

iConnectMIDI⁴⁺™

OWNER'S MANUAL



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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. To register iConnectivity products, visit iConnectivity.com. 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



Compatible with any Mac or Windows PC with an available USB port.

The iConfig software works with Microsoft Windows Vista+ and Mac OS X 10.4+, as well as iOS 5.0+ and a CoreMIDI-compatible app.

Compatible with iPhone 4, 4S, 5, 5C, 5S, iPad, iPod touch (4th generation).

iPad, iPhone, and iPod touch are trademarks of Apple Inc., registered in the US and other countries.

“Made for iPod,” “Made for iPhone,” and “Made for iPad” mean that an electronic accessory has been designed to connect specifically to iPod, iPhone, or iPad, respectively, and has been certified by the developer to meet Apple performance standards. Apple is not responsible for the operation of this device or its compliance with safety and regulatory standards. Please note that the use of this accessory with iPod, iPhone, or iPad may affect wireless performance.

iConnectMIDI4 and iConnectivity are trademarks of iKingdom Corp.

PRECAUTIONS / 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.

Keep this manual

After reading this manual, please keep it for later reference.

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.

Retain this manual for future reference.

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iConnectMIDI⁴⁺

Thank you for purchasing the iConnectMIDI⁴⁺ Hybrid multi-host MIDI interface with Audio passThru™ technology.

Your iConnectMIDI⁴⁺ is the most flexible MIDI interface available, integrating today's professional multiple-computer set-ups with iOS devices and traditional MIDI hardware. Not only does your interface support three computer devices simultaneously – Macs, PCs, and iOS (iPad, iPhone, iPod touch) – its patent-pending Audio passThru™ technology routes audio between them digitally with zero signal degradation, simply appearing as an audio interface to the operating systems.

There's more than that, though. Your iConnectMIDI⁴⁺ has a total of 64 MIDI ports available, between its four MIDI DIN jacks, three USB device jacks, a USB host jack, and a unique Ethernet jack for routing MIDI over a network to additional computer devices (even over Wi-Fi if you connect it to a router).

Using the included iConfig software for Windows, Mac, and iOS, it's simple to configure and store sophisticated snapshots with routing arrangements, discrete data filtering, merging, and/or remapping. But you don't have to use iConfig all the time. The current set-up is stored in flash memory on the unit, and the default routing works out of the box without changing anything.

Setting up your unit can be as simple as plugging it into a computing device, as its USB MIDI Class Compliant engineering means there are no drivers to install and it's recognized automatically.

Do you need to read this manual?

The iConnectMIDI⁴⁺ works as soon as you plug it in, and anyone who's ever used MIDI and audio interfaces will be using its basic functions right away.

But we suggest that even advanced users skim this manual, and go over the sections on jacks, ports, and routing carefully. Each jack has unique capabilities, and the routing possibilities require some explanation.

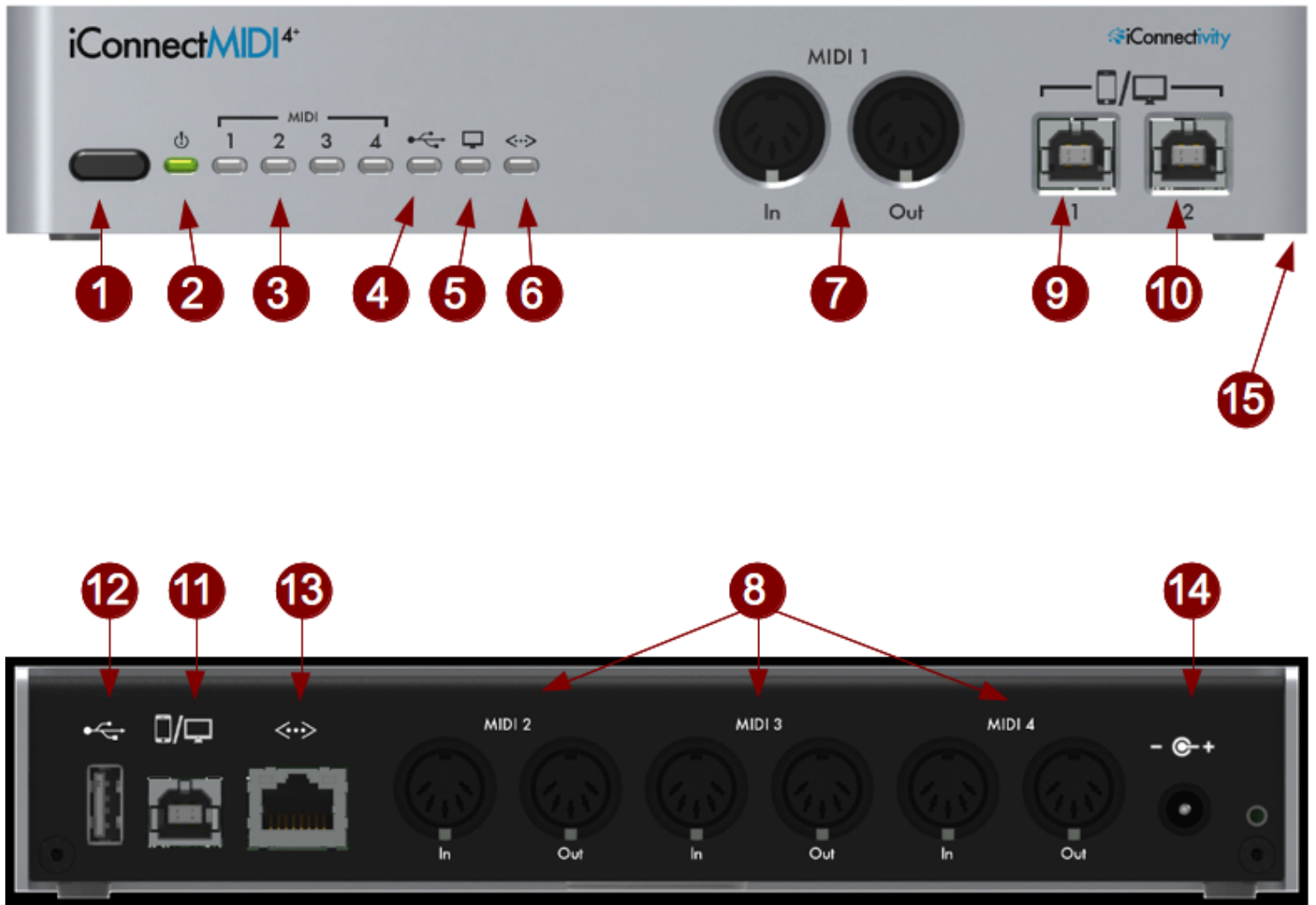
What's in the box



- The iConnectMIDI⁴⁺
- One 30-pin or Lightning iConnectivity USB (B) inline connection cable to connect the interface to an iOS device that uses this connector.
- One USB-A to USB-B cable to connect the interface to a Mac or PC computer.
- A power transformer. Please use only the iConnectivity 12V/3A (36W) center positive supply, or you risk damaging the device. This adapter operates over a range of 100-240V/50 or 60Hz, so it can be used internationally with wall plug adapters.

Please contact your dealer or iConnectivity directly if any of these items were not included in the packaging.

The iConnectMIDI⁴⁺ hardware



1 Power button

This switch has several functions.

- Putting the iConnectMIDI⁴⁺ to sleep and waking it up.

Put the device to sleep by holding the button in for a couple of seconds until the green LED (2) goes out, then releasing it.

Wake it up by touching it briefly.

- Hard-resetting the device.

Hold the button in for about seven seconds until all the LEDs light up, then release it.

- Putting the device into boot loader mode, ready to receive firmware updates.

Hold the button in for four seconds until the Power LED (2) turns red, then release it. The MIDI 1 and MIDI 2 lights (3) will flash.

To return to normal mode, put the device to sleep and wake it.

2 Power LED

This light turns green when the device is powered up normally, and red when it is about to go into boot loader mode (ready to receive firmware updates). When the iConnectMIDI⁴⁺ is in boot loader mode, the Power LED turns off and the MIDI 1 through 4 LEDs flash. The USB Device jack LED also flashes during boot loader mode when MIDI data is sent and received over the rear-panel USB Device jack.

3 MIDI 1 through 4 LEDs

These lights indicate that data is MIDI data is being sent to or received from devices plugged into the MIDI DIN I/O jack pairs.

MIDI lights 1 and 2 also flash when the device is in boot loader mode; they flash along with all the other LEDs when the device starts up, when a hard reset is about to begin, and during firmware updates.

4 USB Host jack LED

This light indicates that USB MIDI data is being sent to or received from a USB MIDI class-compliant device plugged into the USB Host jack.

It also lights along with all the other LEDs when the device starts up, and when a hard reset is about to begin.

5 USB Device jacks LED

This light indicates that MIDI data is being sent to or received from computer devices plugged into one or more of the three USB Device jacks.

It also lights up along with all the other LEDs when the device starts up, and when a hard reset is about to begin.

Finally, the USB Device jack LED also flashes during bootloader mode when MIDI data is sent and received over the rear-panel USB Device jack.

6 Network jack LED

This light indicates that MIDI data is being sent to or received over the network.

It also lights up along with the other LEDs when the device starts up, and when a hard reset is about to begin.

7 MIDI DIN 1 in and out jacks (front panel)

8 MIDI DIN 2, 3, & 4 in and out jacks (rear panel)

These jacks accept standard 5-pin DIN MIDI plugs to hook up standard MIDI hardware. MIDI is transmitted at the standard MIDI rate (31.25 Kbps).

9, 10, 11 USB Device jacks

PLEASE NOTE THE DIFFERENCE IN CHARGING CAPABILITIES BETWEEN THE THREE USB DEVICE JACKS!

These USB 1.0 jacks accept a USB B-standard plug for audio and MIDI connection to a Mac or Windows computer, or the iConnectivity Lightning or 30-pin to USB (B) connector for both audio and MIDI connection to an iOS device. MIDI is transmitted at full USB speed.

Jack 1 provides 2.1 amps; it will charge any iOS device.

Jack 2 provides 1.0 amps, enough to charge an iPhone or iPod touch, and enough to prevent an iPad (which takes more power) from discharging more than about 1-2% per hour.

Jack 3 (rear panel) provides no charging power, so given a choice you would use it for a Mac or Windows computer.

