

ALLEN & HEATH M-WAVES CARD

USER GUIDE



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INTRODUCTION

Thank you for choosing an Allen & Heath M-Waves Card for SoundGrid systems. In order to get the most out of your M-Waves product, please take some time to read this user guide. We also suggest that you become familiar with the Waves support site (www.wavesupport.net), where you will find an extensive answer base, the latest tech specs, detailed installation guides, software updates, and current information about licensing and registration.

About SoundGrid and the Allen & Heath M-Waves Card

SoundGrid is a scalable infrastructure that provides a variety of cost-effective, high-quality solutions for recording studios. It can be configured in many ways and with many hardware possibilities to provide a very flexible work environment. This framework is managed by the SoundGrid Studio Application, which configures the network, assigns and manages I/Os, controllers and servers, and patches audio throughout the system. Any user, anywhere on the SoundGrid network, has access to any of the network's I/O devices. Adding a SoundGrid DSP server enables recording and monitoring with very low latency and moves processing away from the host computer to the server.

The following M-Waves cards are available:

- M-Waves V1 or V2 for Allen & Heath iLIVE and GLD consoles
- M-DL-WAVES3 for Allen & Heath dLIVE consoles

These cards enable integration of Allen & Heath consoles with Waves SoundGrid systems via a single Ethernet cable.

Live sound engineers can use SoundGrid technology for low-latency plugin processing, multitrack recording and playback, and audio networking. M-Waves V2 and M-DL-WAVES3 also feature Clock Sync-over-Ethernet for syncing multiple consoles and performing digital splits.

Please note: You can use M-Waves V1, V2 (using M-DL-ADAPT card adapter) with dLive consoles.

- Super-low-latency networking platform for processing, playback and recording
- Each M-DL-WAVES3 card provides 128 channels of bi-directional audio. M-Waves V1 and V2 cards allow for 64 channels
- Connects via a single Cat5e or Cat6 Ethernet cable
- Clock Sync-over-Ethernet for digital splits (M-Waves V2 and M-DL-WAVES3)
- Connects to SoundGrid systems and SoundGrid-compatible devices via a single Ethernet cable
- Compatible with standard computers and switches

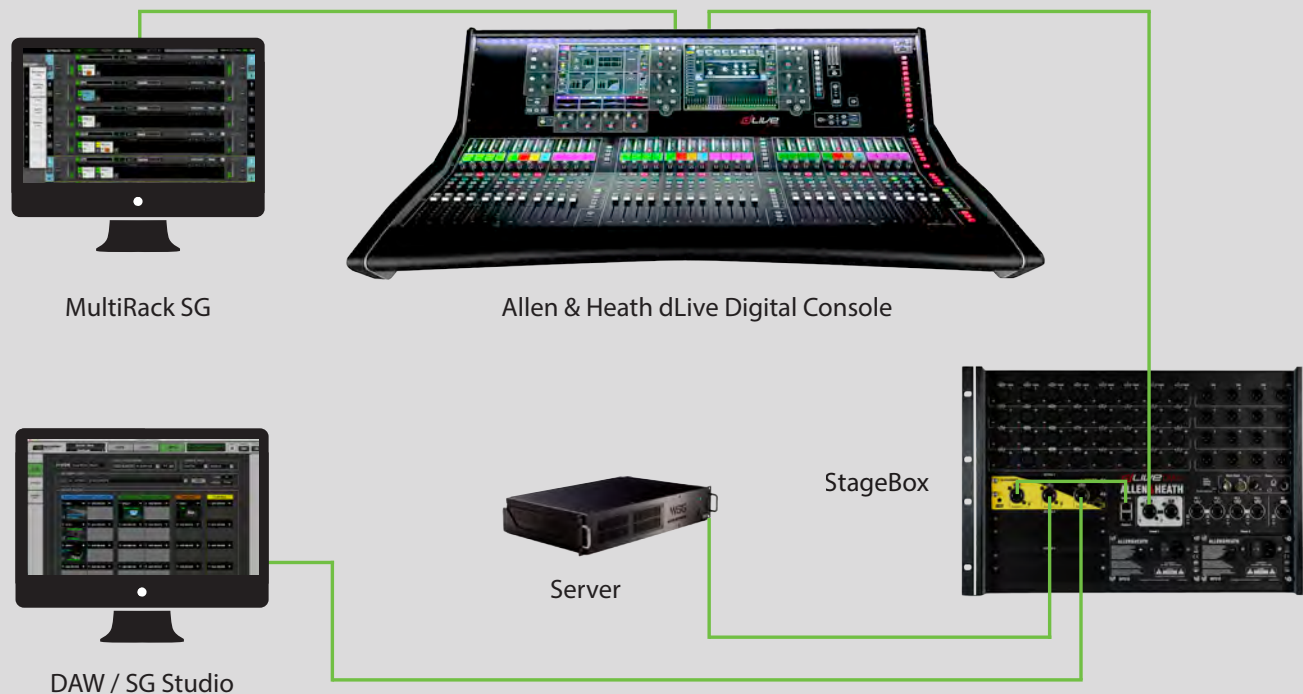
- Redundancy and recovery options
- Built-in 3-port Gigabit switch for direct connection to multiple devices
- ASIO/Core Audio drivers for recording and playback
- Uses MultiRack SoundGrid, eMotion LV1, or SoundGrid Studio software for setup and control
- Networks with consoles that have M-Waves V1 or V2 installed

