



OWNER'S MANUAL



Warranty

iConnectivity warrants to the original purchaser that this unit is free of defects in materials and workmanship under normal use and maintenance for a period of one (1) year from the date of original purchase. The warranty applies only to registered iConnectivity users that purchased this product from an authorized iConnectivity reseller and registered their product(s) within sixty (60) days of time of original purchase. If the unit qualifies for warranty service during the one (1) year period, it will be repaired, or replaced, at iConnectivity's option, at no charge, when returned prepaid to the iConnectivity Technical Service Center with proof of purchase – the sales receipt may be used for this purpose. Installation labor is not covered under this warranty.

All replacement parts, whether new or re-manufactured, assume as their warranty period for only the remaining time of this warranty. This warranty does not apply to damage caused by improper use, accident, abuse, improper voltage service, fire, flood, lightning, or other acts of God, or if the product was altered or repaired by anyone other than iConnectivity Technical Service Center. Consequential and incidental damages are not recoverable under this warranty. Some regions do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply. This warranty gives you specific legal rights, and you may also have other rights, which vary from state to state. No portion of this warranty may be copied or duplicated without the expressed written permission of iConnectivity. THIS WARRANTY IS NOT TRANSFERRABLE.

Compatibility

mio4 is compatible with any Mac or Windows PC with an available USB port. The included iConfig software works with Windows 7 or later and Mac OS X 10.8 or later.



PRECAUTION/IMPORTANT NOTES

Interference with other electrical devices

Radios and televisions placed nearby may experience reception interference. Operate this unit at a suitable distance from radios and televisions.

Indoor use only

To avoid the risk of electrocution and/or damage to other connected equipment, this equipment must not be used under wet or high moisture conditions. All interconnecting cabling must also be indoors. Should moisture suddenly increase, immediately disconnect power to the equipment.

Power sources

Ensure that correctly rated power outlets are used with the supplied power supply.

Heat

Keep this equipment away from all heat sources. Ensure that sufficient ventilation and/or heat dissipation is provided for the equipment and all connected devices.

Packaging

Keep all packaging materials away from children. Properly dispose of unwanted packaging.

Handling

To avoid breakage, do not apply excessive force to the switches, connectors or directly to the equipment. Do not apply excessive bending force to the cables. Use the connector casings of cables to attach and detach cables from their receptacles to avoid damage to the cable and/or its receptacles.

Ingestion

Do not ingest the packaging, equipment, attachments, or accessories. Do not ingest paint or removed parts from the equipment or accessories. If this occurs, immediately seek medical attention.

Care

If the exterior becomes dirty, wipe with a clean, dry cloth. Do not use liquid cleaners such as benzene or thinner, or cleaning compounds or flammable polishes.

Keeping foreign matter out of your equipment

Never set any container with liquid in it near this equipment. If liquid gets into the equipment, it could cause electrical damage, breakdown, fire, or electrical shock. Be careful not to let metal objects get into the equipment.

Notice regarding disposal (EU only)

Disposal of this product, package, or cables must be done in an approved manner. Do not discard this product, package, or cables along with ordinary household waste. Disposing in the correct manner will prevent harm to human health and potential damage to the environment. Since the correct method of disposal will depend on the applicable laws and regulations in your locality, please contact your local administrative body for details.

FCC (USA) / IC (Canada) Regulation Warning

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Adjust the receiving antenna
- Increase the separation between the equipment and receiver
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected
- Consult the dealer or an experienced radio/TV technician for assistance

Unauthorized changes or modifications to this system can void the user's authority to operate this equipment.

IMPORTANT NOTICE TO CONSUMERS

This product has been manufactured according to strict specifications and voltage requirements that are applicable in the country in which it is intended that this product should be used. If you have purchased this product via the Internet, through mail order, and/or via a telephone sale, you must verify that this product is intended for use in the country in which you reside.

WARNING: Use of this product in any country other than that for which it is intended could be dangerous and could invalidate the manufacturer's or distributor's warranty. Please also retain your receipt as proof of purchase; otherwise, your product may be disqualified from the manufacturer's or distributor's warranty.

Caution

Always keep children and pets under constant adult supervision. The packaging, equipment, and included accessories are not toys and must be kept out of reach of children and pets. Use only under constant adult supervision.

Introduction

Thank you for purchasing the mio4™ Advanced MIDI Interface, a member of iConnectivity's line of innovative interfaces.

Your interface has full support for two Macs or PCs - at the same time! - plus you can connect it to your router and access four more computer devices over Wi-Fi or wired Ethernet. The mio4™ offers extremely flexible MIDI routing between everything connected: all those computers, plus the MIDI hardware plugged into its four in/out pairs of 5-pin MIDI and its USB MIDI Hosting Port. (There's a USB MIDI Class-Compliant Hosting Port on the rear of the interface, which you can expand with a powered USB hub to access up to eight USB MIDI devices.)

Between all those external and internal connections, your mio4™ has a total of 48 configurable 16-channel MIDI ports! All those data streams let you use a substantial number of modern and vintage MIDI devices, get them all talking to each other, and also bring in "guest" equipment and computers very quickly when you collaborate with other musicians on stage or in the studio.

Because of your mio4's built-in MIDI filtering/routing/merging, stand-alone hardware units aren't needed for those functions. MIDI can also be routed to multiple destinations, for example if you want to layer sounds on different instruments, and each destination can have its own MIDI processing.

All the MIDI routing and processing is simple to set up in the included iConfig software for Mac and PC (www.iConnectivity.com/support/downloads), and your complete configuration can be saved in non-volatile flash memory on the device. It remembers it all when you power up the next time.

There are no Mac or PC software drivers to install, because the interface is USB Class-Compliant, and it can be powered over the USB bus without a power adapter.

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Initial Setup

The following steps will help you set up and integrate your mio4 as easily as possible.

