YAMAHA commercial audio

WAVES

Using Waves MultiRack SoundGrid with Yamaha Digital Mixers

Contents

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1.0 The Possibilities

The following range of Yamaha digital mixers have the ability to interface with the Waves WSG-Y16 card and to remotely control the plug-ins of Waves MultiRack SoundGrid:

- CL5, CL3, CL1
- PM5D
- M7CL
- LS9
- DM2000, DM1000
- 02R96, 01V96, 01V96i

MultiRack SoundGrid enables a large range of interesting and innovative, creative and classic plug-ins to be used along side the full range of Yamaha's professional digital mixers. The SoundGrid system provides the type of reliability, high performance and low latency processing that Yamaha users are already familiar with, while the Waves plug-ins bring industry standard and familiar studio production tools to tours, festivals and other live events around the world.

The plug-ins are processed by a dedicated server to ensure low latency and reliable processing, while the control software is run on a separate PC (Windows or Mac). The Yamaha Mixer, however, is able to host the audio interface and provide some useful remote control functions: using either a simple MIDI connection or a USB cable, the faders, encoders and switches of the mixers can be used to navigate between plug-ins, edit parameters (as shown on the left) and recall MultiRack Snapshots.

Please refer to the Yamaha product manuals for specific details about the mixers, and the Waves manuals for specific details about MultiRack SoundGrid.

Meanwhile, this guide suggests how best to integrate the two, focusing on the available MIDI remote control functions. It assumes the reader has already gained a basic level of knowledge and experience with each individual product.

2.0 Equipment List

2.1 Hardware

1. ***Waves WSG-Y16 card***: The WSG-Y16 mini-YGDAI card will stream Audio in and out of a Yamaha console: 16 channels at 44.1/48 kHz or 8 channels at 88.2/96 kHz. Two cards can be used to double the channel count.
2. ***Waves qualified SoundGrid Server***: A multi-core PC used for real-time audio processing. See a list of Waves-qualified servers at http://www.waveslive.com/html/soundgrid-server.aspx
3. Want redundancy? Get a second server…
4. ***Network switch***: standard off-the-shelf Gigabit switch. See a list of Waves-qualified switches at http://www.waveslive.com/html/soundgrid-switches.aspx
5. ***Desktop/Laptop host computer***: A computer used for running the MultiRack SoundGrid software. Use any PC or Mac Dual Core 2GHz or higher.
6. ***USB Flash Drive (optional)***: The USB key holds the licenses for the Waves V9 plugins and provides activated licenses on-the-go. Alternatively the host computer's hard drive can be authorized through the Waves License Center.
7. ***CAT6/CAT5e network cables***: Used to connect all SoundGrid units. Between 3 and 5 cables are required, depending upon the system size. Available at a local computer store.
8. (***MIDI Controller + MIDI cable*** – optional if direct control from the console is not used).

2.2 Software and Licenses

1. ***MutiRack SoundGrid***: Free with WSG-Y16 Card.
2. ***SoundGrid Server Software***: Free and Pre-installed with Waves SoundGrid Server One, or available for purchase if an off-the-shelf server is used.
3. ***Sound Grid enabler***: (license) either supplied with WSG-Y16, or available from http://www.waveslive.com/html/soundgrid-for-yamaha.aspx .
4. ***Waves Plug-ins***: see a list of SoundGrid-compatible plug-ins at http://www.waveslive.com/html/all-plugins.aspx .

2.3 Software Authorization and Installation

Insert the Waves installation DVD to the host computer, and start the installation by double-clicking the Waves icon. Select the following options from the installation menu:

- MultiRack SoundGrid Application: this is the Waves host software required to run Waves plugins.
- SoundGrid Driver: an ASIO/Core Audio driver for PC/Mac. This driver is required for recording and playback with DAW software on the hose computer. Installation is optional.
- All SoundGrid compatible plugins.
- WLC (Waves License Center): this will manage the licenses for the Waves plugins. The licenses can be authorized on a USB flash drive or on the host computer's hard drive.

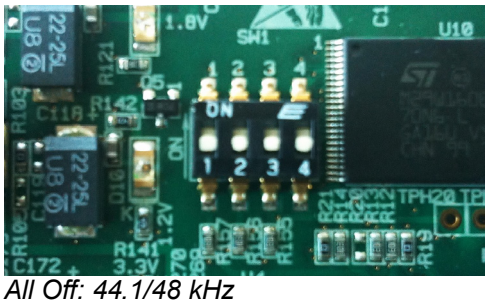
When installation is complete, restart the computer.

To authorize the plugins, launch Waves License Center with the host computer connected to the internet. Activation instructions are available here: http://www.wavesupport.net/content.aspx?id=4074. For more information about Waves License Center, visit http://www.wavesupport.net/content.aspx?id=4219.

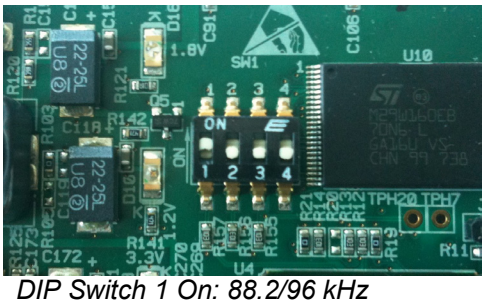
Note:
V9 licenses can be activated on a USB flash drive or the host computer's hard drive, while V8 licenses can only be activated on an iLok key.

3.0 Hardware Setup

1. Before installing the WSG-Y16 into the Yamaha mixer, check the DIP switches on the card:



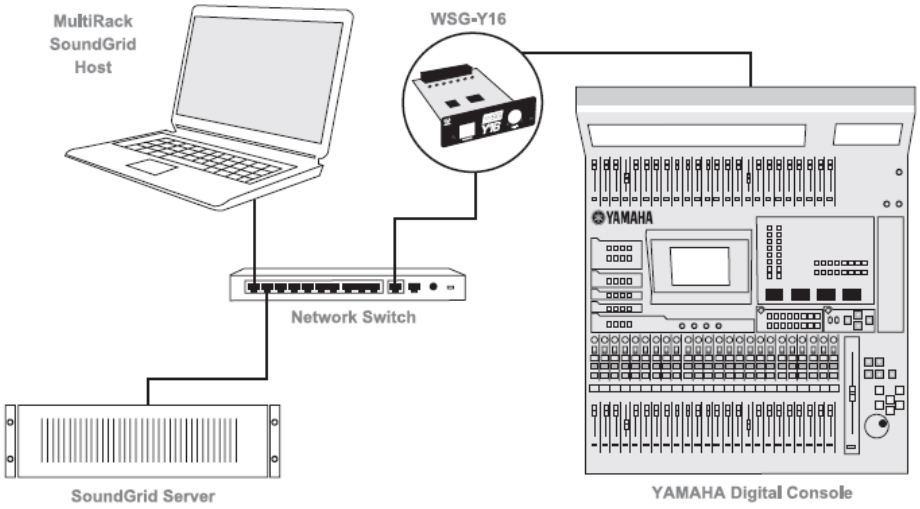
All Off: 44.1/48 kHz



DIP Switch 1 On: 88.2/96 kHz

2. While the mixer is powered off, insert the WSG-Y16 card into any available mini-YGDAI slot.
3. Power on the mixer, and set its Word Clock to the required sample-rate. Note that the Yamaha mixer will provide Word Clock to the SoundGrid network.
    a. If 44.1 or 48kHz is used, make sure the input and output format of the slot is either set to "SINGLE" or is blank.
    b. If 88.2 or 96kHz is used, set the input and output format of the slot to "DOUBLE SPEED".
4. Connect the WSG-Y16 card(s) and SG Server(s) to the network switch using CAT5e or CAT6 cables.

5. Connect the host computer (with MultiRack SG for Yamaha installed) to the network switch using CAT5e or CAT6 cables.



Standard MultiRack SoundGrid setup, shown with 02R96

6. Connect the USB flash drive or iLok key (which holds the necessary licenses) to one of the host computer's USB ports.

3.1 USB / MIDI Connection

In addition to the standard MultiRack SoundGrid setup, one additional cable can be used to provide extra control from the console.

In the case of CL-series, M7CL and LS9, this is a standard MIDI cable to connect the mixer's MIDI OUT port to the MIDI IN port of the WSG-Y16 card. Though the MIDI cable is connected to the card, the MIDI data is actually transferred through the network to the host computer of MultiRack SoundGrid.

MIDI link between M7CL and WSG-Y16

In the case of PM5D, DM2000, DM1000, 02R96 and 01V96, a MIDI cable could be used as above, but there are advantages to using a USB cable instead, between the mixer and the host computer of the MultiRack SoundGrid program. This USB cable can carry multiple channels of MIDI data, so offers some extended functionality and can be used for Yamaha Studio Manager software at the same time.

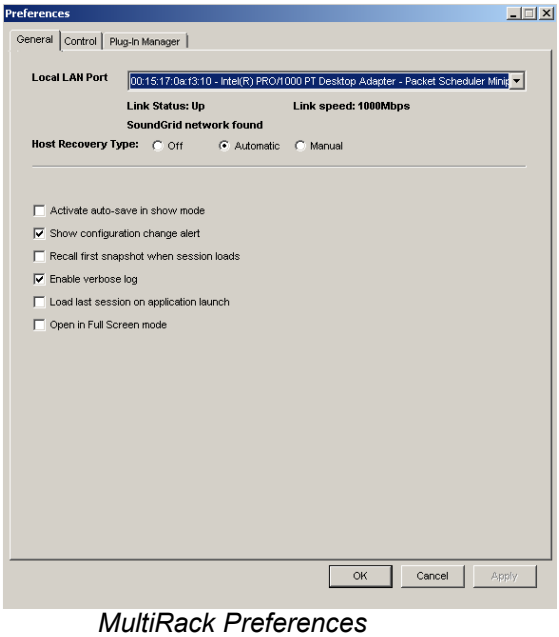
USB link from PM5D-RH to Host computer

The correct Yamaha USB-MIDI driver will be needed for the computer. This can be downloaded from http://www.yamahaproaudio.com/downloads/firm_soft/index.html .

4.0 MultiRack SoundGrid Setup

4.1 Preferences

Start the MultiRack application and open the Preferences window (via the Edit menu on a PC, via the MultiRack menu on a Mac).

