or PC cards can be used. However, you can use only one card at a time. If you are using an IEEE1394 interface built into the computer, you can use only one IEEE1394 PCI or PC interface card.
- When using a laptop or notebook computer, a built-in IEEE 1394 terminal may not be available. If this is the case, install an appropriate PC interface card.

● Plug-in Effect (included only with i88X)

OS : Mac OS 8.6 through 9.2
Mac OS X 10.2 through 10.3

NOTE

- When using a PowerBook under battery power, go Apple menu → [Control Panel] → [Energy Saver] → [Advanced Settings] (Settings for: Battery), and remove the check from the "Allow processor cycling."

Software Installation

For instructions on how to install the software other than one referred to below, see page 28 in the section "CD-ROM Contents."

mLAN software and OMS

mLAN Tools 2.0 software includes a driver that enables you to connect mLAN devices to a computer. mLAN Applications for YAMAHA enables audio and MIDI signals to be transferred between a computer and mLAN devices via mLAN cables. This software enables you to connect the i88X, mLAN16E, or 01X to a computer via mLAN.

Follow the steps below to install these software applications.

NOTE

- For explanations on error messages, see page 43.
- For information on the uninstall (removing the installed application), refer to page 33.

Preparing to install

1 Start the computer.



CAUTION

- **When using the mLAN connection, make sure to disable any energy saving features on the computer (such as Suspend, Sleep, Standby or Pause). When using the virtual memory, turn it off, then restart the computer.**

NOTE

- If you are using the S200 data transfer rate standard (check the rear panel of your particular device, or refer to the specifications in the owner's manual), make sure to uninstall the old version of mLAN Tools beforehand. (Refer to the owner's manual of your particular device.)

2 Exit from any open applications and close all open windows.

3 Disconnect all MIDI cables connecting MIDI devices to the MIDI IN/OUT of the mLAN device.

4 Using an IEEE1394 (FireWire/iLink) cable, connect the mLAN device directly to the computer (without use of a hub), and disconnect all other IEEE1394-connected devices from the computer.

5 Insert the included CD-ROM ("TOOLS for i88X/mLAN16E") into the CD-ROM drive.

OMS (Open Music System)

- 6** Double-click on the “OMS_” folder (English version only).
“Install OMS 2.3.8” will be displayed.
- 7** Double-click on “Install OMS 2.3.8.”
OMS Setup Dialog will be displayed.
- 8** Execute the installation by following the on-screen directions.
After the installation, select “Restart.”

NOTE

- After the installation is complete, you may encounter an error message warning that the installer did not close. In this case, go to the “File” menu and select “Quit” to close the installer. Then reboot the computer.

- 9** After restarting the Macintosh, you will find the “Opcode”/“OMS Applications” folder on your computer (Hard Disk, as the default).

- 10** Copy the “OMS_2.3_Mac.pdf” in the CD-ROM to the “OMS Applications” folder (drag-and-drop it to the folder).
Refer to the “OMS_2.3_Mac.pdf” (English version only) for information on how to use the application.

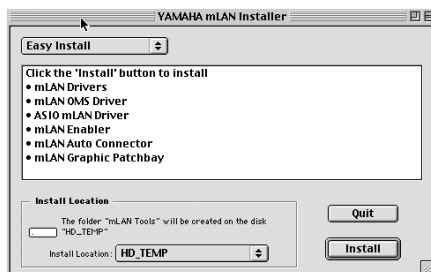
- 11** Copy the “OMS Setup for YAMAHA” in the CD-ROM to the “OMS Applications” folder (drag-and-drop it to the folder).
In the “OMS Setup for YAMAHA” folder you will find the OMS Setup files for the i88X and mLAN16E, which can be used as templates.

mLAN software

- 12** Double-click the “YAMAHA mLAN Installer” icon in the “mLAN_” folder to display the following installation screen. The “Install Location” box displays the destination of the installation. If you wish to change the destination disk or folder, use the [Switch Disk] button and the pop-up menu to specify the desired destination.

NOTE

- In general, there is no need to change the destination directory.