12 USB Host jack

This USB 2.0 jack accepts USB MIDI Class-Compliant devices (only). Its primary function is to accept a MIDI controller that uses USB MIDI rather than 5-pin DIN connections, however it is not limited to controllers.

The USB Host jack provides up to eight banks of 16 MIDI channels, which can be assigned to any combination of up to eight devices (or disabled completely) in the iConfig software. These may be eight jacks on one device, one jack on eight devices, or four jacks on two devices.

Notes:

- THE USB HOST JACK IS NOT A STANDARD USB HUB JACK. It accepts USB Class-Compliant *MIDI* devices only. Standard USB devices like printers, keyboards, and mice will not work! Audio is not routed over this jack.

- This jack supplies the USB standard amount of current - up to 500mA - to USB MIDI devices. You will need a powered USB hub to power multiple devices (unless they have external power supplies).

13 Network jack

This Ethernet jack is for Network MIDI. With the help of Apple Network MIDI or the free rtpMIDI driver for Windows, it supports four sessions, each with one bank of 16 channels. Each session supports a single computer device.

The network jack may be connected to a Wi-Fi router for wireless MIDI.

NOTE: AUDIO IS NOT ROUTED OVER THE NETWORK.

Please see the separate section on the Network MIDI feature for set-up instructions.

14 Power supply jack

Please use only the iConnectivity 12V/3A (36W) center positive transformer, or you risk damaging the device.

This adapter operates over a range of 100-240V/50 or 60Hz, so it can be used internationally with wall plug adapters.

Note: One way to put the iConnectMIDI⁴⁺ into bootloader mode to receive firmware updates is to hold the Power button, then connect the power adapter, and finally release the Power button when the front panel LEDs are flashing.

If removing the power adapter is inconvenient, you can use the Power button to put the device to sleep, then wake it by holding the Power button in while it boots up.

What happens is that when the device starts up, it waits for the power to stabilize before loading its firmware; if the Power button is depressed during that period, it goes into bootloader mode.

15 Security lock port (right side)

Mac OS X set-up

1. Plug the iConnectMIDI⁴⁺ into an available USB jack.

If you're using the iConnectMIDI⁴⁺ alone on the Mac, that's it. It will show up as an available audio and a MIDI interface in your sequencer.

You can confirm this beforehand by opening the Audio MIDI Setup application found inside your Applications -> Utilities folder; the set-up in this program is shared by all audio and MIDI software running on the Mac. The iConnectMIDI⁴⁺ appears as a 16x16 MIDI interface in the MIDI Studio window, and unless you change the default audio configuration in the iConfig software, it appears as a 4-in/2-out audio interface in the Audio Devices window.

2. (Optional, but recommended to avoid confusion in larger set-ups) In Audio MIDI Setup, create and cable connected MIDI hardware devices to the iConnectMIDI⁴⁺ MIDI DIN jacks.

This will allow your sequencer to address the hardware by name (rather than just the port name), and you can provide some basic information about the hardware here.

Please refer to the section, "Port Routing: understanding iConnectMIDI⁴⁺ MIDI."

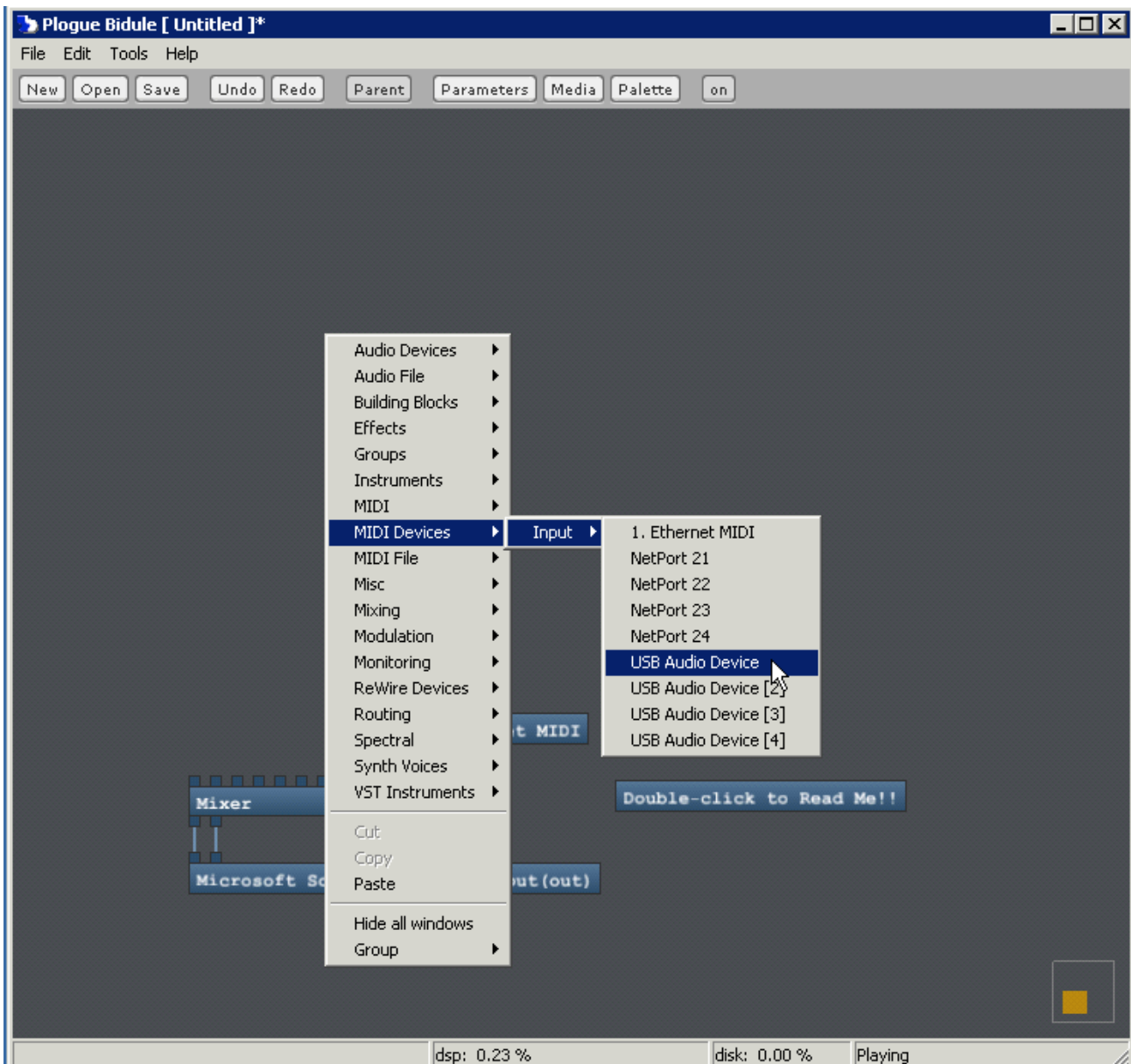
3. If you're using the iConnectMIDI⁴⁺'s Audio passThru™ feature in addition to other standard audio interfaces:

Create an Aggregate Device with the iConnectMIDI⁴⁺ and any standard interface(s) you're using along with it in Audio MIDI Setup. After that the Aggregate Device will behave as a single interface with extra inputs and outputs.

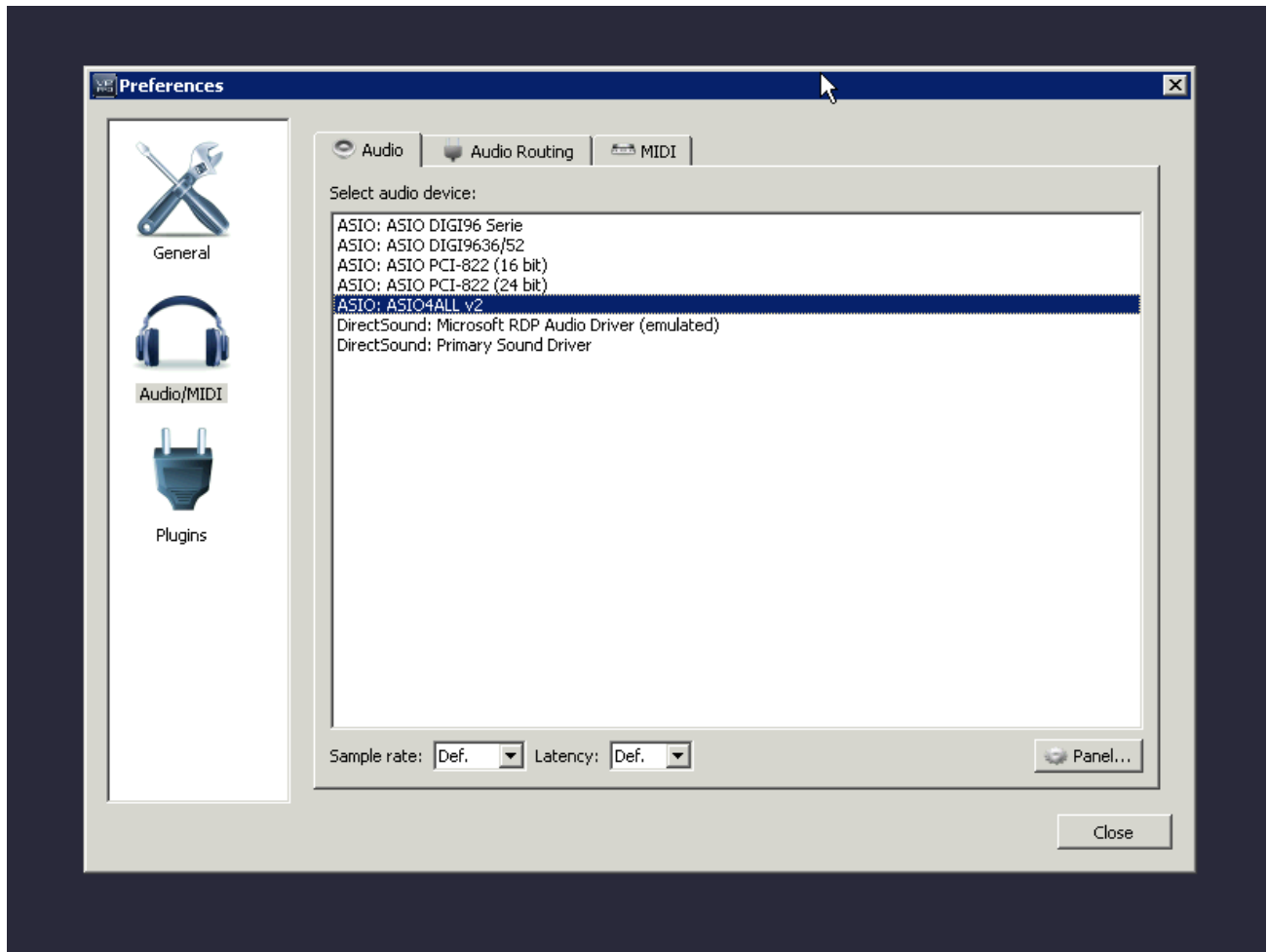
Windows set-up

1. Connect a USB A-to-B standard cable from Device port 1 or 2 to your Windows computer. The iConnectMIDI⁴⁺ will appear in your MIDI software as an available MIDI interface with four 16-channel ports.

