

iConnectMIDI²⁺™

OWNER'S MANUAL

Version 0.10 (Draft)



Need help?

Email us at support@iConnectivity.com

tel +1 (403) 457-1122

url www.iConnectivity.com

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 register their product(s) within fourteen (14) days of time of original purchase. To register iConnectivity products, visit iConnectivity.com. If the unit fails within 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 2.0 port.

The iConfig software works with Microsoft Windows XP SP3+ and Mac OS X 10.4+, as well as iOS 4.2+ and a CoreMIDI-compatible app.

Compatible with iPhone 4, 4S, 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.

iConnectMIDI²⁺ 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 optional power supply (sold separately).

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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Thank you for purchasing the iConnectMIDI²⁺ Hybrid multi-host MIDI interface with Audio passThru™ technology.

Your iConnectMIDI²⁺ completely redefines the concept of a MIDI interface, integrating today's professional multiple-computer set-ups with iOS devices and traditional MIDI hardware. Not only does your new interface support two computer devices simultaneously – Macs, PCs, and iOS (iPad, iPhone, iPod Touch) – its Audio passThru™ feature, based on patent-pending technology, routes audio between them digitally with zero signal degradation, simply appearing as an audio interface to the operating system.

This combination of audio and MIDI connections has countless applications. A synth running on your iPad could behave as if it were a touch-controlled plug-in running inside your host DAW, or you could process a software instrument in your DAW through a guitar amp app on your iPhone. The iConnectMIDI²⁺ offers seamless integration in all directions.

Each of the iConnectMIDI²⁺'s two USB Device ports (the ones that connect to a computing device) has four 16-channel MIDI ports. Using the included iConfig software for Windows, Mac, and iOS, it's simple to configure and store sophisticated routing arrangements of these ports and channels to be stored in flash memory on the device. These snapshot files can also include discrete data filtering, merging, and/or remapping set-ups for each physical and digital MIDI port.

However, the iConnectMIDI²⁺ works out of the box without using the software. 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. The interface itself is bus-powered over USB; you only need to use the optional power adapter (sold separately) to keep an iOS device charged.

Do you need to read this manual?

Setting up and using your iConnectMIDI²+ Hybrid multi-host MIDI interface with Audio passThru™ technology is very simple and intuitive, and anyone who's ever used MIDI and audio interfaces should have no trouble using its basic functions without reading this manual.

However, we do suggest that even the most advanced users give it a quick perusal, because there are a few details that require explanation. Please be sure to read the set-up instructions, and especially the explanation of port routing and the iConnectivity iConfig software so you understand how the routing works. This will ensure that you're able to take full advantage of all the advanced features your state-of-the-art device has to offer.



What's in the box

- The iConnectMIDI²⁺
- One 5 ft 30-pin to 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.

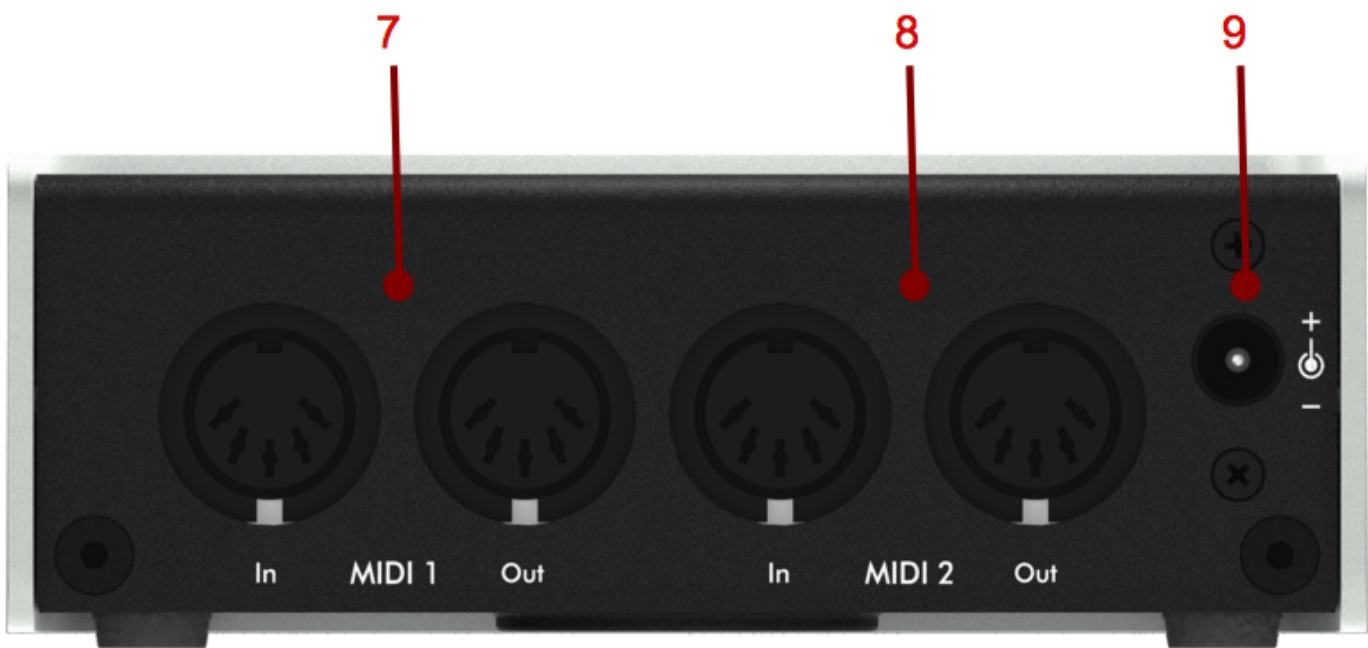
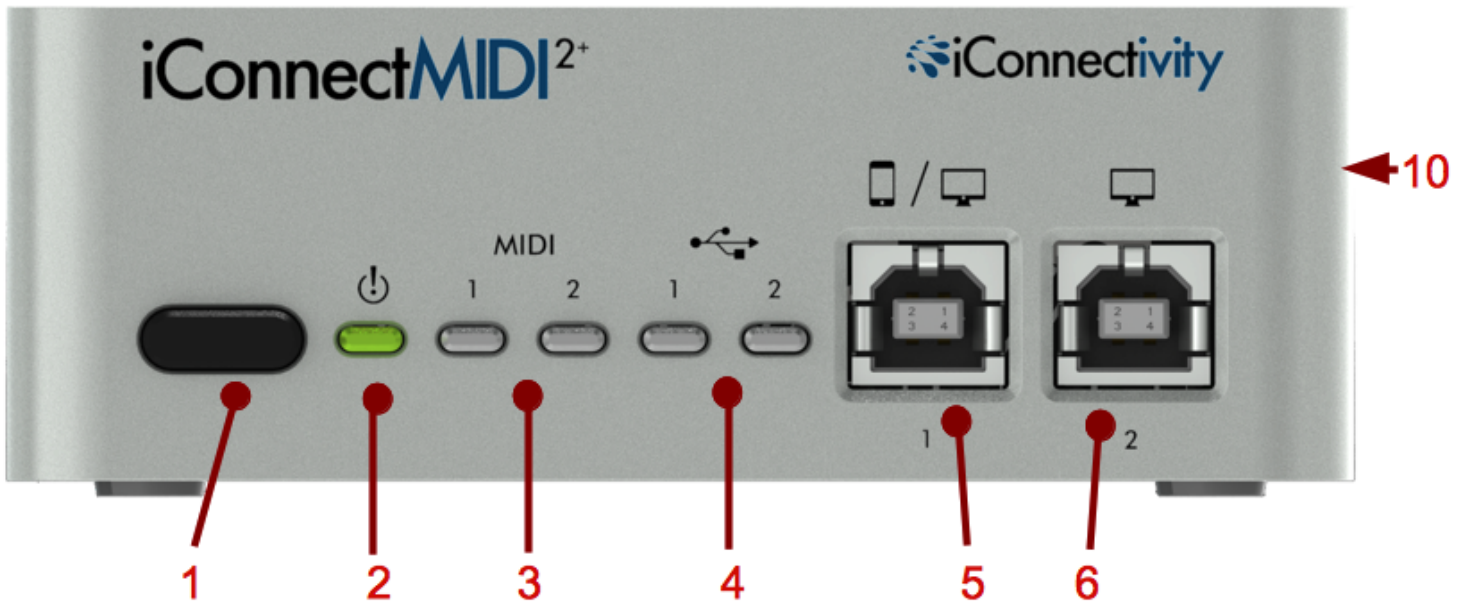
Please contact your dealer or iConnectivity directly if any of these three items were not included in the packaging.

Not included: the optional power transformer for charging iOS devices. The power transformer is only necessary for keeping an iOS device charged; the iConnectMIDI²⁺ itself is powered over the USB bus (in USB Device port 2).

Please use only the iConnectivity 6V/18W 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.

The optional power supply is available on www.iConnectivity.com directly or from your dealer. Additional cables may be purchased independently or from the iConnectivity website.

The iConnectMIDI²⁺



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1 Power button

This switch has several functions.

- Putting the iConnectMIDI²⁺ 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 up as instructed above.

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 iConnectMIDI²⁺ is in boot loader mode, the Power LED turns off and the MIDI 1 and 2 LEDs flash.

3 MIDI 1 and 2 LEDs

These lights indicate that data is MIDI data is being sent to or received from devices plugged into the MIDI DIN ports on the rear. They also flash when the device is in boot loader mode, and they flash along with all the other LEDs when the device starts up, and also when a hard reset is about to start.

4 USB Device port 1 and 2 LEDs

These lights indicate that MIDI data is being sent to or received from devices plugged into the USB Device ports. They also light up along with all the other LEDs when the device starts up, and when a hard reset is about to start.

5 Device port 1

This port accepts a USB B-standard plug for audio and MIDI connection to a Mac or Windows computer. It also accepts the iConnectivity 30-pin to USB (B) connector for both audio and MIDI connection to an iOS device. MIDI is transmitted at full USB speed.

Important: Device port 1 will charge an iOS device when the optional power adapter is connected. Unlike Device port 2, it does not accept USB bus power for the iConnectMIDI²⁺ from a Mac or Windows computer.

6 Device port 2

This port accepts a USB (B) plug for audio and MIDI connection to a Mac or Windows computer, which can be used to power the interface over the USB bus (you can also power the device with any USB power supply in this port, such as an iPhone/iPad/iPod charger). It also accepts an iConnectivity 30-pin to USB-B cable for MIDI (but not audio) connection to an iOS device. MIDI is transmitted at full USB speed.

Important: Unlike Port 1, Port 2 does not charge an iOS device, nor does it support audio passThru™ to an iOS device. (It does support audio and MIDI for Macs and Windows computers.)

7 MIDI DIN 1 in and out ports

8 MIDI DIN 2 in and out ports

These ports 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 Power supply jack

The power transformer (sold separately) is only necessary for keeping an iOS device charged; the iConnectMIDI²⁺ can be powered over the USB bus from a computer connected to Device port 2. Please use only the iConnectivity 6V/3A 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: An alternative method of putting the iConnectMIDI²⁺ into boot loader mode to receive firmware updates is to hold the Power button (#1 above), then apply power using either the optional power adapter or by plugging in a USB-B cable from a Mac or Windows computer into Device port 2. Release the Power button when the MIDI 1 and 2 LEDs are flashing.

