

# DiGiCo SD SoundGrid I/O



## User Guide



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# 1. Introduction

Thank you for choosing the DiGiCo SD SoundGrid I/O card for SoundGrid systems. To get the most out of your product, please take some time to read this guide. We also suggest that you become familiar with our support webpage, <http://www.waves.com/support>, where you will find an extensive answer base, the latest tech specs, detailed installation guides, software updates, and current information about licensing and registration.

## 1.1 About SoundGrid and the DiGiCo SD SoundGrid I/O Card

**SoundGrid** is a scalable infrastructure that provides a variety of cost-effective, high-quality processing and networking 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 either the **SoundGrid Studio Application, eMotion LV1** 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.

The DiGiCo SD SoundGrid I/O card enables integration of DiGiCo SD consoles with Waves SoundGrid systems via a single Ethernet cable, allowing live engineers to use the SoundGrid technology for low-latency plugin processing, multitrack recording and playback, and audio networking.

### **Main Features:**

- Super-low-latency networking platform for processing, playback and recording
- Each card allows 64 channels of bi-directional audio
- Connects via a single Cat 5e or Cat 6 Ethernet cable
- Connects to SoundGrid systems and SoundGrid-compatible devices via a single Ethernet cable
- Compatible with standard computers and switches
- Redundancy and recovery options

- ASIO/Core Audio drivers for recording and playback
- Setup and control done through MultiRack SoundGrid, SoundGrid Studio, or eMotion LV1 software
- Networks with every SoundGrid-enabled device

## 1.2 Typical Uses

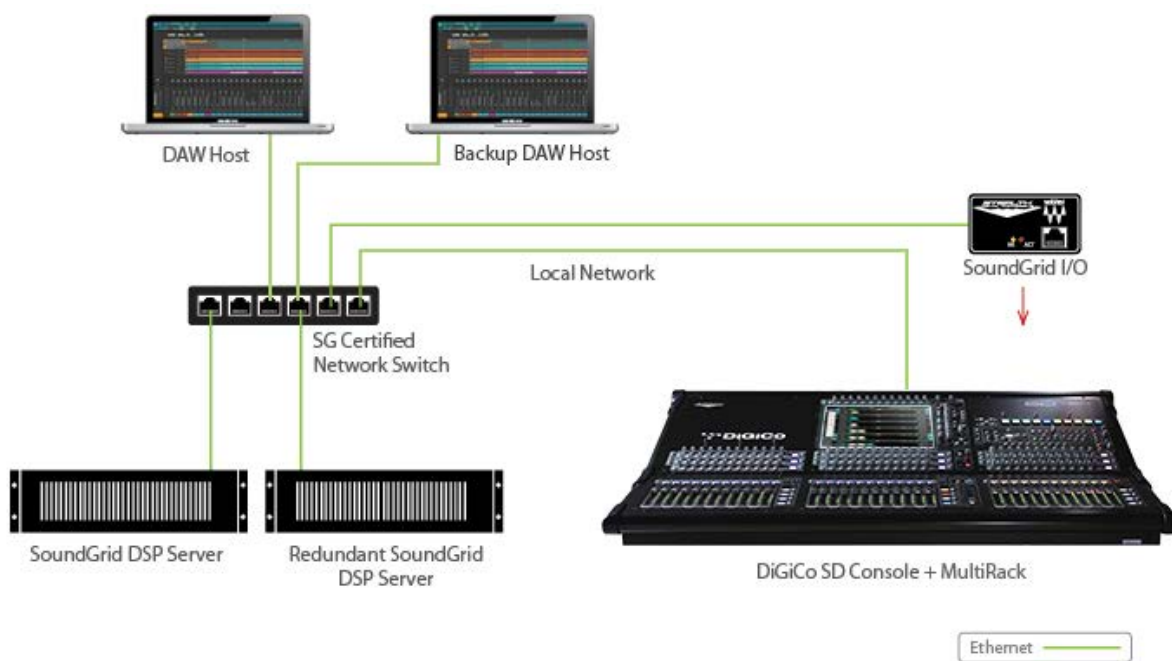
The DiGiCo SD SoundGrid I/O card can be used in both SoundGrid and Native configurations, as follows:

### SoundGrid Configuration

In a SoundGrid configuration, the DiGiCo SD SoundGrid I/O card is used 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 adding a backup DSP server.

