DiGiGrid

MGR USER GUIDE

DiGiGrid

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INTRODUCTION

Thank you for choosing a DiGiGrid MGR audio interface for SoundGrid systems. In order to get the most out of your DiGiGrid 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 DiGiGrid MGR

SoundGrid is a scalable infrastructure that provides a variety of cost-effective, high-quality solutionsfor recording studios and live sound consoles. 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 or MultiRack SoundGrid, 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.

A single Ethernet cable connects all devices in the SoundGrid network.

The **DiGiGrid MGR** MADI-to-SoundGrid interface is used for connecting MADI-enabled devices to a Waves SoundGrid network for plugin processing and/or DAW playback and recording. The MGR unit is equipped as standard with Quad MADI BNC connections across 2 Dual MADI Interface modules. Optical MADI connection are available as an upgrade option by swapping either one or both BNC modules.

- Supported sample rates: 44.1, 48, 88.2 and 96 kHz
- 224/256-channel I/O @ 48 kHz [1]
- 112/128-channel I/O @ 96 kHz
- Supports 56- and 64-channel modes
- Supports double wire (48k frame) and single wire (96k frame) signals @ 96 kHz
- Clock synchronization via word clock input[2], MADI (Port 1 or Port 2 per MADI Card), SoundGrid (Sync over Ethernet), Internal[3]
- 2 SoundGrid ports ; Ethercon on Front Panel, RJ45 on Rear Panel.

[1] SoundGrid Driver is limited to 128 channels at any sample-rate
[2] Word clock input splits to both MADI modules
[3] Either Dual MADI Module may be clocked internally, with the other Dual MADI Module being clocked via SoE.

Important Information regarding DiGiGrid MGR Drivers

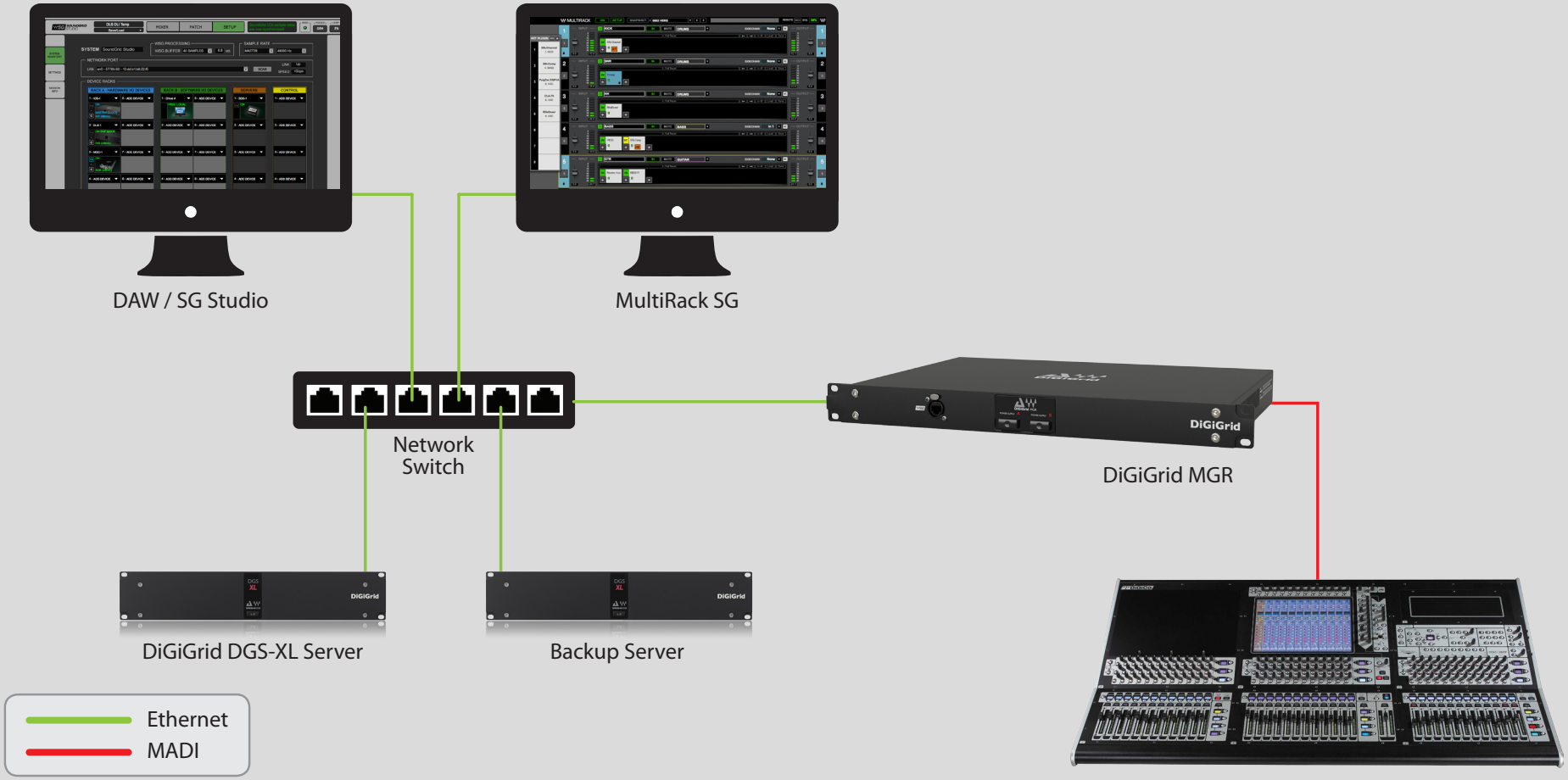
The BNC and optical MADI modules used in the DiGiGrid MGR are identical to those used in the DiGiGrid MGB and MGO products. When connected to a SoundGrid Network the MGR will identify it's MADI I/O Modules as either MGB (for BNC connectors) or MGO (for optical connections) devices. When installing SoundGrid Drivers for the MGR, please install the MGB/MGO package.