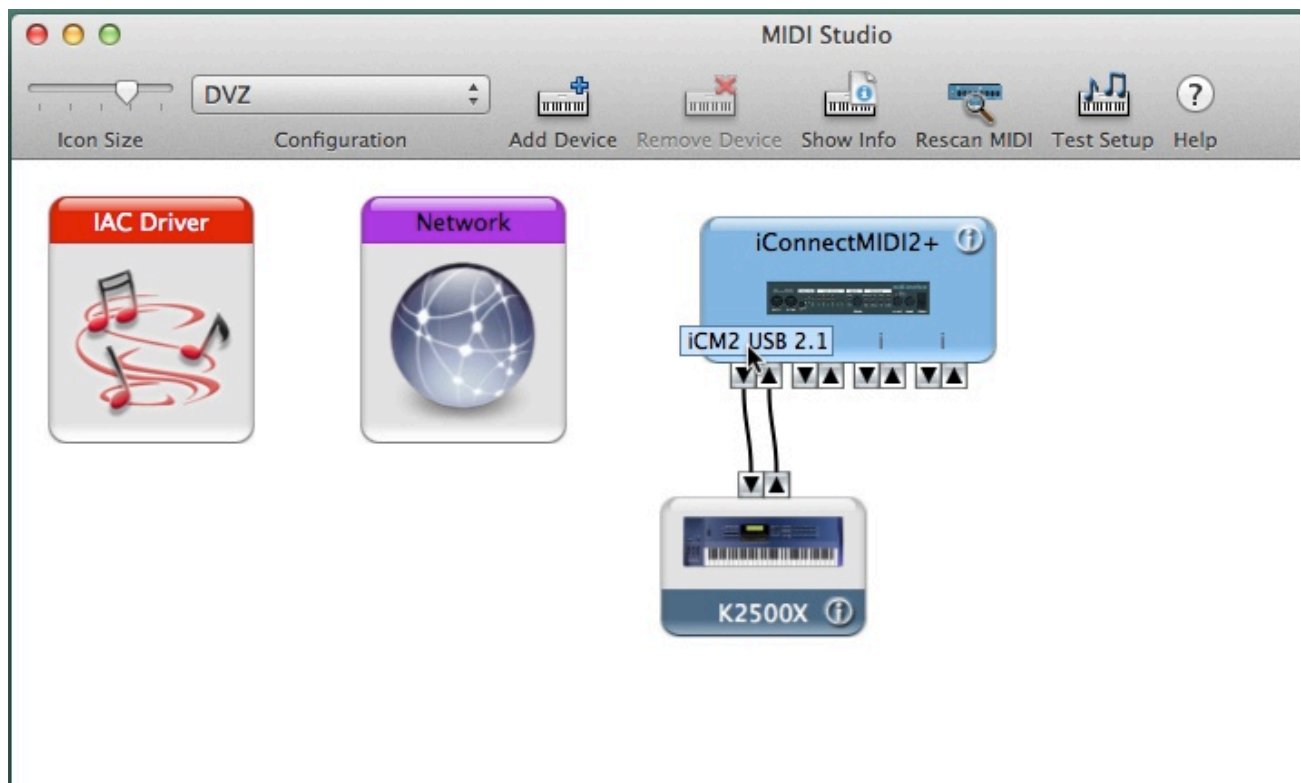
10 Security lock port (right side)

Mac OS X set-up

1. Connect a USB A-to-B standard cable from Device port 1 or 2 to your Mac computer.

If you're using the iConnectMIDI²⁺ alone on the Mac, that's it. It will show up as an available audio and a MIDI interface in your software.

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 iConnectMIDI²⁺ appears as a 4X4 MIDI interface in the MIDI Studio window, and unless you change the default audio configuration in the iConfig software, it appears as a 2-in/2-out audio interface in the Audio Devices window.



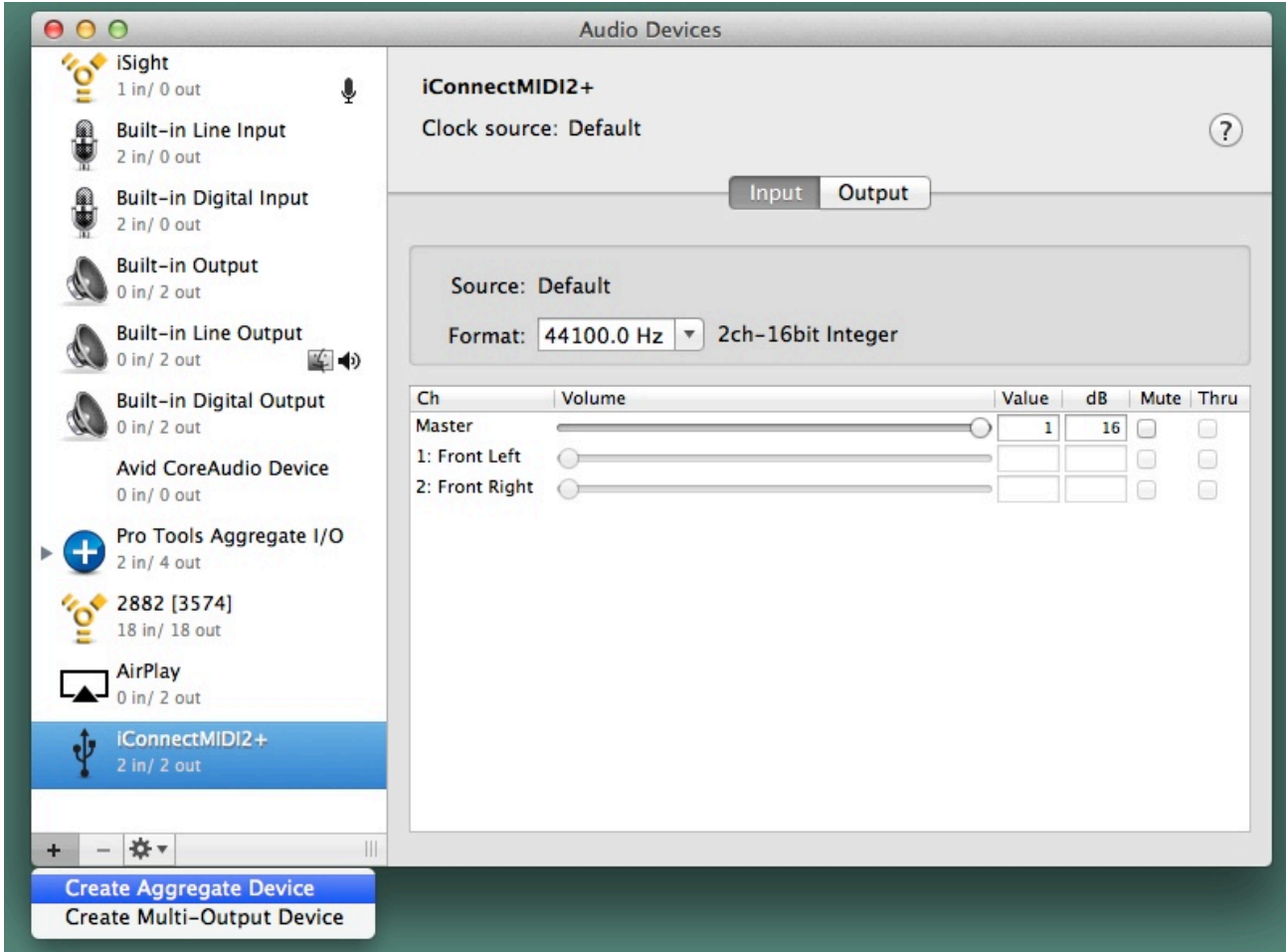
2. (Optional) In Audio MIDI Setup, create and cable connected MIDI hardware devices to the iConnectMIDI²⁺ MIDI DIN ports.

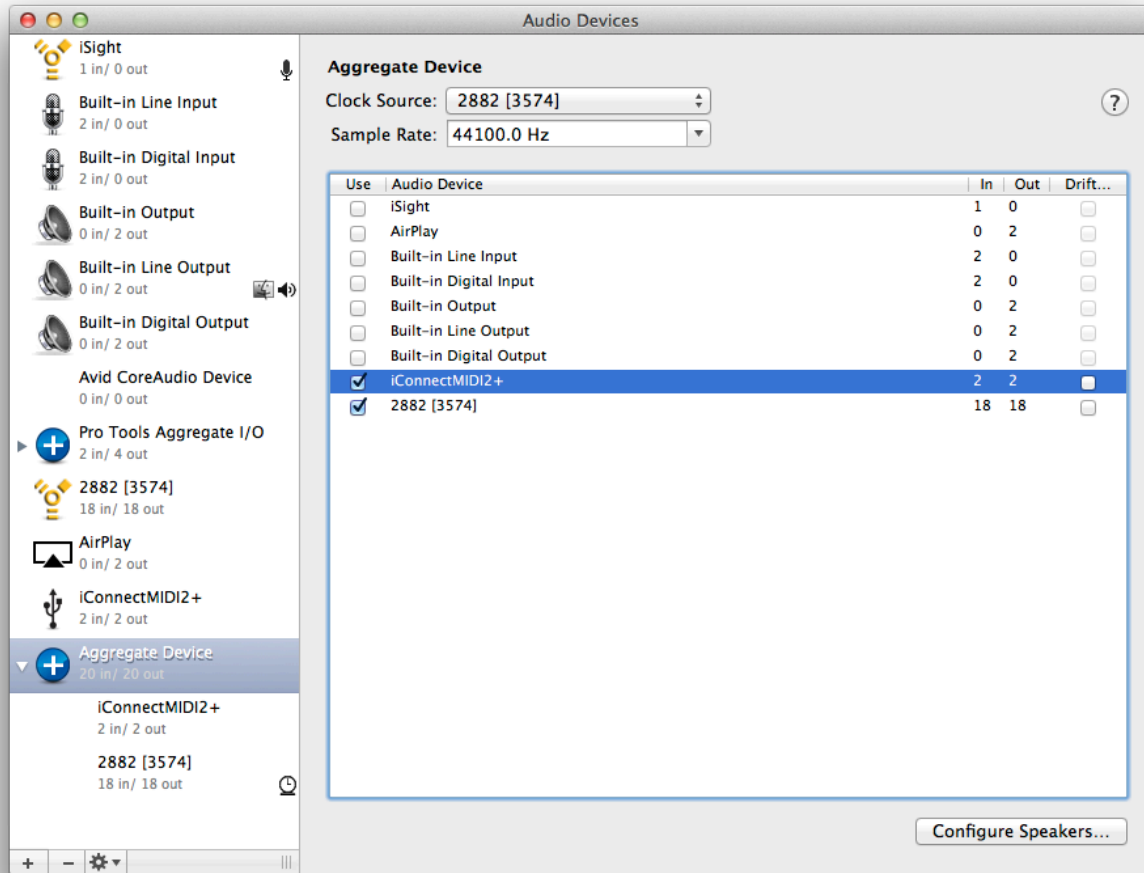
This will allow your sequencer to address the hardware by name (rather than just the port name), and you can provide some basic information about the hardware here.

As explained in the section titled “Port Routing: understanding iConnectMIDI²⁺ MIDI,” by default the first two 16-channel MIDI ports are routed to MIDI DIN ports 1 and 2.