- 13** Confirm that “Easy install” is selected and click “Install.” At the confirmation message that appears, click “Continue.”

- 14** If a message “OMS Folder cannot be found in the system folder” or the like appears, after finishing the installation, copy the file “mLAN OMS Driver” (located in “Into OMS Folder” of the “mLAN Tools” folder in the installation destination) to the system folder “OMS Folder.”

- 15** The message prompting to search the ASIO Drivers folder is shown. Click [OK].
The result of the search will be displayed.

- 16** Select the installation destination of the ASIO mLAN Driver, then click [OK].

NOTE

- If a message "ASIO Driver folder cannot be found in the system folder" or the like appears, after finishing the installation, copy the file "ASIO mLAN" (located in "Into ASIO Drivers" of the "mLAN Tools" folder in the installation destination) to the "ASIO Drivers" folder of the particular application you are using.

- 17** Turn on the mLAN device.

- 18** When installation is finished, an "Installation was successful." message appears. Click [Restart].

Confirming the installation

The mLAN Installer places the following files in the following locations.

Control panel folder of the startup disk

mLAN Driver Setup (page 34)

NOTE

- You can use the mLAN Driver Setup (page 34) to check whether data is being properly transmitted and received via mLAN.

Extensions folder of the startup disk

mLAN Driver
mLAN Driver Plugs
mLAN Expert
mLAN Family
mLAN Transporter Family

The folder you specify

mLAN Tools folder
Opcode/OMS Applications

System folder

Control Panels/mLAN Driver Setup
OMS Folder/mLAN OMS Driver
Preferences/mLAN HALs/01XTransporter.hal
Preferences /mLAN HALs/i88XTransporter.hal
Preferences /mLAN HALs/
mLAN16ETransporter.hal
Preferences /mLAN Prefs/mLAN Control Panel
Prefs
Preferences /mLAN Prefs/oui.tbl

- * Delete the files and folders listed above when **uninstalling**. Be careful not to delete data already existing before the installation, including files related to OMS.

Changing settings after installation

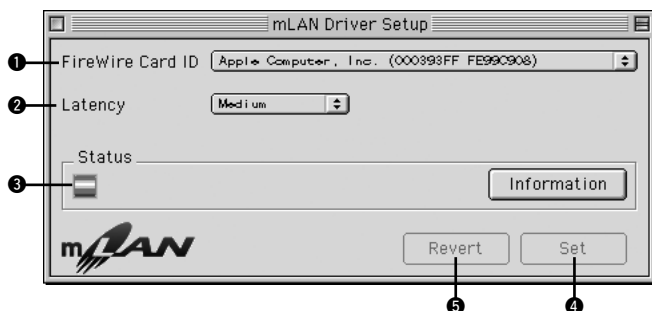
The mLAN-related settings can be changed after installation from the mLAN Driver Setup window. To display it, start the mLAN Driver Setup in the Control Panels folder.

mLAN Driver Setup

This window lets you check and change the mLAN settings for receiving/transmitting data. Make sure to close any application (DAW, etc.) using the mLAN connection before making changes.



- To change the wordclock (sample rate) and the number of channels used, Start the mLAN Auto Connector in the mLAN Tools folder.



① FireWire Card ID

The options here are the same as those for the 1394 Adapter Card ID parameter for Windows as described on page 15.

② Latency

Determines the basic latency of the mLAN communications, or how quickly the data is processed after a command is issued. Choose an option appropriate to your environment.

About latency in an mLAN network

The particular configuration of your computer (processing speed, system memory size, etc.) may affect its ability to properly record and play back audio data in your audio sequencer, resulting in noise or other audio problems. In most cases, you can solve the problem by adjusting the latency (delay time).

- A small latency value results in a short delay time and gives optimum response for real-time recording/playback.
- A large latency value results in a long delay time, but allows for use of more audio channels and plug-in effects.

● Types of latency in an mLAN network

Audio latency (msec)

Audio latency is determined by the basic latency (selected in the mLAN Driver Setup window) and Preferred Buffer Size (specified in the ASIO mLAN Control Panel) (see next page).