1. Connect a Mac or PC to rear-panel USB Device jack 2, using the supplied USB-A to USB-B cable.

This provides the mio4 with power over the USB bus. (It can also be powered by the optional iConnectivity power adapter.)

2. Download and install the included iConfig software to a Mac or PC from www.iconnectivity.com/support/downloads. Launch the program.

iConfig will automatically check to ensure your interface has the latest firmware installed.

mio4 is shipped from the factory with a default configuration that includes MIDI routing and merging between all the connected devices. You can operate the mio4 in this default configuration, or use iConfig to customize the routing and MIDI management for your specific needs. Custom settings can be saved on the interface for next use.

mio4 requires no driver software to operate on either Mac OS X or Windows. (The exception is that Network MIDI on Windows computers requires the rtpMIDI driver: <http://www.tobias-erichsen.de/software/rtpmidi.html>)

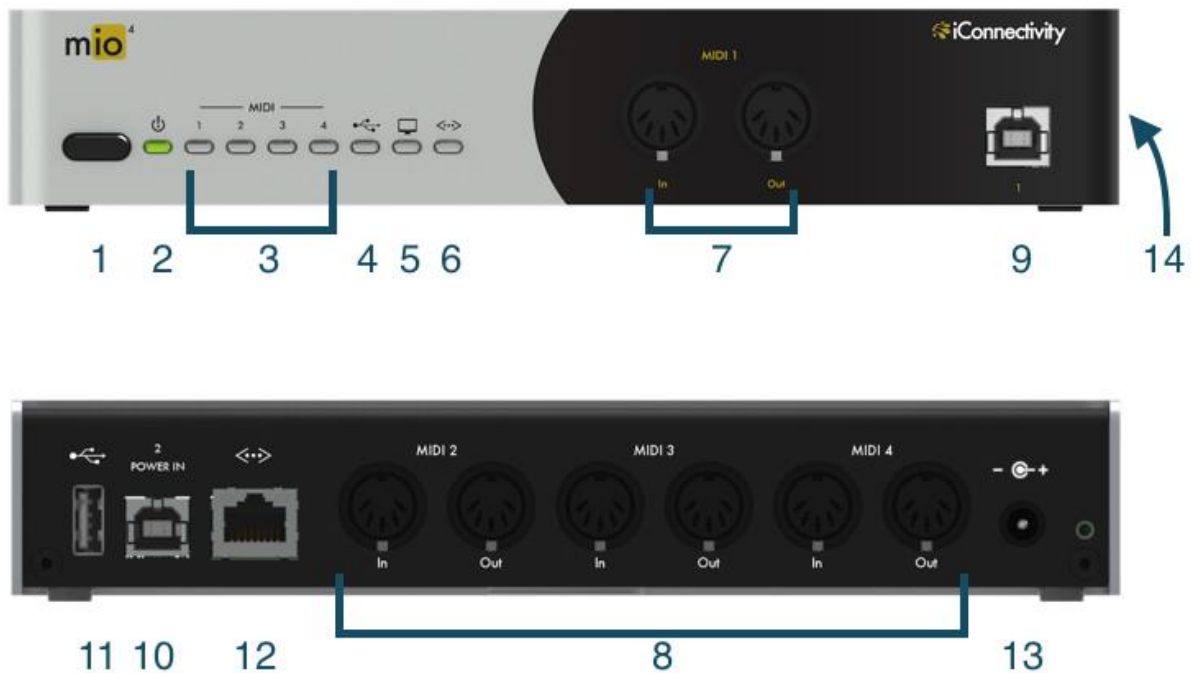
3. Connect your MIDI devices and/or an additional Mac or PC to the interface. Your interface can also operate stand-alone without a computer using the optional iConnectivity power adapter.

For detailed information about hardware connections, please see the [mio4 Hardware Layout](#)

4. The mio4's MIDI routings are in the factory default state, which is a "one size fits all" setup that you can reconfigure. Your Mac/PC DAW software automatically sees all the available 16-channel MIDI port sources and destinations the mio4 provides, and connected MIDI devices are routed to both computers and to each other.

For information about MIDI routing, both the factory default setup and how to customize it, please see the [MIDI Routing and Processing](#) section.

mio4 Hardware Layout



1. Power button

- Sleep Mode: Hold for 2 seconds until the green LED goes out, then release.
- Wake: Touch button briefly.
- Hard-reset: Hold button for 7 seconds; all LEDs light up; release button.
- Bootloader mode to receive firmware updates: Hold button 4 seconds until power LED turns red; release button. MIDI 1 and MIDI2 lights alternate on and off. Press and hold to abort bootloader mode.

2. Power LED

Green indicates mio is powered up normally.

3. MIDI DIN 1 - 4 LEDs

Indicate that MIDI data is being sent/received at corresponding MIDI DIN jacks.

4. USB Host jack LED

Indicates that MIDI data is being sent/received over the USB MIDI hosting jack.

5. USB Device Jacks LED

Indicates MIDI is being sent to/from a computer in one of the two USB-B computer device jacks.

6. Network jack LED

Indicates that MIDI is being sent/received over the network.

7. MIDI DIN 1 in/out jack pair (front panel)

8. MIDI DIN 2-4 in/out jack pairs (rear panel)

Connect standard 5-pin MIDI DIN equipment.

9. USB Device jack 1

USB computer device jack for a Mac or PC, using a standard USB-B cable. Does not power the device or support firmware loading.

10. USB Device jack 2 (power)

USB computer device jack for a Mac or PC. Powers the device over the USB bus. Supports firmware loading. Accepts a USB-B cable.

Note: mio4 may also be powered by the optional iConnectivity power adapter.

11. USB Host jack

USB MIDI hosting jack accepts Class-Compliant USB MIDI devices only. In general, USB MIDI devices that require a software driver to operate are *not* Class-Compliant. Accepts a powered USB 2.0 or 3.0

hub to access up to eight Class-Compliant MIDI devices.

