Dear Opcode,

Please help me make an OMS Studio Setup. I've never done this before. Thank you.

Sincerely,

Valued Customer

Well, Valued Customer, you've come to the right place. That's what this document is designed to do. We're going to walk through an OMS Setup with you.

Press the *Go On* button (at the bottom right) to proceed sequentially through this document. That's what you'll want to do most of the time, since this is designed for step-by-step instructions. To see the previous page, click *Go Back*. If you want to jump to a specific topic, clicking on *Shortcuts* will give you a list of available topics.

Click *Go On* to get started!

I'VE NEVER DONE THIS BEFORE!

Don't panic. It's going to be all right.

We're about to go through the process of making an OMS Setup step-by-step. This is good news. OMS is a powerful little application that acts as the hub of your computer's MIDI communication. OMS is here to make your life easier, and this document is here to make OMS easier. Groovy.

Before we proceed, you'll need to have OMS installed. You may have already done this, which would be great. If not, OMS probably came with your MIDI interface (you remember--the one we're about to set up). If you lost your OMS disks, or if your dog ate them, you can always download the latest version of OMS free at Opcode's website:

http://www.opcode.com

We recommend installing the latest version of OMS with which your software is compatible.

OK, let's get moving. Again, just press the *Go On* button (at the bottom right) to proceed sequentially through this document. If you want to skip to a particular section, click on one of the links below.

Although almost all of the principles we're about to discuss apply to everybody, the physical connections you'll make now are slightly different depending on whether you're using a USB MIDI interface or a serial MIDI interface. In the interest of avoiding confusion, we'll discuss them separately.

Serial interfaces have ports that look like this: . A comprehensive list of serial interfaces would be somewhere between long and really, really long; it includes these Opcode interfaces: MIDI Translator, MIDI Translator II, MIDI Translator Pro and Pro Sync, Studio 3, Studio 4, Studio 5 (and Studio 5 Lx), Studio 64X, Studio 128X, and Studio 64XTC.

USB interfaces have ports that look like this: . (Sorry, we couldn't find a slick picture of one of those ports. We'll work on it for the next rev of this document.) There aren't too many of them on the market yet, because these ports are a relatively new innovation while serial ports have been around for a pretty long time in computer years. You'll find USB ports on iMacs and the new blue G3s. Opcode's MIDIport 32 is a USB MIDI interface.

Please click one of the links below.

I Have a Serial Interface

I Have a USB Interface

SERIAL: MAKE PHYSICAL CONNECTIONS

We may as well get the manual labor out of the way. You have a computer, a MIDI interface, and some MIDI devices (synthesizers, samplers, controllers, etc.). Now we'll connect them using different types of cables.

This is the back of an Opcode Studio 64XTC, the interface we're using.
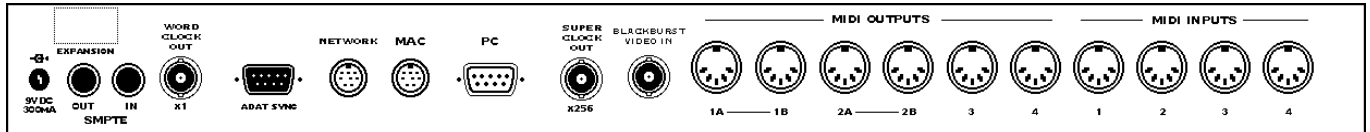
The back of your computer has at least one serial port, which looks like this in real life: . Most desktop computers have two: one printer port, and one modem port. They are labeled with these icons: (Printer) and (Modem).

Your MIDI devices also have MIDI ports, which look like this: . These ports are usually labeled MIDI IN, MIDI OUT, and MIDI THRU.

Your computer doesn't have MIDI ports, which is why you need a MIDI interface in the first place. A (serial) MIDI interface is sort of like a big serial-to-MIDI/MIDI-to-serial adaptor, but this is a very smart adaptor.