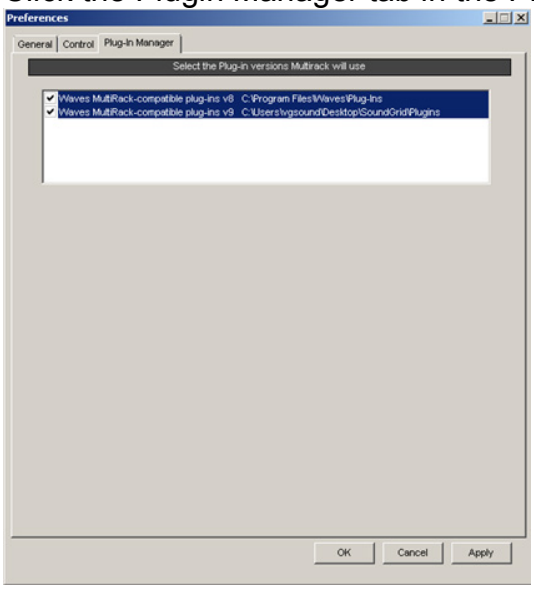


MultiRack Preferences

In the Local LAN Port field, select the correct LAN/network adaptor.
Then the message “SoundGrid network found” will appear, as shown on the left.

4.2 Plugin Manager

Click the Plugin Manager tab in the Preferences window.

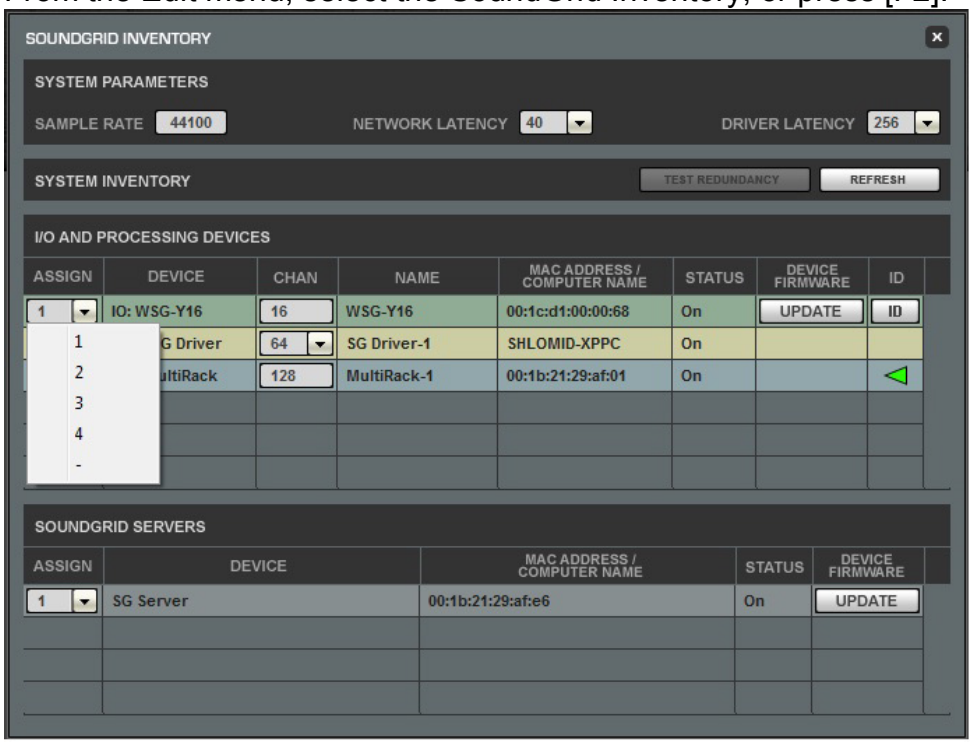


Depending on which version of plugins are intended for use, select either V8, V9 or both. In this example, both versions are installed.
Whichever version(s) are checked here will be scanned when MultiRack loads. The Plugin Manager will scan any connected USB drive, internal hard drive, and/or iLok key for any plugin licenses, and will update the plugin list.

Now the Preferences can be closed by clicking [OK].

4.3 System Inventory

From the Edit menu, select the SoundGrid Inventory, or press [F2].



This window lists all the SoundGrid components in the network, and allows them to be selected, assigned and updated.

First check if any device needs to have its firmware updated: click on the [Update] button in the Device Firmware column. During the update process a progress bar and status message will be displayed. Follow these messages and instructions carefully. In some cases the device will need to be rebooted at the end of the process. Once that is completed, click the [Refresh] button towards the top-right of this window.

The Device column lists all available components: I/O cards, MultiRack, SG Drivers and SG Servers. Use the Assign column to select which devices to use:

- **I/O Devices**: up to 4 I/O devices can be used. Assign number “1” for the first device, “2” for the second, and so on. This assignment will affect the order of I/O listing in MultiRack’s I/O routing menus. It is not related to which slot the card is inserted in the console, though it makes sense to follow the same order.
- **MultiRack**: only one MultiRack device can be used, so is automatically assigned number “1”.
- **SG Server**: it is possible to use up to 2 servers in the network, so set the first server to number “1” and the second (redundant) server to number “2”.

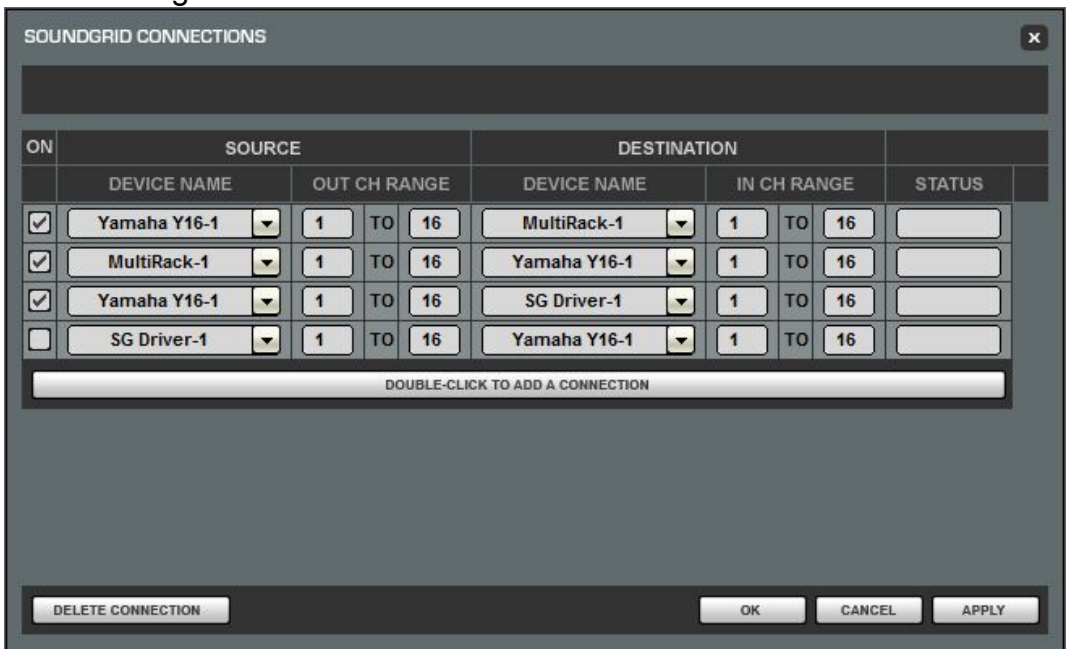
- **SG Driver**: the inventory will see all installed drivers on the network, though only one can be assigned at a time. This is used for recording and playback with DAW software: it is not essential for using the plugins. Assign number "1" to the required driver, and set the number of channels to use for rec/play in the Chan column.

4.4 System Parameters

Still in the SoundGrid Inventory window, set the "Driver Latency" and "Network Latency". A lower setting will result in lower latency, but may increase the CPU load of the computer. A Driver Latency of 256 samples will work well on most systems (that's around 5.3ms at 48kHz).
The settings are applied as the window is closed.

4.5 SoundGrid Connections Window

Open the SoundGrid Connections window from the Edit menu (or press the [F3] key. This window shows a table where virtual connections and audio routing can be made between the devices on the network.



Each row in this table represents an audio connection between a source device (the audio transmitter) and a destination device (the audio receiver). A device first needs to be assigned in the SoundGrid Inventory before it will appear in the SoundGrid Connections table.

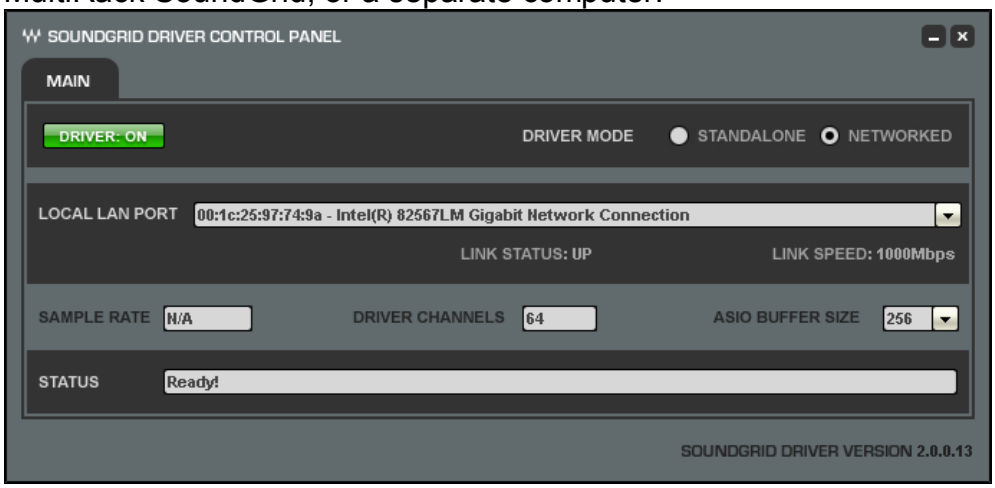
Double-click where indicated to create a new connection. Then select a Source Device, and choose the range of channels to transmit. Then select the destination device, and its range of input channels. Enable or disable the connection in the leftmost column (labeled "ON").

Note that it is possible to send audio from one source to multiple destinations. And it is possible for a destination device to receive different audio channels from different source devices.