Typical Uses

The M-Waves card can be used in both SoundGrid and Native configurations, as follows:

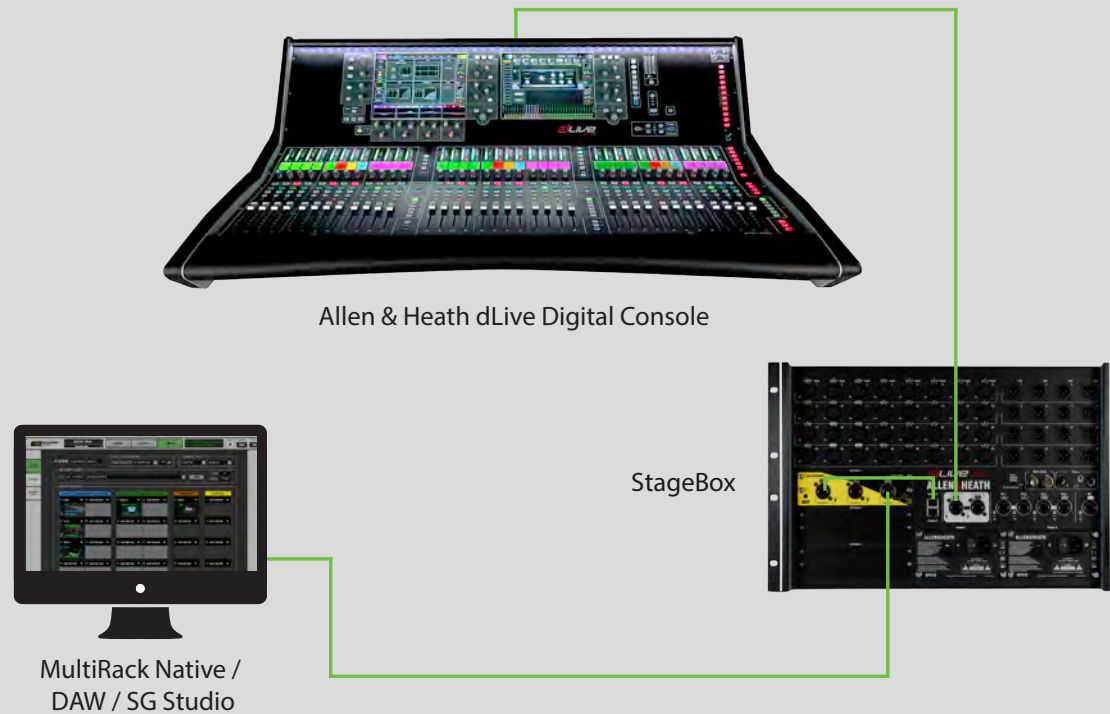
SoundGrid: In a SoundGrid configuration, the M-Waves card is used in order to connect to a SoundGrid network for plugin processing and simultaneous DAW playback/recording. The SoundGrid configuration uses a dedicated SoundGrid DSP server to power the plugin processing, enabling super-low latency, high plugin counts, and networking capabilities, with the option of an additional backup DSP server.

Please note: A SoundGrid DSP server is required for SoundGrid processing.



Native: In a Native configuration, the M-Waves card is used in order to connect a console to the SoundGrid ASIO/Core Audio driver for plugin processing and/or DAW playback/recording. Since the Native configuration utilizes the computer's CPU to power the plugin processing, plugin count and overall system latency depend on the computer's CPU and sound driver capabilities.