Bonus Tractor Tip (two for the price of one!): MIDI cables support data transmission in *one direction only*, which is why you must connect two cables if you want to send and receive data to and from your gear. MIDI is always sent from an OUT port to an IN port (never from an IN to an OUT). More on this on the News at 6:00.

Step ❶: Connect a serial cable from the Macintosh's Modem port to the MIDI interface's appropriate port.

Step ❷: Connect MIDI cables from the MIDI OUTs of your MIDI devices to the MIDI INs of your MIDI interface.

Step ❸: Connect MIDI cables from the MIDI INs of your MIDI devices to the MIDI OUTs of your MIDI interface.

Obvious (and unillustrated) Step ❹: Connect power cables and turn on your equipment.

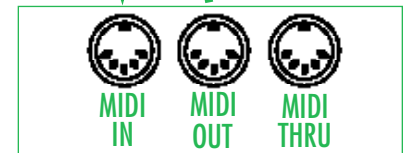The back of a Macintosh computer

ImageWriter II printer cable ❶ A serial cable connects the 64XTC's "Mac" port to the Mac's "Modem" port.

MIDI cables connect the synthesizers to the MIDI interface.

The Korg N1's MIDI ports
(connected to the 64XTC's Port 1)

The Clavia Nord Lead's MIDI ports
(connected to the 64XTC's Port 3)

By the way, we should mention that this document assumes that you've already installed any necessary drivers for your USB MIDI interface.

We may as well get the manual labor out of the way. You have a computer, a MIDI interface, and some MIDI devices (synthesizers, samplers, controllers, etc.). Now we'll connect them using different types of cables.

This is the back of an Opcode MIDIport 32, the interface we're referring to for the next couple of pages. The majority of this document refers to an Opcode Studio 64XTC, but the next couple of pages are a little detour. Please don't be confused.
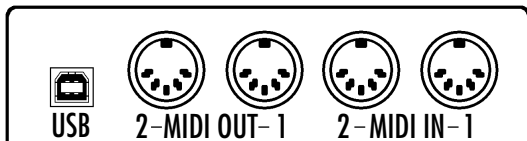
Your computer has at least one USB port, which looks like this: . If you have a blue G3, the USB ports are on the back. If you have an iMac, the USB ports are on the right-hand side (don't connect to the USB port on the iMac's keyboard; use the one on the CPU). You may also have one or more USB ports on a USB PCI card installed in your computer, but if that's the case, you'll probably know where to find them.

Your MIDI devices also have MIDI ports, which look like this: . These ports are usually labeled MIDI IN, MIDI OUT, and MIDI THRU.

Your computer doesn't have MIDI ports, which is why you need a MIDI interface in the first place. A (USB) MIDI interface is sort of like a big USB-to-MIDI/MIDI-to-USB adaptor, but this is a very smart adaptor.

Bonus Tractor Tip (buy one, get one free): MIDI cables support data transmission in *one direction only*, which is why you must connect two cables if you want to send and receive data to and from your gear. MIDI is always sent from an OUT port to an IN port (never from an IN to an OUT). Stay tuned for more information.

Step ❶: Connect a USB cable from the Macintosh's USB port to the MIDI interface's USB port.

Step ❷: Connect MIDI cables from the MIDI OUTs of your MIDI devices to the MIDI INs of your MIDI interface.