In the following dialog in the Plogue Bidule host, for example, the MIDI interface is called “USB Audio Device”:



2. For audio set-up, go to www.ASIO4all.com to download and install the free ASIO4all driver. The iConnectMIDI4+ will show up as an available audio interface in your audio software, and you select it as the one to use.



If you are using the iConnectMIDI4+ alongside other audio interfaces installed on the Windows computer, as shown above, they are automatically “aggregated” into what appears to the software as a single interface with combined number of outputs in each one.

This is automatic when you select the ASIO4all driver. Whether the iConnectMIDI4+’s audio I/Os are numbered before, after, or in between other interfaces connected to your Windows computer may be arbitrary.

iOS set-up

For both audio passThru™ and MIDI, simply connect your iOS computer device to one of the three iConnectMIDI4+ Device jacks the 30-pin or Lightning to iConnectivity USB (B) inline connection cable.

Please note the differences in charging capability between the three USB Device jacks described in the “iConnectMIDI4+ front and back” section.

The iConnectMIDI4+ should automatically take over the iOS device’s audio input and output jacks, and most iOS apps will use it for MIDI input and output without intervention. This is the case with Apple GarageBand, for example. However, some apps - typically ones capable of supporting multiple MIDI interfaces (e.g. Network MIDI + an iConnectivity interface) - require that you select the interface(s) to be used.

Note: because the iOS device uses the iConnectMIDI4+ for audio I/O when it’s connected, some – not all - apps ignore the built-in mic or one plugged into the “headset” jack (the 1/8” TRRS connector). The workaround is to connect the mic to the computer on the other end of the USB cable and route it to the iOS device using, for example, a record-enabled track in your DAW software.

Working with multiple iConnectivity interfaces

When using more than one audio and or/MIDI interface on a computer, normally you'd simply connect each one to a standard USB jack on a Windows or Mac computer. Sequencers and other software running on the computer will then see them all. This applies to iConnectivity hybrid interfaces and to any other MIDI or audio interfaces, regardless of how many you're using.

The iConfig software can communicate with all your iConnectivity interfaces connected almost anywhere, even in another iConnectivity interface's MIDI DIN jacks. It can also communicate with interfaces connected to the USB Host Jack on the iConnectMIDI⁴⁺'s rear panel.

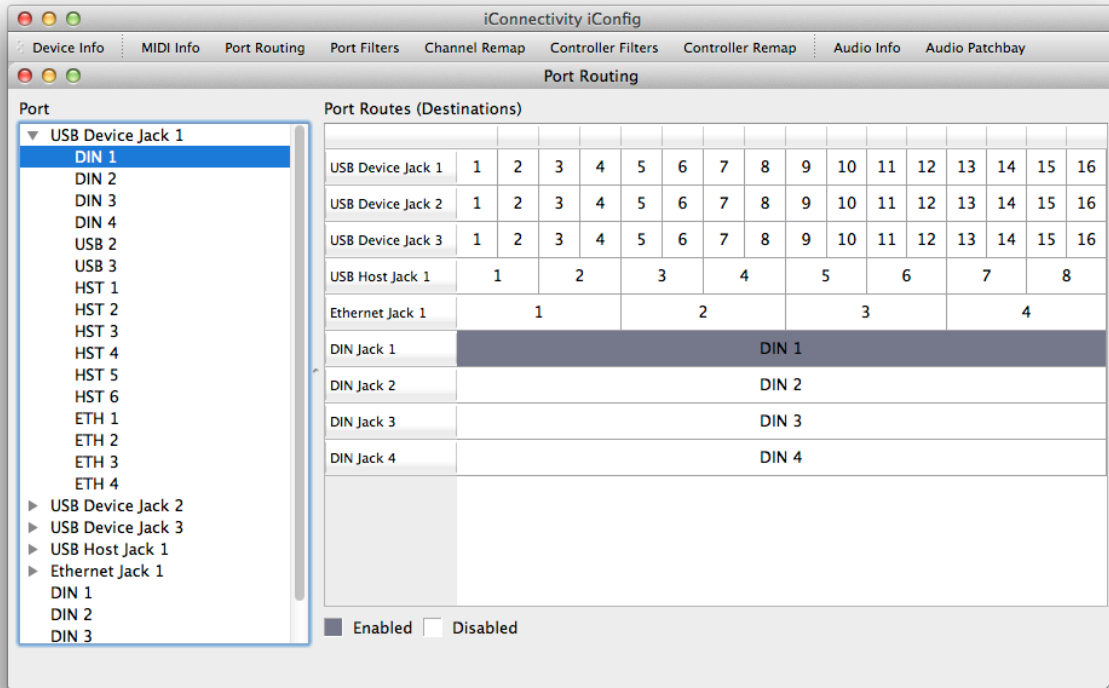
Things get somewhat complicated if you connect an iConnectivity interface to the iConnectMIDI⁴⁺'s USB Host jack, because the computer device only sees one device (the iConnectMIDI⁴⁺). The computer can send MIDI to the connected interface via iConnectMIDI⁴⁺ ports, but this is an unusual set-up that's prone to MIDI feedback loops (and the connection is disabled by default; this is the "Routing between ports on multi-port USB devices" parameter under the MIDI Info tab in the iConfig software).

There are 64 MIDI ports in iConnectMIDI⁴⁺, each with 16 MIDI channels. The ports can all be routed to each other in iConfig, the Mac, Windows, and iOS software that came with your interface.

While that may sound intimidating, the default routing set-up – which can be recalled – comes with everything routed where you'd expect it to go. However, port routing is a great feature that makes the interface uniquely flexible.

Please refer to the Port Routing tab in iConfig to visualize this explanation.

Port Routing: understanding iConnectMIDI⁴⁺ MIDI



Bear in mind that jacks are physical connections and ports are 16-channel MIDI ports; one jack can carry several ports. For example, each USB Device jack has 16 MIDI ports.

The 64 MIDI ports are configured as follows:

- Four DIN jacks (1 MIDI port each) = 4 ports
- Three USB device jacks (each supporting 16 MIDI ports) = 48 ports
- One USB host jack (supporting eight MIDI ports, could be one port on eight MIDI devices, eight ports on one MIDI device, or any combination) = 8 ports
- One Ethernet jack, which supports four rtpMIDI (on Windows) or Network MIDI (on Mac and iOS) sessions; each session is one port = 4 ports

The default routing (remember, this can be changed):

- Each MIDI DIN jack routes to:
 - the other three DIN jacks;

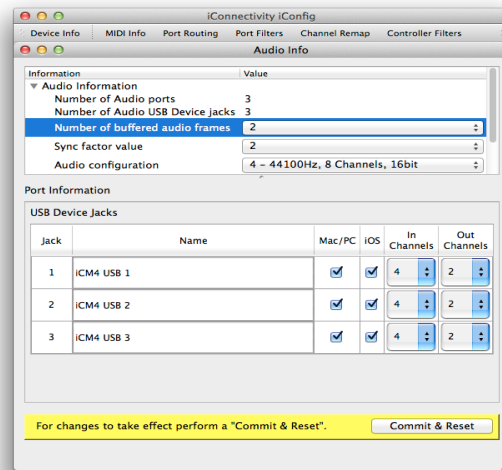
- the USB Device jack with the same number (DIN1 goes to USB Device jack 1, DIN 2 to USB Device jack 2...)
- All three USB device jacks are routed the same:
 - Ports 1-4 go to the same-numbered DIN jacks 1-4 (Port 1 to DIN 1, Port 2 to DIN 2...)
 - Ports 5-6 go to the other two USB device jacks;
 - Ports 7-12 go to the first six ports on the USB host jack (there are eight ports on the USB so the last two ports are not connected in the default set-up);
 - Ports 13-16 go to the four ports on the ethernet jack
- Each port on the USB Host jack routes to:
 - all four pairs of MIDI DIN jacks;
 - Host port 1 goes to all three USB Device jack's 7; Host port 2 goes to USB Device jack's port 8, etc. through Host jack 6 going to Device jack's port 12. Host jacks 7 and 8 are not routed to USB Device jacks in the default set-up.
 - the seven other ports on the USB Host jack (ports aren't routed to themselves);
 - all four ports on the ethernet jack.
- Each port on the ethernet jack routes to:
 - all four pairs of MIDI DIN jacks;
 - Ethernet port 1 goes to all three USB Device jack's port 13, Ethernet port 2 to all three USB Device jack's port 14, Ethernet port 3 goes to all three USB Device jack's port 15, Ethernet port 4 goes to all three USB Device jack's port 16.

Additional information:

- Up to 19 devices may be connected to the iConnectMIDI⁴⁺ (four on the DIN jacks, three computer devices on the USB Device jacks, eight USB MIDI devices on the USB Host jack [if you use a powered USB hub], and an additional four computers networked over Ethernet).

However, USB MIDI allows 16 ports on each jack. That means each USB Device jack can connect to 16 other devices. Excluding itself, that leaves two devices unattached, but you can change the default routing to send the same ports to two devices.

- Under the assumption that MIDI sent over Ethernet is probably coming from a remote computer rather than a MIDI controller, Ethernet ports are not routed to the other Ethernet ports in the default set-up. This can be changed, but computers can route MIDI data between Network MIDI/rtpMIDI sessions.