Typical Uses

DiGiGrid MGR interfaces may be used in both SoundGrid and Native configurations, as follows:

SoundGrid: In a SoundGrid configuration, the MGR interface is used to connect a MADI-enabled console to a SoundGrid network, for plugin processing and simultaneous DAW playback and 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 some SoundGrid configurations.



Using DiGiGrid MGR with a Console

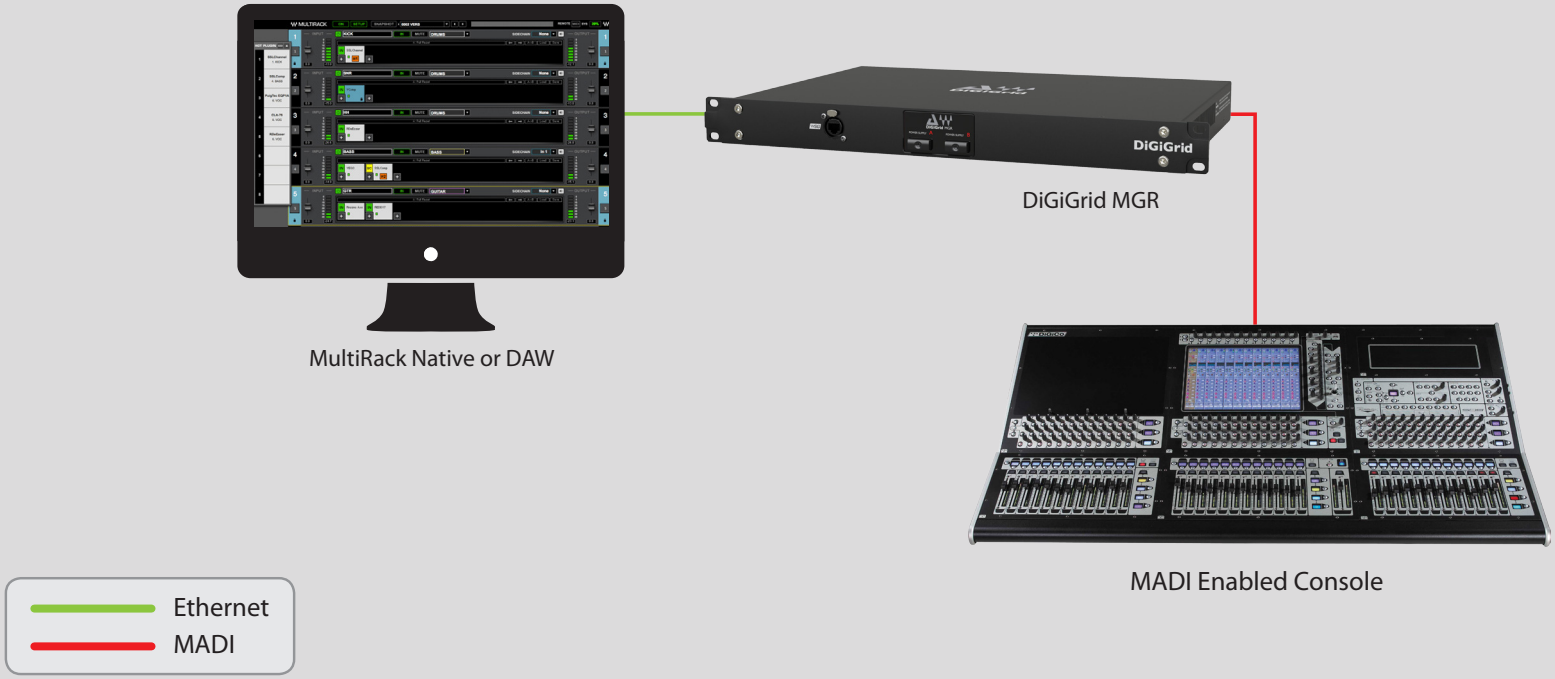
- Connect your MGR to the console using either BNC or optical MADI cables (depending on which modules are fitted).
- Connect to the SoundGrid network using Cat 5e or Cat 6 cables. Connect the MGR interfaces to your computer's local LAN port, or use two cables to connect the MGR and your computer to a SoundGrid-compatible network switch.