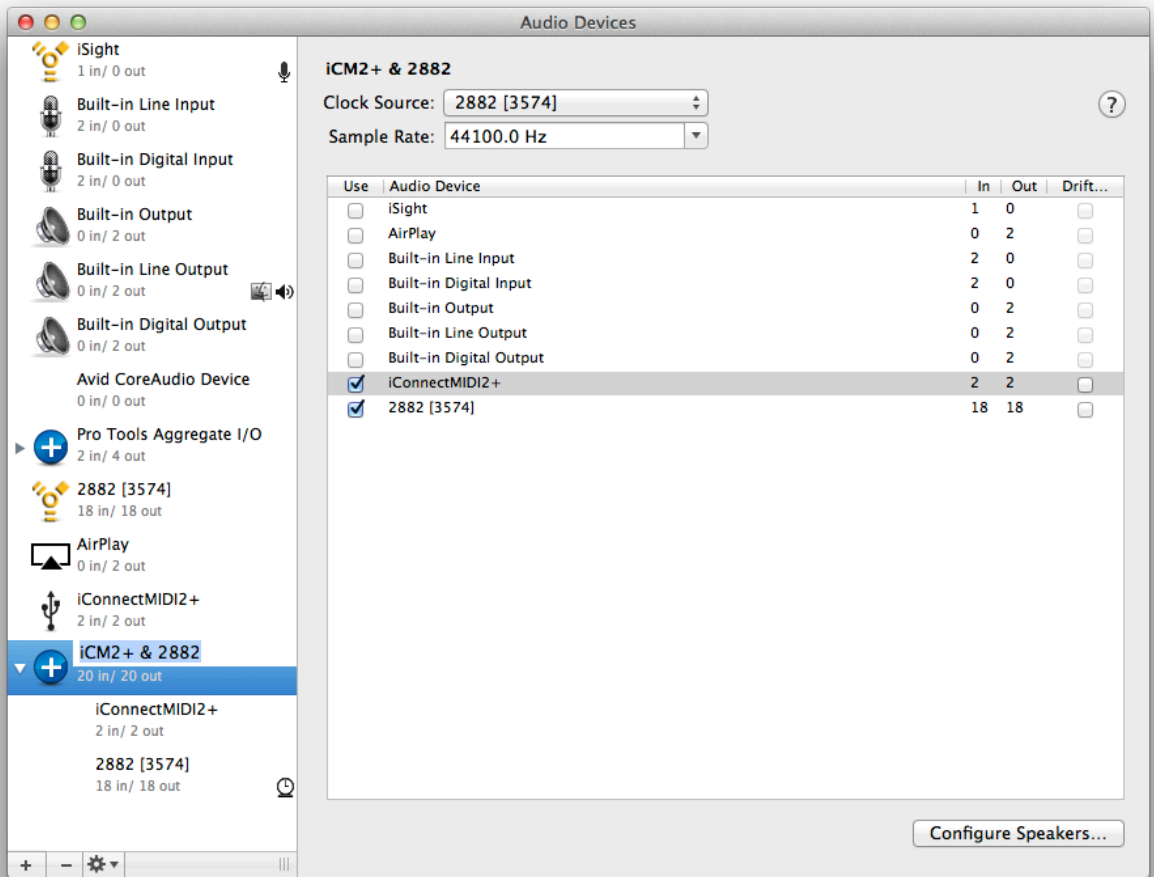
3. If you're using the iConnectMIDI²⁺'s Audio passThru™ feature in addition to other standard audio interfaces:

Create an Aggregate Device with the iConnectMIDI²⁺ and your standard interface(s) in Audio MIDI Setup:



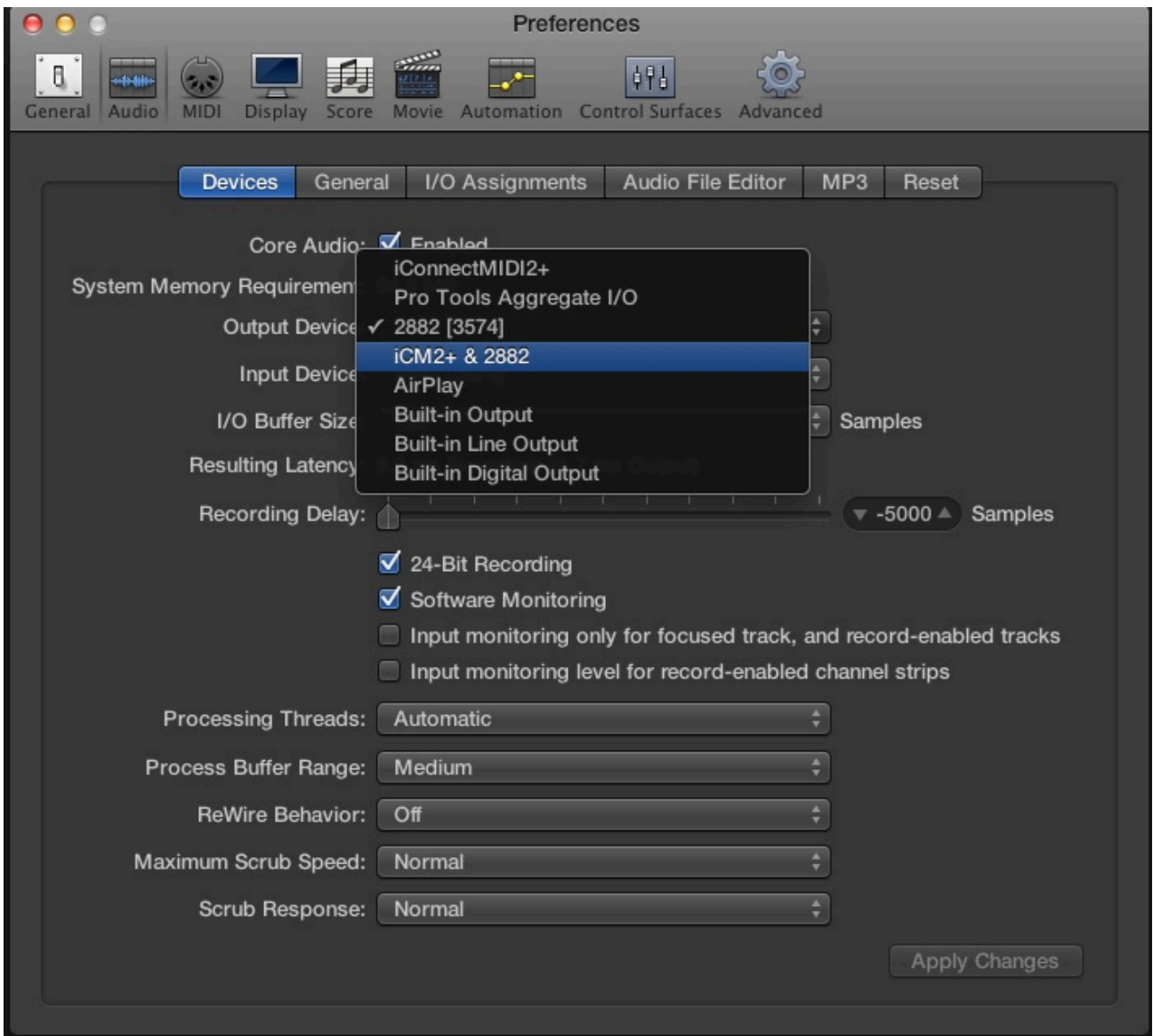


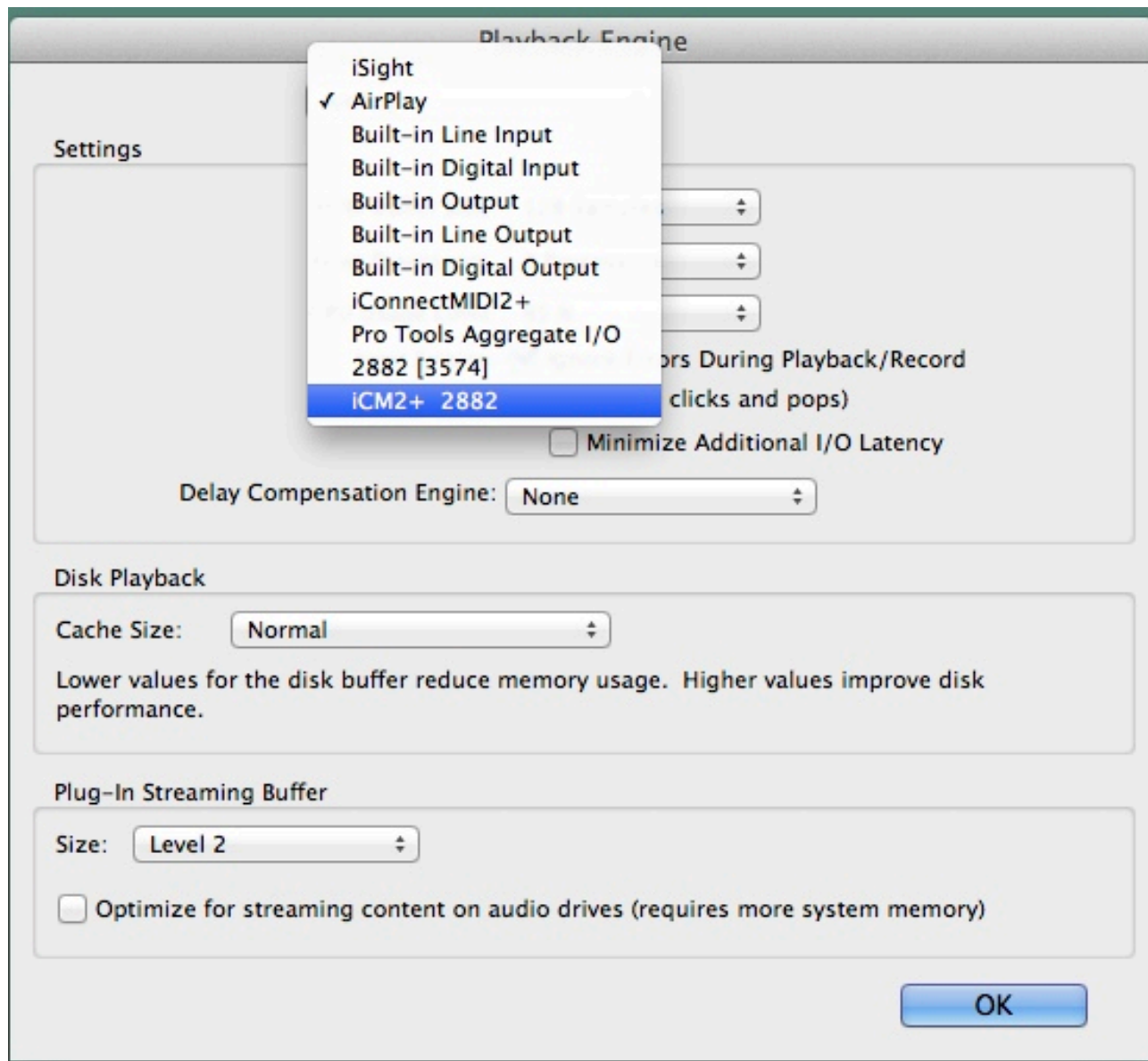
After that the Aggregate Device will behave as a single interface with extra inputs and outputs. You can name it, as shown on the following screen shot:



Whether the iConnectMIDI²⁺'s audio I/Os are numbered before, after, or in between other interfaces connected to your Mac computer may be arbitrary.

In the following two screen shots, the device we've created (called iCM2+ & 2882) shows up in Apple Logic Pro X, then in Avid Pro Tools 10:

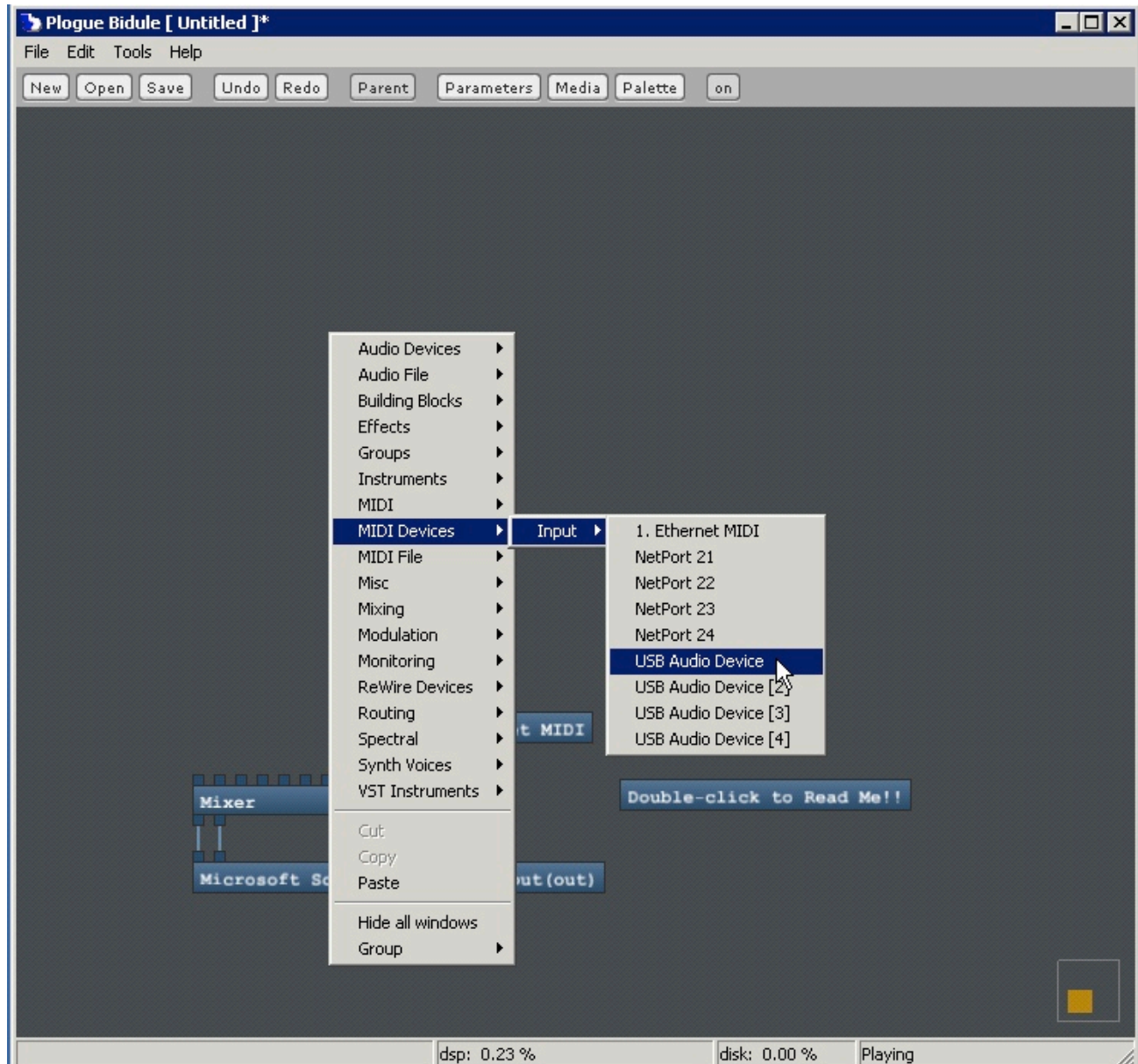




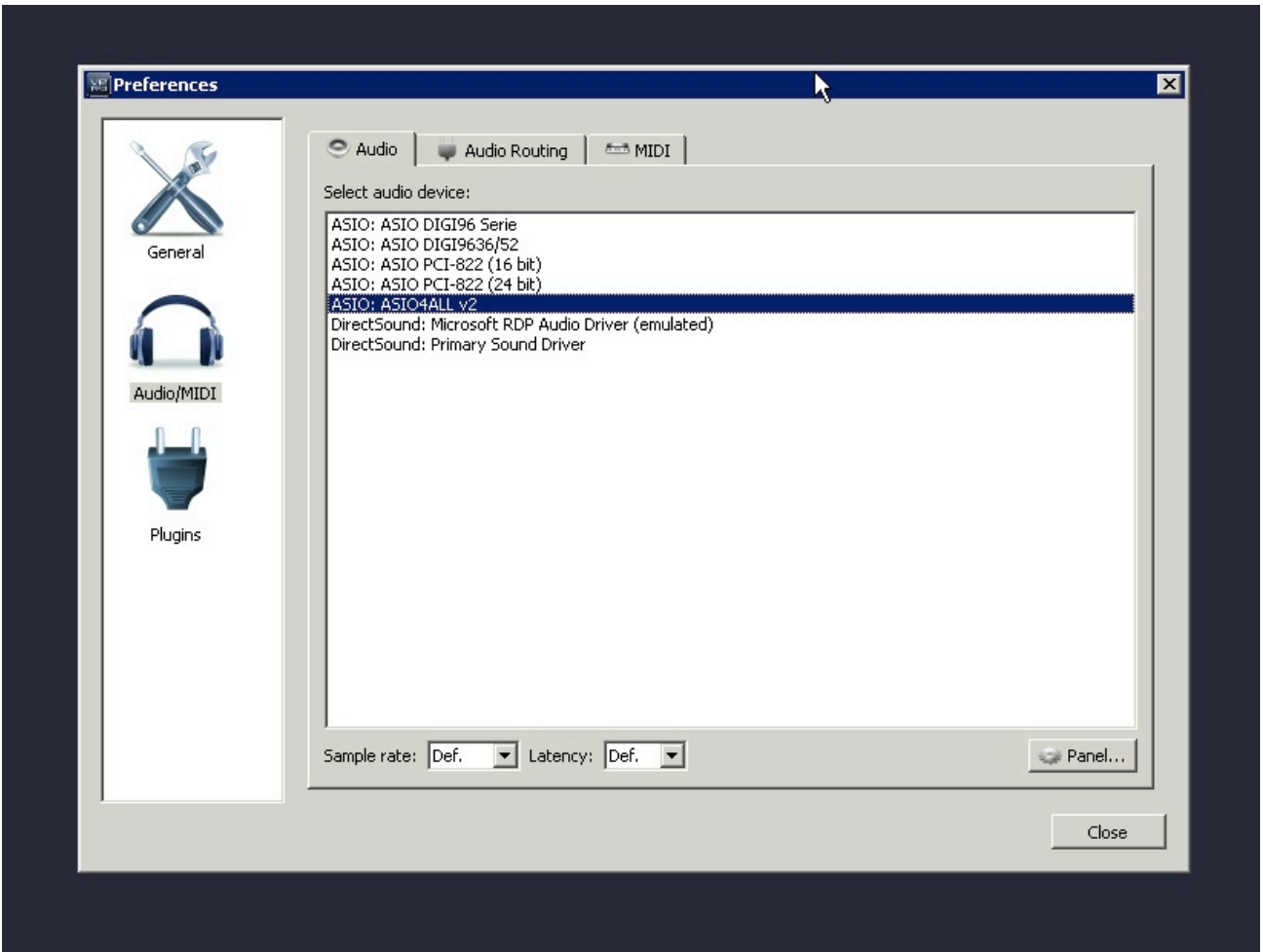
Windows set-up

1. Connect a USB A-to-B standard cable from Device port 1 or 2 to your Windows computer. The iConnectMIDI²⁺ 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 iConnectMIDI²⁺ 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 iConnectMIDI²⁺ 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 iConnectMIDI²⁺'s audio I/Os are numbered before, after, or in between other interfaces connected to your Windows computer may be arbitrary.

iOS set-up

1. For both audio passThru™ and MIDI, simply connect your iOS computer device to iConnectMIDI²⁺ Device port 1 with the supplied 30-pin to iConnectivity USB (B) inline connection cable. Device port 2 will pass MIDI only to an iOS device, and it will not charge it.

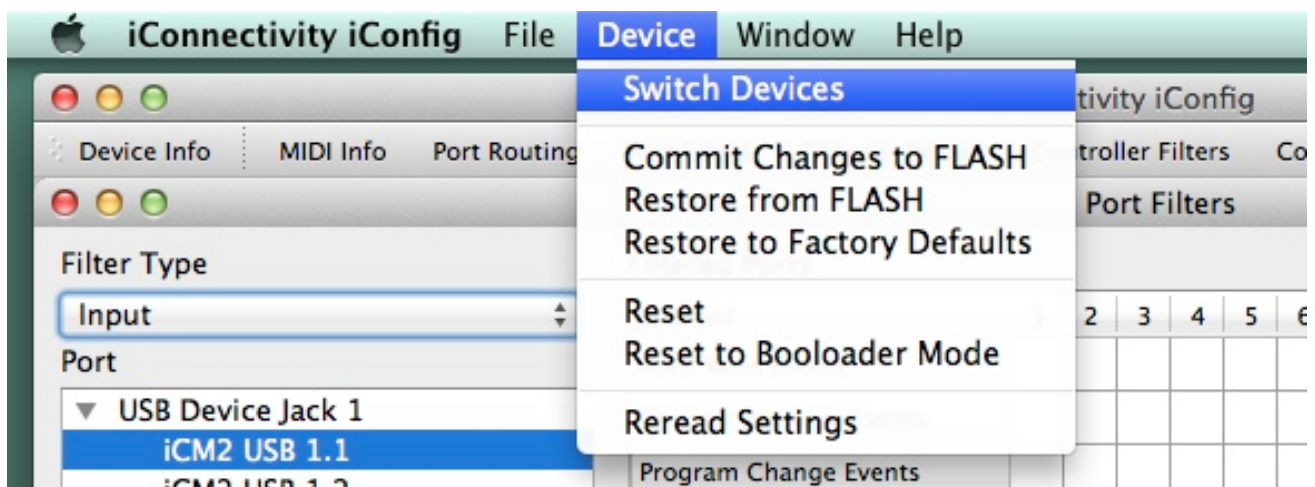
The iConnectMIDI²⁺ should automatically take over the iOS device's audio input and output ports, and most iOS apps will use it for MIDI input and output as well. This is the case with Apple GarageBand, for example. However, some apps - typically ones capable of supporting multiple MIDI interfaces - require that you select the iConnectMIDI²⁺ as the interface.

Note: because the iOS device uses the iConnectMIDI²⁺ 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 for that 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.

Using multiple iConnectivity interfaces

You could connect literally dozens of iConnectMIDI²⁺ interfaces to the same Windows or Mac computer's USB ports, and your sequencer can access each one independently. More realistically, four iConnectMIDI²⁺ interfaces fit side-by-side in a 1U rack space.

The iConnectivity iConfig program can access all the iConnectivity devices attached to the computer device it's running on, one interface at a time.



Of course, you can use the iConnectMIDI²⁺ in addition to other audio and MIDI interfaces on any Mac or Windows computer.

Port Routing: understanding iConnectMIDI²⁺ MIDI

The iConnectMIDI²⁺ has four physical sets of I/O jacks (two bidirectional USB Device Jacks plus two pairs of standard MIDI 5-pin DIN I/Os). Inside the unit each MIDI DIN pair has its own 16-channel MIDI Port, and each USB Device Jack has its own set of four 16-channel MIDI Ports.

Any Port associated with one jack may be routed to any or all of the Ports in another jack's set in the iConfig software. To be more precise, each possible Port routing is either enabled or disabled in the grid in the iConfig software's Port Routing screen discussed below.

Important: The factory default set-up is as follows.

MIDI DIN ports: routed to each other.

USB Device ports:

Port 1 – DIN 1

Port 2 – Din 2

Port 3 – the other USB device port (to allow routing between computer devices connected to both ports)

Port 4 – free.

This routing can be changed in the iConfig software or recalled by a factory reset (see the section on the iConnectMIDI²⁺ hardware).

Audio passThru™

Audio passThru™ is the technology behind the built-in bi-directional digital audio connection between the two computer devices hooked up to the iConnectMIDI²⁺'s USB Device ports. It appears to a Mac, Windows, or iOS computer device just like any other audio interface, but there are two important and unique distinctions.