Step ❸: Connect MIDI cables from the MIDI INs of your MIDI devices to the MIDI OUTs of your MIDI interface.
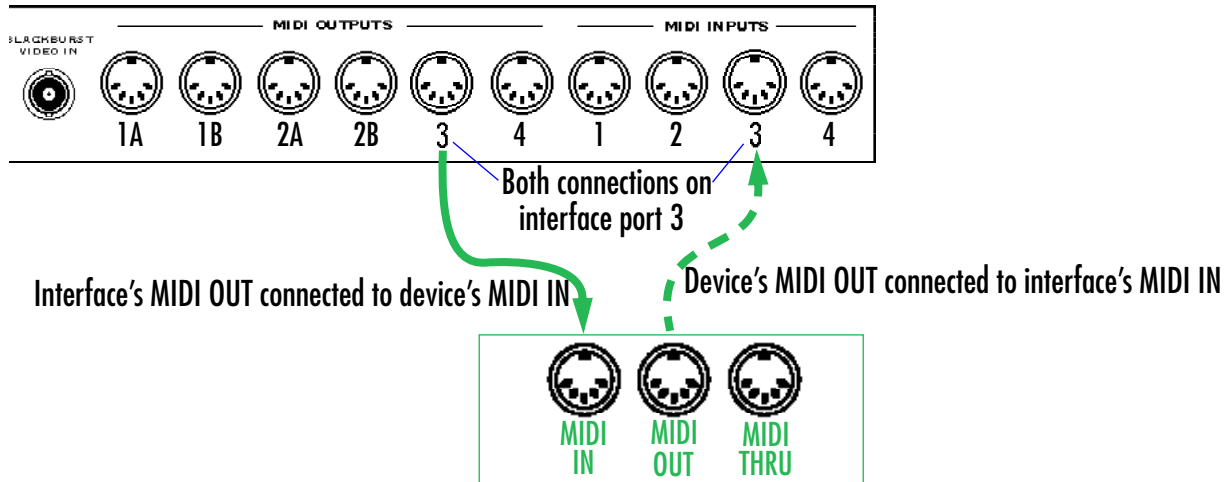
Obvious (and unillustrated) Step ❹: Connect power cables and turn on your equipment.

The back of a Macintosh computer

USB cable A-connector

USB cable B-connector

A USB cable connects the MIDIport 32's USB port to the Mac's USB port.

USB   2—MIDI OUT—1   2—MIDI IN—1

❸   ❸

MIDI   MIDI   MIDI   MIDI   MIDI cables connect the synthesizers to the MIDI interface.

❷   ❷

MIDI   MIDI   MIDI   MIDI   MIDI   MIDI
IN   OUT   THRU   IN   OUT   THRU

The first device's MIDI ports
(connected to the MIDIport 32's Port 2)

The second device's MIDI ports
(connected to the MIDIport 32's Port 1)
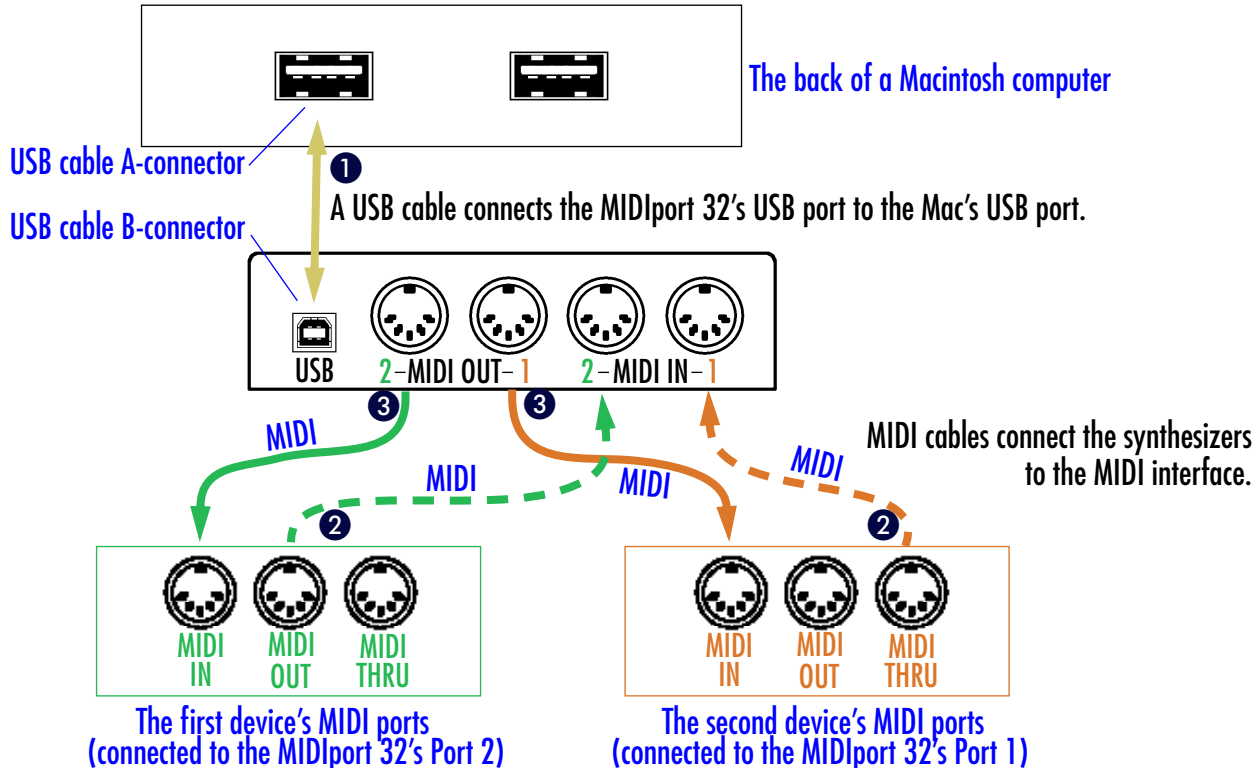
Notice that MIDI connections to and from one piece of MIDI equipment (a synthesizer, sampler, or controller, etc.) are always made *to the same numbered port* on the MIDI interface. For instance, if the device's MIDI OUT goes into the interface's MIDI IN port 3, then the device's MIDI IN should also be connected to the interface's MIDI OUT port 3.