Note: Some USB MIDI devices may require more power than can be supported directly by the mio4 in bus-powered mode. The available power can be increased by using the optional power adaptor or connecting a powered USB hub. We recommend looking for the "USB Certified" sticker to ensure your hub meets USB power standards.

12. Network jack

Ethernet jack for Network MIDI. Supports up to four Network MIDI sessions, each with a single bank of 16 MIDI channels.

- May be connected to a Wi-Fi router for wireless MIDI.
- Please see the [Network MIDI](#) section for set up instructions.

13. Power supply jack

mio4 may also be powered by the optional iConnectivity power adapter (9V @2A 18W, 2mm). This allows operation without a computer, and provides increased power for devices connected to the USB Host jack.

14. Security lock port (right side)

mio4 Features

The mio4 comes equipped with a powerful suite of features for managing your MIDI interconnections. These are described briefly below, while detailed operating instructions appear in the following pages.

Network MIDI

Additional MIDI interconnection is available via Ethernet, allowing you to add up to four additional computers or Network MIDI-equipped iConnectivity interfaces to your MIDI setup. For details on how to use Network MIDI, refer to the [Network MIDI](#) section.

Port Routing

Each MIDI port on each connection can be routed to any other port. Multiple ports can be merged and routed to a single port. A default routing configuration is loaded in the factory. To view and edit the MIDI port routing, refer to the [MIDI Port Routing](#) section.

Port Filters

Filters can be applied to any MIDI input or output port. Filters block specific MIDI event messages from being received on an input port or from being sent through an output port, allowing you to manage the content and volume of MIDI traffic. For details on port filter settings, refer to the [MIDI Port Filters](#) section.

Channel Remap

Each MIDI port has 16 channels of MIDI data. Specific events on any one channel can be remapped to another channel on the same port, allowing more customization and control. Channel mapping can be applied to inputs as well as outputs. For details on channel remap settings, refer to the [MIDI Channel Remap](#) section.

Continuous Controller Filters

Filters can be defined to remove specific continuous controller messages on selected channels of either input or output ports, allowing another way to tailor your MIDI setup. For details on continuous controller filters, refer to the [MIDI Controller Filters](#) section.

Continuous Controller Remap

Specific continuous controller messages can be remapped to another continuous controller type, to redefine the effect of the controller. Remapping can be applied to selected channels on selected inputs or output ports. For details on continuous controller remapping, refer to the [MIDI Controller Remap](#) section.

Network MIDI

The mio4's Network MIDI feature is a bidirectional MIDI connection over Ethernet. The mio4 supports up to four Ethernet *sessions*, each one acting as a 16-channel MIDI port.

Connect an Ethernet cable from one computer to the mio4's single Network port, or use an Ethernet switch or Wi-Fi router to connect up to four computers. Follow the instructions below to set up the Ethernet session on the computer.

Network MIDI is built into Mac OS X, and Windows requires the free rtpMIDI driver available here: <http://www.tobias-erichsen.de/software/rtpmidi.html>. They both look the same and function the same way.

Connecting a computer to a Network MIDI Session


1. Connect an Ethernet cable from the mio to the computer.

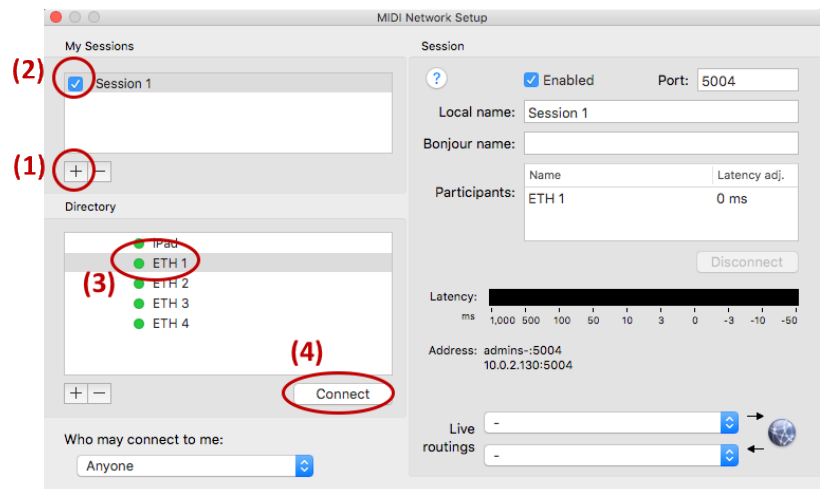
2. Access the MIDI Network Setup screen:

In **Mac OS X**, open the Audio MIDI Setup Program in the Utilities folder, and click "Window" and "show MIDI Studio". Double-click the Network icon.

In **Windows**, open the rtpMIDI program.

3. Follow the four steps listed below (referring to the following MAC screen shot). In this example we're connecting to ETH 1.

- (1) Click the  icon under My Sessions to create a new 16-channel Network MIDI session on your computer, called "Session 1" (you can rename it in the "Local name" field on the right).
- (2) Click on the Session 1 checkbox to enable it.
- (3) Click ETH 1 (or another one of the four available mio destination Sessions) for connection to "Session 1."
- (4) Click Connect.