*Please note: A SoundGrid DSP server is required for SoundGrid configurations.*

### SOUNDGRID PROCESSING AND RECORDING ON MULTIPLE COMPUTERS

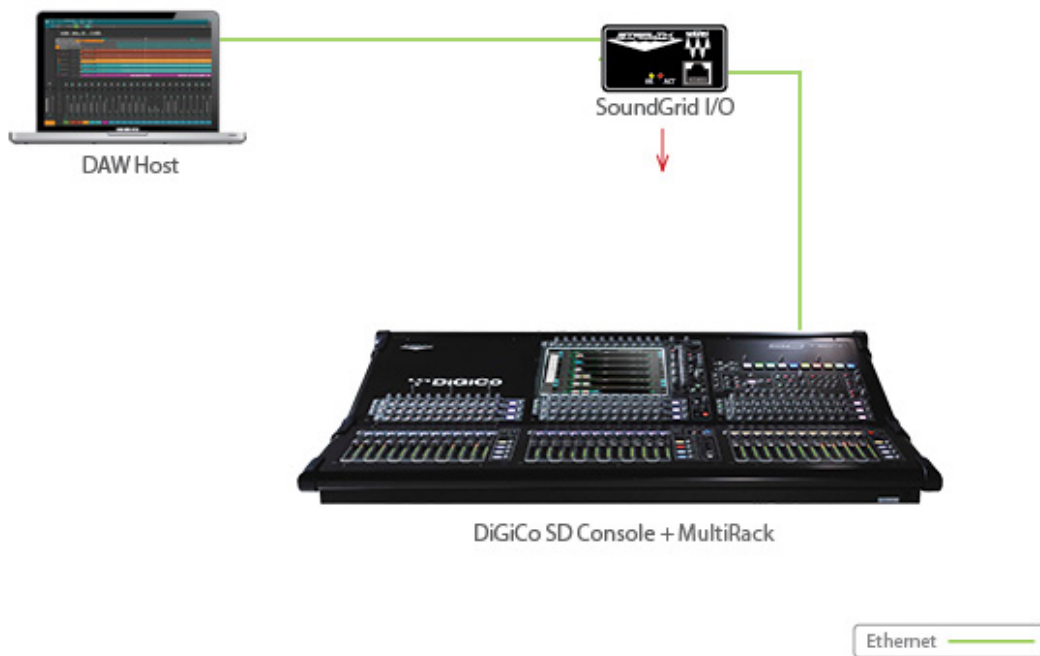


## Native Configuration

In a Native configuration, the DiGiCo SD SoundGrid I/O 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 configurations.*

### NATIVE RECORDING AND PLAYBACK



### 1.3 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	DiGiCo SD SoundGrid I/O	DiGiCo SD SoundGrid I/O
Plugin Host Software	MultiRack Native	MultiRack SoundGrid
Plugin Licenses	Native	SoundGrid

## 2. Hardware and Connectors



SoundGrid port 1 (Ethernet) connects to the SoundGrid Network.

SoundGrid port 1 status is indicated as follows:

- "ACT" LED = flashing red
- "OK" = solid yellow indicates a full duplex link is active

When the ID button on the SoundGrid device rack is pressed, the "ACT" LED on the front panel changes from a flashing to solid red.



### 3. Installation and Configuration Overview

The ASIO/Core Audio drivers for the DiGiCo SD SoundGrid I/O card are installed using the Waves Central application, which also installs the SoundGrid driver and the SoundGrid Studio Application required for DAW recording and playback.