MIDI latency (msec)

The MIDI latency value varies with the mLAN driver version.

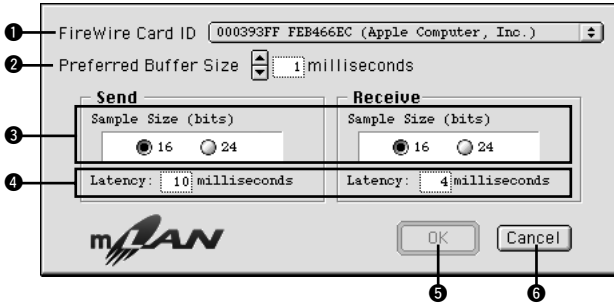
For information on the MIDI latency of your mLAN driver version, refer to the "MIDI_Latency.txt" file, which you can access by selecting [mLAN Tools | YAMAHA | Manual] on the corresponding computer.

● ASIO mLAN Control Panel.

When using the mLAN ASIO Driver, open the ASIO Control Panel within the driver settings of the DAW software (the particular menu depends on the software you are using) and set the Preferred Buffer Size as needed.



- The initial setting of the Preferred Buffer Size of the mLAN ASIO driver is the smallest value.



① FireWire Card ID

The options here are the same as those for the 1394 Adapter Card ID parameter for Windows as described on page 15.

④ Latency

It indicates the audio latency value for transmission and reception.

Audio latency is determined by the basic latency (selected in the mLAN Driver Setup window) and Preferred Buffer Size (②).

② Preferred Buffer Size

③ Sample Size

⑤ OK

⑥ Cancel

The parameters and buttons function the same as those in the ASIO mLAN Control Panel for Windows as described on page 16.

③ Status

④ Set

⑤ Revert

The field and buttons function the same as those for Windows as described on page 17.

Connecting a Computer to an mLAN device via mLAN

This section explains how to connect a computer to a single mLAN device peer-to-peer in mLAN Auto Connector.

In mLAN Auto Connector, you can easily connect an mLAN device by setting up the wordclock and specifying the number of audio I/O channels. To connect multiple mLAN devices to a computer, use mLAN Graphic Patchbay. For more information on mLAN Graphic Patchbay, refer to the mLAN Graphic Patchbay Online Manual.

CAUTION

Noise may be generated during the following operations. Before performing these operations, lower the output level of each device.

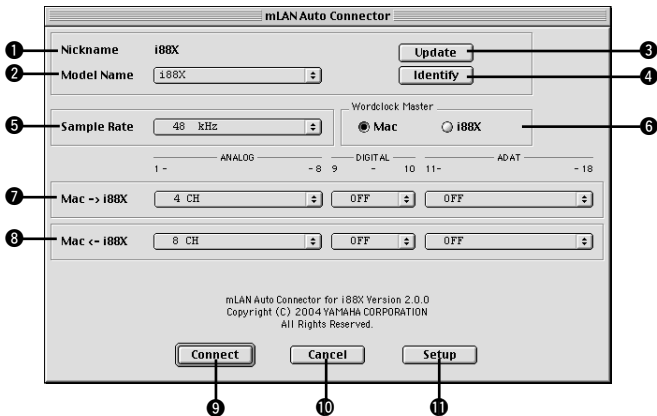
- Turning the power to the computer and mLAN devices on or off
- Connecting or disconnecting an IEEE1394 (mLAN) cable
- Making an mLAN connection in mLAN Auto Connector
- Changing the wordclock master and slave status in mLAN Auto Connector or mLAN Graphic Patchbay
- Selecting On or Off in mLAN Manager (Windows)
- Starting or quitting the OS
- Installing/uninstalling mLAN software

NOTE

- If you use Auto Connector after you make connections in mLAN Graphic Patchbay, the connections made in mLAN Graphic Patchbay will be cancelled.
- You can also use mLAN Graphic Patchbay to connect a computer to a single mLAN device peer-to-peer.
- mLAN Auto Connector windows may appear different when certain mLAN devices are connected.