Audio passThru™

Audio passThru™ is the technology behind the built-in bi-directional digital audio connection between the three computer devices hooked up to the iConnectMIDI⁴⁺'s USB Device jacks (only – the other jacks don't carry audio). It appears to a Mac, Windows, or iOS computer device just like any other audio interface, but there are two important and unique distinctions.

The first one is that this interface connects to three computer devices at the same time, and each one thinks it has its own interface. Second, it doesn't have (or need) analog-to-digital and v.v. converters, because the source of the audio going over the Audio passThru™ bus is always a track or instrument plug-in running on one of the computer devices.

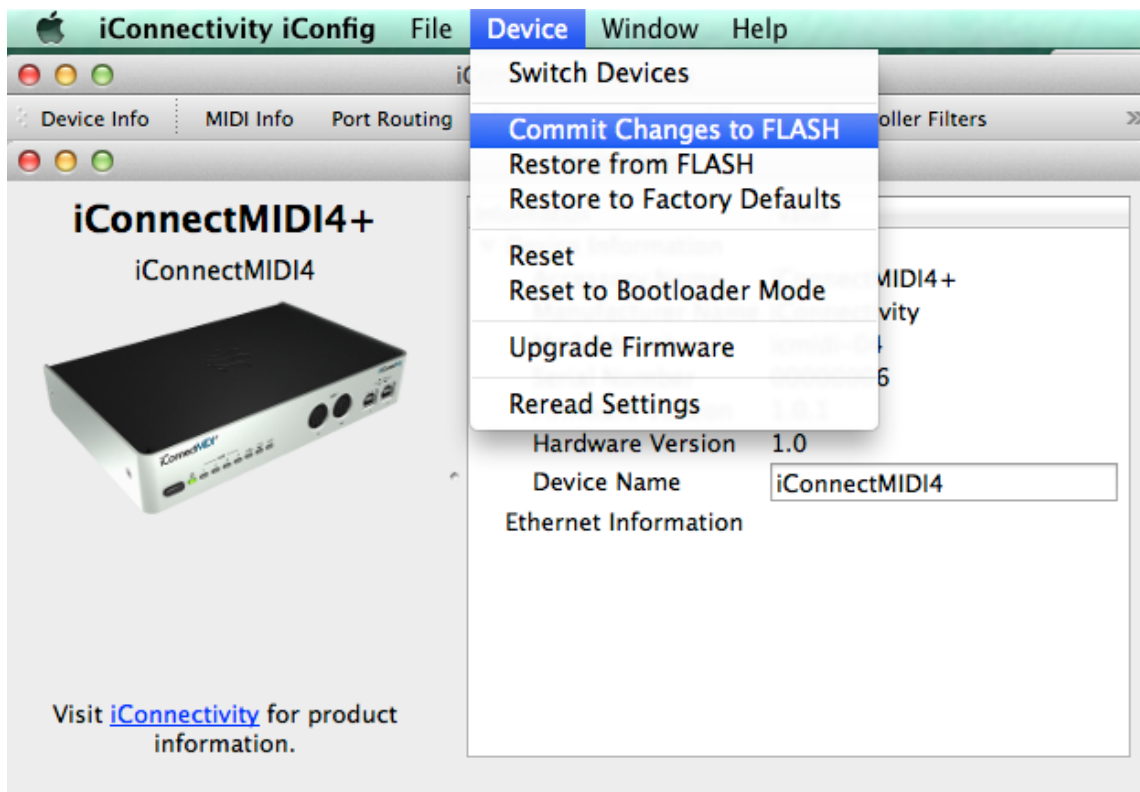
The iConnectMIDI⁴⁺ can stream up to eight channels of audio, depending on the sample rate and bit depth setting you choose in the iConnectivity iConfig software. *These must be set in the iConfig software, not in the computer's set-up program (e.g. Audio MIDI Setup).*

Because iOS currently supports 16-bit stereo audio, the default is set to the CD-standard of 16 bits and a 44.1kHz sample rate. Please see the explanation in the iConfig software's Audio Info tab for more about these settings.

iConnectivity iConfig Software

The iConnectivity iConfig software provides access to some sophisticated MIDI features in the iConnectivity interface(s) connected to your system, as well as the audio settings. It allows you to save and open complete routing and processing Snapshot files that make working with sophisticated systems very simple. You can name inputs, route MIDI selectively, and process MIDI in various ways.

The interface itself stores one Snapshot in its onboard flash memory – the active one - but you can store an unlimited number of these files on your computer device, open them in iConfig, and then Commit to Flash:

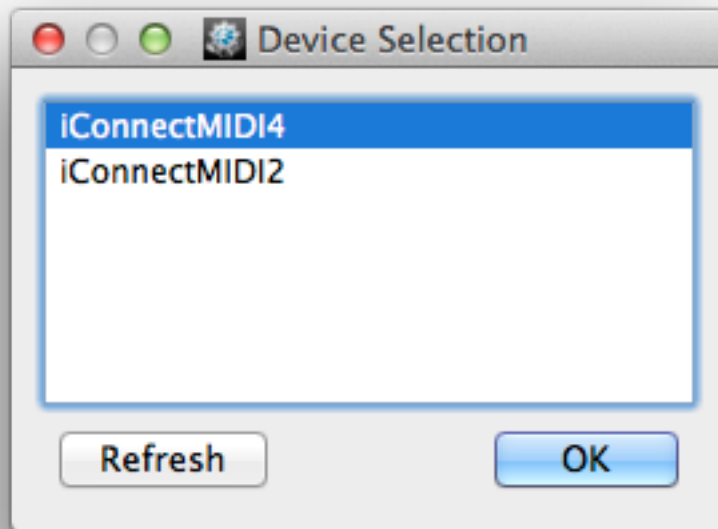


iConfig is the same on Mac and Windows, and while the basic screens in the iOS version looks different, the features and functions are identical.

Launching the software/Device Info

The first thing iConfig does when you launch it is scan your system for a few seconds to see what's connected. You can see the green iConnectMIDI⁴⁺ indicator lights flashing while this is going on.

In this example we have two units connected to a Mac – an iConnectMIDI⁴⁺ and an iConnectMIDI²⁺:




(Should any of your iConnectivity devices fail to appear, the most likely culprit has to be an unplugged or bad cable. Check your connections and click Refresh.)

Then the program opens with the Device Info screen. Here you see information about your connected devices (note that you can change the Device Name field to something custom; this might be especially useful in larger set-ups with multiple iConnectivity interfaces), along with the eight tabs used to navigate the program:

iConnectivity iConfig

Device Info MIDI Info Port Routing Port Filters Channel Remap Controller Filters >>

iConnectMIDI4+
iConnectMIDI4



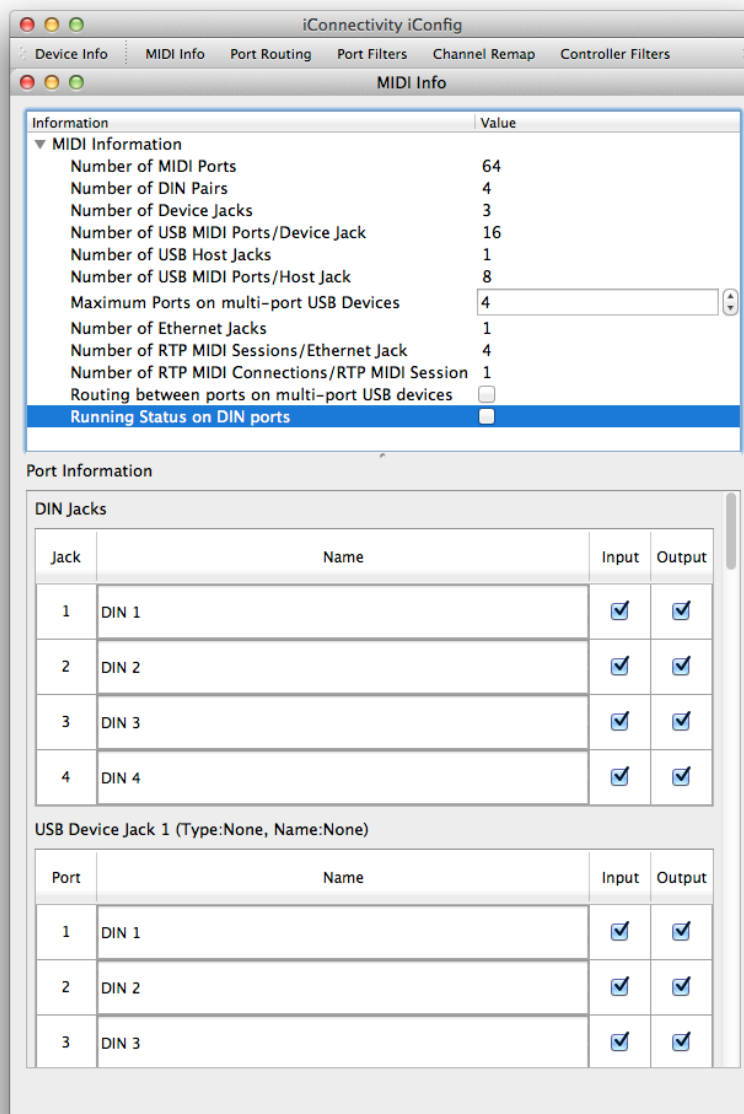
Visit [iConnectivity](http://iConnectivity.com) for product information.

Information	Value
▼ Device Information	
Accessory Name	iConnectMIDI4+
Manufacturer Name	iConnectivity
Model Number	icmidi-04
Serial Number	00000006
Firmware Version	1.0.1
Hardware Version	1.0
Device Name	iConnectMIDI4
Ethernet Information	

MIDI Info tab

This screen contains essential MIDI information, as well as a list view with information about each of the 64 potential 16-channel MIDI ports available in your interface. Please refer to the previous section “Port routing: understanding iConnectMIDI⁴⁺ MIDI” for an explanation.

You can give ports custom names (in the editable Port Name fields), and also each port’s MIDI input and output can be enabled/disabled individually.



About the “Running Status on DIN ports” checkbox (under MIDI Information): this defaults to being disabled/not transmitted (white), since it must be implemented – and implemented correctly - in the receiving device to function. As a practical matter, Running Status is a “leave it off unless you know otherwise” parameter.