You may have to re-connect to the session next time you start your computer.

iConfig Software

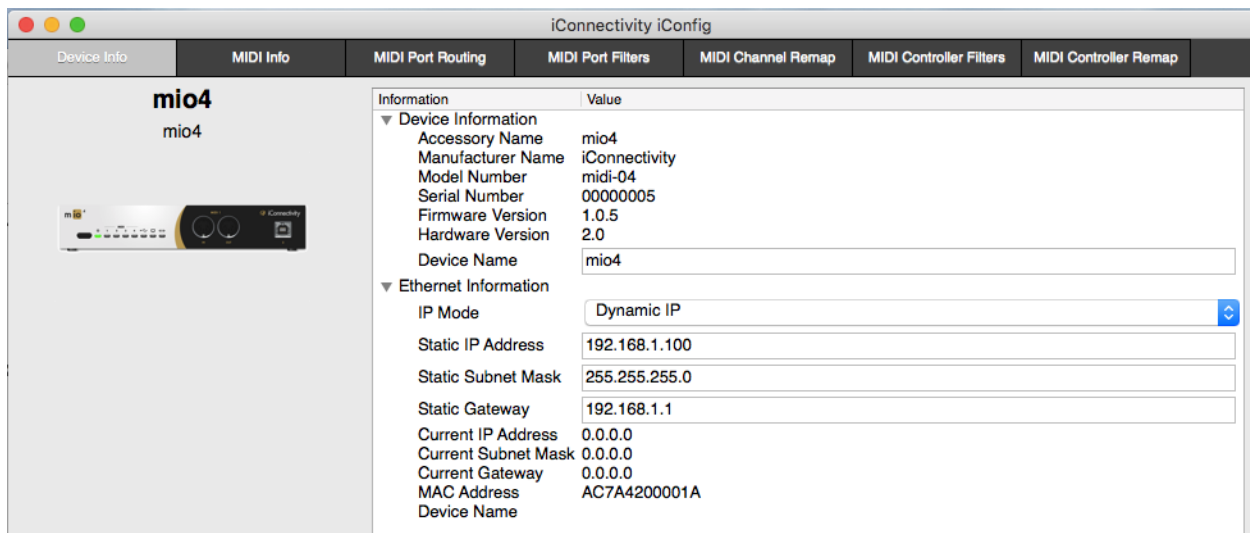
The included iConfig program looks and works the same on Mac and Windows. Use it to configure all the setup, MIDI routing, and MIDI processing features in your mio4. iConfig also works with additional iConnectivity interfaces connected to the same computer; you only need one installation.

IMPORTANT NOTE: To save the mio4's configuration to memory, select "Device" on the top menu bar, and then select "Save Current Settings". The settings will be stored in non-volatile memory while the mio is powered off.

The following sections explain each page that appears under the tabs at the top of the iConfig application.

Device Info Page

This page displays overall information about the mio4, and is used to configure its Ethernet settings.



Device Information:

The **Device Name** field is editable, so you can give the mio4 a unique name.

Ethernet Information:

IP Mode (Dynamic IP, Static IP). Every device on a network has a unique IP address number to identify it. When set to Dynamic IP (the default) the IP address is assigned to the mio4 each time it connects to the computer. When set to Static IP the mio4 IP address is entered manually. If other devices on the same network as the mio4 need a consistent IP address every time they start up, you can avoid conflicts by assigning mio4 a fixed IP Address, Subnet Mask, and Gateway here.

Abbreviations and Port Naming

The iConfig software uses standard abbreviations for MIDI port names, and the factory-default names reflect the factory-default MIDI routing. These are explained below.

Abbreviations:



DIN 1 - 4: the MIDI 5-pin DIN input/output pairs.
USB 1 - 2: USB computer device jacks. (connections to MAC or PC computers)
HST 1 - 8: USB MIDI host ports (connections to class-compliant USB MIDI devices, either directly or via a powered hub to the USB-A jack)
ETH 1-4: the four Network MIDI sessions on the Ethernet jack

Port Naming:

Each MIDI port can be assigned a custom name in the MIDI Info Page of iConfig, and the mio is pre-configured at the factory with a default set of port names.

The names given to the DIN, USB host, and Ethernet ports simply reflect the port type and number (i.e. USB host port 2 is named *HST 2*).

In the case of USB computer device jacks, the ports have been named according to the routing in the mio4. (i.e. USB device jack 1 port 1 is routed to DIN 1, so it has been named *DIN 1*).

The reason for this naming choice is for convenience when viewing the ports on your computer's DAW software.

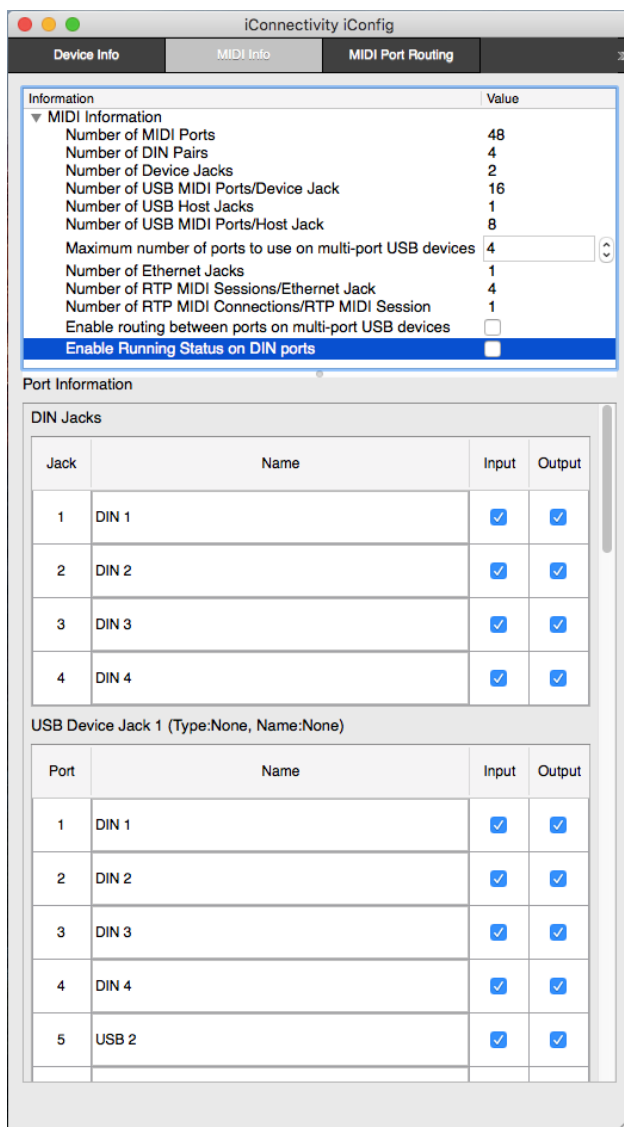
As shown in the Pro Tools example on the right, the computer software lists the ports connected to the MIDI interface and includes the custom names in the port naming. By assigning names based on the port routing, you can see the end destination or source for the MIDI data when viewing the ports in your DAW software.