- 1 Connect a computer to an mLAN device using an IEEE1394 cable.
- 2 Open the “mLAN Tools” folder, then click the “mLAN Auto Connector” icon.
- 3 Set up the wordclock and specify the number of audio channels (see below), then click the [Connect] button. The computer and mLAN device are connected via mLAN.

Connecting the i88X



1 Nickname

This field indicates the nickname of the connected i88X. To change the nickname, refer to “Node Information” in the mLAN Graphic Patchbay Online Manual.

2 Model Name

This parameter enables you to select an mLAN device to which you wish to make an mLAN connection in a multiple mLAN device network.

③ [Update] button

Clicking this button updates the information on the mLAN devices connected to the mLAN network. Use this button when you add an mLAN device to the network while mLAN Auto Connector is running.

④ [Identify] button

Clicking this button causes the i88X ACTIVE indicator to flash for a few seconds.

⑤ Sample Rate

This parameter enables you to specify the sampling frequency (wordclock frequency).

⑥ Wordclock Master radio buttons

These buttons enable you to specify the computer or i88X as the wordclock master.

⑦ Mac → i88X

This parameter enables you to specify the number of channels of audio data routed from the computer's audio output (mLAN driver's audio output) into the i88X. Signals input in the i88X are output from the i88X's OUTPUT 1-8 jacks (analog), DIGITAL STEREO COAXIAL or OPTICAL OUT jack (digital), or ADAT OUT jack (ADAT).

⑧ Mac ← i88X

This parameter enables you to specify the number of channels for audio data that are input at the i88X's INPUT 1-8 jacks (analog), DIGITAL STEREO COAXIAL or OPTICAL IN jack (digital), or ADAT IN jack (ADAT) and output to the computer.

⑨ [Connect] button

Click this button to connect the i88X to the computer via mLAN.

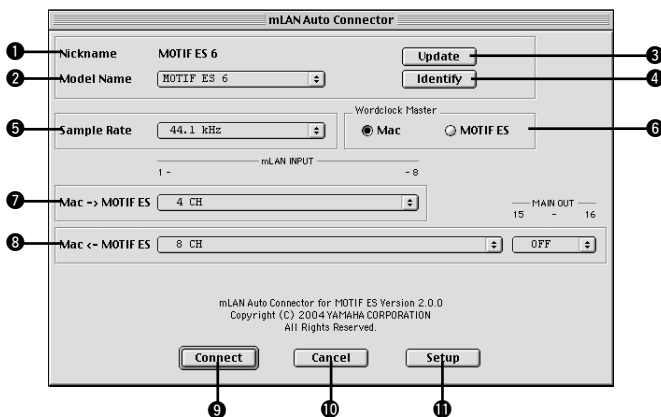
⑩ [Cancel] button

Click this button to cancel the settings and close mLAN Auto Connector.

⑪ [Setup] button

Click this button to open the i88X Control Panel window, which enables you to set the wordclock transition speed.

Connecting the mLAN16E (MOTIF ES)



1 Nickname

This field indicates the nickname of the connected mLAN16E. To change the nickname, refer to “Node Information” in the mLAN Graphic Patchbay Online Manual.

2 Model Name

This parameter enables you to select an mLAN device to which you wish to make an mLAN connection in a multiple mLAN device network. When the mLAN16E is connected, select the name of the device equipped with an mLAN16E.

3 [Update] button

Clicking this button updates the information on the mLAN devices connected to the mLAN network. Use this button when you add an mLAN device to the network while mLAN Auto Connector is running.

4 [Identify] button

Clicking this button causes the mLAN16E ACTIVE indicator to flash for a few seconds.

5 Sample Rate

This parameter enables you to specify the sampling frequency (wordclock frequency).

6 Wordclock Master radio buttons

These buttons enable you to specify the computer or mLAN16E as the wordclock master.

7 Mac → MOTIF ES

This parameter enables you to specify the number of channels of audio data input into the mLAN16E from the computer’s audio output (mLAN driver’s audio output).

8 Mac ← MOTIF ES

This parameter enables you to specify the number of channels of audio data input into the computer from the mLAN16E’s output.