Running Status is part of the MIDI spec, implemented to reduce the amount of MIDI data that must be sent. It works by assuming that the first part of the message—the Status byte, for example Note On—is the same as in the previous message, therefore only the Data bytes need to be sent. With Running Status disabled, the Status byte is followed by the Data bytes as normal, e.g. “This is a note [Status]; it’s a C3 at velocity 105, etc. etc. [Data]; with Running Status enabled, only the first Note-on needs to be sent, and you don't need another Status byte until you send a different kind of MIDI command - for example if you step on or lift the sustain pedal.

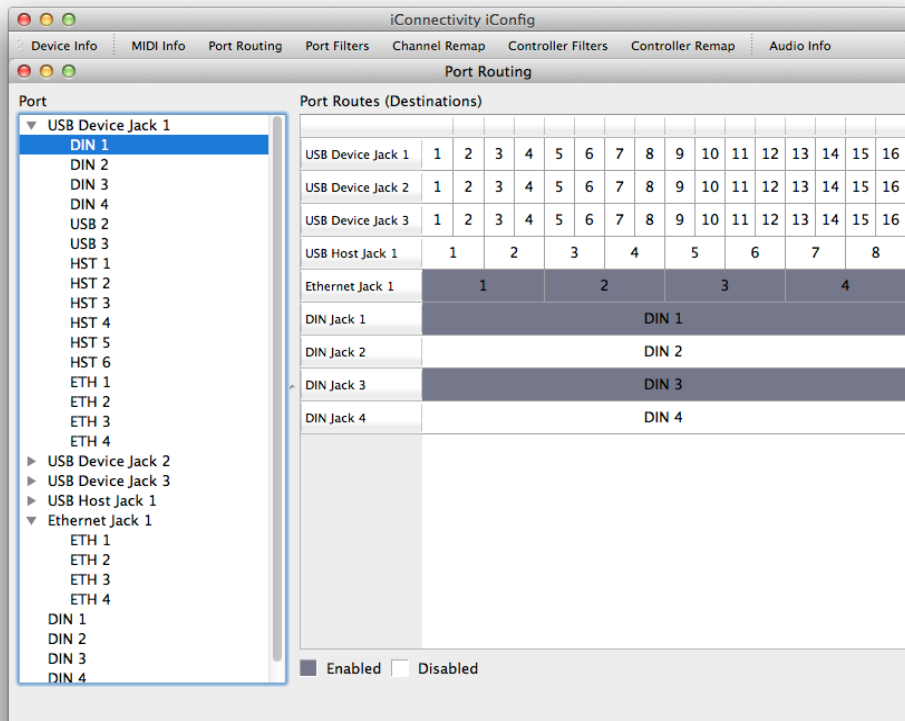
Port Routing tab

Please refer to the previous section “Port routing: understanding iConnectMIDI⁴⁺ MIDI.”

The Port Routing screen is a simple routing matrix, but it accesses one of the iConnectMIDI⁴⁺’s most sophisticated features: the ability to “patch” 16-channel MIDI streams wherever you want them to go, only where you want them to go.

Ports are shown in the left column and potential routing routes in the right one. Just select a Port in the Ports column and enable or disable each route in the Port Routing column on the right. (To select multiple Ports, hold down the command key on Mac and the Windows key in Windows.)

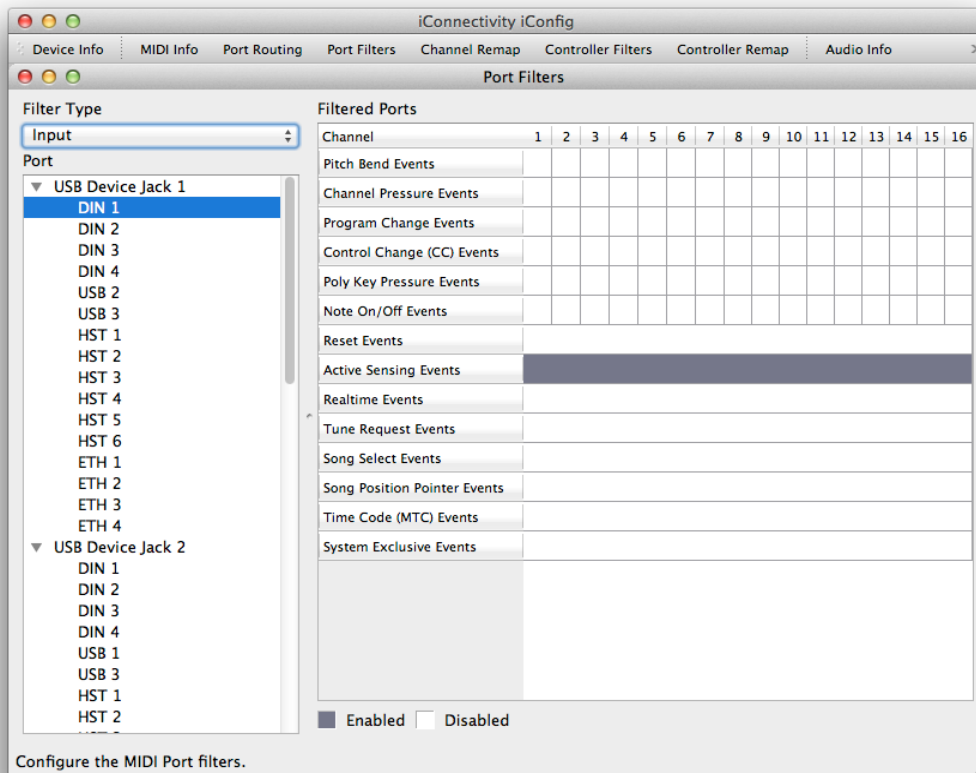
In the following screen you can see that iConnectMIDI⁴⁺ MIDI DIN 1 is routed to the other three pairs of DINs. This is in the default routing set-up:



There are countless applications in which the routing feature might be useful. Perhaps you need one MIDI keyboard controller routed to a layered sound that's on two different computer devices, or maybe you have a percussion pad that you want "hardwired" to a percussion module. Or perhaps you don't need the computer device connected to iConnectMIDI⁴⁺ USB jack 1 to see the MIDI keyboard connected to DIN jack 1.

Port Filters tab

This matrix is for filtering various types of MIDI data on input and/or output. To use it, select the Port(s) to be filtered in the Port column. Also choose whether you're filtering the input or output:



Then select the data type to be filtered on that port.

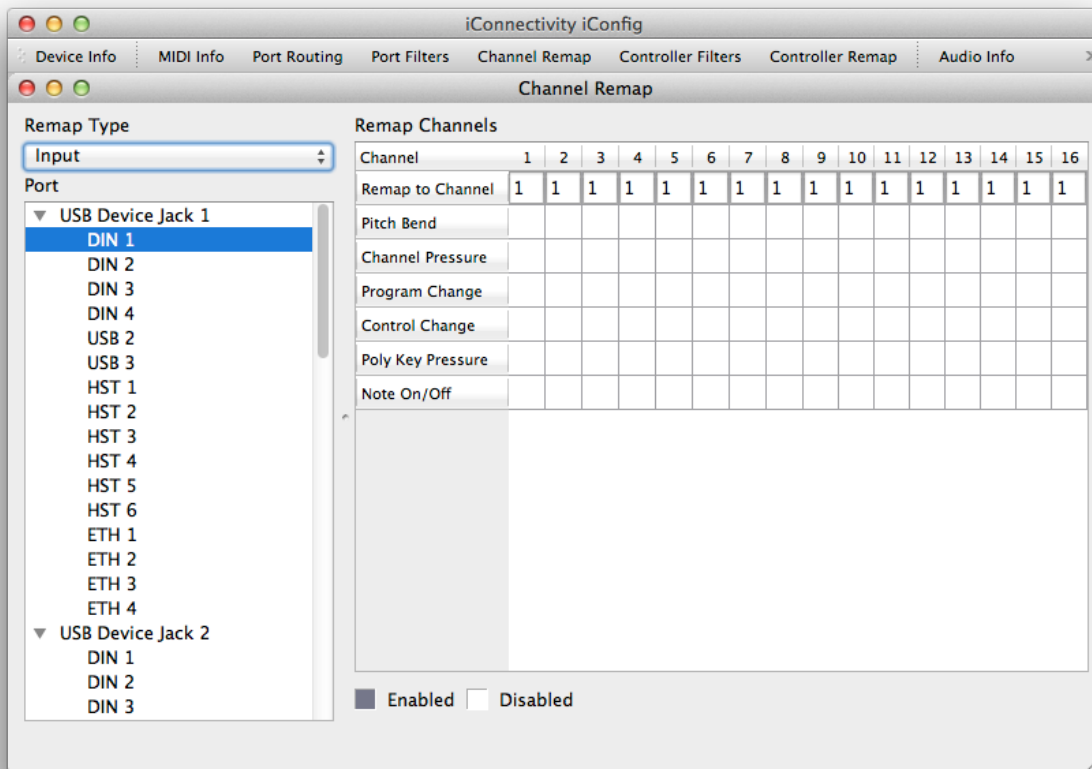
The first six types of data can be filtered only on the selected MIDI channels; due to their nature, the remaining data types are filtered/enabled for the entire Port on all channels.

MIDI Active Sensing, an arguably obsolete command designed to let you know when a device has gone offline (usually because it's unplugged), is filtered by default.

Channel Remap tab

The Channel Remap matrix allows you to change various types of incoming or outgoing MIDI data from one channel to another.