The most usual case, as shown in the picture above, is of one Waves IO transmitting 16 channels to the MultiRack (the effect/insert sends) and to the SG Driver (for recording). Then for MultiRack to transmit 16 channels back to the Waves IO (the effect/insert returns).

4.6 SG Driver

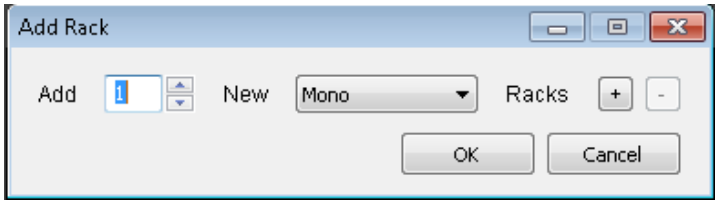
The SG Driver is an ASIO (PC) and CoreAudio (Mac) driver for audio playback and recording, using any compatible DAW software. It is not necessary for using MultiRack SoundGrid, but is a useful additional feature. It can be installed either on the same computer that is running MultiRack SoundGrid, or a separate computer.



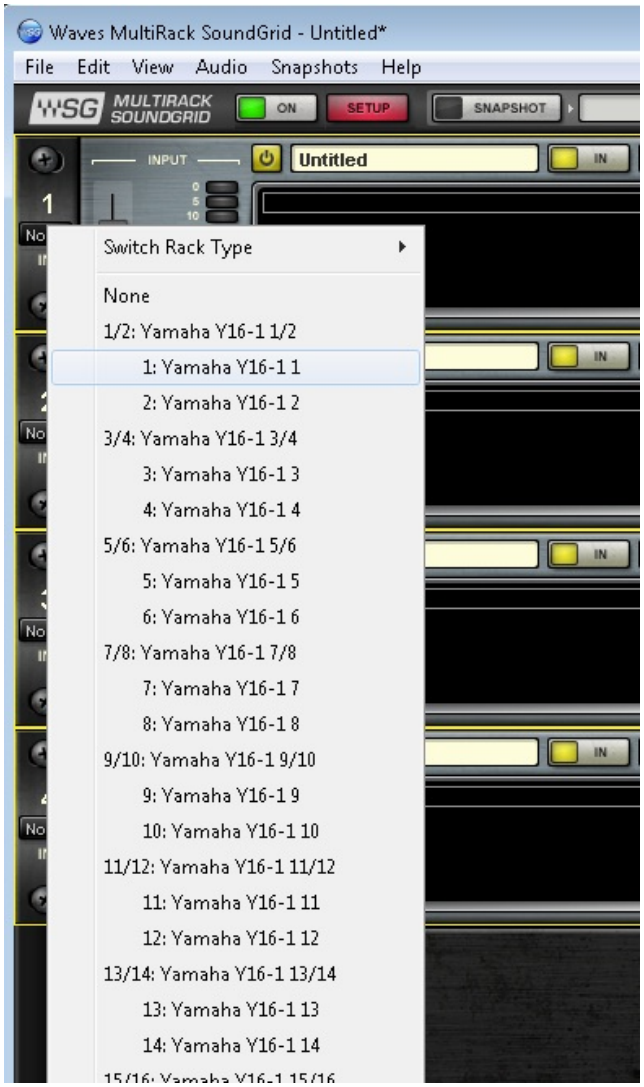
1 Connect the computer to the network, and switch on all the devices.
2 Open the SoundGrid Driver Control Panel.
3 Open the Main tab and set Driver Mode to **Networked** (as it is being used on the same network as SG MultiRack).
4 Select the correct LAN port for the computer in the LOCAL LAN PORT setting. The driver will scan the network, and display “SoundGrid Network found” to indicate success.
5 Turn the driver ON, and it will be ready to use.

4.7 SG MultiRack

Now some Racks can be added to the system by double-clicking in the indicated area:



5. This will open a dialogue box where the number and type of Racks can be specified.



6. Now one or more empty Racks will be visible, and the input and output channels must be assigned, according to the Slot inputs and outputs from the mixing console. Click on the left (input) and right (output) side rails of the Racks, where it shows “None”. The Audio I/O pull-down menu will open, and the channel number can be chosen.

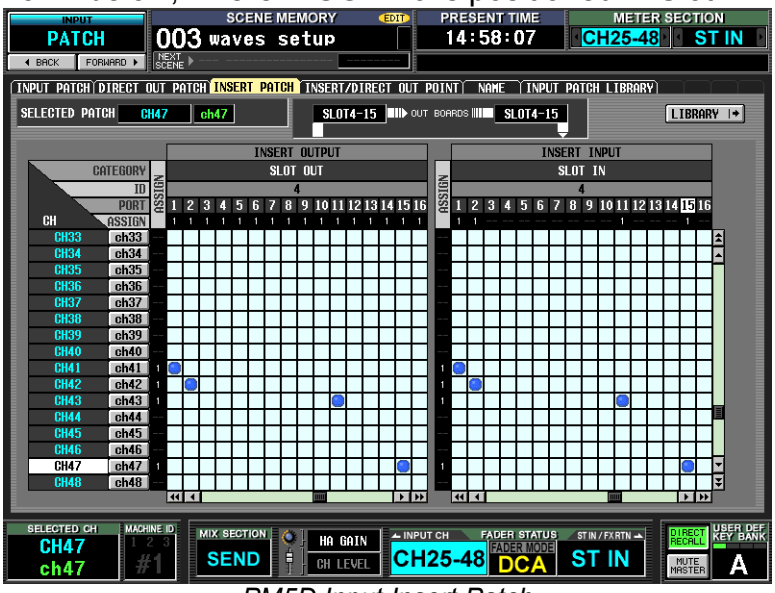
7. Click on the [+] button in the Racks to add the required Plug-ins.

See the MultiRack SoundGrid manual for more detailed information.

5.0 Console Setup & Patching

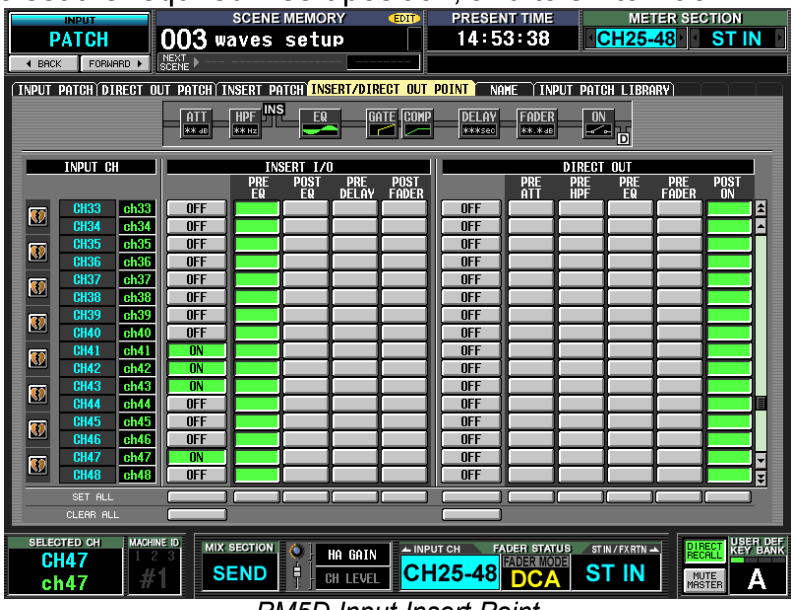
There are several steps to preparing the mixer for use with the Waves system. MultiRack SoundGrid can be thought of as an external multi-effects unit. So it can be patched in a conventional way, either inserted (in Input, Mix, Matrix or Master channels), or as a “Send-&-Return”: sending from a Mix bus (mono or stereo), and returning to an input channel (again, mono or stereo).

Each WSG-Y16 card can provide 16 inputs and outputs, meaning that up to 16 channels of inserts can be patched for example. An example of insert patching on PM5D is shown below, where WSG-Y16 is positioned in Slot 4.



PM5D Input Insert Patch

Remember to set the required insert position, and to switch it on:



PM5D Input Insert Point

5.1 MIDI Setup on the Mixer

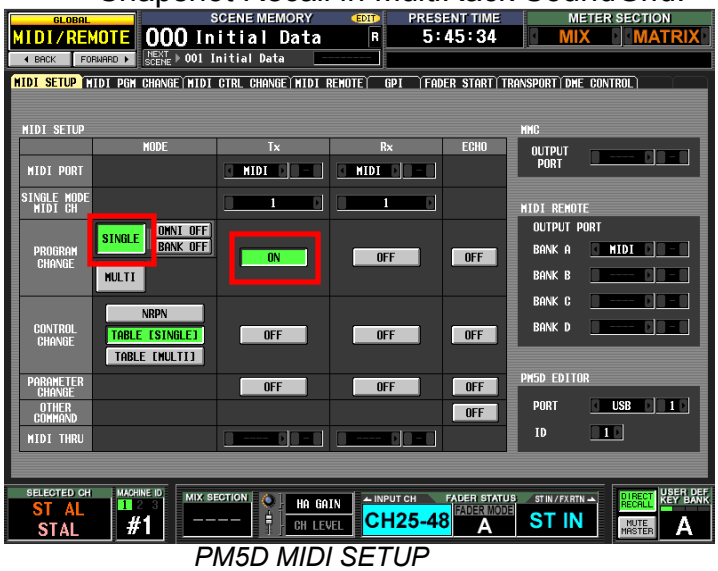
To allow control of the MultiRack SoundGrid software from the mixer, some MIDI setup is required. This process varies depending on the model of mixer, so each type will be described in turn.

6.0 Using PM5D, DM2000, DM1000, 02R96, 01V96

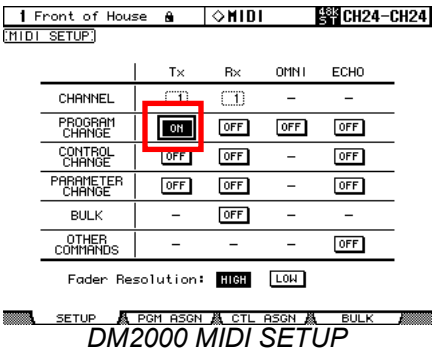
On these consoles, the MIDI REMOTE layer allows the input channel faders, ON switches and encoders to be used as controllers for the Waves plug-ins. Additionally, their USER DEFINED keys can be used to quickly view specific plug-ins and to recall specific Snapshots in the MultiRack SoundGrid software.