Download Waves Central here: <http://www.waves.com/downloads/central>

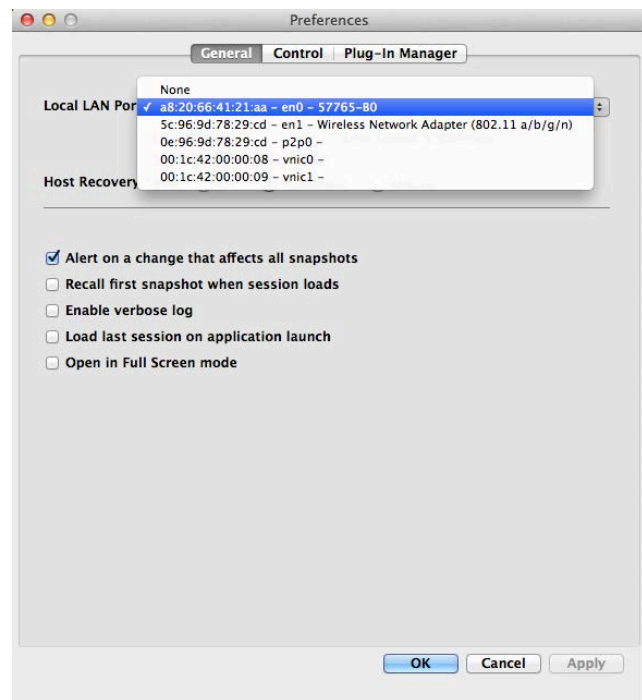
#### 3.1 Installing the DiGiCo SD SoundGrid I/O Card

Please refer to your DiGiCo SD console product manual for installation instructions.

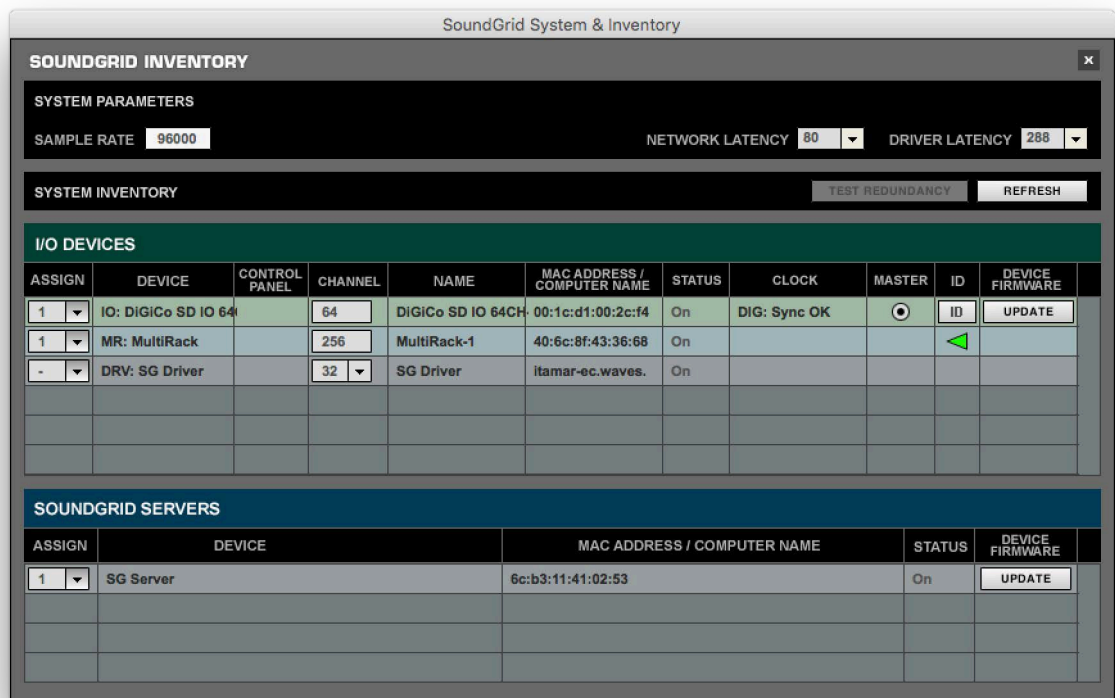
#### 3.2 Configuring the DiGiCo SD SoundGrid I/O Card in MultiRack SoundGrid

Configure the DiGiCo SD SoundGrid I/O card in the **Inventory** window of MultiRack SoundGrid.

1. Launch the MultiRack SoundGrid application.
2. Enter the **Preferences** window by typing **Ctrl+P** (Windows) or **Cmd+,**[comma] (Mac), or from the appropriate application menu..
3. Under **Local LAN Port**, choose the adapter connected to the SoundGrid network. 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.