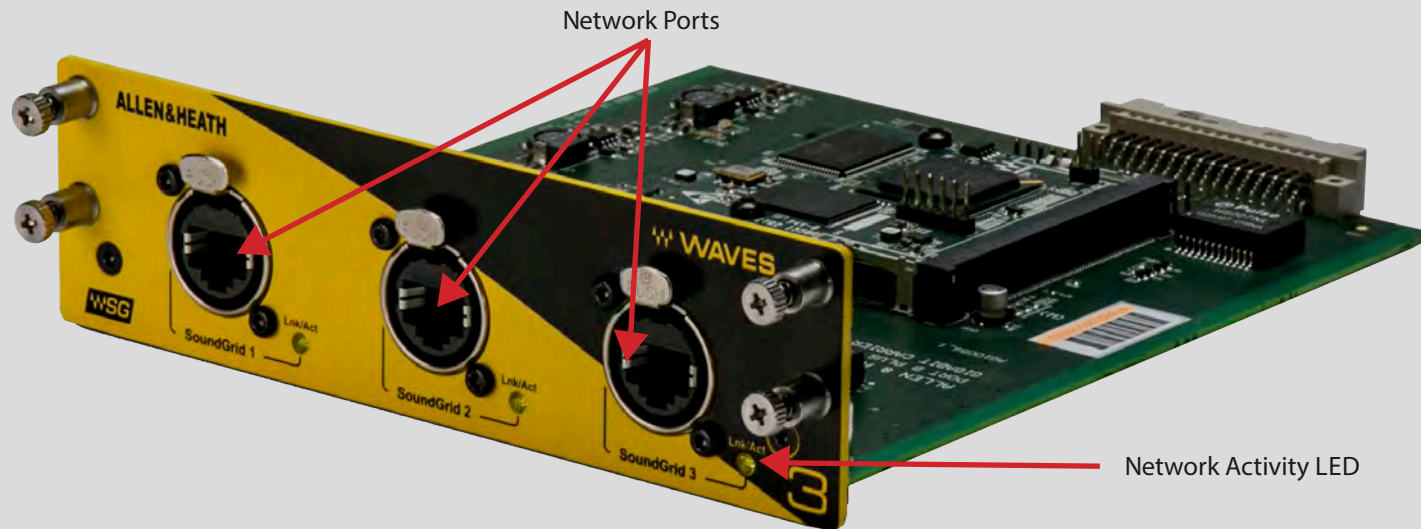
Please note: A SoundGrid DSP server is not required for Native processing.



Native/SoundGrid Comparison Table

Features	Native	SoundGrid
Low Latency		■
Processing	■	■
Recording	■	■
Simultaneous Recording and Processing		■
CPU Load	Your DAW computer's CPU	Dedicated SoundGrid DSP server
Backup DSP Server		■
Networking		■
I/O	M-Waves	M-Waves
Plugin Host Software	MultiRack Native	MultiRack SoundGrid, SoundGrid studio and eMotion LV1
Plugin Licenses	Native	SoundGrid

1. HARDWARE AND CONNECTORS



SoundGrid Ports 1–3 (Ethernet) connect the SoundGrid Network.
SoundGrid Ports 1–3 each have a Network Activity LED.

Colors and respective status are as follows:

- Flashing amber LED=Link/Activity.

M-Waves V2 and V1 additionally has a SoundGrid connection indicator on SoundGrid Port 1. Solid green LED=GigE connection.

2. INSTALLATION AND CONFIGURATION OVERVIEW

The ASIO/Core Audio drivers and control panel for the Allen & Heath M-Waves are installed using the Waves Central application, which also installs the SoundGrid driver and the SoundGrid Studio Application required for DAW recording and playback.

Use Waves central to install and activate the latest version of Waves products:

<http://www.waves.com/downloads/central>

2.1 Installing the M-Waves Card

1. Turn your console OFF.
2. In the back of your console, unscrew the protective cover from the Port to which you will be installing.
3. Slide in the card carefully, until you feel it dock into place.
4. Make sure the card is seated firmly; screw it in for added protection.
5. Turn your console back on.

For further instructions, please refer to your Allen & Heath manual for the M-Waves card.

2.2 Configuring the M-Waves in MultiRack SoundGrid

Access the M-Waves control panel via the Inventory window in the MultiRack SoundGrid application.

1. Launch the MultiRack SoundGrid application.
2. Enter the Preferences window by typing Ctrl+P (Windows) or Cmd + ", " (Mac) or from the appropriate application menus.