6.1 MIDI Port Setup

Firstly, in the MIDI SETUP page (found in the MIDI/REMOTE menu of PM5D, or the MIDI menu of DM/0 consoles) switch on the Tx for PROGRAM CHANGE. This will allow a console Scene Recall to trigger a Snapshot Recall in MultiRack SoundGrid.



PM5D MIDI SETUP



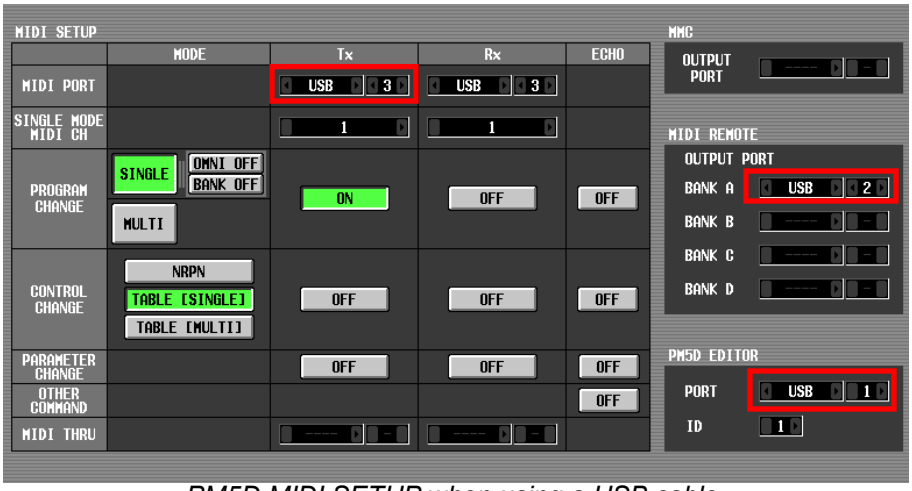
DM2000 MIDI SETUP

Other Tx and Rx settings are not needed in this case. PM5D's MODE for PROGRAM CHANGE can be set to SINGLE for simplicity, when no more than the first 128 Scene Memories are used (because SINGLE mode handles MIDI values [0-127] for Program Change). On DM/0 consoles mode selection is not available, because they don't have more than 100 Scenes anyway. Keep the MIDI channel set to "1" unless there is good reason to change it (to avoid conflict with other connected MIDI equipment).

6.2 PM5D MIDI Port

For PM5D, the MIDI PORTS are also set in this page. The required selection will depend on whether a MIDI or a USB cable is used:

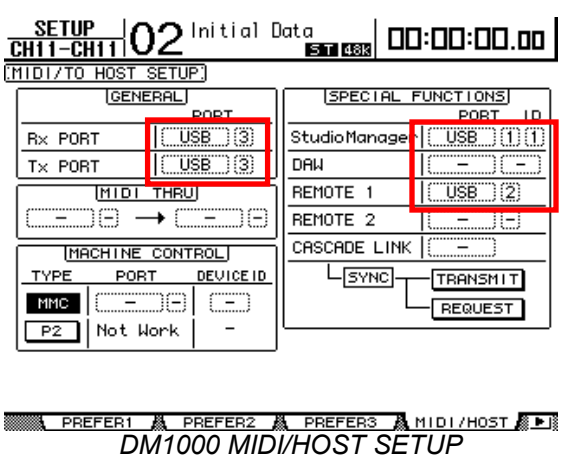
a) If MIDI is used, set the Tx MIDI PORT to MIDI, and set MIDI REMOTE port for BANK A also to MIDI (as shown above).
b) If USB is used, set PM5D EDITOR to USB-1, set MIDI REMOTE port for BANK A to USB-2, and set Tx MIDI PORT to USB-3 (as shown below).



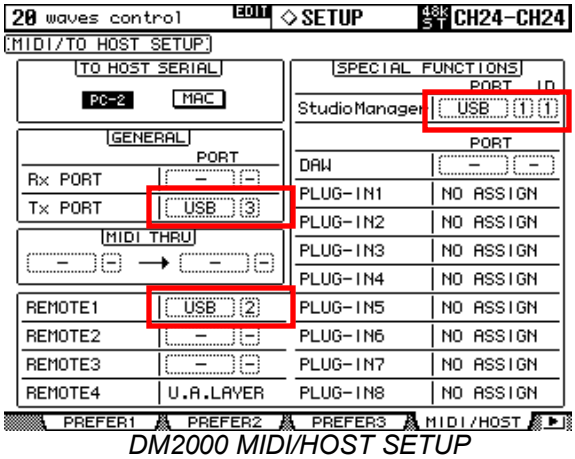
PM5D MIDI SETUP when using a USB cable.

6.3 DM/0 MIDI Port

On the DM/0 consoles, the MIDI/HOST page is found in the SETUP menu. Select USB-1 ID1 for Studio Manager, USB-2 for a REMOTE LAYER (it doesn't matter which layer), and USB-3 for the GENERAL Tx PORT, as shown below.



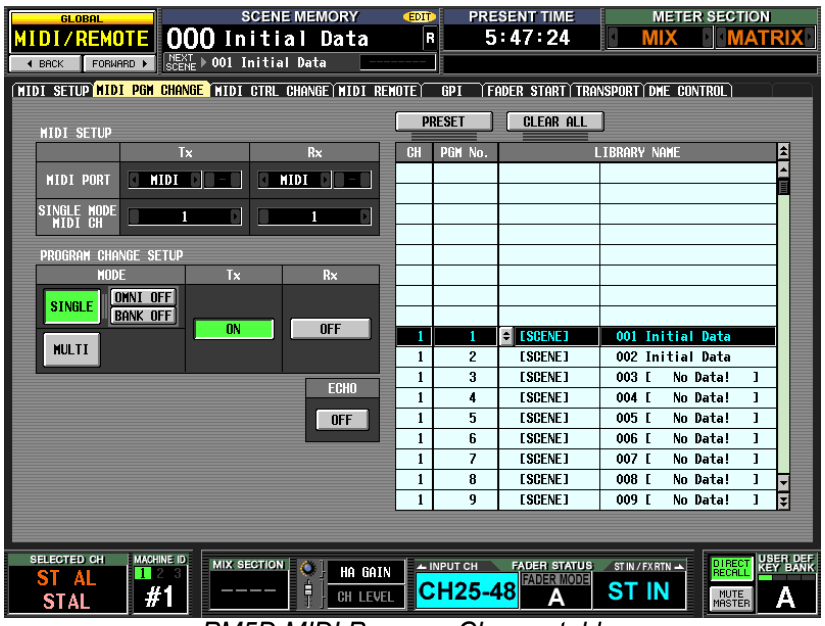
DM1000 MIDI/HOST SETUP



DM2000 MIDI/HOST SETUP

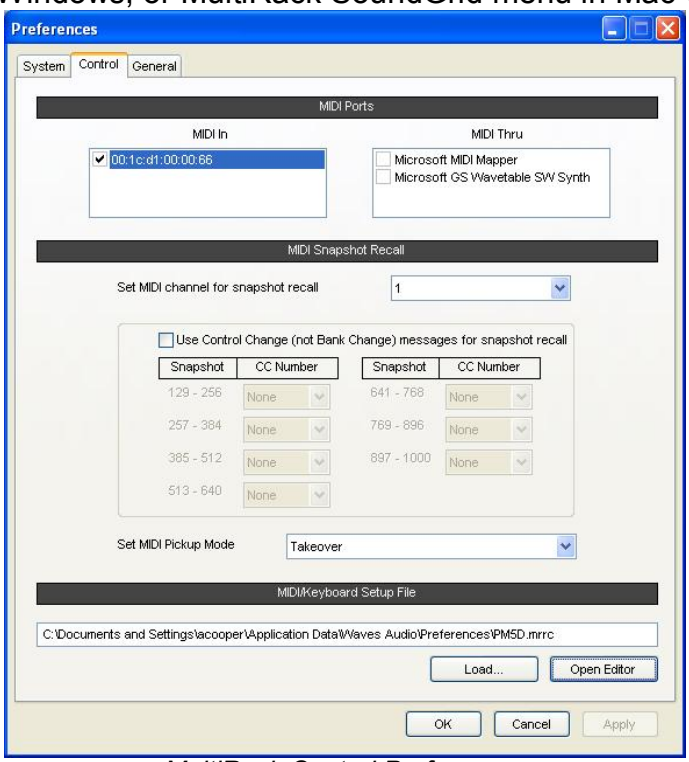
6.4 Program Change: Snapshot Recall

All these consoles can use their initial settings for the MIDI Program Change table. So recalling Scene 1 on the console recalls Snapshot 1 in MultiRack SoundGrid. It can be edited of course, to change the mapping if required.



PM5D MIDI Program Change table.

In the MultiRack software, open the Preferences window (from the Edit menu in Windows, or MultiRack SoundGrid menu in Mac OSX).