- Open the **SoundGrid Inventory** window from the **Audio** Menu (F2). The **SoundGrid Inventory** window displays all SoundGrid I/O devices connected to your network.
- Assign SoundGrid drivers in the **Assign** column. Use consecutive numbers for multiple devices, with the first unit assigned as number 1.
- 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.



- Assign your DiGiCo SD SoundGrid I/O card/s in the **Assign** column. Use consecutive numbers for multiple devices, with the first unit assigned as number 1.
- ID** freezes LEDs on the card for hardware identification.
- Update** updates the card's firmware.

For **Native configuration**, please refer to the Waves SoundGrid Studio System User Guide.

## 2.3 Configuring the DiGiCo SD SoundGrid I/O in SoundGrid Studio

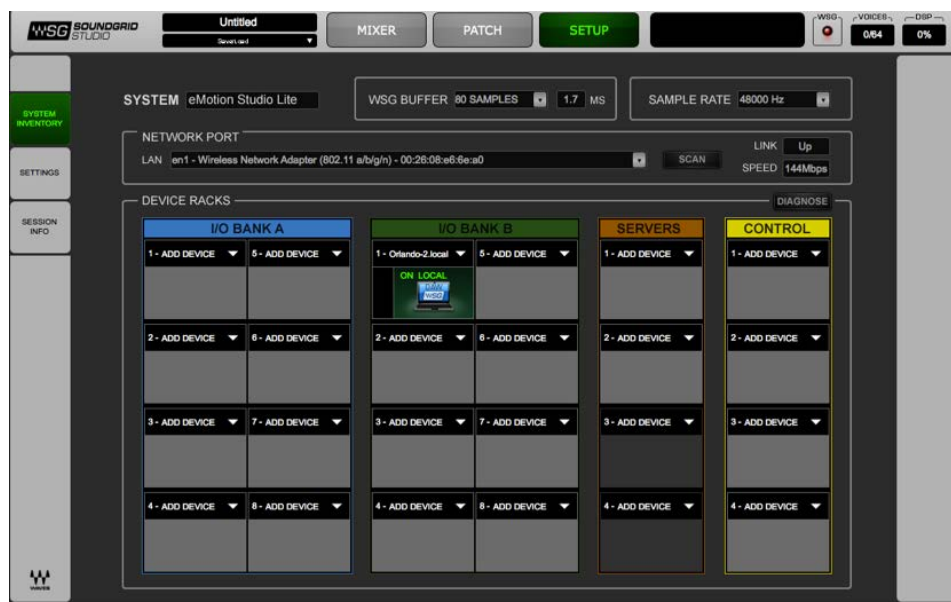
This is a quick overview of what you need to know about SoundGrid Studio software to get your network up to speed. There's enough information here for you to configure a simple network, assess network status, and set up your I/O devices. For more complex configurations, please refer to the MultiRack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

### 2.3.1 Setting up SoundGrid Studio

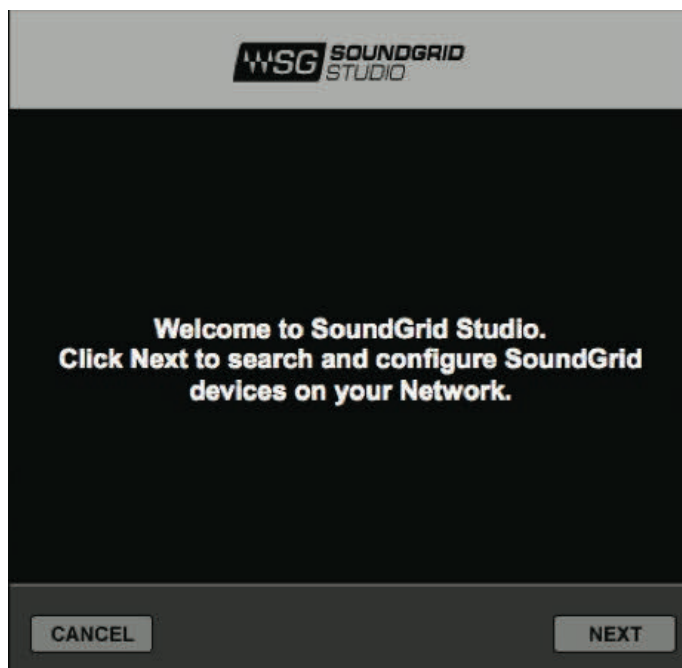
The SoundGrid Studio Application oversees the SoundGrid network and manages all network devices. To maintain network effectiveness, the SoundGrid Studio Application is always running in the background. Bring SoundGrid Studio to the front by clicking on the SoundGrid icon (SG) in the Mac Top Bar or the Windows System Tray. Select a SoundGrid window from the drop-down menu.