To use it, select the Port(s) to be filtered in the Port column. Also choose whether you're filtering the input or output:

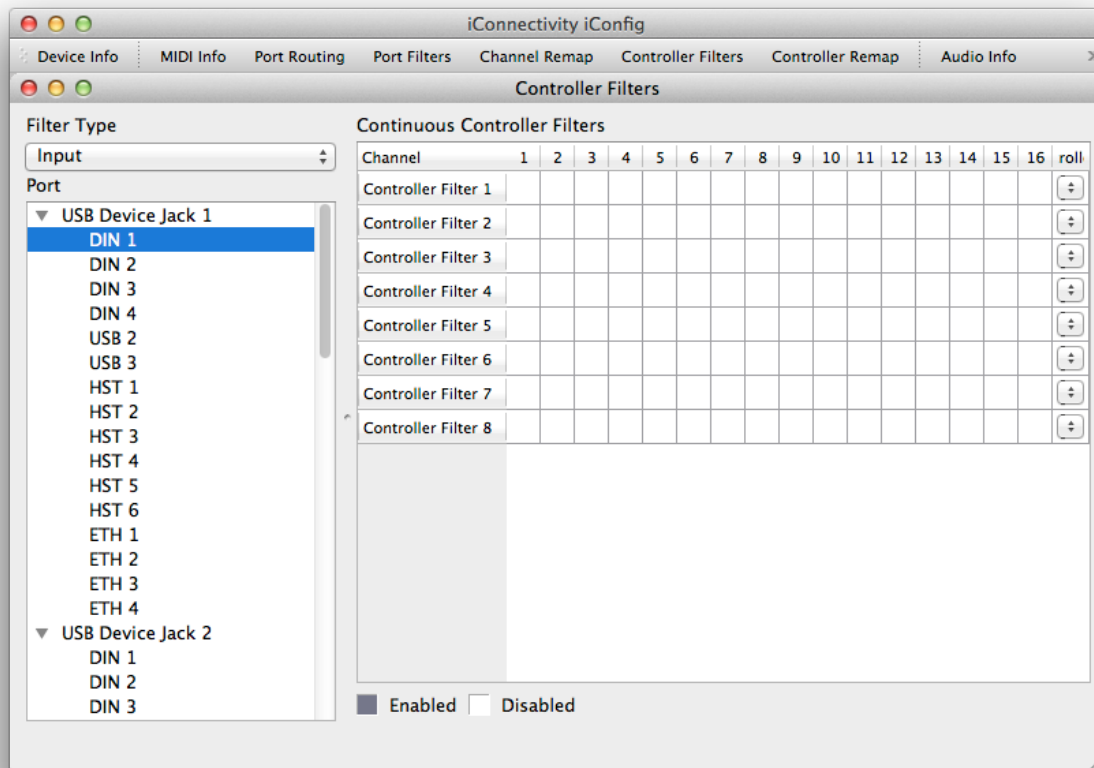


Then go over to the Remap Channels table and select the data type and channel to be remapped, and enter the destination channel number in the Remap to Channel row.

Controller Filters tab

The Controller Filters matrix lets you enable/disable up to eight different MIDI Controller messages on each MIDI channel, on input or output.

It works the same way as the other matrixes: select the Port(s) to be filtered in the Port column and choose whether you're filtering the input or output:



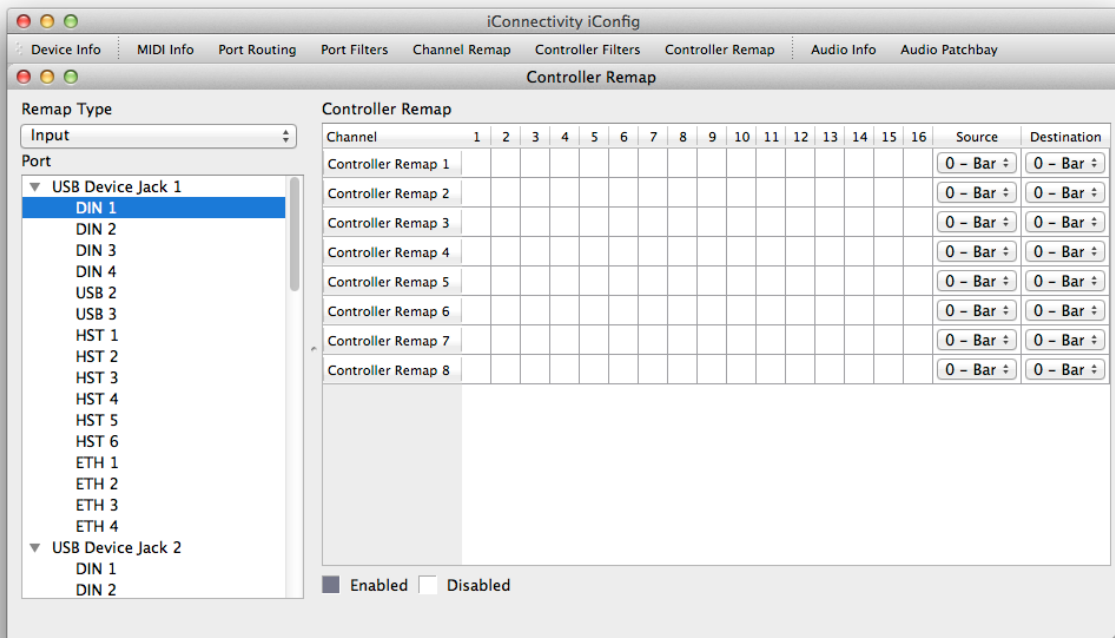
Then each row lets you select one of the 127 MIDI Controllers from the Controller ID drop-downs. Only the first 30 or so are shown below, but all 127 controllers in the MIDI spec are there if you continue scrolling down:

- ✓ 0 - Bank Select (coarse)
- 1 - Modulation Wheel (coarse)
- 2 - Breath Control (coarse)
- 3 - Continuous controller #3
- 4 - Foot Controller (coarse)
- 5 - Portamento Time (coarse)
- 6 - Data Entry Slider (coarse)
- 7 - Main Volume (coarse)**
- 8 - Stereo Balance (coarse)
- 9 - Continuous controller #9
- 10 - Pan (coarse)
- 11 - Expression (sub-Volume) (coarse)
- 12 - Effect Control 1 (coarse)
- 13 - Effect Control 2 (coarse)
- 14 - Continuous controller #14
- 15 - Continuous controller #15
- 16 - General Purpose Slider 1
- 17 - General Purpose Slider 2
- 18 - General Purpose Slider 3
- 19 - General Purpose Slider 4
- 20 - Continuous controller #20
- 21 - Continuous controller #21
- 22 - Continuous controller #22
- 23 - Continuous controller #23
- 24 - Continuous controller #24
- 25 - Continuous controller #25
- 26 - Continuous controller #26
- 27 - Continuous controller #27
- 28 - Continuous controller #28
- 29 - Continuous controller #29
- 30 - Continuous controller #30
- 31 - Continuous controller #31
- 32 - Bank Select (fine)
- 33 - Modulation Wheel (fine)
- 34 - Breath Control (fine)
- 35 - Continuous controller #3 (fine)
- 36 - Foot Controller (fine)
- 37 - Portamento Time (fine)
- 38 - Data Entry Slider (fine)
- 39 - Main Volume (fine)
- 40 - Stereo Balance (fine)
- 41 - Continuous controller #9 (fine)
- 42 - Pan (fine)
- 43 - Expression (sub-Volume) (fine)
- 44 - Effect Control 1 (fine)
- 45 - Effect Control 2 (fine)
- 46 - Continuous controller #14 (fine)
- 47 - Continuous controller #15 (fine)
- 48 - Continuous controller #16
- 49 - Continuous controller #17
- 50 - Continuous controller #18

Controller Remap tab

This matrix allows you to remap, or convert, up to eight MIDI Controllers from one type to another on selected MIDI channels. If you want to use, say, the mod wheel to control volume, this is where you'd convert MIDI CC#1 (Modulation) to #7 (Main Volume).

Start by selecting the Port(s) to be remapped in the Port column and choose whether you're converting the input or output:



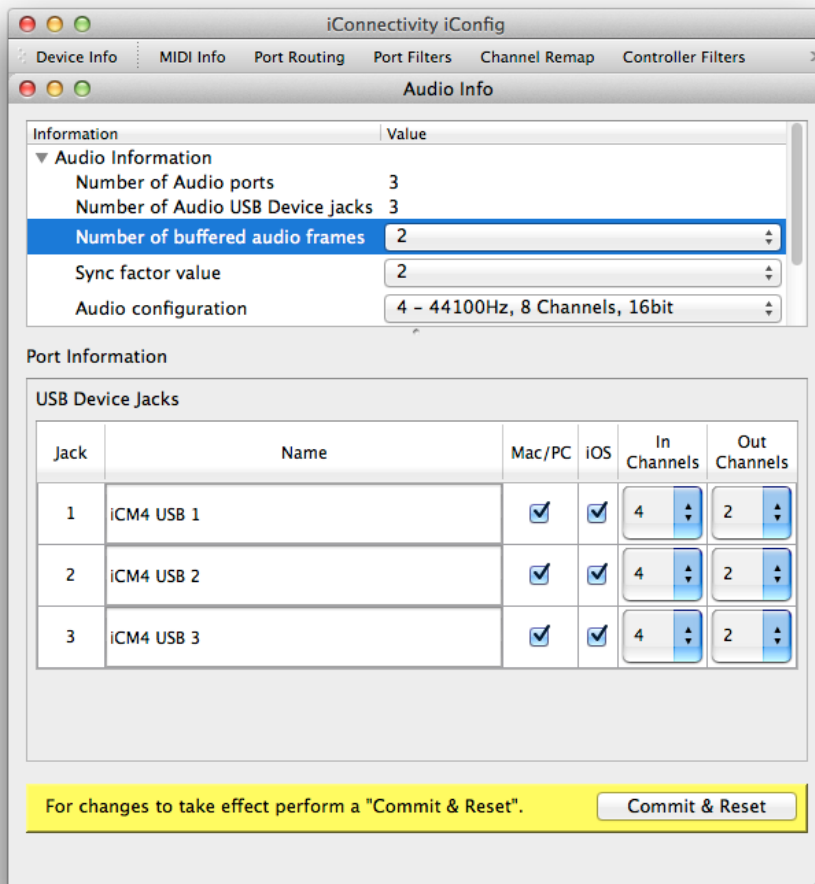
Then choose the Controller types in the Source and Destination drop-downs on each row, and enable/disable the MIDI channels you want the conversion to apply to. The lists of available controllers are identical to the one in the Controller Filters tab above.

Audio Info tab

The final screen is a list view with information about the internal audio ports, along with a few adjustable parameters. *You must set the sample rate and bit depth here, rather than in computer device software (e.g. Mac Audio MIDI Setup).*

Audio Information

The iConnectMIDI⁴⁺ can route a number of channels of audio to and from each computer device connected to its USB jacks. A stereo track or instrument plug-in running in a sequencer counts as two audio channels, and a mono track or instrument is one channel.



Audio Configuration: this drop-down in the Audio Information window offers a choice of seven different combinations of sample rate, number of audio channels, and bit rate. (Audio channels are divided evenly between input and output.)