3. Under Local LAN Port, choose the adapter connected to the SoundGrid network and the M-Waves card. Network adapters are displayed as MAC addresses and port names.

4. When you select the correct port, the message "SoundGrid Network Found" will appear on the panel. Close this window.

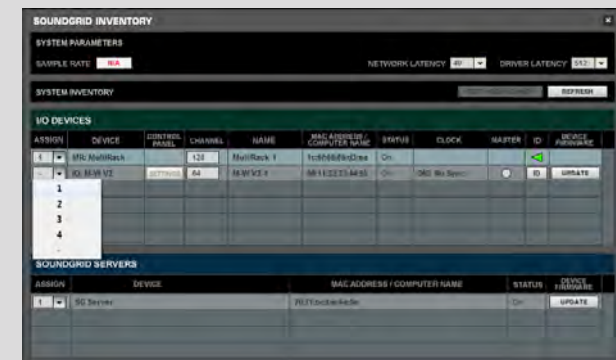
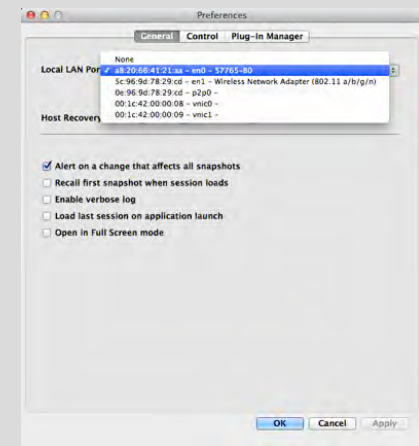
5. Open the SoundGrid Inventory window from the Audio Menu (F2). The SoundGrid Inventory window displays all SoundGrid I/O devices connected to your network.

6. Assign SoundGrid drivers in the Assign column. Use consecutive numbers for multiple devices, with the first unit assigned as number 1.

7. Assign SoundGrid DSP servers in the Assign column. The primary SoundGrid DSP server will be assigned as number 1. If you are using a redundant SoundGrid DSP server, assign it as number 2.

8. Assign your M-Waves card/s in the Assign column. Use consecutive numbers for multiple devices, with the first unit assigned as number 1.

9. Click Settings to open the M-Waves Control Panel window.



2.3 Configuring the M-Waves in SoundGrid Studio

This is a quick overview of what you need to know about SoundGrid Studio software to get your network up to speed. There's enough here to configure a simple network, assess network status, and set up your I/O devices. For more complex configurations, please refer to the SoundGrid and SoundGrid Studio user guides.

2.3.1 Setting Up SoundGrid Studio

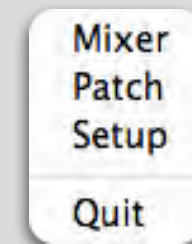
The SoundGrid Studio Application oversees the SoundGrid network and manages all network devices. To maintain network effectiveness, the SoundGrid Studio Application is always running in the background. Bring SoundGrid Studio to the front by clicking on the SoundGrid icon in the Mac Top Bar or the Windows System Tray.



PC



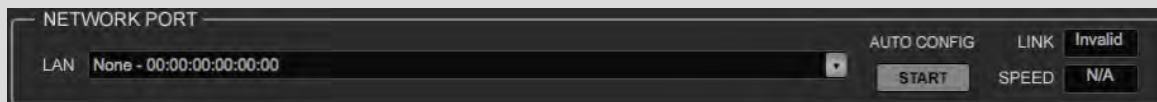
Mac

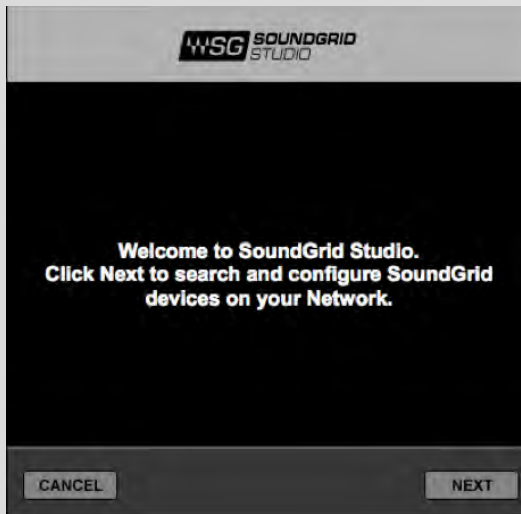


When SoundGrid Studio opens you will see the System Inventory page.