MIDI OUTPUTS   MIDI INPUTS

BLACKBURST VIDEO IN

1A   1B   2A   2B   3   4   1   2   3   4

Both connections on interface port 3

Interface's MIDI OUT connected to device's MIDI IN

Device's MIDI OUT connected to interface's MIDI IN

MIDI IN   MIDI OUT   MIDI THRU

This connection scheme serves many purposes, not the least of which is to make it easier for OMS to keep track of your devices.

You can buy the cables necessary for these connections at just about any computer store. You need a USB or Macintosh serial cable to connect your interface to the computer; if it's a serial cable, this *must* be an **Imagewriter II** or **AppleTalk** serial cable. MIDI cables should have the same type of MIDI connection at both ends.
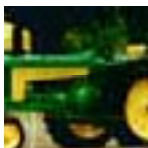
You don't always have to make MIDI connections both ways (IN to OUT and OUT to IN) for every piece of MIDI equipment. If you have a rack-mount sound module, you only need to connect the interface's MIDI OUT to the module's MIDI IN, because you'll only be sending MIDI information *to* the module. On the other hand, if you have a controller with no internal sounds (like many wind controllers), you need only to connect the controller's MIDI OUT to the interface's MIDI IN.

If you're using a librarian application (such as Galaxy or Galaxy Plus Editors), you absolutely *must* make MIDI connections both ways (IN to OUT and OUT to IN). Librarian applications require that MIDI can be sent to and received from devices with which they communicate.

LAUNCH OMS

Phew--we're done lifting the heavy stuff. On to the software.

Launch OMS Setup. Unless you've moved the file, it's in the Opcode>OMS Applications folder. Doubleclick on it.

> (Remember, we're assuming that you already have OMS installed. If not, you need to install it before we can proceed. You probably received a copy of OMS with your MIDI interface. If not, or if you lost your disks, or if you don't have them for any other reason, you can always download the latest version of OMS at:
>
> http://www.opcode.com
>
> We recommend installing the latest version of OMS with which your software is compatible.)

Okay, back to the land of flowing text. In case you forgot what to do while reading that giant aside, we'll say it again: launch OMS.


"OMS" stands for "Open Music System". In bygone years it used to stand for "Opcode MIDI System", but Opcode made the OMS standard public so that other software and hardware developers could use it. Opcode believes that anything that can make studio gear from different manufacturers work well together is a benefit to everyone involved--you, your dealer(s), and the manufacturers.