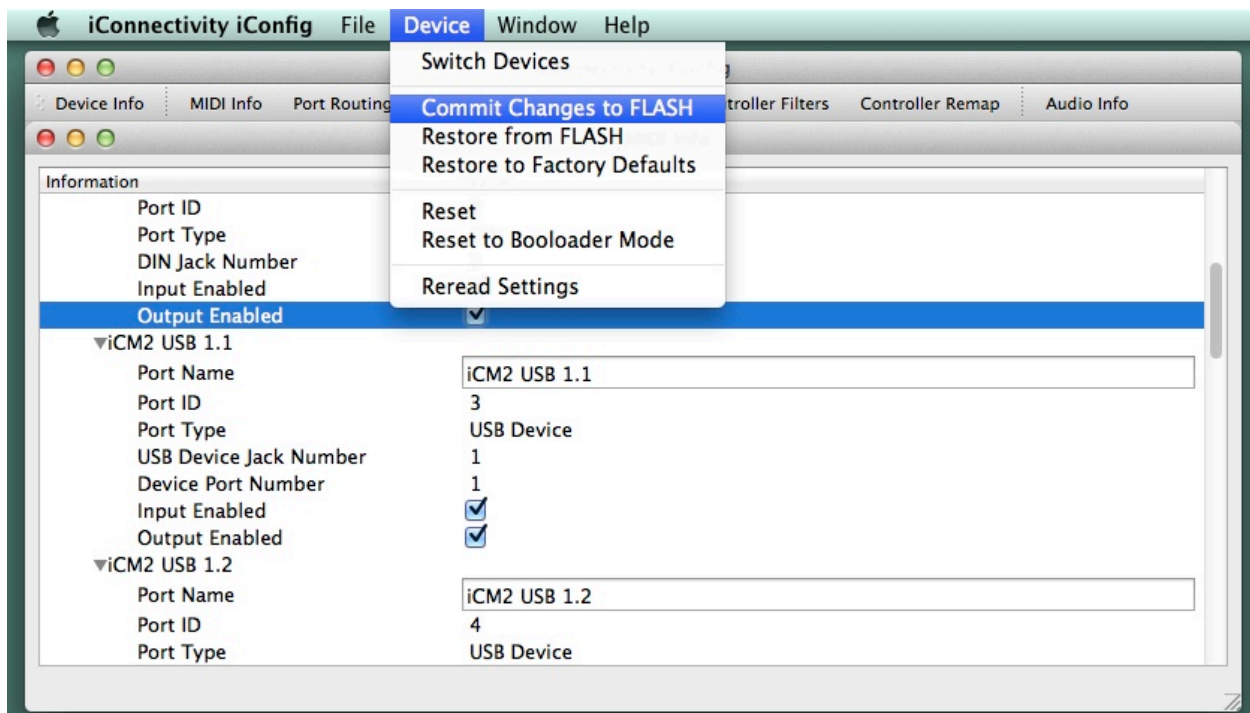
The first one is that this interface connects to two computers at the same time, unbeknownst to either one. Second, it doesn't have (or need) analog-to-digital and v.v. converters, because the source of the audio going over the Audio passThru™ bus is always a track or instrument plug-in running in a sequencer on one of the computer devices. (Ergo you will find no mic, line, or instrument jacks on the iConnectMIDI²⁺.)

The iConnectMIDI²⁺ can stream up to eight channels of audio (four in each direction), depending on the sample rate and bit depth setting you choose in the iConnectivity iConfig software. Its default setting is at 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.

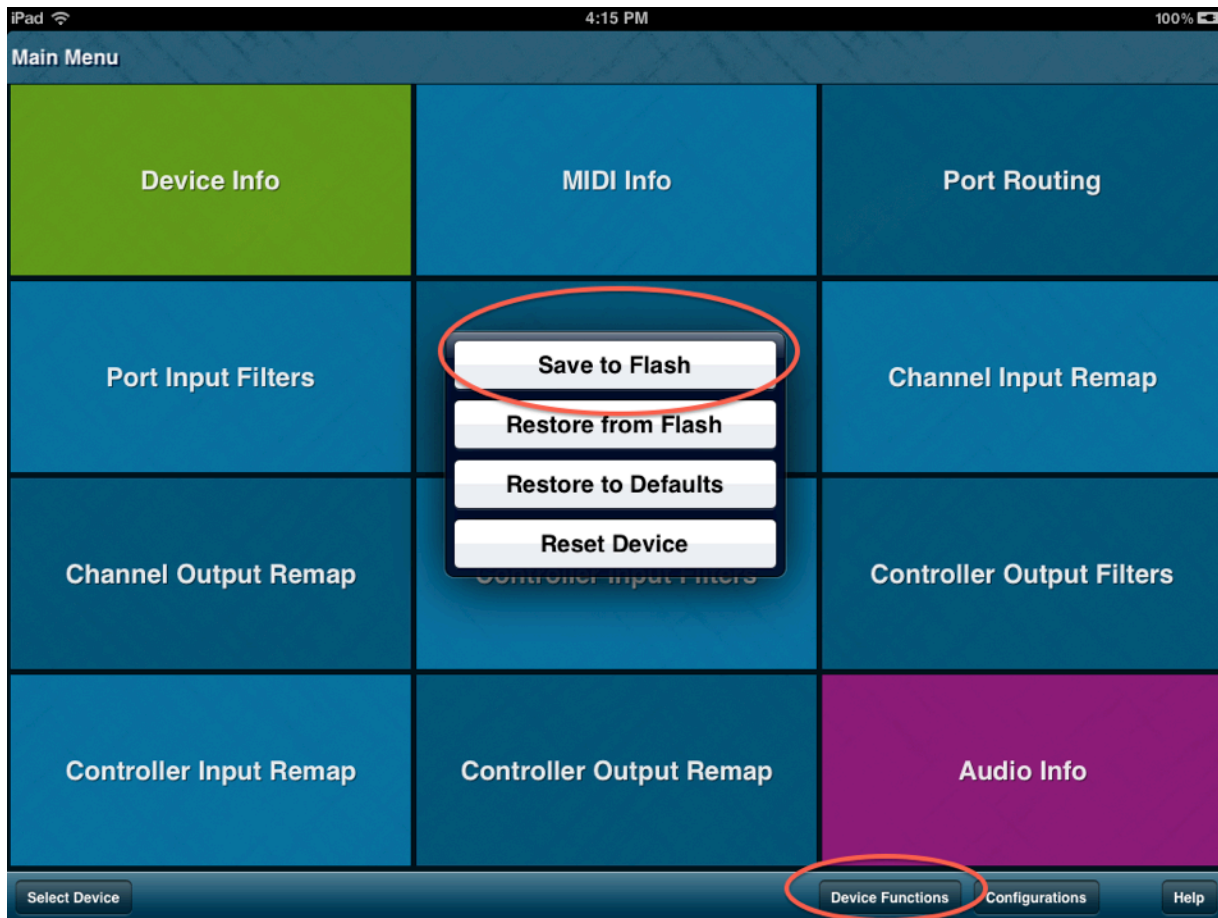
iConnectivity iConfig software

The iConnectivity iConfig software is available for download from www.iConnectivity.com (the iOS version is available on the Apple App Store). It 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. The difference between these versions and the iOS one are mostly self-explanatory, and the names may subtly different, but the functions are the same. For example, in the following iPad screen shot the command the Commit to Flash equivalent is accessed by tapping Device Functions and then (in the pop-up) on Save to Flash:



Launching the software/Device Info

The first thing iConfig does when you launch it is scan your system for a few seconds to determine what's connected. You can see the green iConnectMIDI²⁺ indicator lights flashing while this is going on.

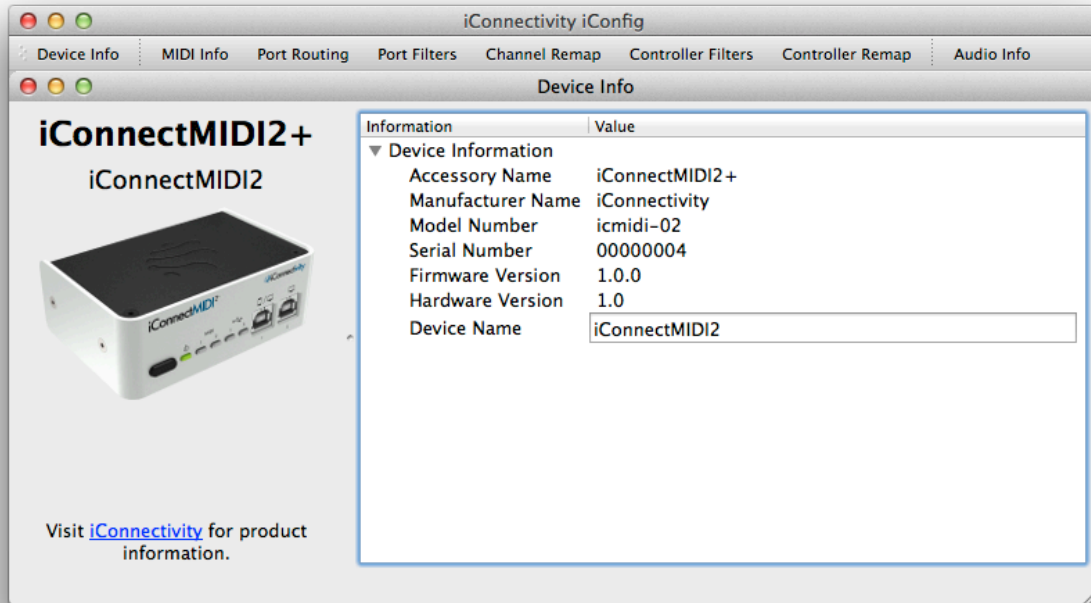
In the following example we have one unit connected to a Mac:



(Should any of your iConnectivity devices fail to appear, the most likely culprit has to be

an unplugged or bad cable, or...a powered-off device. Check this and click Refresh.)

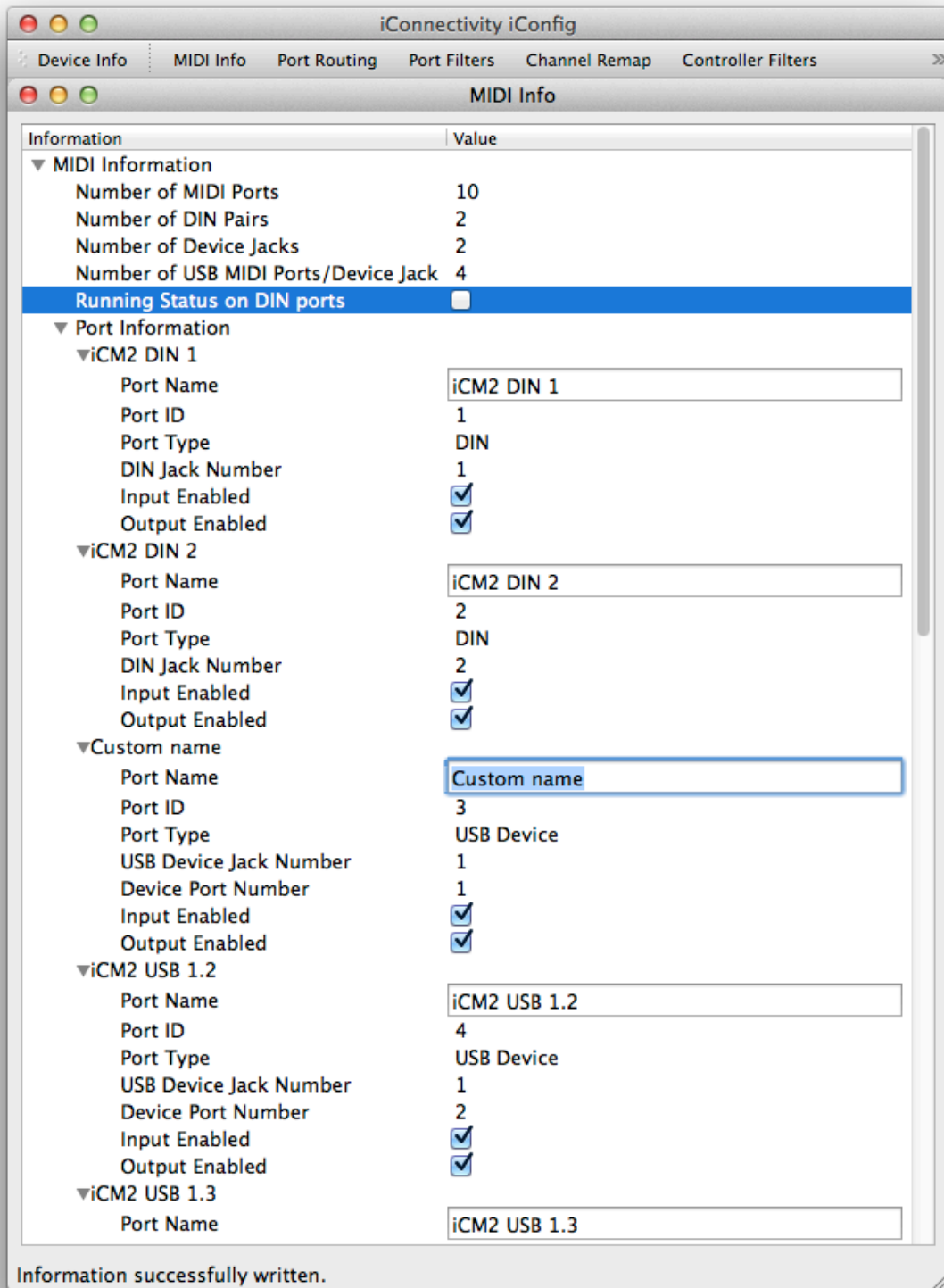
Then the program opens with the Device Info screen (in the iOS version it opens the Main Menu, so please tap the green button at the upper left to bring up this screen). Here you see information about your connected devices (note that you can change the Device Name field to something custom; this might be especially useful in larger set-ups with multiple iConnectivity interfaces), along with the eight tabs used to navigate the program:



MIDI Info tab

This screen contains essential MIDI information, as well as a list view with information about every MIDI port available in your interface.