Native/SoundGrid Comparison Table

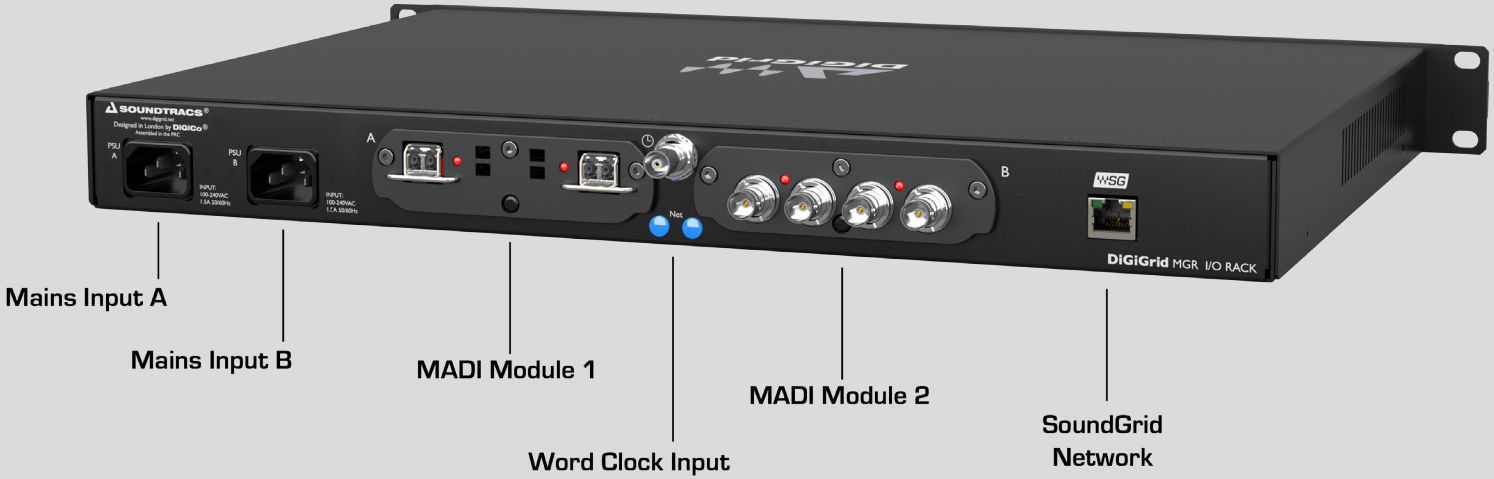
Features	Native	SoundGrid
Low Latency		■
Processing	■	■
Recording	■	■
Simultaneous Recording and Processing		■
CPU Load	Your DAW computer's CPU	Dedicated SoundGrid DSP server
Backup DSP Server		■
Networking		■
I/O Interface	MGR	MGR
Plugin Host Software	MultiRack Native	MultiRack SoundGrid
Plugin Licenses	Native	SoundGrid

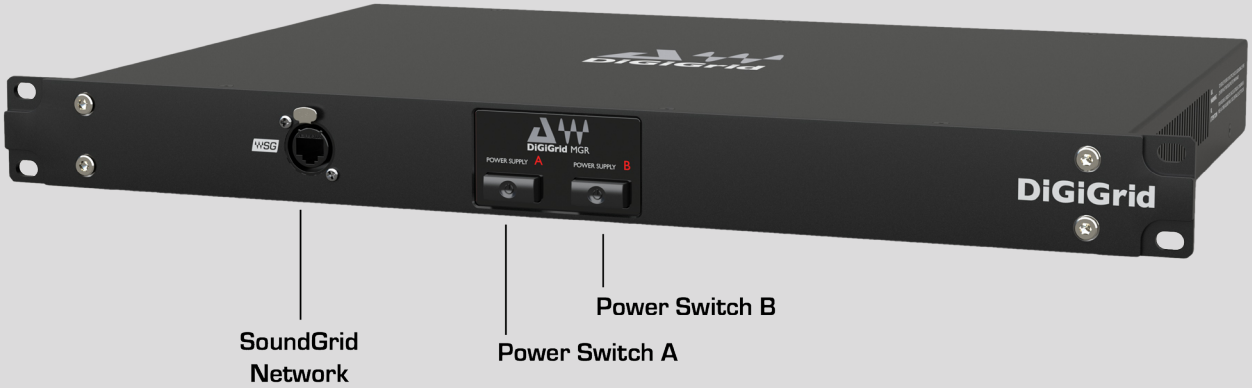
Native: In a Native configuration, the MGR interface is used to connect a MADI-enabled console to the SoundGrid ASIO/Core Audio driver, for plugin processing and/or DAW playback and recording. Since the Native configuration utilizes the computer's CPU to power the plugin processing, plugin count and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