NOTE

- The number of audio transmission channels and MIDI ports varies on different mLAN16E-compatible devices.

- For more information on audio and MIDI connections for an MOTIF ES with an mLAN16E installed, refer to “System Examples” in the mLAN16E Owner’s Manual.

9 [Connect] button

Click this button to connect the mLAN16E to the computer via mLAN.

10 [Cancel] button

Click this button to cancel the settings and close mLAN Auto Connector.

11 [Setup] button

Click this button to open the mLAN16E Control Panel window, which enables you to set the wordclock transition speed.

Setting the wordclock transition speed (mLAN Control Panel)

When you click the [Setup] button in the Node Information window in mLAN Auto Connector or mLAN Graphic Patchbay, the computer displays the mLAN Control Panel, which enables you to set the wordclock transition speed.

The Wordclock Transition Speed parameter enables you to specify how fast the initial wordclock setting will change to a new setting if the mLAN device is operating as a slave in the mLAN network.

Slow:

Select this option in most cases.

Fast:

Select this option if the wordclock master device is referencing timecode, such as MTC, thus changing the wordclock setting.

- 4 Click the [Connect] button. When the mLAN device is connected correctly, mLAN Auto Connector closes and mLAN communications start.

NOTE

- If connection fails, restart mLAN Auto Connector, then click the [Connect] button again. You do not need to restart the computer.

Setting up OMS

NOTE

- If you are using mLAN on your Macintosh with an optionally installed IEEE 1394 (FireWire) interface card, recreate a new Studio Setup by OMS Setup included in the installation CD-ROM. For details, refer to the OMS manual.

1 Double-click on the “OMS” folder and “OMS-Setup for YAMAHA” folder. The “i88X-mLAN,” “MOTIF-ES-mLAN” and “mLAN Generic 16 ports” files appear. Copy this to the hard disk on your computer.

2 If you are connecting a single i88X or mLAN16E (including MOTIF ES) using Auto Connector, double-click “i88X-mLAN” or “MOTIF ES-mLAN.”

If you are connecting multiple mLAN devices using Graphic Patchbay or connecting a single mLAN16E (excluding MOTIF ES) using Auto Connector, double-click “mLAN Generic 16 Ports.” The OMS Setup starts.

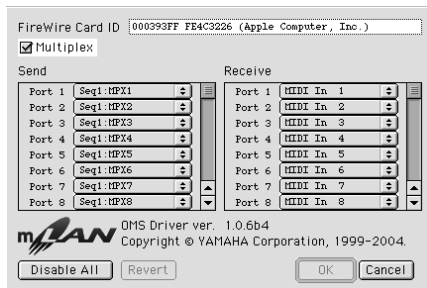
3 After starting the OMS Setup, the Studio setup file double-clicked in step 2 opens.



If “◆” is not indicated at the right of the setup file name, select “Make Current” from the “File” menu and execute the save operation. The OMS studio setup has been completed. You'll also need to set the OMS port when using the software. Refer to the owner's manual for your application.

NOTE

- Double clicking the icon of the mLAN device or executing “MIDI Device Info...” from the “Studio” menu by selecting the mLAN device, calls up the Device Info dialog box. We recommend that you not change the channel assignment since this is already set by the setup application (mLAN Auto Connector, etc.) for optimum use with i88X and mLAN16E. Reset the settings as shown in the illustration below if you have inadvertently changed them.



The setting names (device names) of each MIDI port are as shown below, when the Studio Setup file is loaded. Select the proper device (port) for the application you are using.

i88X (Auto Connector) port function

MIDI Port	Device Name	Function
1	MIDI	i88X's MIDI port (MIDI to (from) mLAN MIDI conversion)

MOTIF ES (Auto Connector) port function

MIDI Port	Device Name	Function
1	TG	Controls a tone generator.
2	PLG	Controls a Plug-in.
3	Remote B	Controls a DAW or editor.
4	Remote A	Controls a DAW or editor.

NOTE

- You can assign a function to each MIDI port on the MOTIF ES. This example uses typical device names.