The higher each of these numbers is, the more data is transferred and therefore more bandwidth is used. Under some but not all conditions the audio quality may improve slightly at 24 bits rather than 16, and extremely subtly at 96kHz vs. 44.1 or 48kHz, so there's a very small trade-off between performance and sound.

Modern computer devices are fully capable of glitch-free performance at any of the seven settings. However, every computer has finite processing resources, and power-hungry software can put a strain on any system,

Number of audio frames to buffer and Sync factor value: as with every device that processes digital audio, audio goes into a buffer before it is processed (in the iConnectMIDI⁴⁺, for routing), and it takes a small fraction of a second for audio to fill the buffer as it streams through. This latency is compensated for with the *Sync factor value* parameter so that incoming and outgoing audio is in sync.

The larger the audio frame buffer, the longer this takes, but the lower the strain is on the device; conversely, smaller buffers lower the processing latency and require more computing horsepower.

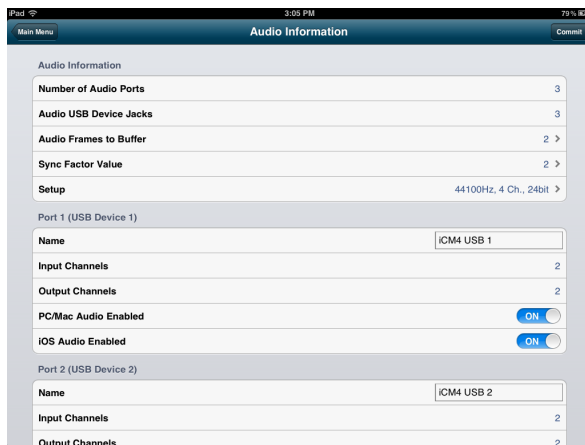
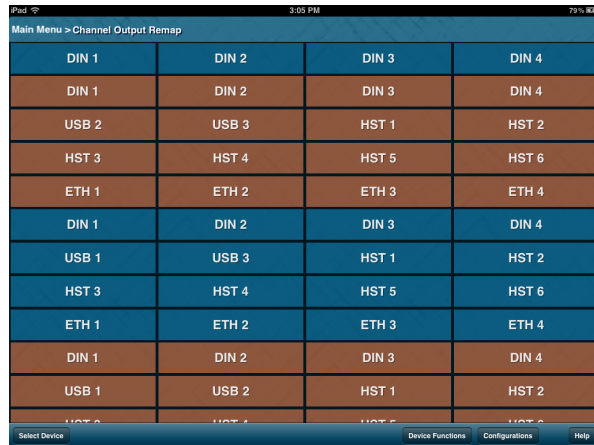
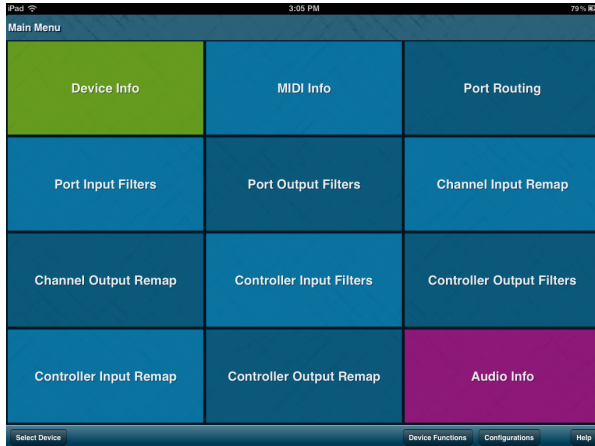
The default setting of 2 audio frames offers low latency and solid audio performance. However, you may wish to experiment with faster settings; if you hear glitches, increase the buffer.

Port Information

The Port Name here is editable, and the Number of Input/Output channels fields reflect the settings in the Audio Configuration field above. Note that you can enable or disable each port.

iConfig iOS version

The iOS version of the iConfig software has a different look from the computer versions, because its user interface is designed for touchscreen devices. So instead of clicking on tabs, you tap areas on the screen. The functions are the same, however, and the interface is completely intuitive.



Network MIDI set-up

The iConnectMIDI⁴⁺'s Network MIDI feature is like having an additional 1 x 1 MIDI interface on each of up to four computers on your network. You can connect a single computer directly to the Network port with a standard Cat5 ethernet cable, or you can cable the iConnectMIDI⁴⁺ to a wired switcher or (wireless) Wi-Fi router for access to the other three computers.

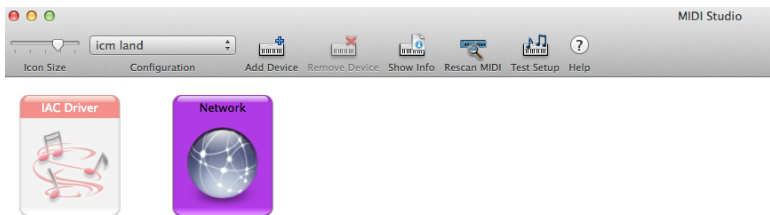
(The ethernet switcher must have its own power supply.)

There are up to four Network MIDI sessions, each with one bank of 16 MIDI channels. Each session is dedicated to one computer device.

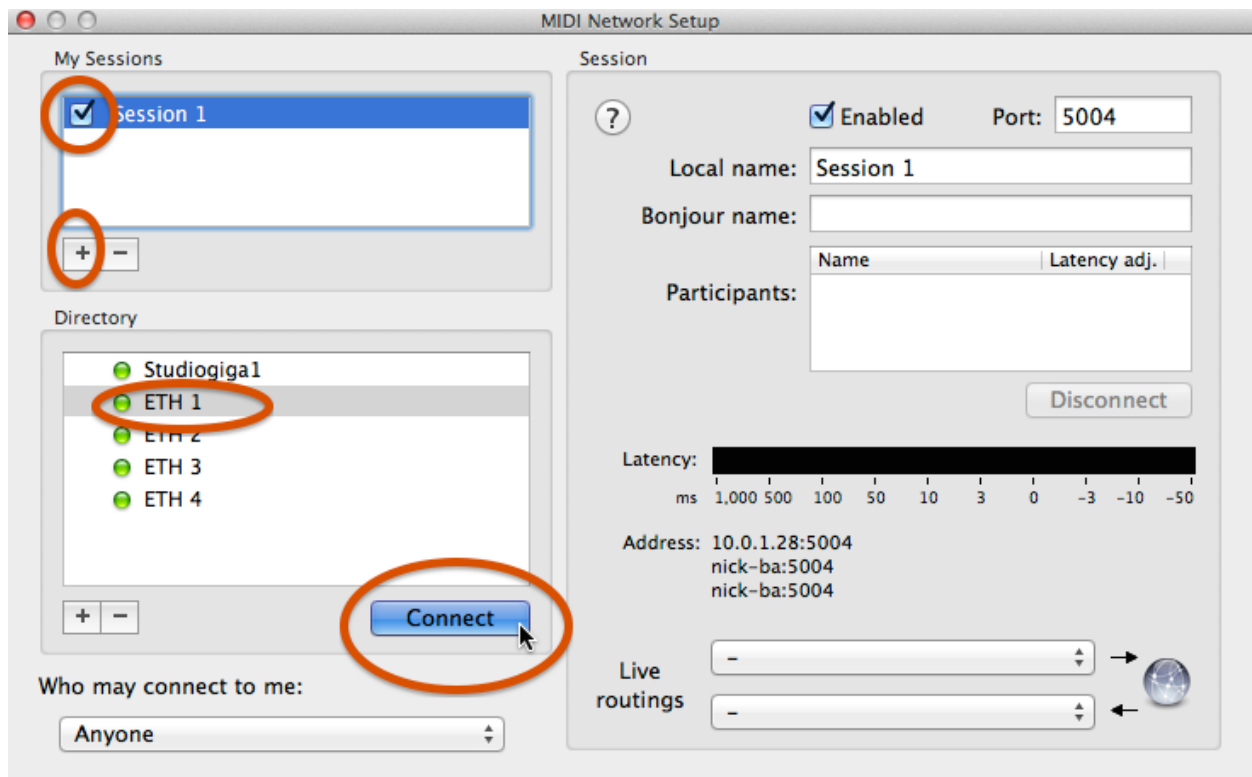
Mac set-up

Open the Audio MIDI Setup program (found inside Applications -> Utilities).

In the MIDI Window, double-click the Network icon to open the MIDI Network Setup Window:



A list of the four Ethernet sessions and any additional computers in your network appears in the MIDI Network Setup window ("additional" means other than the host Mac computer). In this case we have a Windows computer called Studiogiga1:



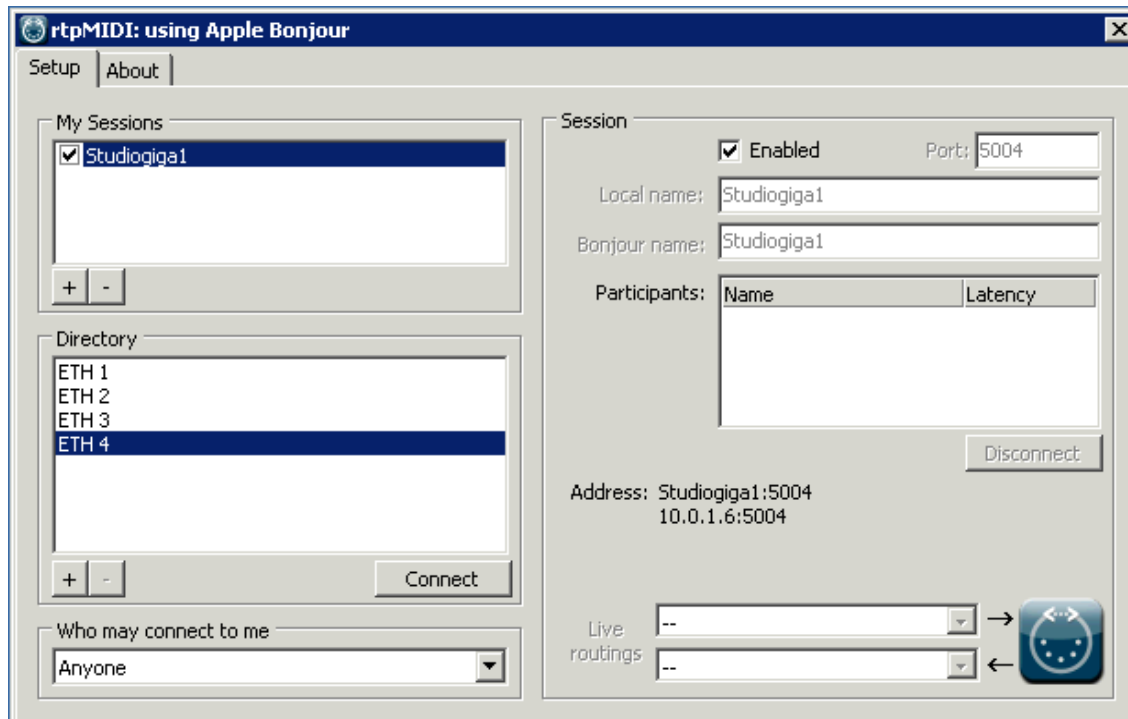
- Click on the + icon under My Sessions to create a new session (Session 1 is the default name; you can rename it in the righthand column).
- Click on the checkbox next to Session 1 to enable it. (You may give it your own name in the righthand column.)
- Click on (in this example) ETH1, then on the Connect button to connect ETH1 to the session.