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



1. HARDWARE AND CONNECTORS





MADI Modules 1 & 2 – Either BNC or optical connections. Connect to any MADI device.
Waves SoundGrid Ports – Connect to SoundGrid Network. MGR contains a SoundGrid Switch with 2 external ports.
Word Clock Input – Connect to external word clock source. Feeds both MADI Modules.
Mains Inputs A & B - connect both for redundant operation.

MADI Status LED's – Colors and respective status as follows:

- Green = MADI link
- Off = no MADI link

NET Status LED's – Colors and respective status as follows:

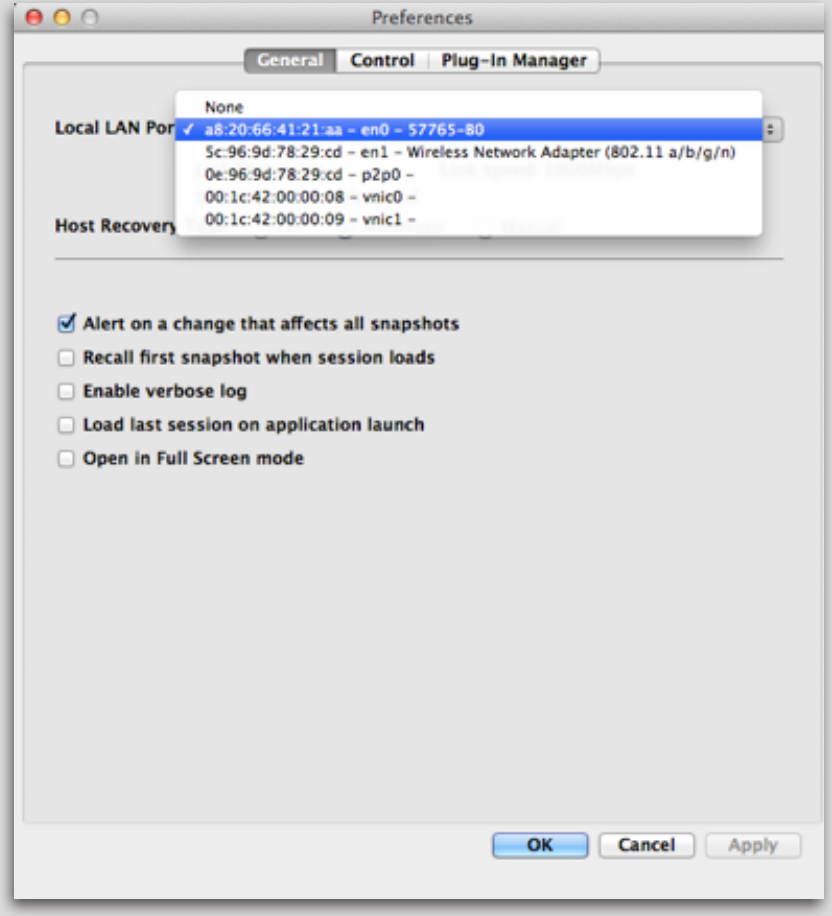
- Flashing red = network cable not connected
- Blue = network connected
- ALL colors sequence = IDENTIFY
- Yellow = while updating or when card is stuck in boot

2. INSTALLATION AND CONFIGURATION OVERVIEW

The ASIO/Core Audio drivers and control panel for the MGR interfaces are installed using the DiGiGrid MGB/MGO installer, which also installs the SoundGrid driver and the SoundGrid Studio Application required for DAW recording and playback.