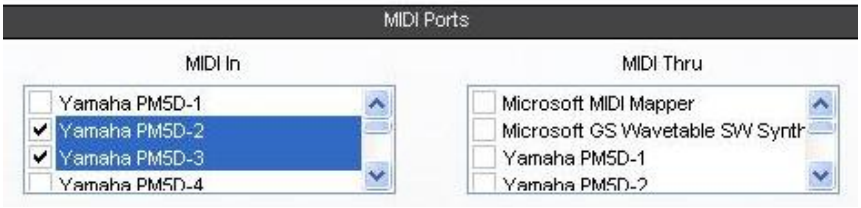


MultiRack Control Preferences

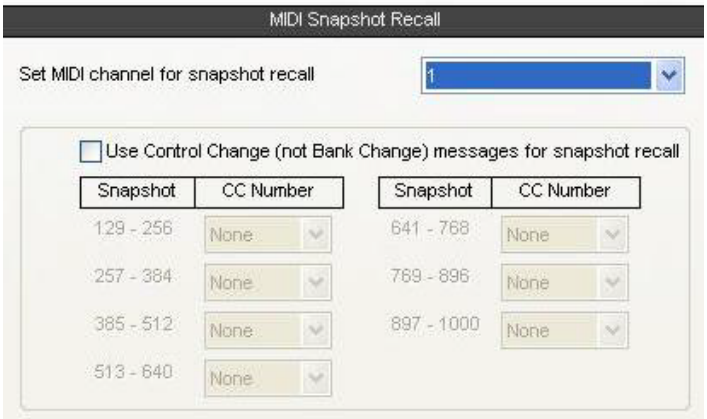
In the Control tab, check the required MIDI In port:

a) The MAC address of the WSG-Y16 card is shown, and should be selected if a MIDI cable is used. (00:1c:d1:00:00:66 is the MAC address of this example).

b) Select “Yamaha PM5D-2” and “Yamaha PM5D-3” if a USB connection is used (or the equivalent selection for DM2000 or DM1000 etc.):

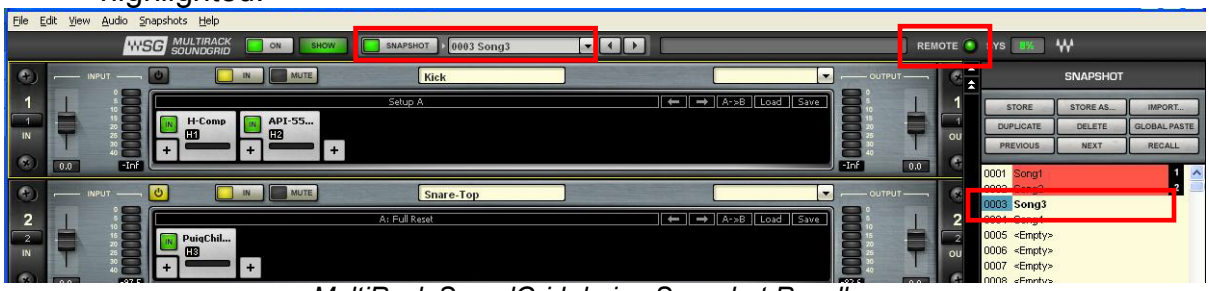


The selection box for “Set MIDI channel for snapshot recall” should match the number used for MIDI Tx on the console. Number 1 is the default choice. There is no need to check the “Use Control Change” box.



Click [OK], and a console Scene recall will now be able to trigger a Snapshot recall in the software. Note that MIDI communication is one-way only: from Console to MultiRack. So a Snapshot recall in MultiRack cannot cause a console Scene to recall.

When MultiRack SoundGrid receives a MIDI message, the REMOTE indicator on the status bar will flash green. The recalled Snapshot will be highlighted.

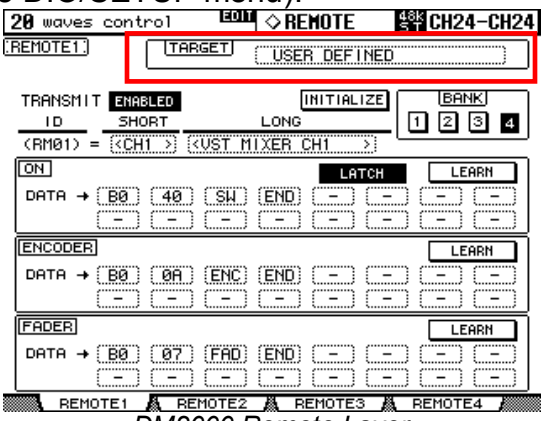


MultiRack SoundGrid during Snapshot Recall

6.5 MIDI Remote Layer

PM5D, DM2000, DM1000, 02R96 and 01V96 all have MIDI Remote Layer options which can be used to edit the parameters of the Waves plug-ins from the console’s faders, ON switches and encoders. With PM5D, the Remote Layer is dedicated to MIDI functions, while the other consoles

offer more options: select “USER DEFINED” as the target for one of the Remote Layers in the REMOTE menu. (With 01V96, the REMOTE page is located in the DIO/SETUP menu).

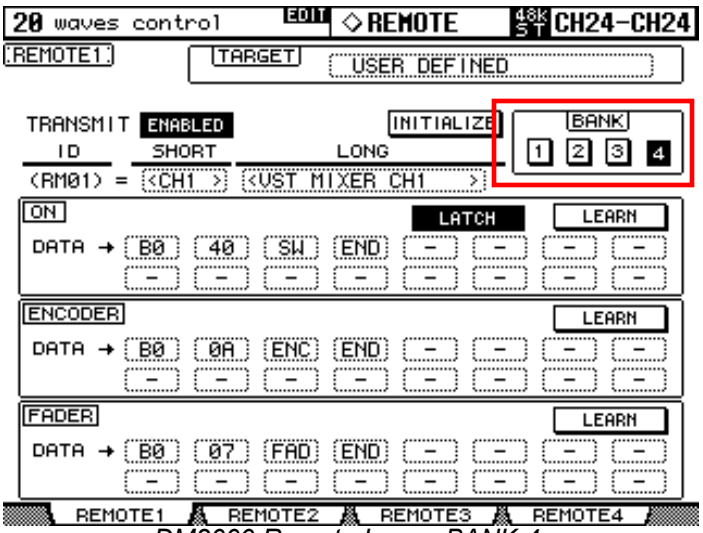


DM2000 Remote Layer

With PM5D, the MIDI REMOTE page is (naturally) found in the MIDI/REMOTE menu. Press the ASSIGN TO CH STRIP SECTION [INPUT CH] switch to convert the console’s faders, on switches and encoders to MIDI REMOTE mode.

PM5D MIDI REMOTE page

For all the consoles, the MIDI Remote Layer should be setup to transmit Control Change messages in the format as shown above: B0-00-SW-END for example. The DM/0 consoles conveniently have a perfect setup in their initial settings for BANK 4. So no MIDI programming is needed!



DM2000 Remote Layer: BANK 4.

Note that each channel has a slightly different message number for each control.

The initial settings for the PM5D MIDI Remote are not suitable for controlling MultiRack, so they must be edited. Each control that is required should be converted into the format as shown below. To save programming time, the WAVES-RM.PM5 file (download from http://www.yamahaproaudio.com/training/self_training/index.html) could be loaded via the memory card slot. This contains all the necessary settings for the MIDI Remote Layer, as summarized in the table below:

	Channel 1	**Channel 2**	**…**	**Channel 24**
ENCODER ON	B0-00-SW-END	B0-01-SW-END		B0-17-SW-END
ENCODER	B1-00-ENC-END	B1-01-ENC-END		B1-17-ENC-END
CH ON	B2-00-SW-END	B2-01-SW-END		B2-17-SW-END
FADER	B3-00-FAD-END	B3-01-FAD-END		B3-17-FAD-END

Additionally, ensure that [LATCH] is enabled for the ON switches of the Remote Layer.

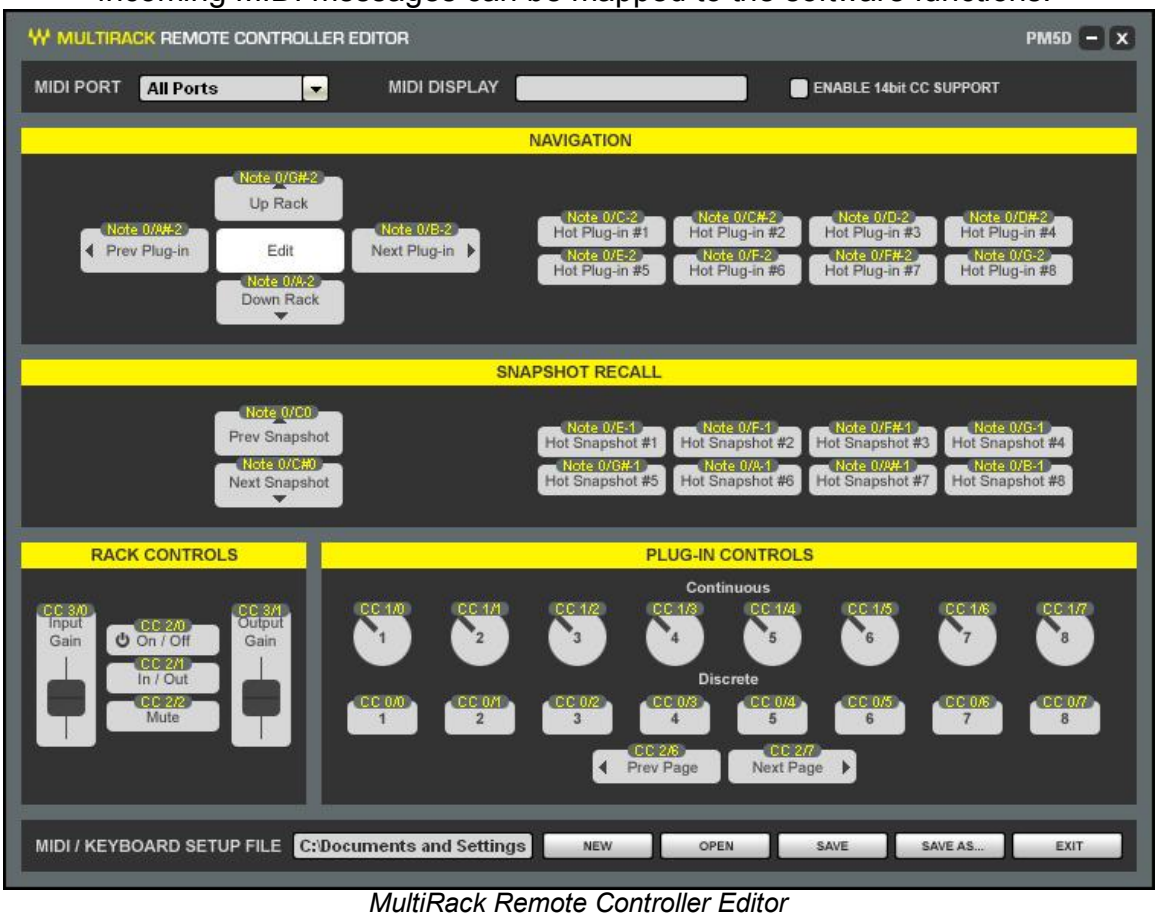
6.6 MultiRack Remote Controller Editor

To prepare the MultiRack software, open the Preferences window again, and select the Control tab. Then set the MIDI Pickup Mode to “Takeover”.