Session 1 (unless you've renamed it) now appears in the list of available interfaces in your music software, and you can quit Audio MIDI Setup:

You may or may not have to re-connect to the session next time you start your computer.

Windows set-up (using rtpMIDI)

The free rtpMIDI driver for Windows looks just the same as above. Please download and install it, then follow the same instructions.



Networking MIDI from an iOS device to a Windows computer

Networking an iOS device to rtpMIDI over Wi-Fi requires iConnectivity's free NetMIDI utility app from the iTunes App Store.

Launch the app and the computer running rtpMIDI ("Studiogiga1" in this case) will appear:

Troubleshooting

Music/audio system stops working properly

At the risk of stating the obvious, the first thing to do with any digital device is to restart it.

No indicator lights

Data flowing through iConnectMIDI⁴⁺ normally causes the port indicator lights to flash. If that doesn't happen, the two most common causes are:

- a detached or broken cable (swapping cables is at the top of any audio or MIDI troubleshooting list);
- an application that isn't responding.

Application not responding

Any software program can get confused and become unresponsive, for any number of reasons. The solution is often to quit and re-launch the application.

This is the procedure in iOS 7 and later:

- push the Home button.
- double-push the Home button to bring up the "running" apps list.
- swipe up on the app's small window, and it will disappear.

No audio from iOS device's speaker, earphones, and/or microphones

When the iConnectMIDI⁴⁺ is connected, the iOS device automatically uses it for audio input and output. This will always deactivate the built-in speaker and (depending on the app) usually the built-in mic, and often the headphones and/or headset mic when you have a headset plugged into the iOS device's 1/8" TRRS "headset" jack.

You can disable Audio passThru™ in the iConfig software's Audio Information screen, leaving iConnectMIDI⁴⁺ active. If you need live input to the iOS device, the best workaround is to connect the mic to the computer on the other end of the USB cable and route it to the iOS device by way of, for example, a record-enabled track in your DAW software. Similarly, you should be able to connect your headphones to the computer and listen through it instead of the iOS device.

No Audio passThru™ from the iOS app to the DAW

Confirm that the sample rate set in the iConfig software is supported by your iOS app (DAWs generally support them all). If not, change it.

iOS device will not charge

As described in the section “iConnectMIDI⁴⁺ front and back,” note the differences in charging capability between the three USB Device jacks.

USB Device jack 1 will charge any iOS device, Device jack 2 has enough power to charge an iPhone or iPod touch but only keep an iPad charged, and Device jack 3 does not provide charging power.

USB Host jack doesn't power multiple MIDI devices

This jack provides 500mA, enough to power a single USB MIDI device. Additional devices without their own power supplies require a powered USB hub.

Printer, keyboard, etc. doesn't work in USB Host jack

This jack is only for USB MIDI devices. It is not a standard hub.

Specifications

General

3 USB Device jacks – Jack 1 provides 2.1A charging power, Jack 2 provides 1A, Jack 3 provides no charging power.

1 USB 2.0 Host jack for MIDI Class-Compliant devices.

4 pairs of MIDI DIN jacks.

Ethernet Network port.

Body

Durable construction out of Rugged steel, brushed metal finish.

Dimensions

Width	215 mm
Depth	138 mm
Height	38mm (without feet) 40mm (with feet)
Weight	1.005kG (35.5 oz.)

Appendix: MIDI and audio basics

First came analog synthesizers, then came the digital revolution, at which time synthesizers were starting to come under digital control. To allow them to communicate with one another, in 1983 several musical instrument manufacturers agreed upon a standard: the Multiple Instrument Digital Interface (MIDI).

MIDI is a control language that says things like “play a C3 at xxx velocity, now turn on the sustain pedal, now turn it off, now stop playing that C3, etc.” (Velocity is a measure of how fast a MIDI key is played, and usually that determines how loud a note is.)

It’s up to the receiving device how to interpret these messages, so you could record a MIDI part (in sequencing software, meaning MIDI and audio recording/editing software) from one keyboard set to a piano sound. Then you could play it back on a harp sound, send it to a different MIDI instrument playing a guitar sound, transpose the notes, play them back faster, move them around, make them louder or softer, copy and paste them, and so on. MIDI is not sound, it is “performance” instructions that receiving instruments and other devices may use to play sounds (or to do anything else they want, such as operate lights).

Computers don’t accept MIDI plugs – they need a MIDI interface that plugs into one of their USB ports. The four pairs of MIDI 5-pin DIN ports on your iConnectMIDI4+ are the same ports found on every piece of MIDI equipment from 1983 through today, although the iConnectMIDI4+ has some very clever processing and routing tricks up its sleeve.

Digital audio, on the other hand, is the actual sound, not the instructions for playing it. If you sing or play an instrument into a microphone, the sound waves in the air are moving a diaphragm that varies the strength of an electromagnet it’s attached to (or varies the capacitance between two membranes) converting the sound to electricity. When it’s recorded – digitized - that sound is measured 44,100 times a second at the standard CD sampling rate; when it’s played back, the process is reversed: the recorded numbers are used to create a voltage that ultimately drives your speakers, which move the air so you hear the recording.

Today even an iPhone has enough computing power to run synthesizers that exist only in software (after all, a digital synthesizer is simply a computer dedicated to one task). When you use MIDI to trigger a software instrument, the sound is being created digitally and it’s not necessary to digitize it – thus you don’t need a standard audio interface with analog-to-digital conversion for recording and digital-to-analog conversion for playback on every computing device in your set-up.

So the iConnectMIDI4+ routes audio that exists inside a computer device (meaning a computer or a supported iOS device) between two machines. The audio can come from software instruments and/or it can come from recorded sounds that are on the

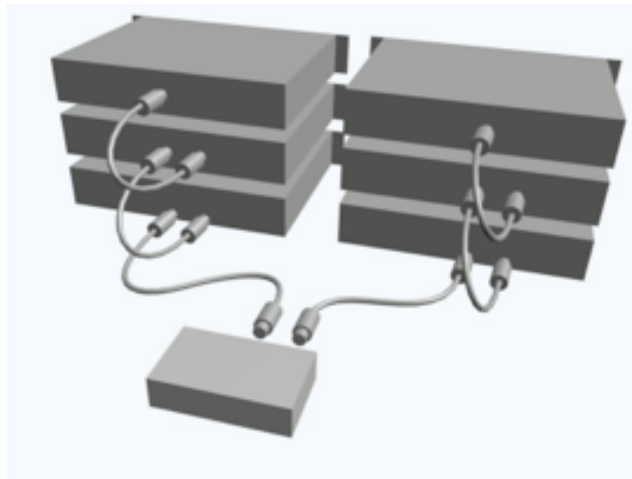
computer(s). It can also come from sounds that have been recorded or are being played live through a regular audio interface on one of the computers.

What's unique about the iConnectMIDI4+ is that instead of having MIDI interfaces and audio interfaces on three computer devices – six devices - you just have one box that routes both MIDI and audio between the machines over USB. That makes it both convenient and cost-effective to add, say, an iPad to your music-making set-up.

USB MIDI

USB is a bidirectional protocol that's fast enough to carry a wide variety of things simultaneously – audio, MIDI, printer hookups, keyboards and mice, etc. Some MIDI instruments today have USB connections instead of the standard DIN ports, in other words they have the equivalent of built-in MIDI interfaces that connect directly to a computer.

Those devices don't need to go through the iConnectMIDI4+. Plug them directly into



your computer, to which they'll appear as additional MIDI interfaces. You can route MIDI from the computer to the iConnectMIDI4+ (and anything connected to it). If you run out of USB ports, USB hubs are very inexpensive.

Daisy-chaining: iConnectMIDI4+ MIDI out port to MIDI In, MIDI Thru to MIDI In, MIDI Thru to MIDI In and (not shown) MIDI Out to iConnectMIDI4+ MIDI In. Repeat on the other MIDI DIN port.

MIDI daisy-chaining

The iConnectMIDI4+ has four pairs of MIDI DIN plugs. What if you have five instruments? Or six?

Well, most MIDI instruments have MIDI In,Thru [sic], and Out ports, normally positioned in that order; and each MIDI port has 16 MIDI channels. Thru ports echo what's coming into the device's MIDI in.

So you connect an iConnectMIDI4+ MIDI DIN out to your first instrument's In, your first instrument's Thru to your second instrument's In, your second instrument's Thru to your third instrument's In, and (not shown in the illustration above) your third instrument's Out to the iConnectMIDI4+ MIDI DIN in. And so on.

You will almost certainly want to divide the 16 MIDI channels on each port between the instruments so that they don't all play at once. Daisy-chaining lots of instruments is not ideal. For larger set-ups we recommend additional iConnect interfaces to accommodate all your instruments.

Support

Connect with us for support.

Online

Visit iConnectivity.com. Share your ideas, review FAQs for each product, and access our community forum for discussions on unique rig set-ups, product uses and more.

Direct

Email: support@iConnectivity.com

Tel: +1(403)457-1122

Support Hours: Monday to Friday 8:30 am (MST) to 4:30 pm (MST)

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