USB device jack ports are named based on their default routing connections in the mio4. This way you can view the MIDI end destinations or sources from your DAW software:



Note: After changing a port name in iConfig, it may be necessary to remove the mio4 from the computer's device listing and re-connect the mio4 so that the computer refreshes the port name.

MIDI Info Page



MIDI Information:

Number of MIDI Ports: Shows the total number of MIDI ports available on the 5-pin DIN Jacks, USB Device Jacks, USB Host Jack and Ethernet Sessions.

Note: Each MIDI port is a 16-channel data stream.

Number of DIN pairs: Shows the number of standard 5-pin MIDI DIN connector pairs (In/Out).

Number of Device jacks: Shows the number of USB-B connections available for Mac or PC computer devices.

Number of USB MIDI Ports/Device Jack: Each Device Jack can support multiple MIDI ports.

This entry shows the total number of ports supported on each jack.

Number of USB Host Jacks: Shows the number of USB Host Jacks available, for hosting Class Compliant USB MIDI devices.

Number of USB MIDI Ports/Host Jack: The USB Host Jack supports multiple MIDI ports. By adding an optional powered USB hub, multiple USB MIDI devices can access the available MIDI ports on the Host Jack.

Maximum number of ports to use on multi-port USB devices: Multi-port USB devices can be assigned more than one of the available USB MIDI ports on the Host Jack. This setting limits the number of ports used by any one multi-port device.

Number of Ethernet Jacks: Shows the number of available Ethernet jacks on the product.

Number of RTP MIDI Sessions/Ethernet Jack: The Ethernet Jack can support separate MIDI sessions with multiple networked computers. This number shows the maximum number of sessions.

Number of RTP MIDI Connections/RTP MIDI Session: This indicates how many devices can be connected via each Ethernet session (normally one.)

Enable routing between ports on multi-port USB devices: This is not normally required but can be enabled by checking this box.

Enable Running Status on DIN ports: Running Status is a MIDI command that must be implemented - correctly - by receiving devices, so it is disabled by default. Its function is to reduce the amount of MIDI data by eliminating redundant status bytes.

Port Information:

General: Every MIDI port available to each mio4 connection can have both its input and output enabled or disabled. Everything is on by default. Port Names can be edited.

Note: The default port names are based on the factory default routing so they may no longer be appropriate once you modify the routing.

USB Host Jack: Once a device has been connected via the Host Jack, you can reserve one of the ports for that device for future connections.

Ethernet Jack: Includes information about active Ethernet sessions.

MIDI Routing and Processing Pages

MIDI data is routed from the mio4 inputs to the outputs according to the settings on the MIDI Port Routing Page. The MIDI data can also be manipulated in the mio4 by filtering or remapping functions. These settings are configured in the MIDI Port Filters, MIDI Channel Remap, MIDI Controller Filters, and MIDI Controller Remap pages

Note: MIDI filtering and remapping functions are performed in a specific order on the MIDI inputs and outputs. Please refer to the [mio4 block diagram](#).

General Page Layout:

The iConfig pages for MIDI routing and processing share a common layout, with a PORT panel on the left and a SETTINGS panel on the right, as shown below.

PORT panel:
This panel lists the available MIDI ports, grouped by physical connector. Select a port from this panel to view or edit the settings in the SETTINGS panel. Filters and Remapping can be applied either to either the input or output path of the port, by selecting Input or Output type at the top of the panel.

SETTINGS panel:
This panel shows the settings for the selection in the PORT panel. Selections are filled with grey color and can be changed with a mouse click. This example shows the MIDI Port Filters page, and the Input filtering applied to the USB Device Jack 1, "DIN1" port.

NOTE: As shown in this settings panel, each MIDI port supports 16 channels of MIDI data. Filters and Mapping can be applied selectively to specific channels.

Please refer to the [Abbreviations and Port Naming](#) explanations on the previous page.

MIDI Port Routing Page

Every 16-channel MIDI port input from each physical connection can be routed to one or more destinations. For example, a DAW track routed to 5-pin DIN 1 could be routed to an additional DIN jack to layer a synth sound.

In the Port Routing example below, MIDI sent to port “DIN 1” from the first computer (on USB Jack 1) is being routed both to the DIN 1 jack and to the other computer's Port 5 (on USB Jack 2).