DiGiGrid MGB/MGO downloads page:
www.waves.com/downloads/DiGiGrid-mgb-mgo

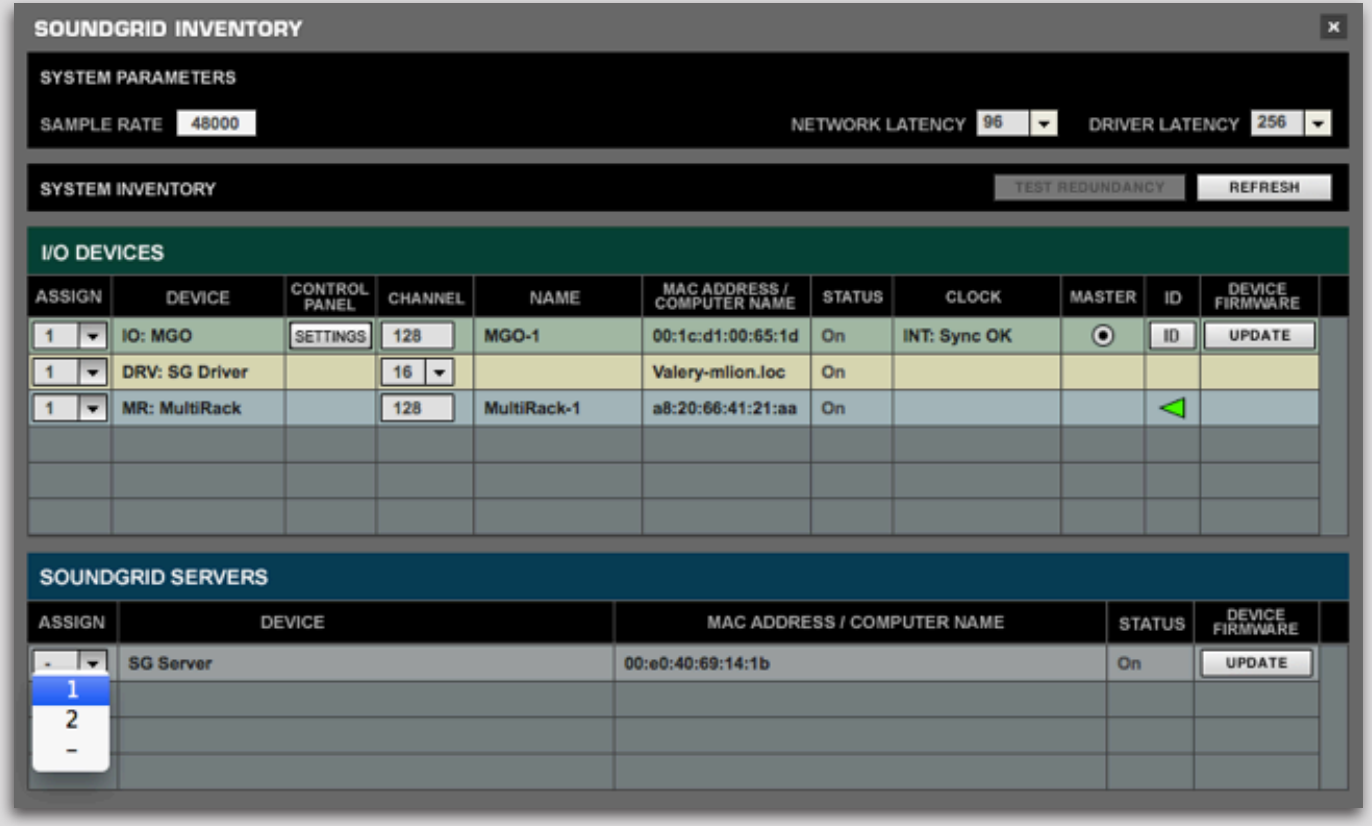
2.1 Configuring the MGB/MGO in MultiRack SoundGrid