When SoundGrid Studio opens you will see the System Inventory page, which is part of the Setup window.



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 may mean that the devices might be off or are 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's still a problem, you can 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 SoundGrid Studio Application user guide.

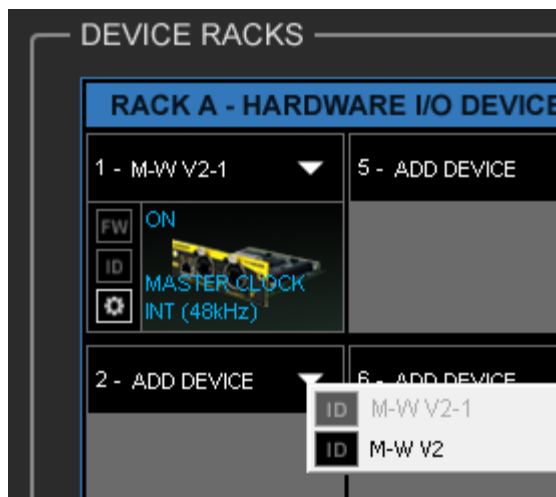
SoundGrid Studio uses Ethernet to stream audio between devices on a SoundGrid network.

Clock synchronization is also carried over Ethernet. This method of providing clock is 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.

In the SoundGrid Studio Setup page you will see racks containing all of the devices assigned to your system: physical and virtual I/O devices, drivers, and servers. Each I/O rack slot displays the device's mode, clock status, and sample rate.

The first device added to a rack is designated as the Sync-over-Ethernet clock master and is placed in the first rack slot.

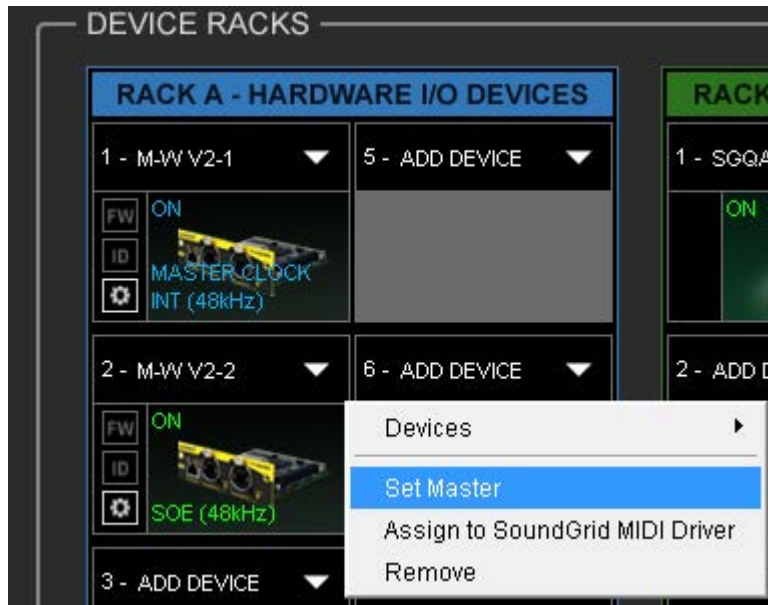
A populated device slot displays the mode, clock status, and sample rate of the I/O. The clock master device is indicated by its blue color and the icon text: On, Master Clock, INT (48 kHz).



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, an M-Waves card. In this image, the first card 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 DiGiCo SD SoundGrid I/O Control Panel in order to set up clock details.

## 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:

Gray	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."

When the ID button on the SoundGrid device rack is pressed, the "ACT" LED on the front panel changes from a flashing to solid red.