The first time you launch SoundGrid Studio, the Wizard will open. It scans the network, inventories its assets, and then configures the devices. If the Wizard does not start automatically, click the Start Auto Config button, which is next to the Network Port. Choose "NEXT" to start automatic configuration. This will take a few moments. Choose "CANCEL" to configure manually.

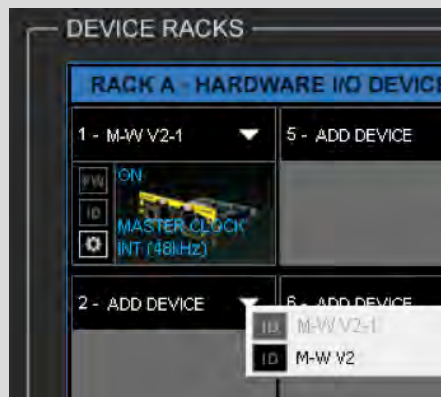




If the Wizard cannot locate the requested SoundGrid network devices, this means the devices might be off or not connected properly. In such a case the Wizard will allow you to rescan the network or work as a Driver node slaved to another system. For more information please refer the SoundGrid Studio User Guide.

When configuration is complete, close the window. If there is still a problem, you can configure your system manually. Use the System Inventory page to assign devices, control the network, and manage clock. To learn how to use this page, please refer to the user guides for SoundGrid Studio and StudioRack.

The first device added to a rack is designated as the Sync-over-Ethernet clock master and is placed in the first rack slot. A populated device slot displays the mode, clock status, and sample rate of the I/O. The clock master device is indicated by its blue color and the icon text: On, Master Clock, INT (48 kHz).



To add another SoundGrid device, click on the arrow in an empty rack slot. From the list of available devices, choose the one that you want to add—in this case, a second M-Waves card. In this image, M-Waves V2-1 is grayed out (and therefore unavailable) since it is already claimed.

The new device is visible in the rack slot. Unless changed by the user, it remains the clock slave and is colored green. Use the same menu to change the assignment of clock master from one device to another, or to remove the device from the rack slot.

Now you know how to assign I/O devices and designate a device as the clock master. Click on the Gear symbol in the device slot to open the M-Waves Control Panel in order to set up clock details and configure preamps.



2.3.2 Firmware Status and Updates

On the left of the device icon are two buttons:

FW indicates the status of the device's firmware. The user is given the choice to update it. Status indications are color-coded:

Grey	Compatible firmware
Blue	Compatible firmware, but a newer version exists
Red	Firmware not compatible and must be updated in order to use

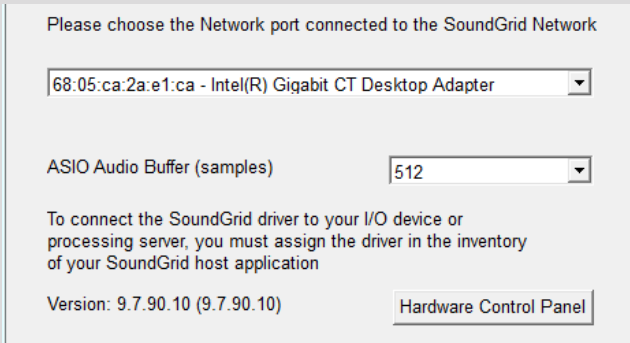


Click on the FW button to launch the Reflasher. This initiates a scan of the hardware and will update the card, if necessary. Do not disconnect the device or turn o the computer until you see "Done."

ID freezes the LEDs on the front panel of the hardware device.

3. M-WAVES CONTROL PANEL (V2 AND M-DL-WAVES3)

If you are working with MultiRack SoundGrid, access the M-Waves Control Panel via the Inventory window. If you are using SoundGrid Studio or eMotion LV1, click on the Gear symbol in the device slot to open the M-Waves Control Panel.



Pressing the “Hardware Control Panel” button on the Driver Control Panel app will open the control panels of all I/O devices assigned to your SoundGrid application. If none are assigned, nothing will happen.