This will protect the plug-in parameter values from jumping to a new position unexpectedly. Instead, the values will only change once the controller has passed through the current value of the parameter.

Next, click [Open Editor].

This will open the MultiRack Remote Controller Editor window, where incoming MIDI messages can be mapped to the software functions.



MultiRack Remote Controller Editor

The mapping can either be done manually, or a setup file (*.mrrc) can be loaded. Template files are available for PM5D, M7CL (also use for LS9), DM2000 (also use for 02R96) and DM1000. Download these files from http://www.yamahaproaudio.com/training/self_training/index.html. The above picture shows the settings for PM5D. To use one of the example

files, click [OPEN] at the bottom of the window, then browse for the file on the computer. This file can then be modified if required, and saved again.

To modify a setting, click on the control so it is highlighted yellow, and then move the required encoder or switch on the console. The MIDI DISPLAY at the top of the window will show the message that is received (such as CC 1/0), and will assign it to the selected control. Do this for as many controls as required.

Once a MIDI message is mapped to a control, it is displayed as shown below.

When editing is completed, save the remote controller setup file and exit the editor window. Now this file needs to be loaded into the MultiRack Preferences:
In the “Control” tab of the preferences window, click [Load…] and browse for the setup file that has just been saved.
Then click [OK] to close the Preferences window.

The 8 Plug-in Control encoders and switches edit the plug-in that is visible on MultiRack SoundGrid. Only one plug-in is visible at any time, so it is always clear which plug-in is being controlled.

MultiRack SoundGrid: Rack View, with Controller Strip

By selecting the “Show Controller Strip” option in the “View” menu, the mapping of the Plug-In parameters to the 8 control encoders and switches can be seen at the bottom of the screen. As a parameter is adjusted, its value is displayed. Use the “Next Page” and “Prev Page” controls to access extra functions when the plug-in has more than 8 continuous and discrete parameters available.

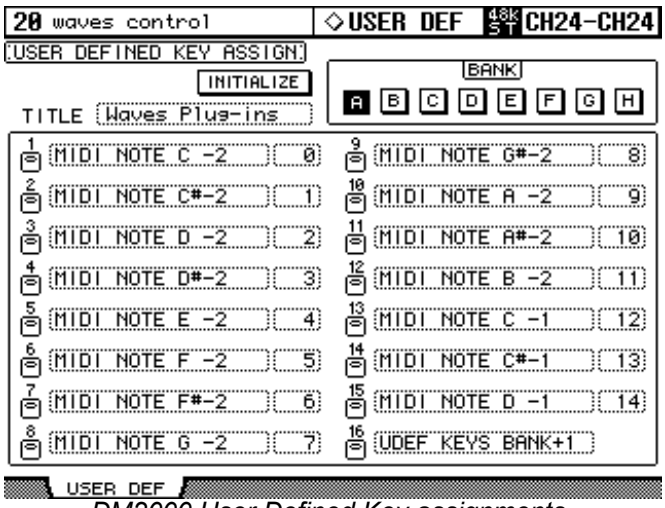
The mapping of console controls to the MutliRack Plug-In controls for the provided template files of PM5D, DM2000 and DM1000 is shown in the Appendix.

6.7 User Defined Keys

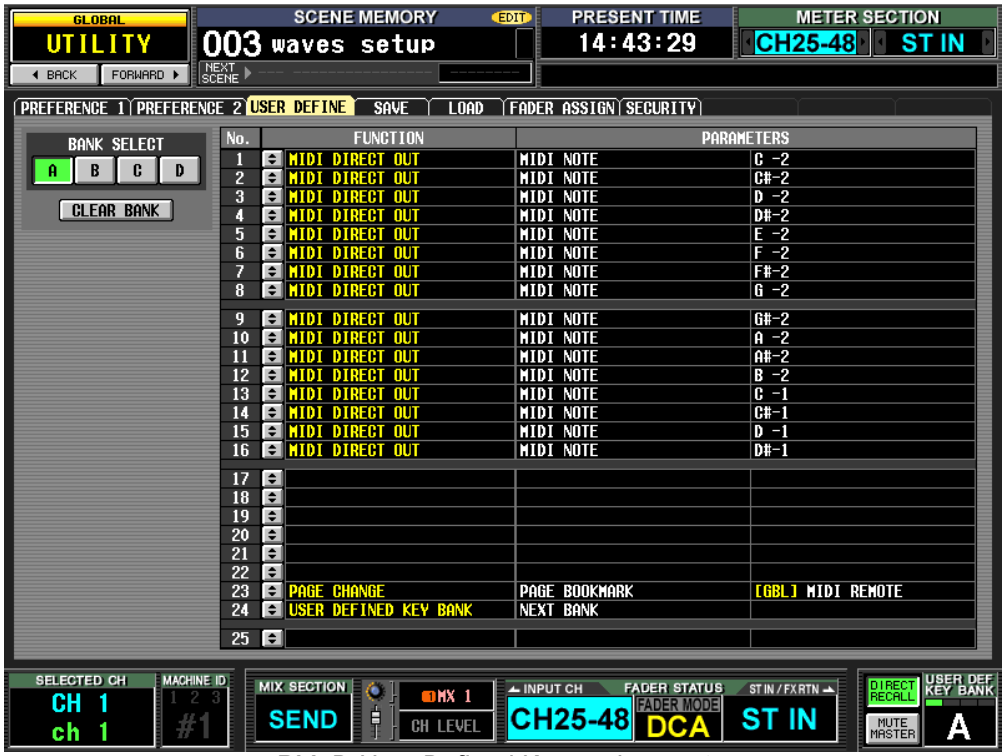
MIDI functions can be assigned to the User Defined Keys of PM5D and the DM/0 consoles (and also CL-series). These can be used for the following functions:

1) Recall specific Snapshots (the 8 Hot Snapshots of MultiRack).
2) Recall the Next or Previous Snapshot.
3) Navigate around the plug-ins.
4) View the 8 Hot Plug-ins of MultiRack.

The simplest method is to assign a different MIDI Note On message to each User Defined Key, as seen in the examples below.



DM2000 User Defined Key assignments.



PM5D User Defined Key assignments.

To save programming time, templates are available. The "WAVESUDK.PM5" file (download from http://www.yamahaproaudio.com/training/self_training/index.html) can be loaded into PM5D from the memory card slot, and this assigns layers A and B of User Defined Keys. For DM2000 and DM1000, MIDI Bulk Dump files (syx files) are available for User Defined Key layers A and B.

The Hot Plug-In and Hot Snapshot settings for the MultiRack Remote Controller Editor are included in the example setup files mentioned previously, so once they are opened, the system is ready to use.

The control assignments for User Defined Keys on PM5D, DM2000 and DM1000 are shown in the Appendix.

Basically the first bank of keys will access the 8 Hot Plug-ins, and the second bank will access the Hot Snapshots. Note that one User Defined key on each bank is assigned to change the bank of User Defined keys, making it easier to access all the functions. And on PM5D, key 23 is used as a “Bookmark” shortcut to access the MIDI Remote Layer of PM5D.

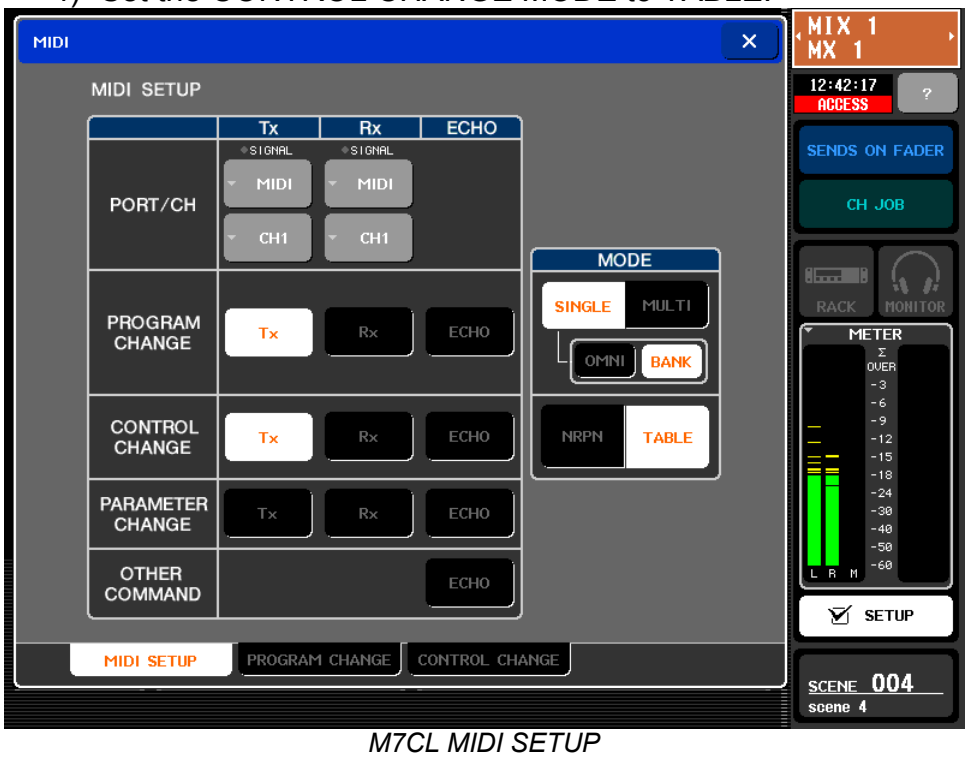
7.0 Using M7CL and LS9

M7CL and LS9 consoles do not have the MIDI REMOTE functionality of the other consoles, but they do have MIDI Program Change and Control Change tables. Some parameters that are not needed for audio can be mapped to MIDI Control Change messages and used to control the Plug-ins. For example, use some spare Mix Sends or Matrix Sends. In this example, the sends to Mix 16 from Input Channels 1-8 are used, but a different Mix or even Matrix send could be used.

7.1 MIDI Setup

In the MIDI SETUP menu of M7CL (or LS9), make the following settings:

1) Set the Tx port to MIDI CH1.
2) Switch on Tx for PROGRAM CHANGE and CONTROL CHANGE.
3) Set PROGRAM CHANGE MODE to SINGLE.
4) Set the CONTROL CHANGE MODE to TABLE.