Port functions in mLAN Graphic Patchbay and on the mLAN16E (excluding MOTIF ES)

MID Port	Device Name	Function
1	Port 1	Port functions vary depending on the specific mLAN device. Refer to the owner's manual for your mLAN device.
2	Port 2	
...	...	
16	Port 16	

- The port numbers in the "mLAN Generic 16 ports" Studio Setup correspond to the numbers indicated in the "Connector Name" column in mLAN Graphic Patchbay. For more information on Graphic Patchbay, refer to the Graphic Patchbay Online Manual.
- After the OMS studio setup above has been completed, your computer will recognize only Yamaha mLAN (MIDI) devices. If you are connecting other musical instruments via USB, or if you add an mLAN (MIDI) device to the network while you are already using OMS, you should create an original Studio Setup file. For details, refer to the on-line manual supplied with OMS.
- The included OMS studio setup file may not function even if you follow the above procedure, depending on your Macintosh/Mac OS version. (MIDI data cannot be transmitted/received even if the setup becomes available.) In this situation, connect your Macintosh to the mLAN device and follow the procedure below to re-create the setup file.

- 1 Start OMS Setup and select "New Setup" from the "File" menu.
- 2 The "OMS Driver Search" dialog appears. Remove the check from the "Modem" and "Printer" check boxes, and click [Search] to execute the device search. If the Search operation has been completed successfully, the [mLAN-01] device is displayed in the OMS driver setting dialog.
- 3 Click the [OK] button to search for ports. If you are using the i88X or mLAN16E, Port 1, Port 2 ... appears in the dialog. Mark the appropriate checkbox of the port and click the [OK] button to store the setting.

Plug-in Effect

1 Double-click on the “Mac OS 9” folder. “VST_” folder will be displayed.

2 Double-click on the “VST_” folder. “VST Plug-in Installer.” will be displayed.

3 Double-click on “VST Plugin Installer.” A window for selecting plug-in effects will be displayed.

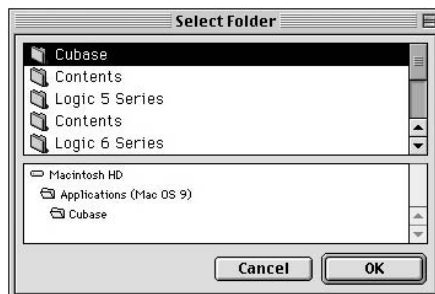
In the window, the “Install Location” box displays the destination of the owner’s manual (PDF file). You should avoid changing the installation location. Select (check) the software you want to install.

4 Click [Install]. In the window that appears, enter the User Name, Company Name, and Serial Number.

NOTE

- Serial number is provided in the included Users Card.

5 Click [Continue]. In the window that appears, you can select the “VstPlugins” folder to which the plug-in effect will be installed.

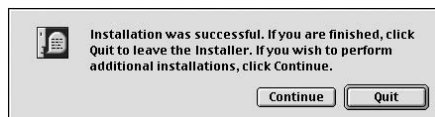


NOTE

- If there is only one “VstPlugins” folder in your computer, this step is unnecessary. Go on to step 7.
- If there is no “VstPlugins” folder in your computer, you can select the location to which the plug-in effect will be installed, in the window that appears.

6 Click [OK]. The installation starts.

7 When the installation is complete, the following screen appears.



8 To finish the installation, click [Quit]. To copy the module to a location other than selected in step 5 above, click [Continue] and repeat the procedure from step 3.

For Mac OS X Users

The included CD-ROM does not include mLAN software for Mac OS X. If you will be using the i88X, mLAN16E, or MY16-mLAN with Mac OS X, please download the following software from the URLs listed below.