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

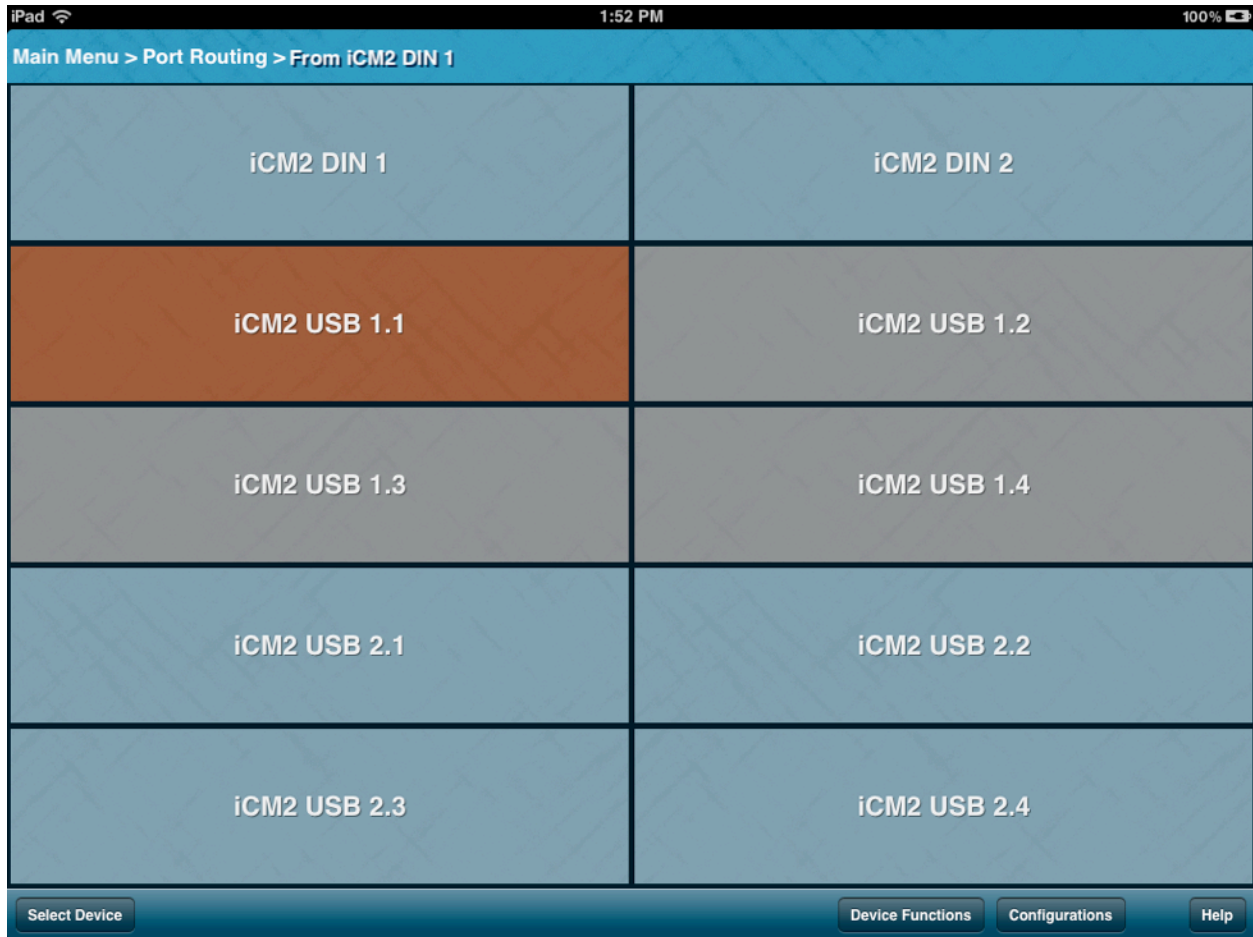
If you haven’t done so, please read the important section above entitled **Port Routing: understanding iConnectMIDI²⁺ MIDI** before reading this.

The Port Routing screen (actually two screens in the iOS version) is a simple routing matrix, but it accesses one of the iConnectMIDI²⁺’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.

In the Mac and Windows versions of the software, 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/Control key in Windows.)

The iOS version works a little differently. From the Main Menu you tap the Port Routing button, which brings up screen of available ports. Then you tap one to bring up another screen of potential destinations, where you enable the routes by tapping on them.

MIDI DIN port 1 is routed to USB Device port 1 here:



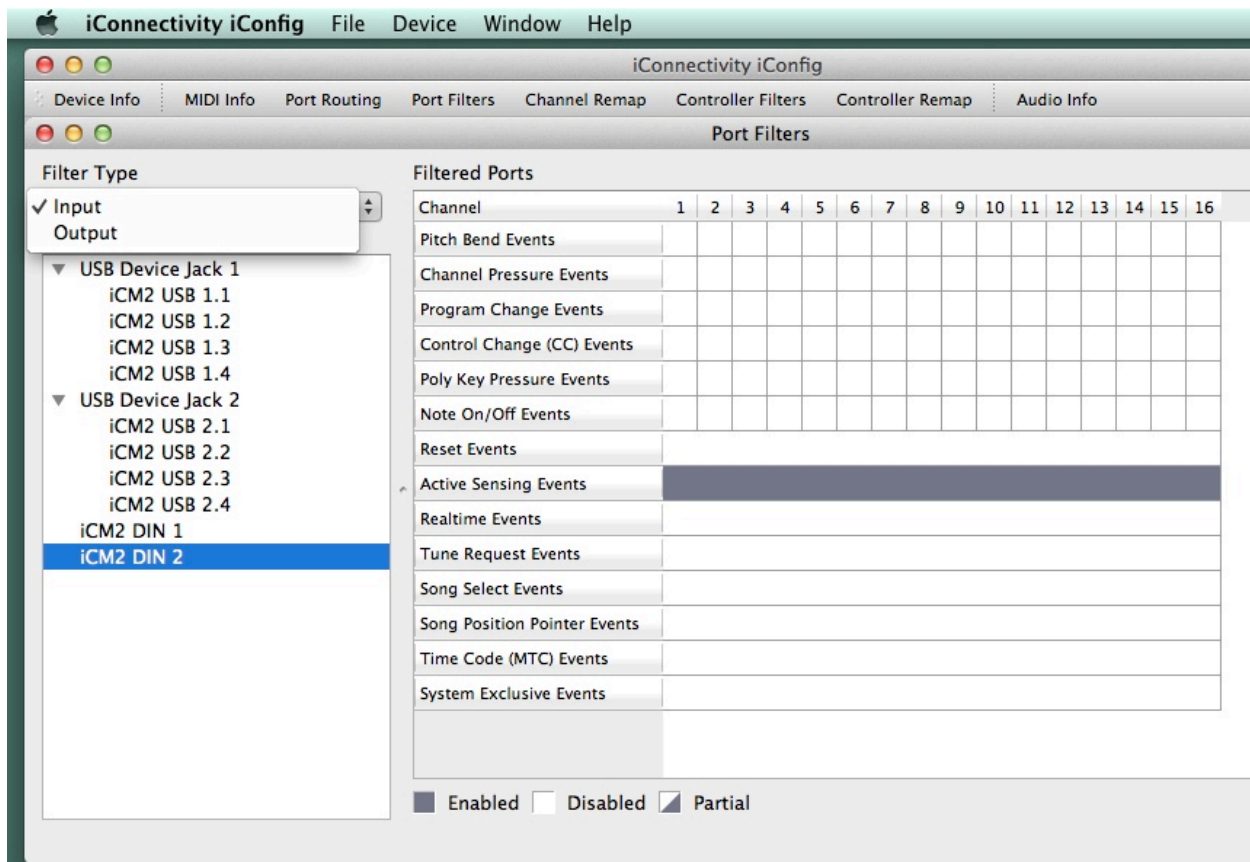
In the following screen from the Mac version you can see that iCM2 DIN 1 is routed to both USB Device Jacks' first ports and to DIN 2. This is the default routing:

[Port Routing window]

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 iCM2 USB Port 1 to see the MIDI keyboard connected to DIN port1, so you disable the keyboard connection to free up the 16-channel MIDI port it was using.

Port Filters tab

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



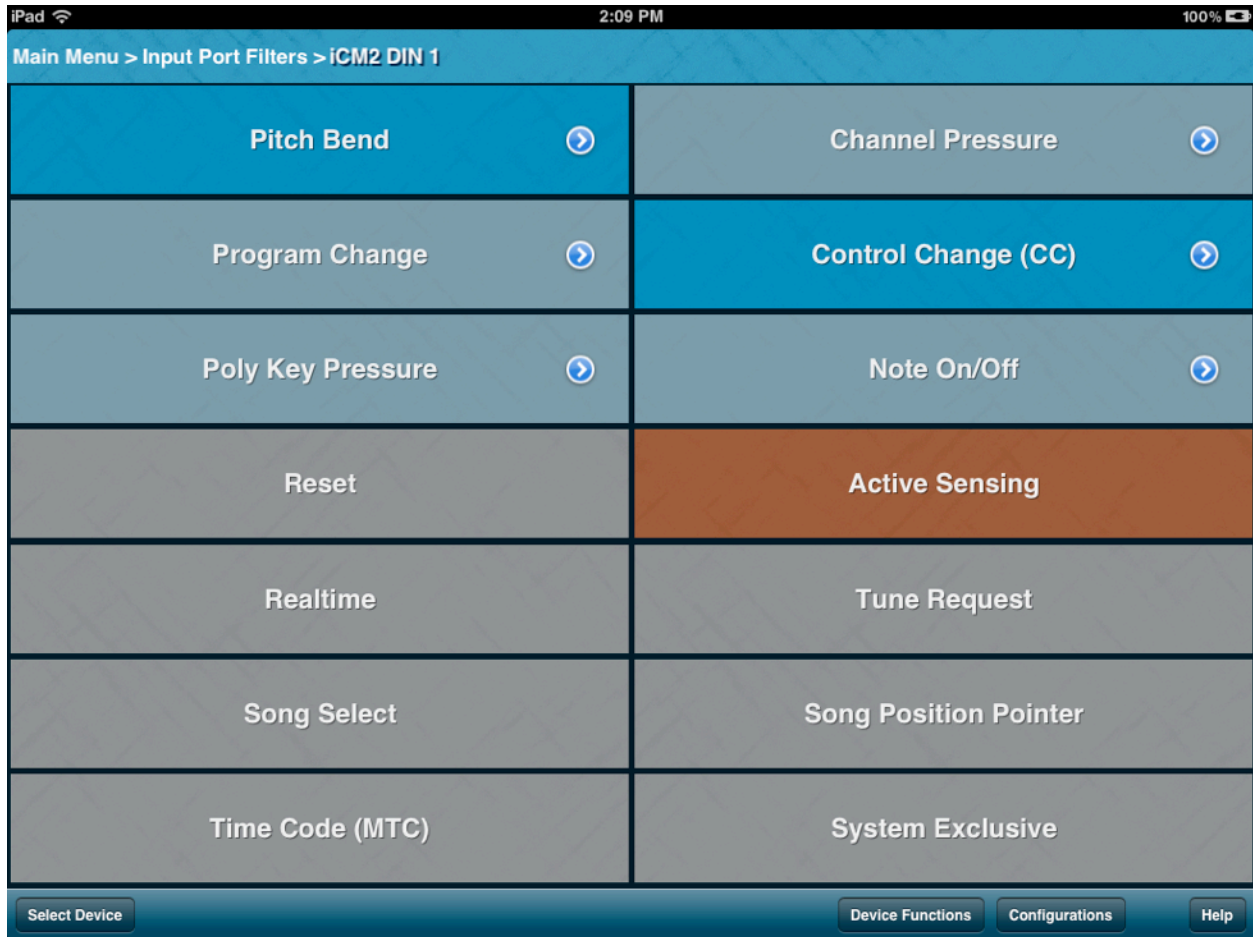
Then select the data type to be filtered on that port.