The Driver Control Panel app is located here:
 PC: C:\Program Files (x86)\Waves\SoundGrid\Driver Control Panel
 Mac: System HD/Applications/Waves/SoundGrid

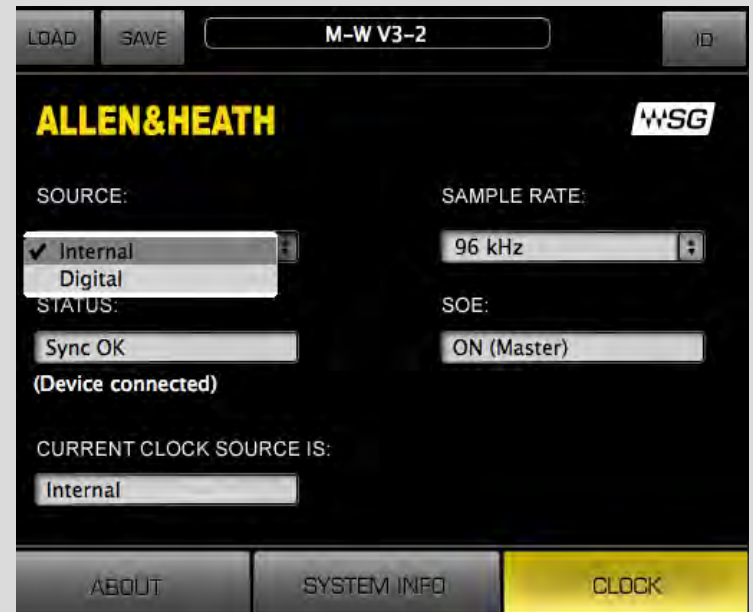
3.1 Clock Page

When you launch the M-Waves control panel, it will load the Clock tab. The following settings are available in the Clock Settings window.

SOURCE sets the clock source.

Internal	The unit itself provides the clock.
Digital	Syncs via the M-Waves connection to the console.
Sync-over-Ethernet	Syncs to the master I/O of the SoundGrid network.

SAMPLE RATE sets the sample rate when Clock Source is set to Internal.



STATUS displays synchronization status (Sync or No Sync).

CURRENT CLOCK SOURCE IS displays the current sync method.

SOE displays Sync-over-Ethernet status (On or Off).

LOAD and SAVE (at the top left corner of the control panel window) allow you to save and load your M-Waves settings.

3.2 About Page

The About page displays an overview of the device's specifications.



3.3 System Info Page

The System Info page displays the device's connection status, manufacturer, model, MAC and SoE Master MAC addresses, and firmware version.



3.4 Saving, Loading and Identifying

LOAD and SAVE (at the top left corner of the Control Panel window) allow you to save and load your M-Waves settings.

IDENTIFY (at the top right corner of the Control Panel window) allows you to identify connected devices if multiple M-Waves are being used. The Status LED will become solid instead of flashing.

4. WORKING WITH TWO M-WAVES CARDS

You can use M-Waves V1, V2 (using M-DL-ADAPT card adapter) and M-DL-WAVES3 cards together in a dLive setup. iLive setups can use M-Waves V1 and V2 cards.

M-Waves V1 cannot be an Ethernet clock (SoE) slave. It must provide clock sync to an M-Waves V2 or M-DL-WAVES3 card. Setting up the clock master for the network is done in either MultiRack SoundGrid, SoundGrid Studio, or eMotion LV1.

In the Waves SoundGrid Inventory window, assign one M-Waves card to number 1 and the other to number 2. In the Master column, select one card as the master.

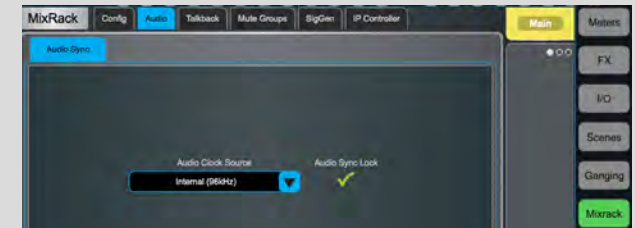
To synchronize the two M-Waves cards, choose one of the following two options:

1. If you want the dLive or iLive system to be the source (Internal):

(a) On the dLive or iLive system, set Audio Clock Source to Internal.

(b) In the SoundGrid Inventory window, click Settings for the M- Waves V2 or M-DL-WAVES3 card assigned to 1. Set it to Digital.

(c) Click on Settings for the M-Waves V2 or M-DL-WAVES3 card assigned to 2. It will be set automatically as the Slave and the source will automatically be synced over Ethernet.



2. If you want the dLive or iLive system to get its source from the MixRack's relevant I/O port:

- On the DLive or iLive system, set the Audio Clock to that port.
- In the SoundGrid Inventory window, click Settings for the M-Waves V2 or M-DL-WAVES3 card assigned to 1. Set it to Internal.



- Click Settings for the M-Waves card assigned to 2. It will be set automatically as Slave and the source will automatically be synced over Ethernet.