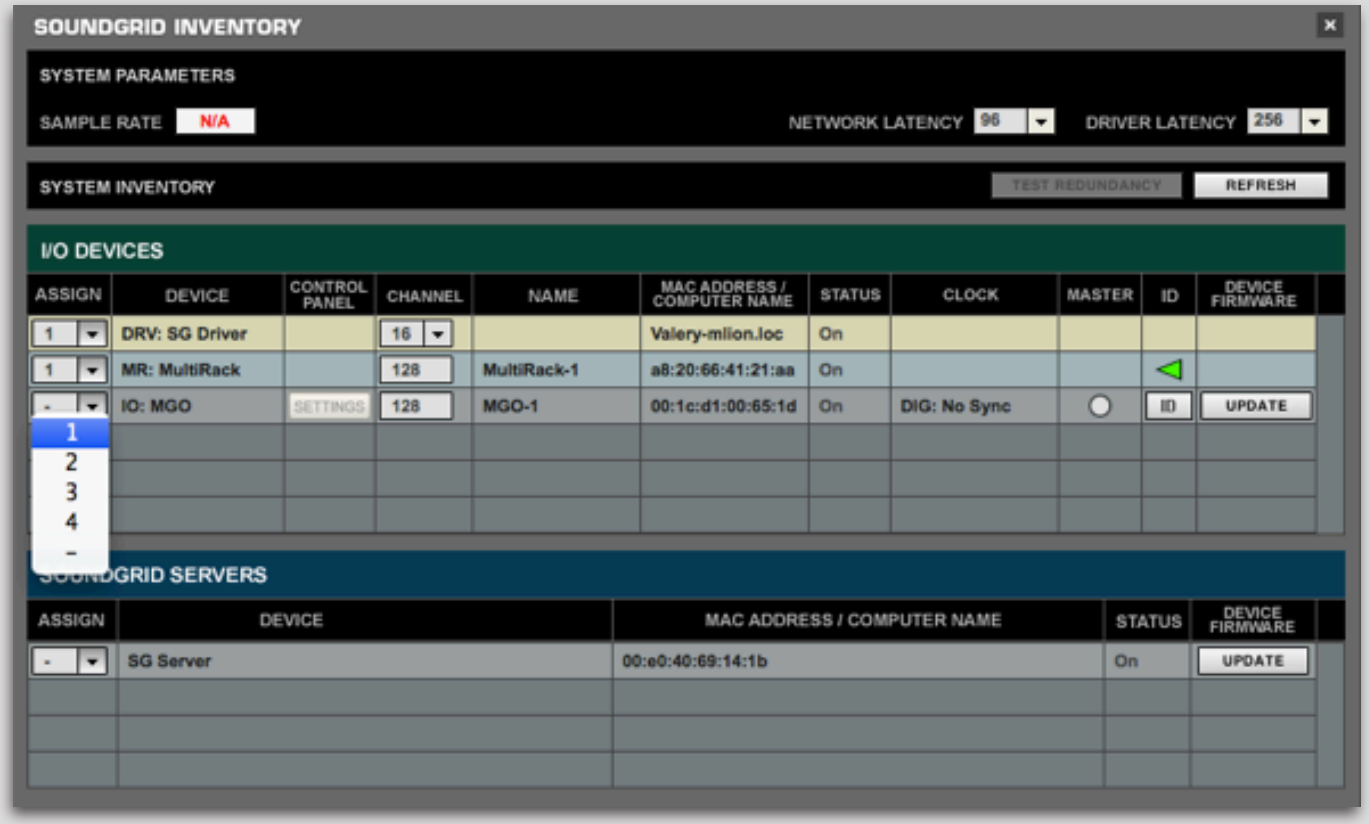
Access the MGB/MGO control panel via the Inventory window in the MultiRack SoundGrid application.

1. Launch the MultiRack SoundGrid Application.
2. Enter the **Preferences** window by typing Ctrl+P (Windows) or **Cmd+P** (Mac), or from the appropriate application menus.
3. Under **Local LAN Port**, choose the adapter that is connected to the SoundGrid network/MGB/MGO. 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 MGR MADI Modules (MGB/MGO devices) in the **Assign** column. Use consecutive numbers for installed modules, with the first module assigned as MGB/MGO number 1 and the second unit assigned as MGB/MGO number 2



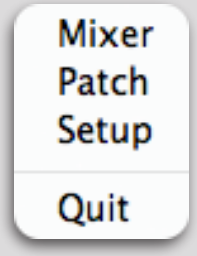
9. Click **Settings** to open the Control Panel.

2.2 Configuring the MGR 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 Studio user guide.

2.2.1 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.

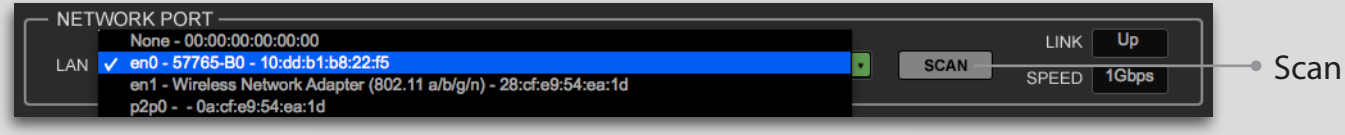


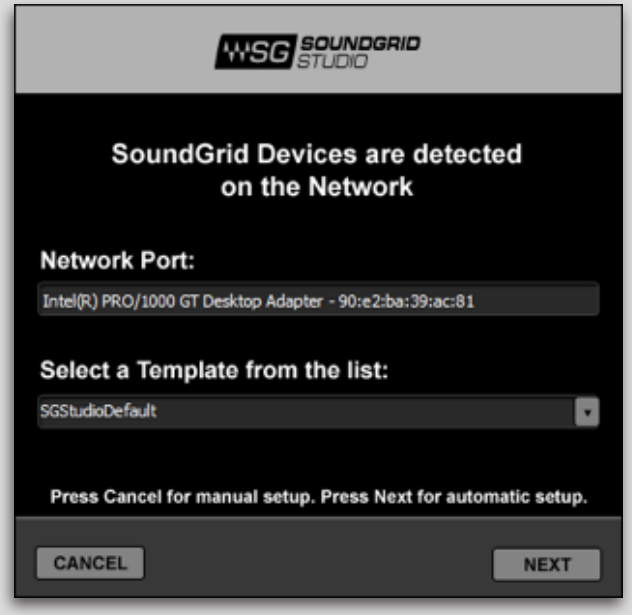
PC

Mac

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

The first time you launch SoundGrid Studio, the Wizard will open. This is a tool that scans the network, inventories its assets, and then configures the relevant devices. If the Wizard does not start automatically, click the SCAN button, which is located next to the **Network Port** window.