The first six types of data can be filtered on 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.

The iOS version breaks this down into multiple steps because of its smaller screen. From the Main Menu, tap either Port Input Filters or Port Output Filters. In the next screen tap on the port to be filtered. Then tap the type(s) of data to be filtered. Finally, if applicable, tap the data type's circled disclosure triangle to bring up a screen to select which channels you want the filtering to apply to.

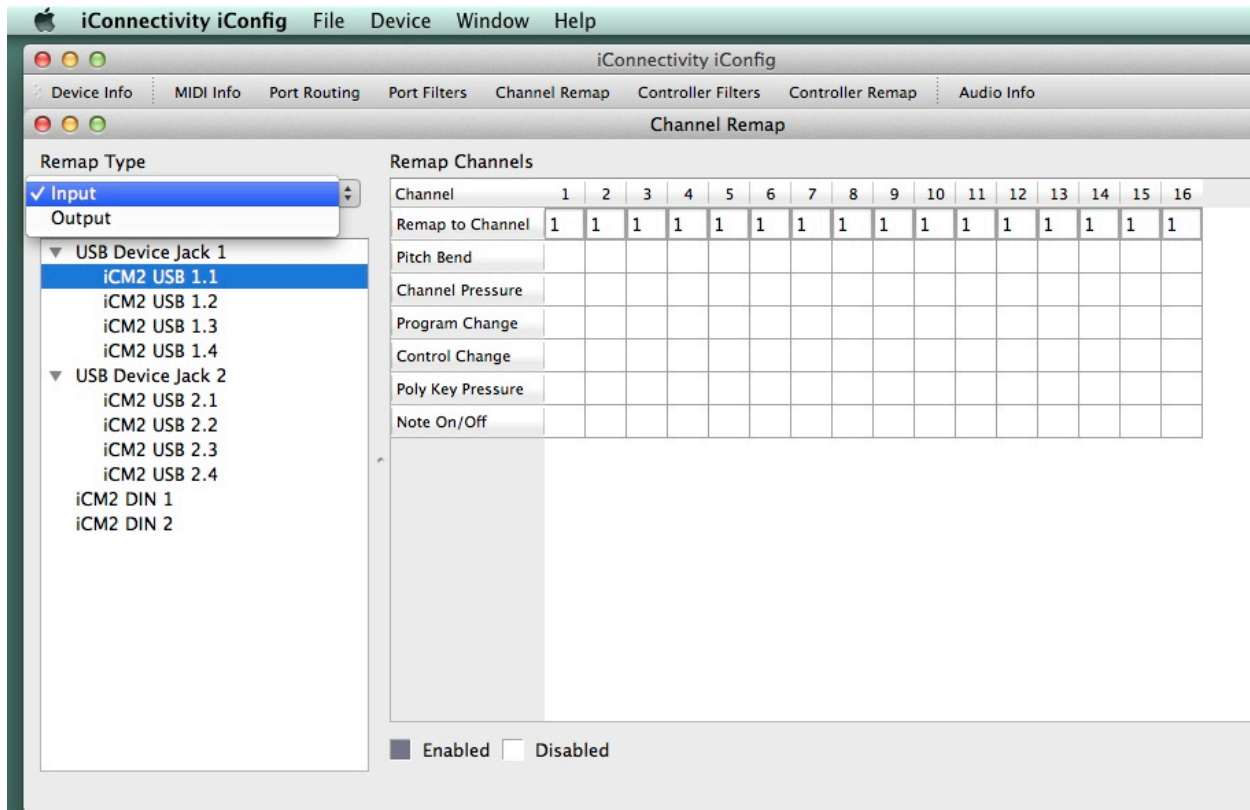
Here Pitch Bend, all Control Changes, and Active Sensing are filtered from iCM2 DIN 1:



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 in the Mac and Windows software, select the Port(s) to be filtered in the Port column. Also choose whether you're filtering the input or output:



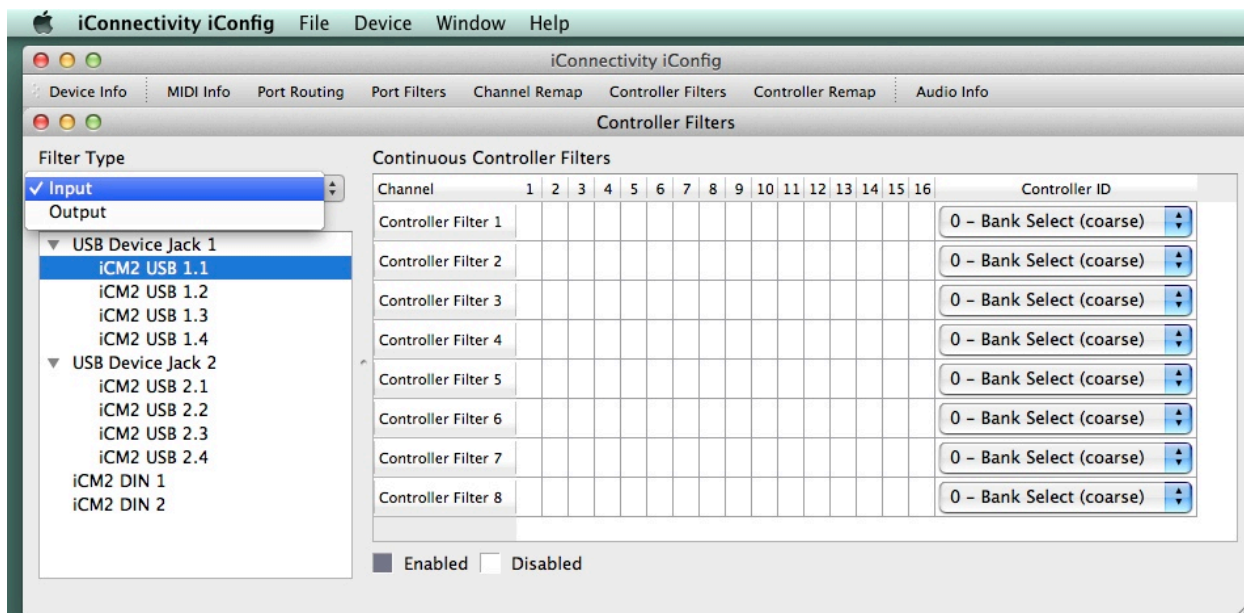
Then go over to the Remap Channels table and select the data type and channel to be remapped, and enter the destination channel number in the Remap to Channel row.

Again this is in multiple screens in the iOS version, and again this should be completely intuitive. First select either Channel Input Remap or Output Remap, then the port to be remapped on the next screen, then the MIDI to be remapped on the next screen, and the destination channel and data type to be remapped on the last screen. Repeat the last few steps for multiple MIDI channel remappings.

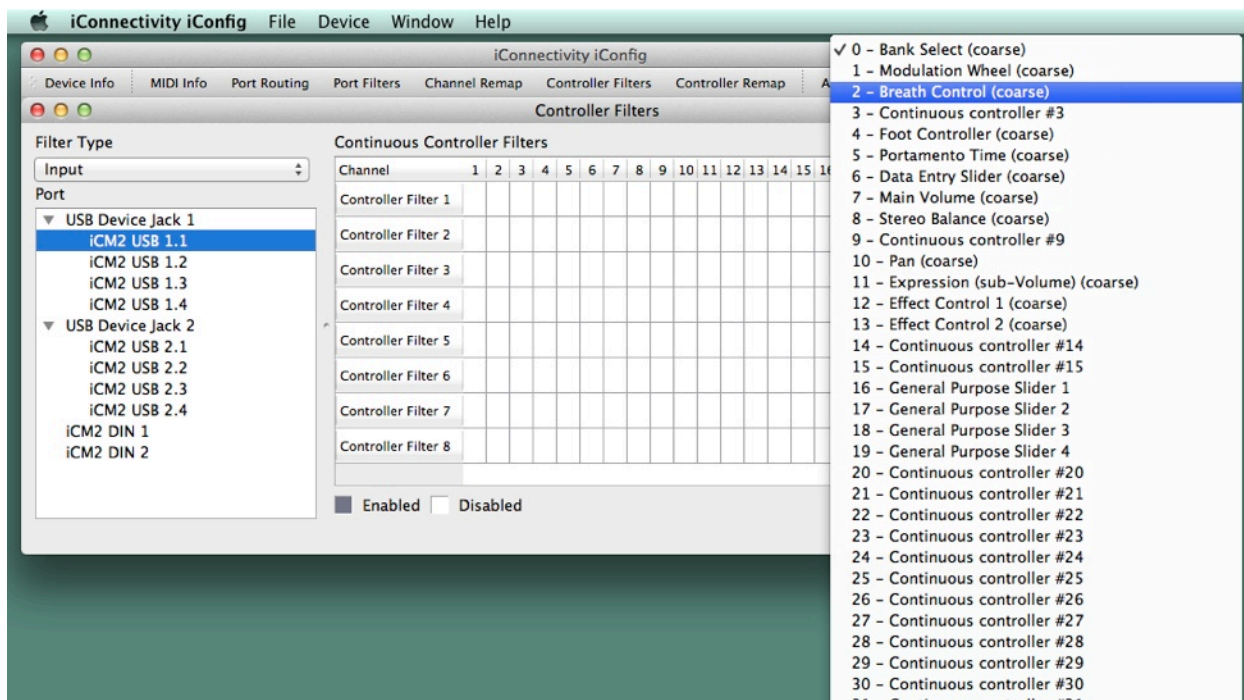
Controller Filters tab

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

In the Windows and Mac software this 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:



This too is on multiple screens in the iOS version. Start by tapping either the Controller Input Filters or Controller Output Filters. Tap the port to be filtered on the next screen, and a screen with the eight filters appears. Select one of the filters and you'll bring up the screen to enable or disable filtering on the MIDI channels you want the filter to apply to:



In this case Controller Filter #1 is enabled on Channels 1 and 2.