- mLAN driver (OS X10.3.3 or higher)
<<http://www.apple.com/support/>>
- mLAN Tools
<<http://www.yamahasynth.com>>

NOTE

For i88X users

- *The software included in the Mac OS X folder of the CD-ROM (Plug-in Effect) is VST/Audio Units compatible versions of the 01X Channel Module, Pitch Fix, Vocal Rack, and Final Master that can be used with Mac OS X.*

Display Messages

Messages	Page
Can't find the ** on the mLAN network. Make sure that the ** is turned on and that the mLAN cable connection is correct and secure. After that, restart "mLAN Auto Connector".	19, 36
The settings of the mLAN Driver could not be changed. 1) If an application that uses the driver is currently active, close it first, then change the settings. 2) There is not enough resource memory.	25
Failed to initialize the mLAN settings because the application "mLAN Start" is not running. Select "ON" from the menu of "mLAN Manager" application.	14
Can't connect the **'s mLAN audio output connector to the computer's mLAN audio input connector.	14, 19, 36
Can't connect the **'s mLAN MIDI output connector to the computer's mLAN MIDI input connector.	14, 19, 36
Can't connect the computer's mLAN MIDI output connector to the **'s mLAN MIDI input connector.	14, 19, 36
Can't connect the computer's mLAN wordclock output connector to the **'s mLAN wordclock input connector.	14, 19, 36
Can't connect the **'s mLAN wordclock output connector to the computer's mLAN wordclock input connector.	14, 19, 36
A new 1394 adaptor card has been found. If you've inserted a new card, restart the computer.	
There is not enough resource memory. Execute mLAN Stop, then execute mLAN Start again. If this fails, restart the computer.	14
The 1394 adaptor card has not been found. Check the card and start mLAN again.	14
One of the programs could not be started. Follow the instructions/messages in the appropriate application. If there are no messages, execute mLAN Start again or restart the computer.	14
The application is not responding. Execute mLAN Start again or restart the computer.	14
Failed to load the mLAN Bus Driver. If the New Hardware Wizard has not been run, use it to install the hardware, then execute mLAN Start.	14
One or more programs could not be closed. After quitting all DAW programs and any programs using mLAN, execute mLAN Stop.	14



- ** will be the name of the mLAN device you're using.

Troubleshooting

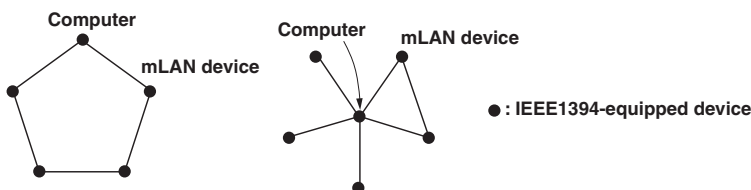
If you encounter a problem...

If you hear no sound or a strange sound, first check the items described below and take appropriate action. If the problem persists, consult your Yamaha dealer.

■ Unable to communicate via mLAN

- Has the driver been installed? See page 12.
- Is the mLAN cable properly connected? Check the connection; disconnect the mLAN cable once, then insert it again.
- (For Windows) Is mLAN set to "ON"? From the task bar, right click on the mLAN Manager icon. See page 14.
- (For Windows) When adding a new IEEE 1394 card, right click on the mLAN Manager icon in the task bar and select "ON.". See page 14.
- Is the ACTIVE lamp on the rear panel of the mLAN device lit (in blue)? If it is not lit, check the followings:
 - In mLAN Driver Setup, is the Status indicator blue? If not, restart the mLAN device and re-enable connection by using mLAN Auto Connector or mLAN Graphic Patchbay. Refer to page 19, page 36, and "mLAN Connection Settings" in the mLAN Graphic Patchbay Online Manual.
- Has connection been enabled with mLAN Auto Connector and/or Graphic Patchbay? Re-enable connection if necessary. Refer to page 19, page 36, and "mLAN Connection Settings" in the mLAN Graphic Patchbay Online Manual.
- Have you changed the device? Even if the model is the same, if the actual device is different, it is necessary to re-enable connection by using Auto Connector and/or Graphic Patchbay. Refer to page 19, page 36, and "mLAN Connection Settings" in the mLAN Graphic Patchbay Online Manual.
- Is there a loop connection? Check the cabling and make sure none of the devices are connected in a loop.