DEAL WITH APPLE-TALK...

Do you see this screen? If not, you can read the next couple of pages from some nifty information, or skip ahead if you're in a terrible rush. Click on skip ahead to...well, to skip ahead.


```
┌─────────────────────────────────────────────────────────┐
│≡≡≡≡≡≡≡≡≡≡≡≡≡≡≡≡≡≡≡  AppleTalk  ≡≡≡≡≡≡≡≡≡≡≡≡≡≡≡≡≡≡│
│                                                           │
│  ┌────┐   AppleTalk is on. It is used for connecting      │
│  │OMS │   your computer to network services, such as      │
│  └────┘   file servers and printers. But it can           │
│           make MIDI communication less reliable.          │
│                                                           │
│           If you choose Turn It Off, don't disconnect      │
│           AppleTalk yet.                                   │
│                                                           │
│           CAUTION: OMS may not turn off AppleTalk as       │
│           reliably as Apple's system software.             │
│                                                           │
│  ┌──────────┐              ┌────────────┐ ┌────────────┐  │
│  │ Options... │             │ Leave It On │ │ Turn It Off │ │
│  └──────────┘              └────────────┘ └────────────┘  │
└─────────────────────────────────────────────────────────┘
```

Click ┌─────────────┐ to disable AppleTalk.
      │ Turn It Off │
   └─────────────┘
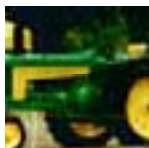
If you really want to, you can leave AppleTalk on. You probably won't notice any difference. However, if you find that you're having MIDI communication problems, try turning AppleTalk off and see if that takes care of it.

> **OMS**
>
> Now, please make sure the AppleTalk network is disconnected (you may need to check an interface's MIDI/thru switch).
>
> [**OK**]

Click [**OK**]. To be perfectly honest, it doesn't matter whether you physically disconnect the AppleTalk network or not. Serial Interface Users: if you followed the connection diagram earlier, you won't have the AppleTalk network physically connected now anyway.
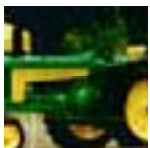
You may be wondering why you keep getting these AppleTalk dialogs when you launch OMS or any OMS-compatible application. You might just want to turn AppleTalk off for good, especially if you're not actually using it. To do so, go to your computer's Apple menu (the colorful apple in the upper-left-hand corner of the screen) and select "Chooser". Select "Inactive" for the AppleTalk setting in that window, and you won't have to deal with these dialogs again. Neat!

If you don't see this window automatically, choose **New** from the **File menu**.

Create a New Studio Setup

A studio setup document is a list of your MIDI devices and cables between them.

You use it to tell applications what's in your studio.

Click OK to have OMS automatically locate your MIDI devices and build a new studio setup document.

[Cancel]   [OK]

Click [OK] to create your Studio Setup.

Put a check next to the serial port that your MIDI interface is connected to. In this example, we have an Opcode Studio 64XTC connected to the Modem port, so we've put a check next to the modem icon.

If you're using a USB MIDI interface, you don't have to check any ports in this dialog box. OMS automatically searches all USB ports regardless of what's checked here.

Then, click **Search** to begin creating your OMS Studio Setup. OMS will now "look" out your serial ports to see what's connected.

OMS searches through its installed drivers to find one that matches your MIDI interface.

Searching

Searching for driver hardware…

Studio 64XTC OMS Driver

Stop

Don't press the ⟨ **Stop** ⟩ button while OMS is searching for MIDI interfaces. OMS will automatically move on to the next screen when it's done.

When done searching, OMS shows you what it found.

OMS Driver Setup

OMS has detected the following devices installed on your computer. This list does not include external MIDI devices like sound modules, keyboards, and drum machines.