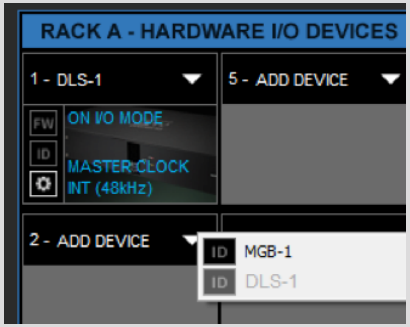


Once it scans the system, the Wizard will offer to configure the SoundGrid network. Choose NEXT to start automatic configuration. This will take a few moments. Choose CANCEL to configure manually. A drop-down menu will provide a list of configuration templates. Choose the template that best describes your devices and production needs. You can also save and load your own templates.

If the Wizard cannot locate the requested SoundGrid network devices, this means you may have chosen an incorrect network port on your computer. Check the physical connections and then click SCAN. 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.

SoundGrid Studio uses Ethernet to stream audio between devices on a SoundGrid network. Synchronization clock is also carried over Ethernet—a method called **Sync over Ethernet** (SoE). SoundGrid I/O devices can clock by other means as well, but SoE is by far the most common (and convenient) way to provide clock information to network devices. The first device added to a rack is designated as the SoE 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 DiGiGrid MGB coaxial MADI interface. In this image, DiGiGrid DLS 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.

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 MGB/MGO Control Panel in order to set up clock details and configure preamps.

2.2.2 Setting Up the Driver

You can allocate between 32 and 128 driver channels. Allocate driver channels in Rack B of the Setup Page. The number of channels is reflected in the patch tabs: fewer allocated channels means fewer channels in the Patch page. The default is 32.

Setting the DAW Playback Engine for SoundGrid I/Os

SoundGrid Studio uses the Waves SoundGrid ASIO/Core Audio driver to communicate with all network devices and with a DAW, whether local or remote. Set the playback engine to “Waves SoundGrid.” Patch DAW inputs and outputs to the driver.

2.2.3 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 will initiate a scan of the hardware and then offer options. Do not disconnect device or turn off computer until you see "Done."

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

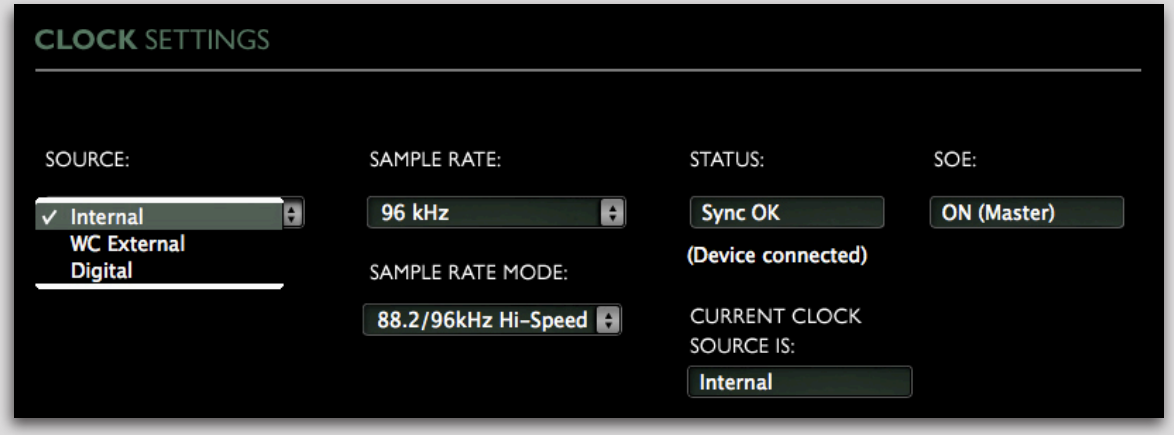
3. MGB/MGO CONTROL PANELS

If you are working with MultiRack SoundGrid, access the MGB/MGO Control Panel via the **Inventory** window.
If you are using SoundGrid Studio, click on the **Gear** symbol in the device slot to open the MGB/MGO Control Panel.