Example of loop connection



- There may be a limit on the IEEE 1394 interface of your computer as to the number of ports that can be used simultaneously. Check how many ports can be used simultaneously.
- Turn off all devices on the mLAN network (except the computer) and re-connect each device one-by-one until the device causing the problem is found.
- (For Windows) (When removing the mLAN bus from the [Safely Remove Hardware] setting of the task bar.) Restart the computer when using mLAN again.
- With Macintosh notebook computers such as the iBook and PowerBook, always first connect the mLAN device and mLAN cable then turn on the power of the mLAN device, before starting up the computer.

- Make sure that you set up the wordclock correctly. Also, make sure that one node is assigned as master and the other nodes are assigned as slaves.

..... Refer to “mLAN Connection Settings” in the mLAN Graphic Patchbay Online Manual.

■ The computer processing speed is too slow.

■ The computer’s CPU meter indicates a heavy processing load.

■ Playback response is delayed.

- If multiple S200-compatible devices are connected to the network, connecting mLAN devices in mLAN Graphic Patchbay may require more time.

■ Inconsistency in wordclock, or unable to exit from Auto Connector

- (For Windows) Mobile computers with Intel CPU
SpeedStep™ technology is applied for some CPU’s (CPU for notebook PC). Please disable the SpeedStep™ technology when mLAN is employed. SpeedStep™ technology changes CPU clock dynamically depending on the loading on the CPU to save the power consumption.
 - How to disable the SpeedStep™ technology;
In almost all of the PC’s, BIOS has a function to select enabling or disabling the SpeedStep™ technology. Please refer to the PC’s operating manual, or make inquiry to the PC manufacturer.

■ Unable to change the mLAN settings

- (For Windows) Is the mLAN (WDM) driver selected as the default audio device for the system?
 - Select [Start | Control Panel | Sounds and Audio Devices | Voice].
Make sure that something other than “mLAN Audio 01” is selected for the [Voice playback] and [Voice recording] settings.
 - Select [Start | Control Panel | Sounds and Audio Devices | Audio].
Make sure that something other than “mLAN Audio 01” is selected for the [Sound playback] and [Sound recording] settings.
 - In “MIDI music playback,” select any option other than the range of options from “mLAN MIDI Out” through “mLAN MIDI Out (8).”
- (For Windows) Select [Start | Control Panel | Sounds and Audio Devices | Sounds]. And select “No sounds” in the [Sound scheme], then execute again.
- If you cannot quit mLAN (by selecting “OFF” after right clicking the mLAN icon in the task bar), end the processes listed below manually. ([Ctrl] + [Alt] + [Delete] → [Processes] → select process → [End process]) When finished, start mLAN Manager to change the mLAN settings again.
 - mLANVDevice.exe
 - mLANFamily.exe
 - mLANSoftPH.exe
 - mLANManager.exe
- To change mLAN settings, select [Start | (All) Programs | Start Up], then start mLAN Manager.
- (When a message such as “file cannot be found” appears when uninstalling:) Try executing the installation once more, then uninstall again.

■ (Windows) mLAN Manager (the mLAN icon in the Task bar) has disappeared.

- Select [Start | (All) Programs | Start Up (or mLAN Tools)], then select mLAN Manager.

■ A connected mLAN device is not recognized.

- Refresh the information by selecting [View], then [Update] in the Menu bar. If the device is still not recognized, turn mLAN Manager off, then turn it on, then select [Update] to latest information. Refer to “Starting mLAN Graphic Patchbay” in the mLAN Graphic Patchbay Online Manual.

■ Launching mLAN Graphic Patchbay or updating to the latest information takes a while.

- When you try to update the network information after connecting or disconnecting an mLAN device that does not support S400, the system adjusts the mLAN transfer speed, and requires more time to process your request. However, this will not affect any subsequent operations.
- If five or more mLAN devices (including a computer) have been connected to a network, the total number of transmission channels of all devices will be limited. You can connect up to 86 channels in Windows and up to 98 channels in a Macintosh system.



NOTE

- For information on audio problems such as no sound or excess noise, refer to the Troubleshooting section of the i88X/mLAN16E/MY16-mLAN Owner's Manual.

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WD50930 409APAP1.2-01A0 Printed in Japan