- Studio Patches pgm chg
- Studio 64XTC, Modem
- QuickTime Music

Click "OK" if this list is correct. Click "Troubleshoot" if this list is incorrect or incomplete. Click "Customize" to add drivers manually. Click "Cancel" to abort OMS setup.

[Cancel]   [Customize]   [Troubleshoot]   [OK]

Great! OMS found the interface--a Studio 64XTC on the Modem port. Click [OK], because the list is correct.

OMS attempts to automatically detect what type of device is connected to each port of your MIDI interface.

Identifying

Identifying MIDI devices...

Port 5
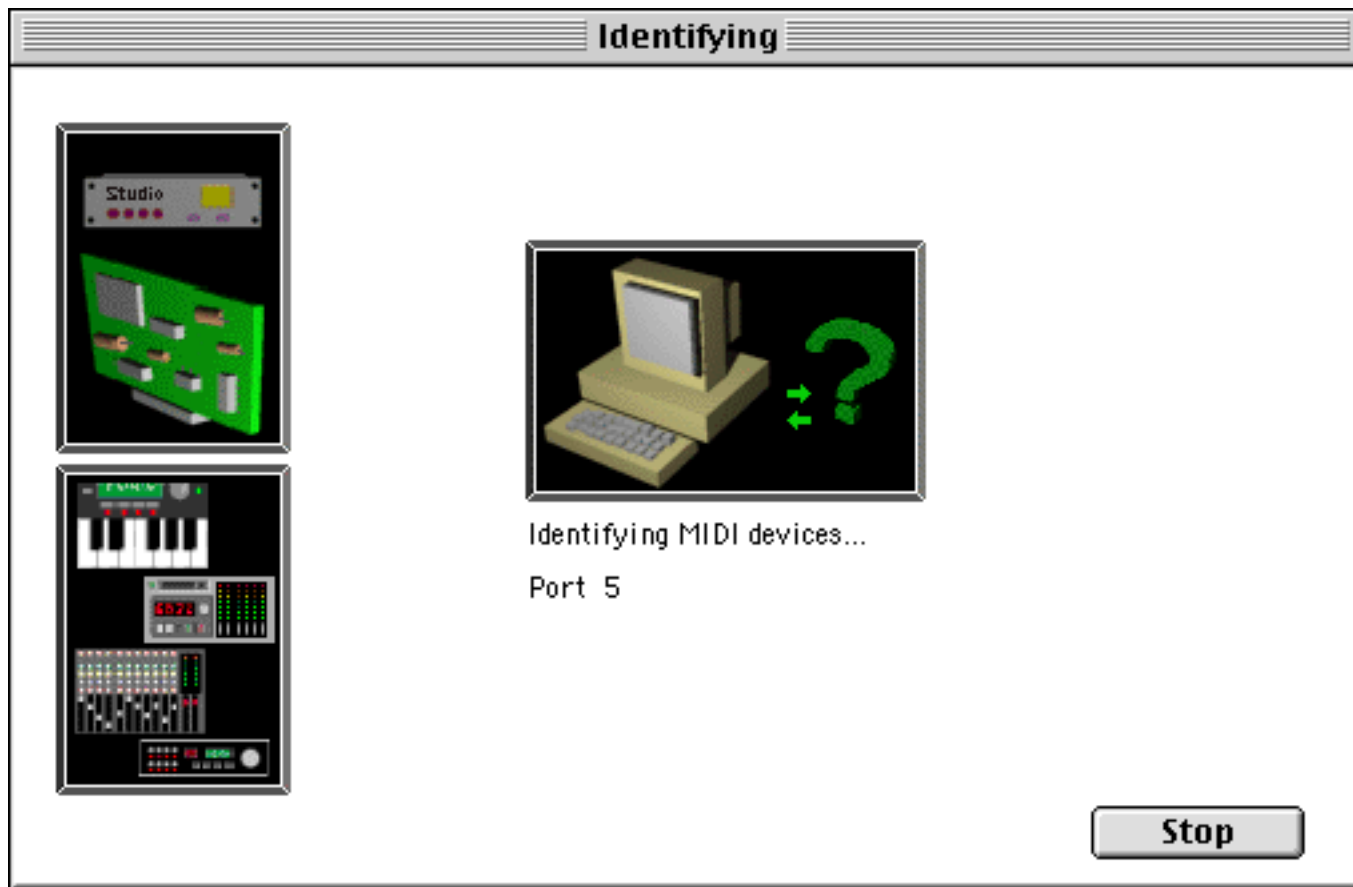
Stop

Don't press the [**Stop**] button while OMS is identifying MIDI devices. OMS will automatically move on to the next screen when it's done.