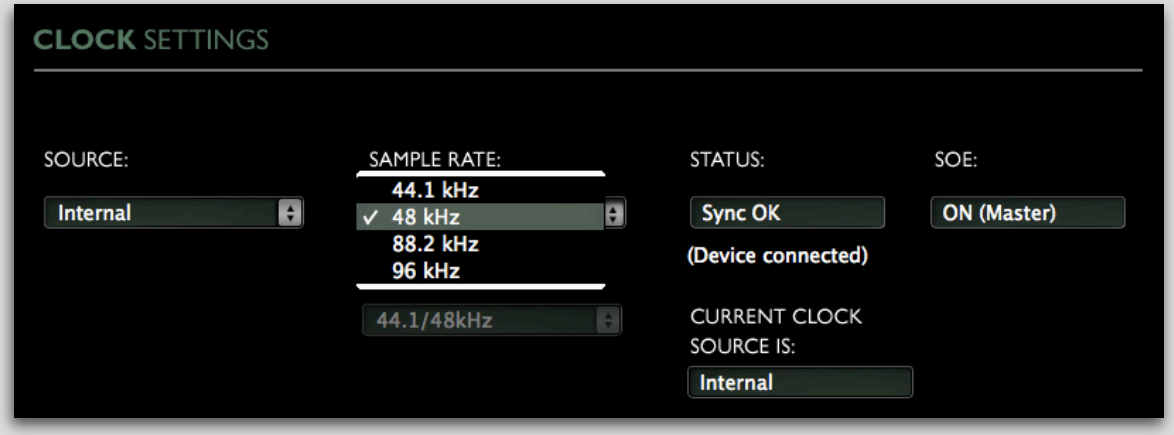
3.1 Clock Page

When you launch the DiGiGrid MGB/MGO driver Control Panel, it will load the **Clock** page. The following settings are available in the **Clock Settings** window:

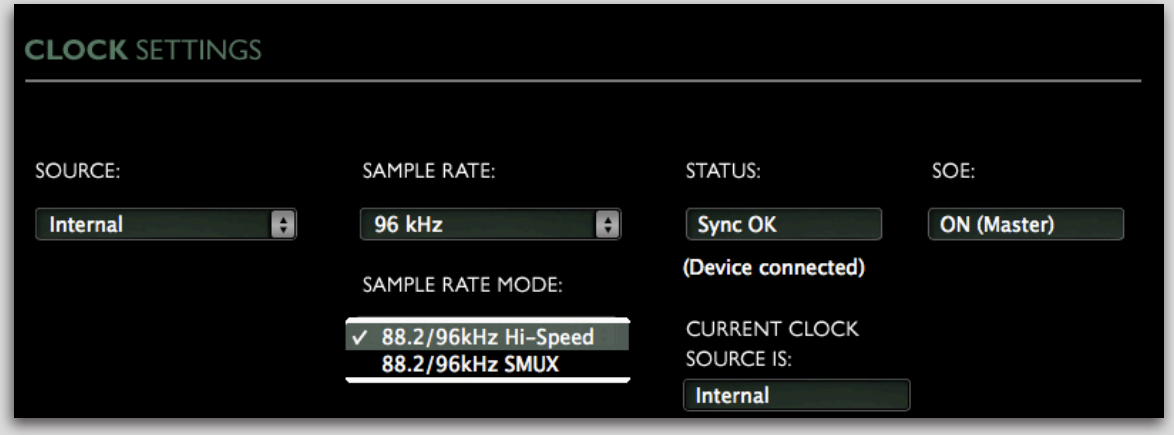
- **SOURCE** sets the clock source.
  - Internal – The interface itself provides the clock.
  - External WC – The interface has a Word Clock Input connector to connect an external clocking source in order to sync all devices in your network to the external clock.
  - Sync over Ethernet – Send or receive word clock/sample rate over an Ethernet cable between DiGiGrid network devices.
  - Digital – Syncs via the BNC or optical MADI connection on MADI Port 1 or Port 2 (selectable). The MGB/MGO interfaces sync to the incoming MADI from the console.



- **SAMPLE RATE** sets the sample rate when Clock Source is set to Internal. Range: 44.1 / 48 / 88.2 / 96 kHz.



- **SAMPLE RATE MODE** sets the MADI mode for 88.2 / 96 kHz operation; check your console manual for the proper selection. Range: High Speed, SMUX.



- **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).
- **CLOCK SOURCE AUTO-SWITCHING** allows the MGB/MGO driver to switch between clock sources if it finds a higher priority source than the currently selected source. Sync priority order is: SoE, WC, Digital 1, Digital 2, and Internal.

3.2 MADI Options Page

One MADI connection supports 56 or 64 in/out channels at 44.1/48 kHz, and 28 or 32 in/out channels at 88.2/96 kHz.

In **MADI Port Settings**, set the number of available channels according to your console settings.

3.3 About Page

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

3.4 System Info Page

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

3.5 Saving, Loading and Identifying

LOAD and **SAVE** (at the top left corner of the Control Panel window) allow you to save and load your MGB/MGO settings. IDENTIFY (at the top right corner of the Control Panel window) allows you to identify connected devices if multiple MGB/MGO interfaces are being used. The Status LED will cycle through colors instead of displaying a single status color.