The screenshot shows the iConnectivity iConfig application window with the MIDI Port Routing tab selected. The interface is divided into a 'Port' list on the left and a 'Port Routes (Destinations)' table on the right. The 'Port' list includes various MIDI ports such as USB Device Jack 1, DIN 1-4, USB 2, HST 1-7, ETH 1-4, USB Device Jack 2, USB Host Jack 1, and Ethernet Jack 1. The 'Port Routes (Destinations)' table shows routing from source ports to destination ports. The table has 16 columns representing destination channels (1-16) and rows for source ports. The routing table is as follows:

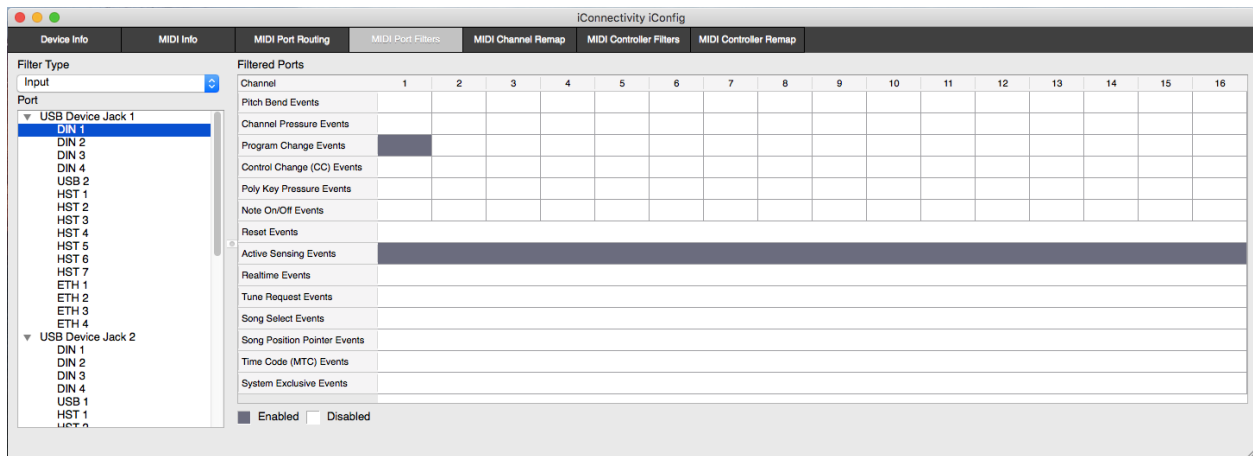
Source Port	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
USB Device Jack 1																
USB Device Jack 2					5											
USB Host Jack 1	1		2		3		4		5		6		7		8	
Ethernet Jack 1		1				2				3				4		
DIN Jack 1	DIN 1															
DIN Jack 2	DIN 2															
DIN Jack 3	DIN 3															
DIN Jack 4	DIN 4															

At the bottom of the routing table, there are checkboxes for 'Enabled' (checked) and 'Disabled' (unchecked).

MIDI Port Filters Page

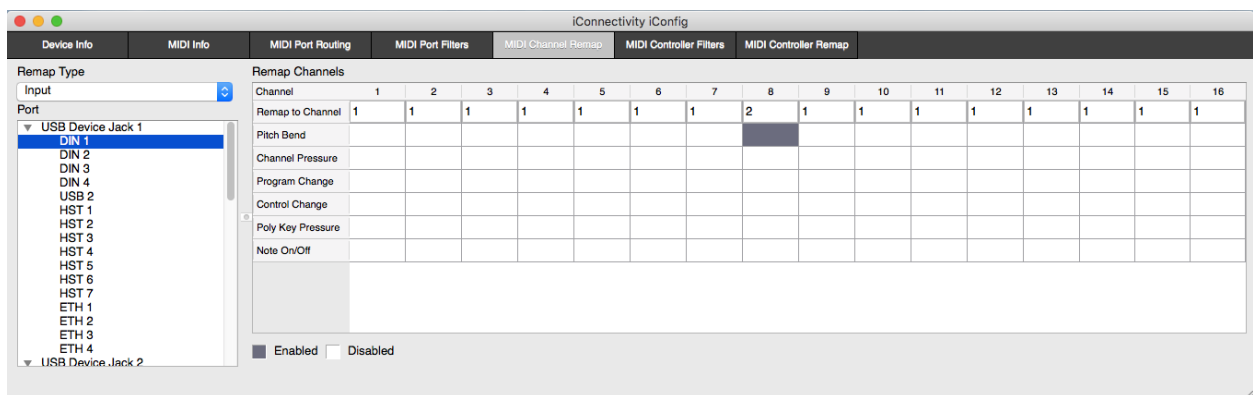
This setting allows specific kinds of MIDI data to be removed (filtered) from each port on either the input or output path. In the Filter Type selection box, choose between Input and Output to select where the filtering is to be applied.

Active Sensing and Program Changes are being filtered from the USB 1, Port “DIN 1” input in the following example.



MIDI Channel Remap Page

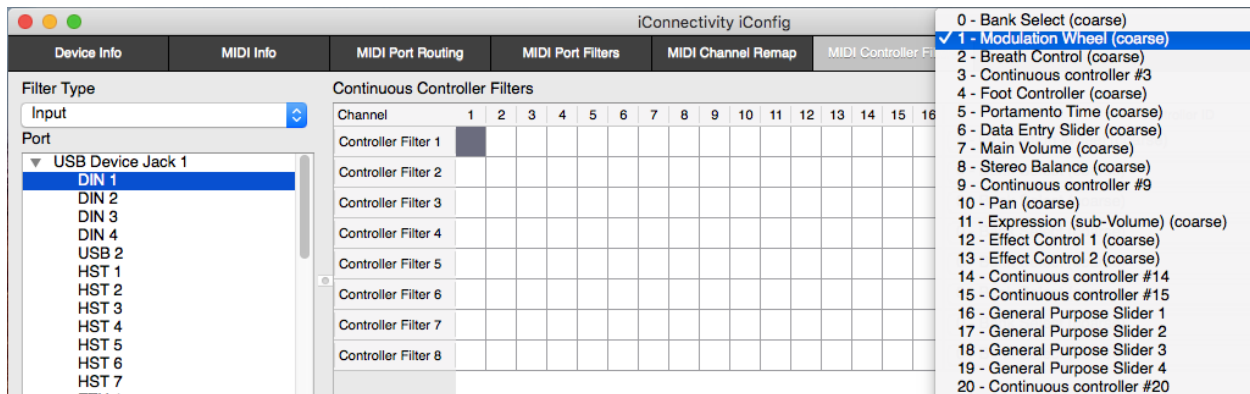
This setting allows MIDI data to be re-assigned from one channel to another on either the input or output path. Choose specific message types on specific channels by clicking on the corresponding box in the matrix. Edit the “Remap to Channel” entry below the channel number to indicate which channel the messages should be re-assigned to. In the example below, Pitch Bend messages on channel 8 of port 1 (“DIN 1”) from the computer are remapped to channel 2 before routing the data to its destination port (DIN 1). The Pitch Bend messages will be removed from channel 8 and inserted into channel 2 instead.