OMS tells you what it found. Sometimes OMS is "smart" enough to figure out what kind of synths you have connected to your interface, but usually it can't tell. No problem, though--you'll be able to define the synths (or controllers, samplers, etc.) that are connected in just a second.

The OMS MIDI Device Setup screen is displayed.

Put X's in the boxes next to the ports you're going to use. You may have to scroll down to see all of the available ports.
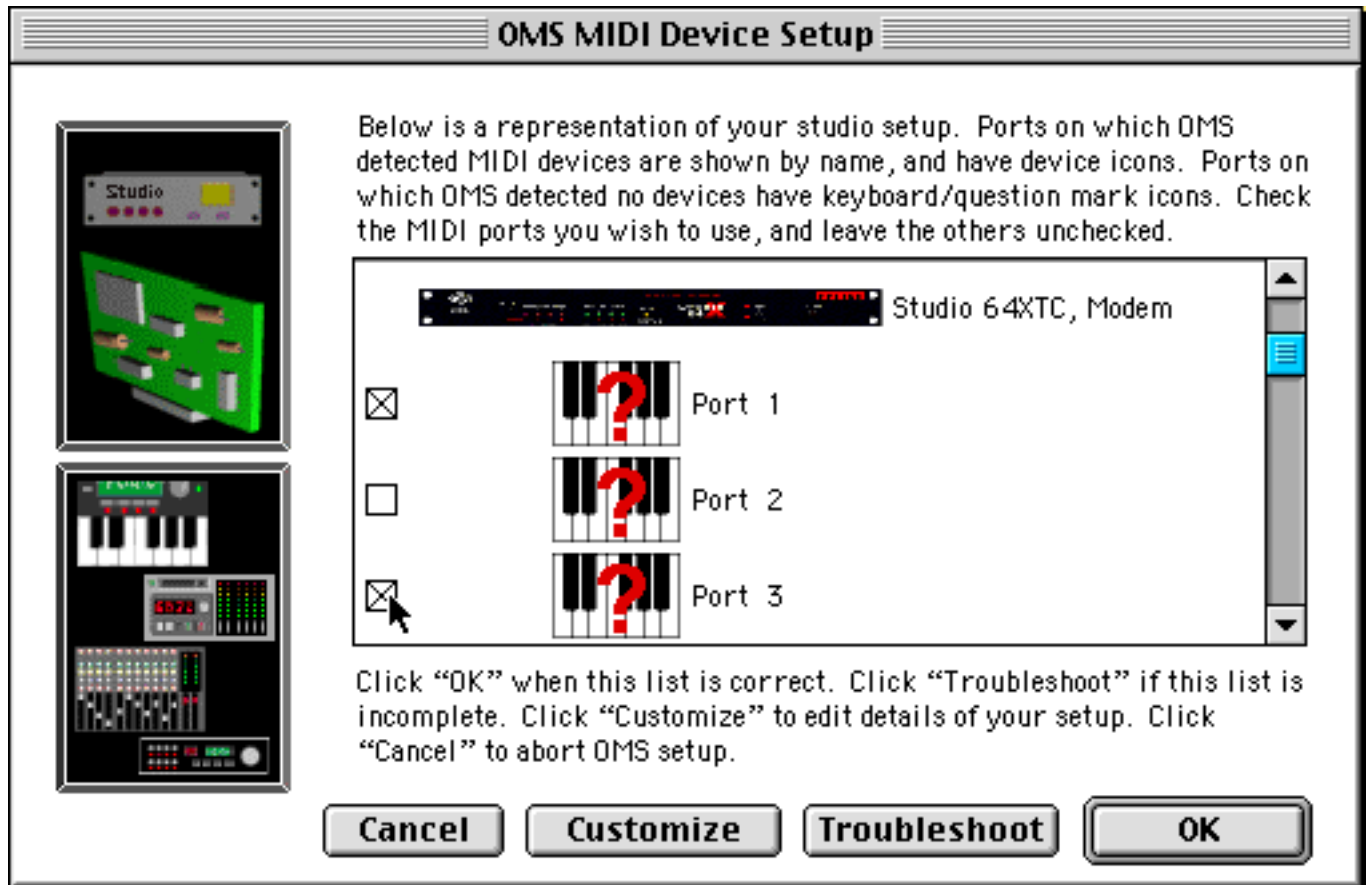
In this example, we have a Korg N1 on port 1 and a Clavia Nord Lead on port 3. OMS didn't automatically detect either of the