To get to the list of available controllers, tap the Bank Select (coarse) area and then select the MIDI controller you wish to filter. MIDI Continuous Controller #1, Modulation, is being filtered in the following example (scroll down to get to the remaining ones in the MIDI spec):

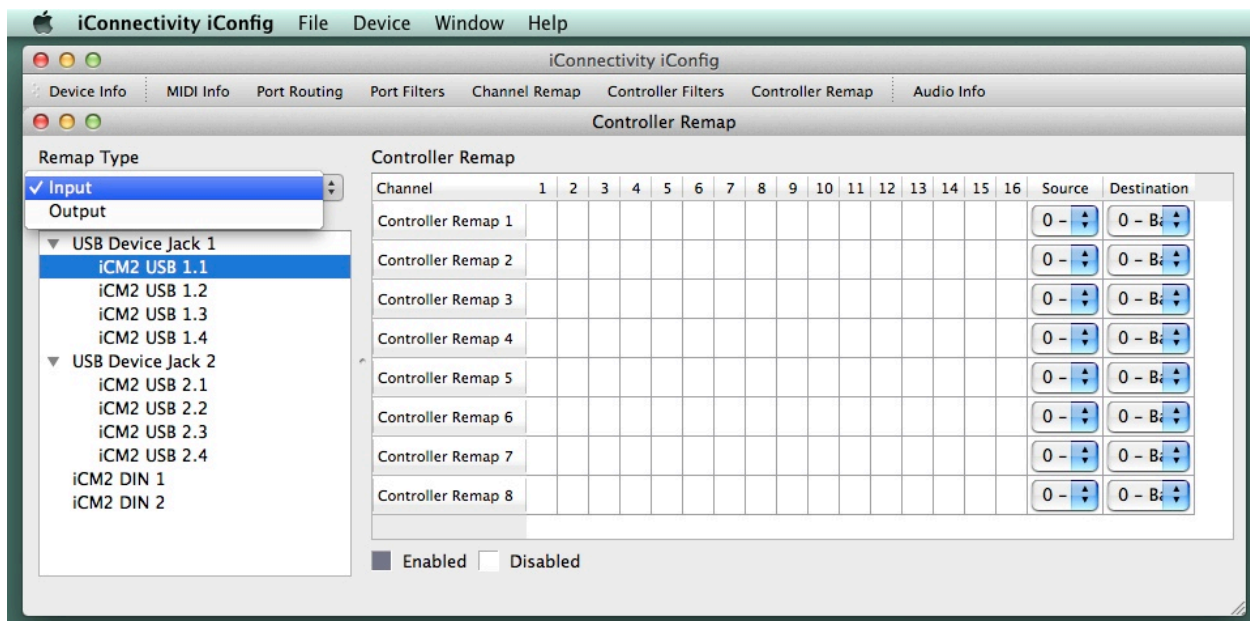


Controller Remap tab

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).

The iOS software interface works just the controller filters above, except that there are Source and Destination controllers at the bottom of the second to last screen.

In the Mac and PC versions, 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.

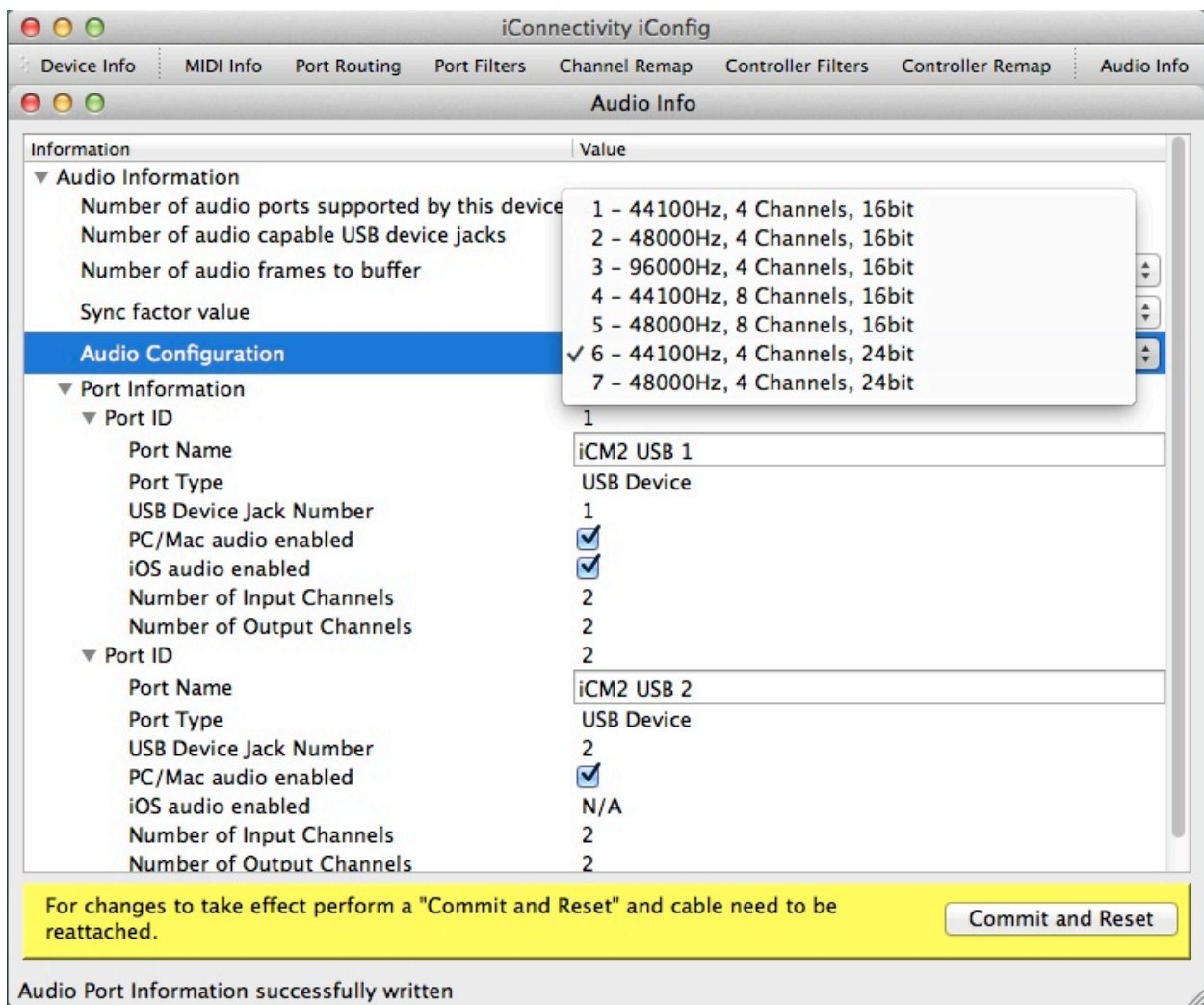
Audio Info tab

The final tab is a list view with information about the internal audio ports, along with a few adjustable parameters. With trivial exceptions, the iOS Audio Info is the same and doesn't require separate explanation.

Please note the emphatic yellow notice at the bottom of the screen shot below: for changes you make here to take effect, you must click the Commit and Reset button. It is suggested that you then remove the USB cable in Device port 2 and plug it back in. This power-cycles the interface.

Audio Information

The iConnectMIDI²⁺ can route a number of channels of audio to and from each computer device connected to its USB ports. 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 offers a choice of seven different combinations of sample rate, number of audio channels, and bit rate. (Audio channels are divided evenly between the inputs and outputs, and they're all accessible by any computer device connected to the iConnectMIDI²⁺.)

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.

In addition, some iOS audio apps support only specific sample rates. If you hear no audio, set the sample rate to 44.1kHz as the first troubleshooting step.

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 iConnectMIDI²⁺, for routing).

The default settings work well with most hardware and software combinations, but

should you encounter problems with Audio passThru™, try changing these two parameters until you find a suitable combination.

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 audio to each port, and also that iOS audio is available only in USB Port 1 (as indicated on the front panel as well). As explained in the Troubleshooting section near the end of this manual, disabling audio on an iOS device leaves MIDI active while always enabling the internal speakers, headphones, and mics.

Troubleshooting

No indicator lights

Typically, data flowing through iConnectMIDI²⁺ will cause the respective indicator lights to flash. If, however, there are no lights flashing at the port where you expect a device to be active with data, then this is an indication of one or more of the following causes:

1. detached cable
2. non-responding application
3. broken cable

Checking for any of these potential sources may resolve the issue.

Application not responding

An application (on iOS, Mac, or PC) may become unresponsive under heavy use, from unusual hardware configurations, or from frequent connection/disconnection of devices. Depending on the application's ability to recover from such scenarios, it may not be able to remain stable. If the application becomes unstable, try performing a complete shutdown of the application.

In iOS, application shutdown is achieved by **single-clicking** on the Home button, returning you to the application icons display. Then **double-click** on the Home button to bring up the running applications list. Touch and hold the application that you want to shut down until a delete symbol is superimposed on the application's icon; touch the delete button and the application will disappear, indicating full removal of the application from runtime memory. Restart the application. Ensure that the indicator light corresponding to the host port where the iOS device is connected shows a few short flashes, indicating that the application has properly initialized MIDI functionality, before trying to play your connected instruments.

Should an application need to be shutdown in Mac OS or Windows, use the usual application shutdown methods to terminate the application, and then restart the application.

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

When the iConnectMIDI²⁺ 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 iConnectMIDI²⁺ 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 connected to Device jack 2 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.

Optional power supply is connected but iOS device will not charge

The ConnectMIDI²⁺ with the optional power supply can only charge iOS devices that are powered up (or in sleep mode). If the iOS device has a completely dead battery, it must be charged enough to power up with its own USB Power Adapter before the ConnectMIDI²⁺ can complete the charge.

Specifications

General

USB Device port 1 - supports audio and MIDI for iOS devices, Mac, and PC. When optional power supply is connected, charges iOS device in this port (note: device must be powered on to charge).

USB Device port 2 - supports audio and MIDI for Mac and PC, MIDI only for iOS, accepts USB bus power (from a computer or a USB charging device).

Two pairs of standard MIDI DIN ports.

Dimensions

Width	107 mm
Depth	71 mm
Height	38 mm (without feet) 40 mm (with feet)
Weight	312g (11 oz.)

Body

- Durable construction
- Rugged steel body
- Brushed metal finish

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, 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 two pairs of MIDI 5-pin DIN ports on your iConnectMIDI²⁺’s rear panel are the same ports found on every piece of MIDI equipment from 1983 through today, although the iConnectMIDI²⁺ 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 iConnectMIDI²⁺ 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 iConnectMIDI²⁺ is that instead of having MIDI interfaces and audio interfaces on both computer devices – four devices - you just have one box that routes both MIDI and audio between the machines over USB. That makes it both

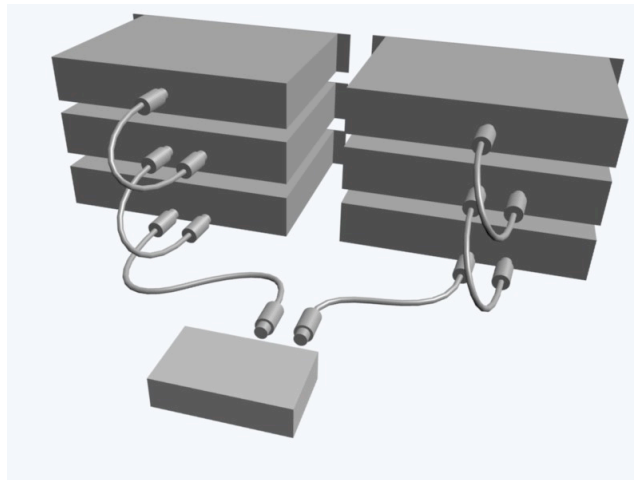
convenient and cost-effective to add, say, an iPad to your music-making set-up.

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 iConnectMIDI²⁺. Plug them directly into your computer, to which they'll appear as additional MIDI interfaces. You can route MIDI from the computer to the iConnectMIDI²⁺ (and anything connected to it). If you run out of USB ports, USB hubs are very inexpensive.

MIDI daisy-chaining



Daisy-chaining: iConnectMIDI²⁺ MIDI out port to MIDI In, MIDI Thru to MIDI In, MIDI Thru to MIDI In and (not shown) MIDI Out to iConnectMIDI²⁺ MIDI In. Repeat on the other MIDI DIN port.

The iConnectMIDI²⁺ has two pairs of MIDI DIN plugs. What if you have three 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 iConnectMIDI²⁺ 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 iConnectMIDI²⁺ 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, and there is only one MIDI at the end of the chain. Daisy-chaining lots of instruments is not ideal. For larger set-ups we offer the iConnectMIDI⁴⁺, which among other features has four pairs of MIDI DINs and support for three computer devices.

Support

Connect with us for support.

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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.

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