MIDI Controller Filters Page

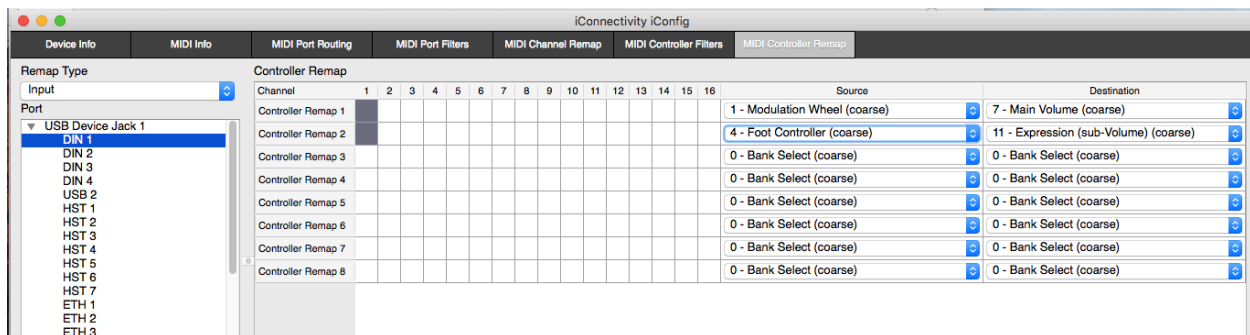
This setting allows specific MIDI Controller messages to be removed (filtered) on either the input or output path. The list of all 128 controller ID's in the MIDI spec is available, and up to eight different controller filters can be specified.

The example below shows Modulation Wheel messages (ID 01), being removed at the input from USB 1, port "DIN 1", on MIDI channel 1.



MIDI Controller Remap Page

This setting allows MIDI Controller messages to be changed so that they apply to a different controller. In this example two controller messages have been remapped at the input on USB 1, port "DIN 1", MIDI Channel 1. Modulation wheel messages are being used to control volume and foot pedal messages are being used to control expression.



Using mio MIDI Management to Optimize Your Rig

The factory setup for your mio4 connects “everything to everything,” so you can quickly get gear connected, use your controllers, and listen to your sounds.

Once you have your gear connected and working, and you’ve become familiar with the mio4’s MIDI management features, we recommend you spend some time tweaking your settings to improve efficiency, minimize latency, and avoid potential data loss.

Here are some recommended guidelines for optimizing your setup, to be done in the order shown. Don’t forget to save your new configuration to the mio4 for next power-up:

1. Reserve controllers on USB host ports.

When devices are connected to the USB host jack they are assigned MIDI ports on a “first come first serve” basis. To ensure a consistent, optimized system you need to ensure that hosted devices always appear on the same MIDI port every time they are connected. You can reserve a port on the USB host jack for a certain device by choosing that device from the drop-down list on the MIDI Info page. Devices are recognized by the manufacturer and model only. If you have two of the same controller and they have different setups then ensure, that they are always connected to the same port on your USB hub, then when mio4 powers up it will enumerate the controllers in the same order every time.

2. Disable MIDI outputs for controllers that only send MIDI data.

Many controllers send MIDI data but ignore any MIDI data that is sent to them. Good examples are Korg nanoKey/microKey or the multitude of Akai MPK controllers. Suppose you have eight of these controllers connected to the **USB host jack**: every time you press a key on any one of these controllers that key event is sent to the other seven controllers, which wastes data bandwidth because they don’t respond to key events. You can use your mio to save seven times the bandwidth and processing simply by disabling the MIDI outputs for those eight controllers. The easiest way to do this is to go to the [MIDI Info Page](#) in iConfig and uncheck the “output enable” box. This will prevent any MIDI events from being sent to those controllers. If you have MIDI controllers on the USB host jack that need to receive MIDI input of some kind (e.g. because they generate sound or you need to send sysex dumps to them) then don’t uncheck the “output enable” box. These we can optimize in a different way (explained later).

DIN ports are a bit different in that you can separate the MIDI IN and MIDI OUT signals for each port to different boxes. For example, you may have a MIDI controller attached to DIN 1 IN and a sound module attached to DIN 1 OUT. In this case you wouldn’t want to uncheck the “output enable” box for DIN 1 port. These we can optimize in a different way (explained later).

3. Disable MIDI inputs for controllers that only receive MIDI data.

Perhaps you have a sound module that never sends MIDI data, or a sound module that sends MIDI data that you don’t need. It’s best to remove that module as a source of MIDI data. The easiest way to do that is to go to the [MIDI Info Page](#) in iConfig and uncheck the “input enable” box. If you have MIDI controllers on the USB host jack that need to send MIDI data of some kind then don’t uncheck the “input enable” box. These we can optimize in a different way (explained later).

4. Remove MIDI routes that are not necessary.

As we said earlier, the default factory routing connects “everything to everything” to help you get started. You can improve efficiency by trimming this down so that connections are only made from sources to destinations that require it. You may have a sound module that you only want to connect to your Mac for DAW playback and to one of your MIDI controllers for entering note data. The default routing may have that sound module receiving MIDI data from all other ports. Disconnect all the routes that you don’t absolutely need (see [MIDI Port Routing Page](#)).