M7CL MIDI SETUP

7.2 Program Change

Both M7CL and LS9 can use their initial settings for the MIDI Program Change table. So recalling Scene 1 on the console recalls Snapshot 1 in MultiRack SoundGrid. It can be edited of course, to change the mapping if required.

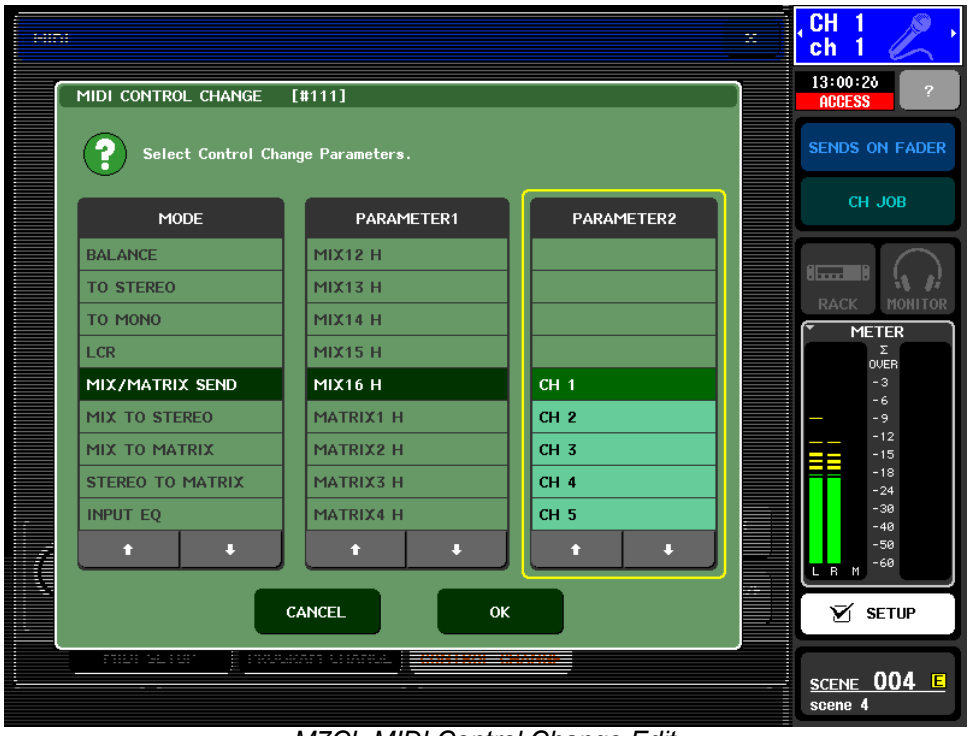
M7CL MIDI PROGRAM CHANGE

7.3 MIDI Control Change

In the MIDI CONTROL CHANGE table, assign the chosen parameters for controlling the plug-ins to some Control Change numbers. In this example, to fit with the supplied MultiRack templates, Control Change numbers 103 to 110 are used for the Discrete switches and numbers 111 to 118 are used for the Continuous controls.

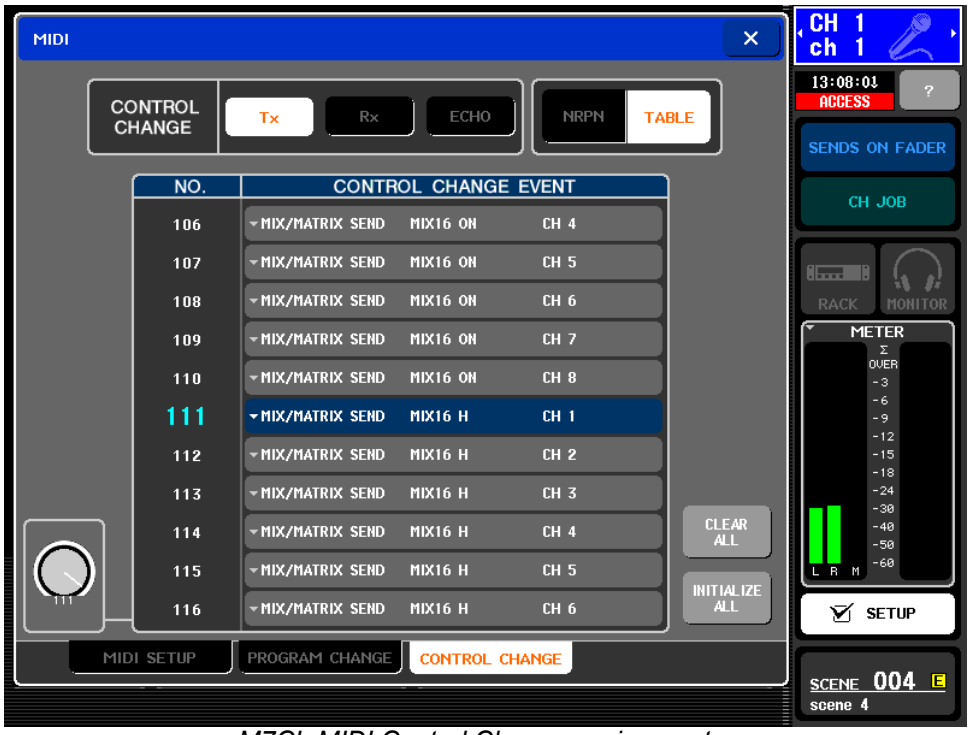
To edit a Control Change assignment, scroll through the list, select number 103 on the screen, and a green edit window will appear.

1) Select “MIX/MATRIX SEND” as the MODE.
2) For PARAMETER 1 select:
    a. “MIX 16 ON” for Control Change numbers 103 to 110.
    b. “MIX16 H” for numbers 111 to 118 (don’t choose “MIX16 L”, which is low value data).
3) Then choose from “CH 1” to “CH 8” for PARAMETER 2.



M7CL MIDI Control Change Edit

When all the parameters are assigned, the Control Change table will look like this:



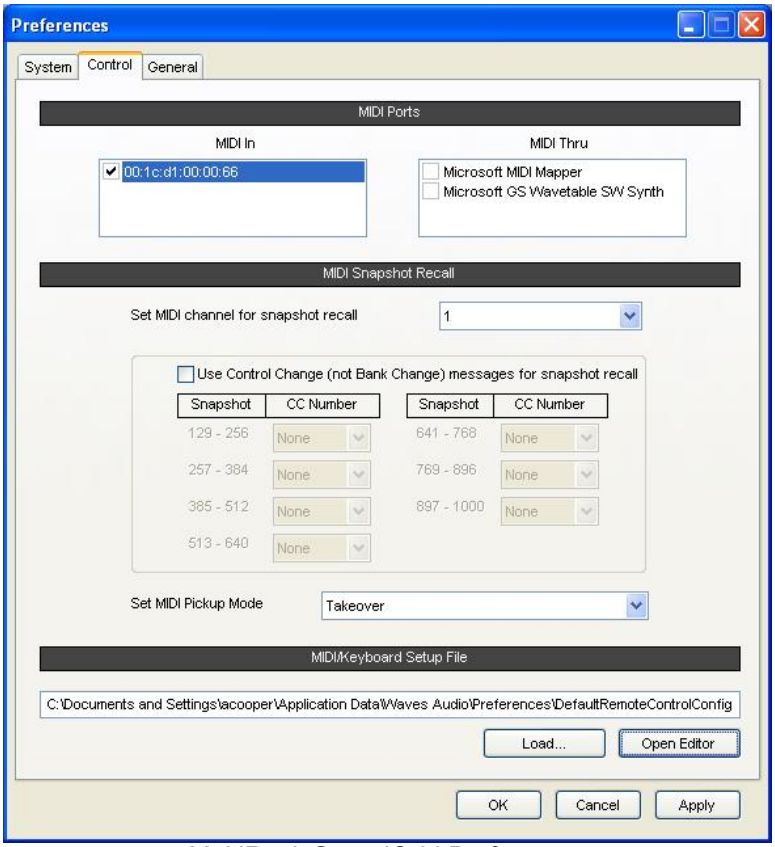
M7CL MIDI Control Change assignments.

LS9 MIDI Control Change assignments

In addition, Control Change messages 102 and 119 can be assigned to Mix16 ON for channels 9 and 10 respectively. These will then control the "Prev Page" and "Next Page" functions of MultiRack.

7.4 MultiRack Preferences

Open the Preferences window of MultiRack SoundGrid (in the Edit menu in Windows, or MultiRack SoundGrid menu in Mac OSX), and select the "Control" tab.



MultiRack SoundGrid Preferences

Make the following settings:

1) Select the MAC address shown in the MIDI In list. This is the Mac address of the WSG-Y16 card used in the mixer.
2) Set MIDI Channel "1" for snapshot recall.
3) Set MIDI Pickup Mode to "Takeover".
4) Click the [Load…] button and browse for the M7CL.mrrc template file that accompanies this document (download from http://www.yamahaproaudio.com/training/self_training/index.html).
5) Click [OK] to save the preferences.

Now the system is ready for remote control!

If the MultiRack Remote Control Editor window is opened, the Plug-in Controls for M7CL/LS9 will look like this:

Plug-in Controls for M7CL / LS9.

7.5 Control from M7CL

The controls for channels 1-8 sending to Mix 16 have been selected in this example. On the M7CL, they can be accessed in a couple of ways.

1) Firstly, from the Centralogic section of the console:
   a. Select to view channels 1-8 on the central faders.
   b. Press one of the Mix16 Send controls on the screen to assign them to the row of 8 encoders below the screen.
   c. Now these encoders will edit the Waves Plug-ins.

M7CL Centralogic view for channels 1-8

d. Press a Mix16 control again to open the MIX SEND window. This gives access to the ON switches which can be used to control other Plug-in functions.

2) Alternatively, use SENDS ON FADERS to assign MIX16 to the faders. Then the faders and the ON switches of channel 1-8 will control the plug-in parameters.

7.6 Control from LS9

Once again, the controls for channels 1-8 sending to Mix16 are the ones chosen to control the Waves Plug-ins. Because of the reduced number of encoders on this console, SENDS ON FADERS mode should be used, so the faders and ON switches control the Plug-ins when MIX16 is selected.