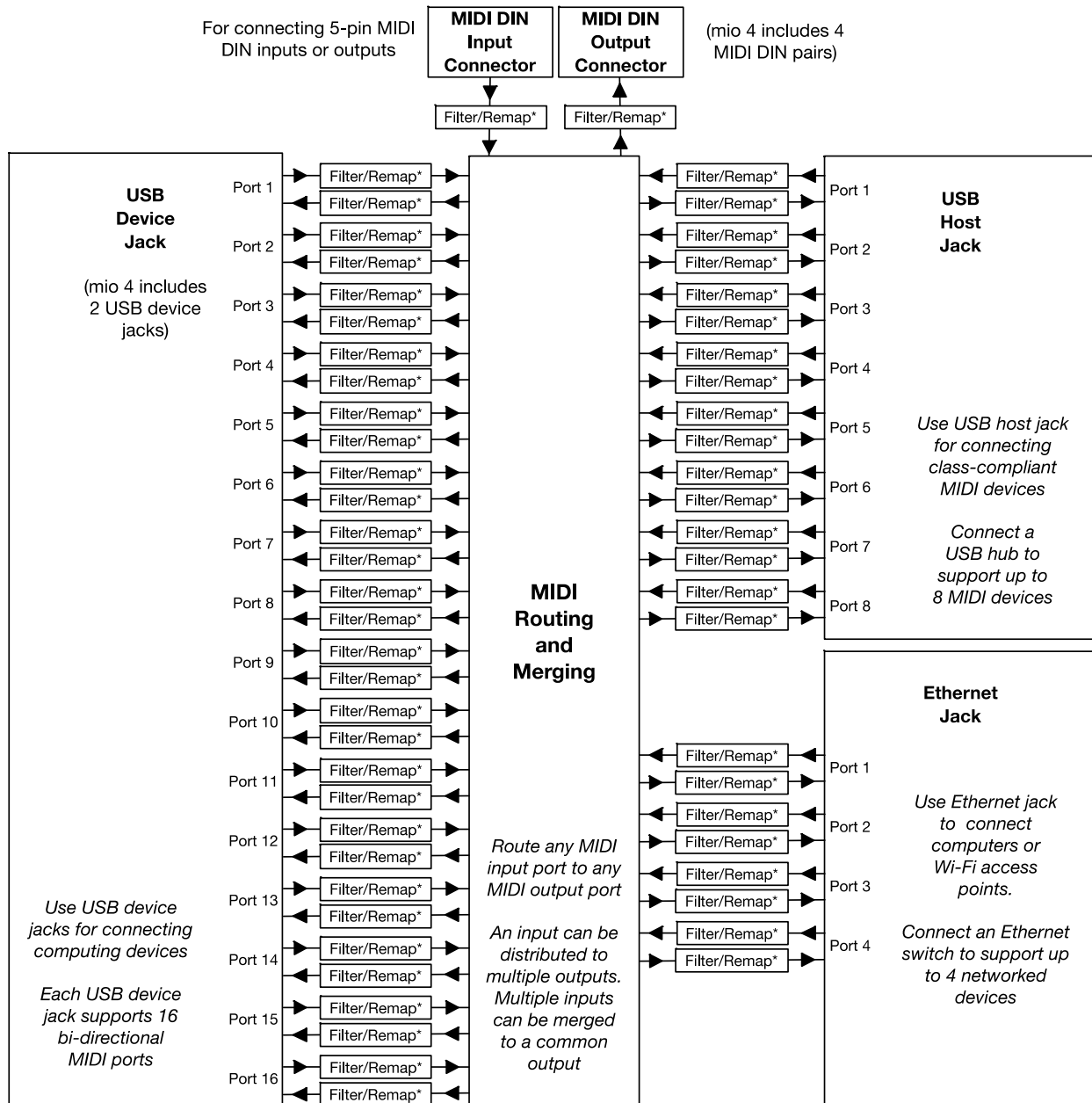
5. Enable filters.

There are many kinds of MIDI data. Some of them you may need in your setup but some you may not. The factory default filters out active sense messages but all other MIDI data types are enabled. You may have a controller that is sending out after touch messages whenever you press on the keyboard, or is sending out sysex messages whenever you touch something on the front panel, or is sending out MIDI clock messages all the time. If those messages aren’t required by something else in your setup then filter them out at the source by adding a filter to the MIDI input (see [MIDI Port Filters Page](#)). Similarly, if you have a MIDI sound module that is receiving after touch messages or MIDI clock messages or sysex messages but isn’t using them, then add a filter to the MIDI output. Enabling filters can greatly reduce the amount of unnecessary MIDI data clogging the system.

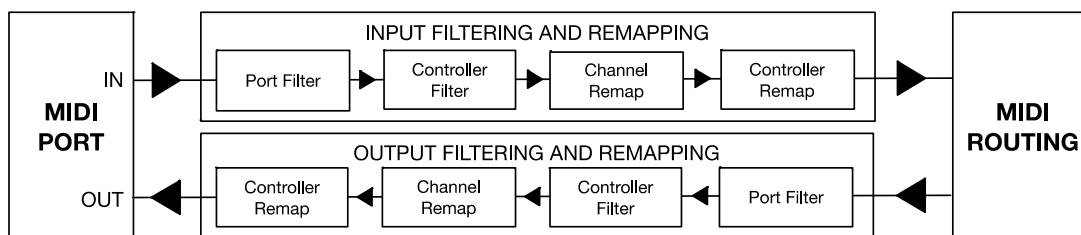
Depending on the loading of your system, the above optimizations can yield a tremendous improvement in data handling and latency.

At iConnectivity we like to design smart interfaces that let you build the system you need and ensure the best performance and lowest latency possible. We hope you enjoy your mio-based setup and wish you the best in your creative endeavors.

mio4 Block Diagram



* Filtering and remapping functions available on all MIDI input and output ports



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