LS9 SENDS ON FADER

When there are more than 8 parameters for a Plug-in, the extra parameters can be accessed by using the “Prev Page” and “Next Page” controls. In this example, they are mapped to the MIX16 ON switch for channels 9 and 10 respectively. So they are easily accessed during SENDS ON FADER mode.

7.7 Control Map

To conclude, below is the control map for this example of using M7CL or LS9 to control the MultiRack Plug-ins. Note that there are no controls on the console for the Hot Plug-in and Hot Snapshot selections this time. As an alternative, some keys on the host computer keyboard can be assigned to Hot Plug-ins and Hot Snapshots (see the MultiRack SoundGrid manual for further details).

Discrete Plug-in Controls	1	2	3	4	5	6	7	8
Control Change Number	103	104	105	106	107	108	109	110
M7CL Send On to Mix16	Ch1	Ch2	Ch3	Ch4	Ch5	Ch6	Ch7	Ch8
LS9 Send On to Mix16	Ch1	Ch2	Ch3	Ch4	Ch5	Ch6	Ch7	Ch8

Continuous Plug-in Controls	1	2	3	4	5	6	7	8
Control Change Number	111	112	113	114	115	116	117	118
M7CL Send Level to Mix16	Ch1	Ch2	Ch3	Ch4	Ch5	Ch6	Ch7	Ch8
LS9 Send Level to Mix16	Ch1	Ch2	Ch3	Ch4	Ch5	Ch6	Ch7	Ch8

Other Plug-in Controls	Prev Page	Next Page
Control Change Number	102	119
M7CL Send On to Mix16	Ch9	Ch10
LS9 Send On to Mix16	Ch9	Ch10

Now the control and creative freedom that the mixers and the plug-ins provide can be enjoyed more fully.

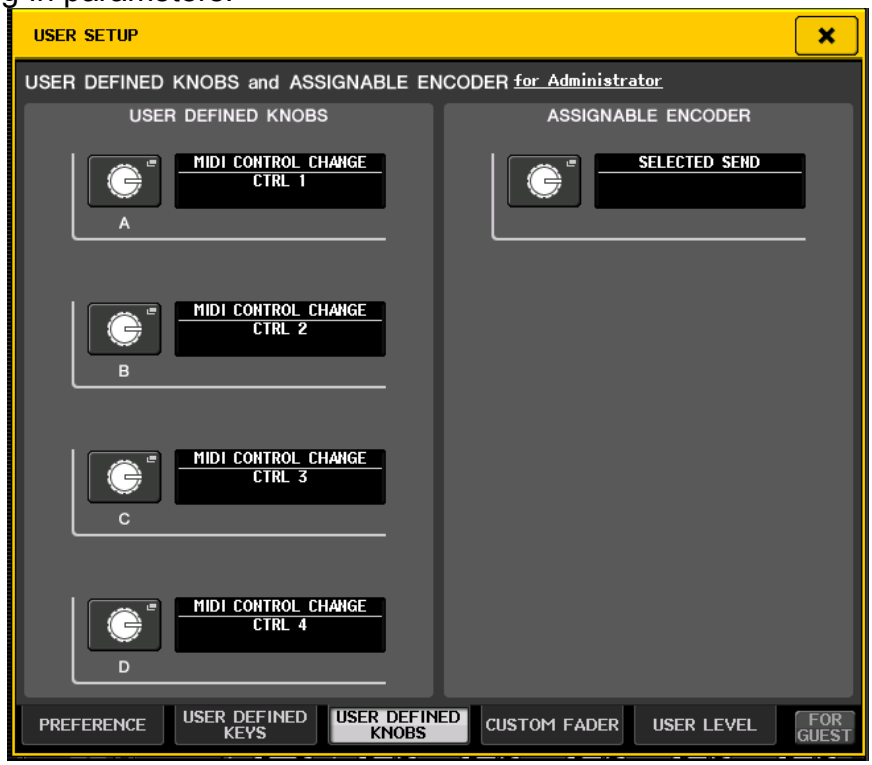
8.0 Using CL-series Consoles

CL5, CL3 and CL1 consoles all have 4 User Defined Knobs that can be used for MIDI Control Change. Also the 16 User Defined Keys can be used to transmit MIDI Control, Program and Note messages. These can be used to control various parameters in MultiRack SoundGrid.

8.1 MIDI & User Setup

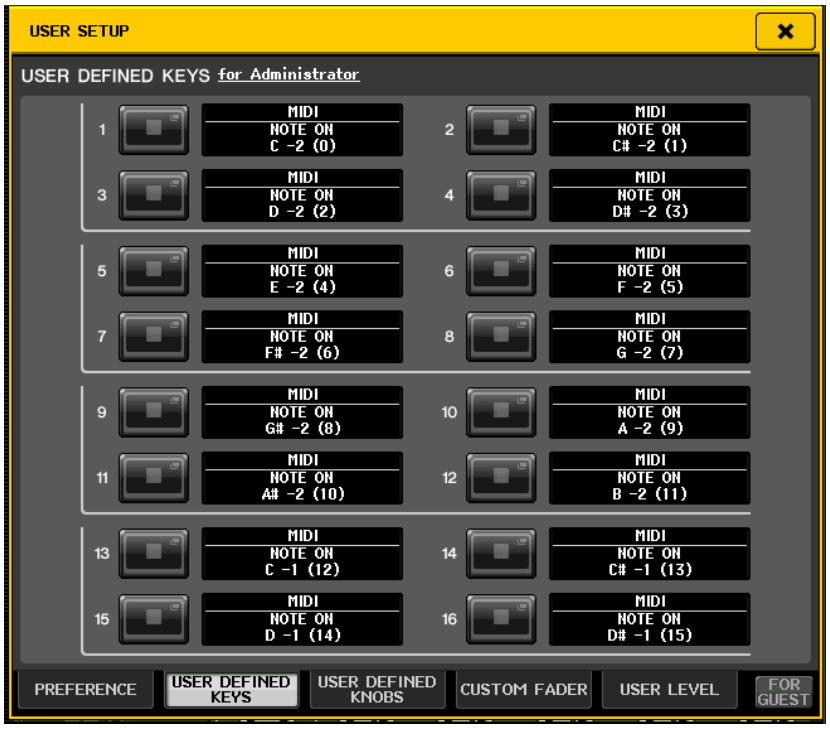
As shown in section 7.1 for M7CL, enable the MIDI TX for Control Change and Program Change.

Assign some MIDI Control Change functions to the User Defined Knobs, as found in the User Setup menu. These can be used to control certain plug-in parameters.



For the same Ctrl numbers, it is best to un-assign them in the MIDI Control Change table, to stop the plug-ins being edited from other console parameters by accident.

In addition, assign some MIDI Note parameters to the User Defined Keys. These could be used for “Hot Plug-in Keys”, Navigation or Snapshot Recall for example.



Next, follow the instructions in section 6.6 to assign the keys and knobs to specific functions in MultiRack.

Now enjoy the creativity that these convenient controls can bring!

APPENDIX

a. Remote Layer control assignments of PM5D, DM2000, DM1000

Continuous Plug-In Control	1	2	3	4	5	6	7	8
PM5D MIDI Remote Encoders	Ch1	Ch2	Ch3	Ch4	Ch5	Ch6	Ch7	Ch8
DM2000 Remote Layer Bank 4 Encoders	Ch1	Ch2	Ch3	Ch4	Ch5	Ch6	Ch7	Ch8
DM1000 Remote Layer Bank 4 Encoders	Ch1	Ch2	Ch3	Ch4	Ch5	Ch6	Ch7	Ch8

Discrete Plug-In Control	1	2	3	4	5	6	7	8
PM5D MIDI Remote Encoder On Switches	Ch1	Ch2	Ch3	Ch4	Ch5	Ch6	Ch7	Ch8
DM2000 Remote Layer Bank 4 On Switches	Ch1	Ch2	Ch3	Ch4	Ch5	Ch6	Ch7	Ch8
DM1000 Remote Layer Bank 4 On Switches	Ch1	Ch2	Ch3	Ch4	Ch5	Ch6	Ch7	Ch8

Other Plug-In Controls	Prev Page	Next Page
PM5D MIDI Remote Channel On Switches	Ch7	Ch8
DM2000 Remote Layer Bank 4 On Switches	Ch9	Ch10
DM1000 Remote Layer Bank 4 On Switches	Ch9	Ch10

Rack Controls	Input Gain	Output Gain	On / Off	In / Out	Mute
PM5D MIDI Remote	Ch1 Fader	Ch2 Fader	Ch1 Ch On	Ch2 Ch On	Ch3 Ch On
DM2000 Remote Layer Bank 4	Ch15 Fader	Ch16 Fader	Ch14 On	Ch15 On	Ch16 On
DM1000 Remote Layer Bank 4	Ch15 Fader	Ch16 Fader	Ch14 On	Ch15 On	Ch16 On

APPENDIX

b. User Defined Key assignments of PM5D, DM2000, DM1000

Hot Plug-Ins	#1	#2	#3	#4	#5	#6	#7	#8
PM5D User Defined Bank A	1	2	3	4	5	6	7	8
DM2000 User Defined Bank A	1	2	3	4	5	6	7	8
DM1000 User Defined Bank A	1	2	3	4	5	6	7	8

	Plug-In Navigation				Console function	
	Up Rack	Down Rack	Prev Plug-in	Next Plug-in	Bookmark MIDI REMOTE	Access Next User Defined Bank
PM5D User Defined Bank A	9	10	11	12	23	24
DM2000 User Defined Bank A	9	10	11	12	-	16
DM1000 User Defined Bank A	9	10	-	11	-	12

Hot Snapshots	#1	#2	#3	#4	#5	#6	#7	#8
PM5D User Defined Bank B	1	2	3	4	5	6	7	8
DM2000 User Defined Bank B	1	2	3	4	5	6	7	8
DM1000 User Defined Bank B	1	2	3	4	5	6	7	8

	Snapshot Recall		Console function	
	Prev	Next	Bookmark MIDI REMOTE	Access Prev User Defined Bank
PM5D User Defined Bank B	9	10	23	24
DM2000 User Defined Bank B	9	10	-	16
DM1000 User Defined Bank B	9	10	-	12