synths, so we manually put checks next to ports 1 and 3. Click [OK] when you're done selecting ports.

SAVE YOUR SETUP

OMS automatically asks you to save your setup. Never miss a chance to save. You won't be sorry.
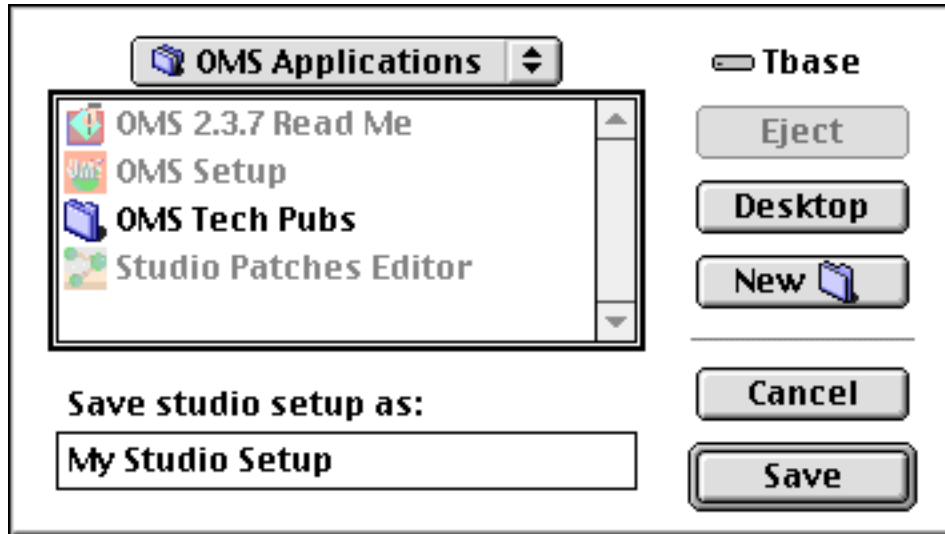
Give the setup any name you like. It's named "My Studio Setup" by default. It's a good idea to keep your OMS Studio Setup in your OMS Applications folder so that you can always find it if you need to.

Click **Save** when you've named the setup and placed it in the correct folder.
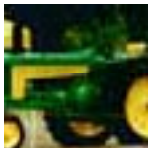
You can save as many different Studio Setups as you like, but you can only work with one of them at a time. The "active" OMS Studio Setup (the one that you're working with at any given time) is referred to as the **Current** setup. You can always tell whether or not a setup document is current because a current setup has a little diamond to the left of its name (when it's open in OMS). For example:

◇ **My Studio Setup**. The diamond to the left of "My" indicates that this is the current Studio Setup. Have a look at the next page to see "My Studio Setup" in context.

Now that your document has been saved, it is displayed in the OMS Studio Setup window. This is the window you'll usually use to work with your Studio Setup(s).

The diamond here indicates that this is the current Studio Setup.

◇ My Studio Setup
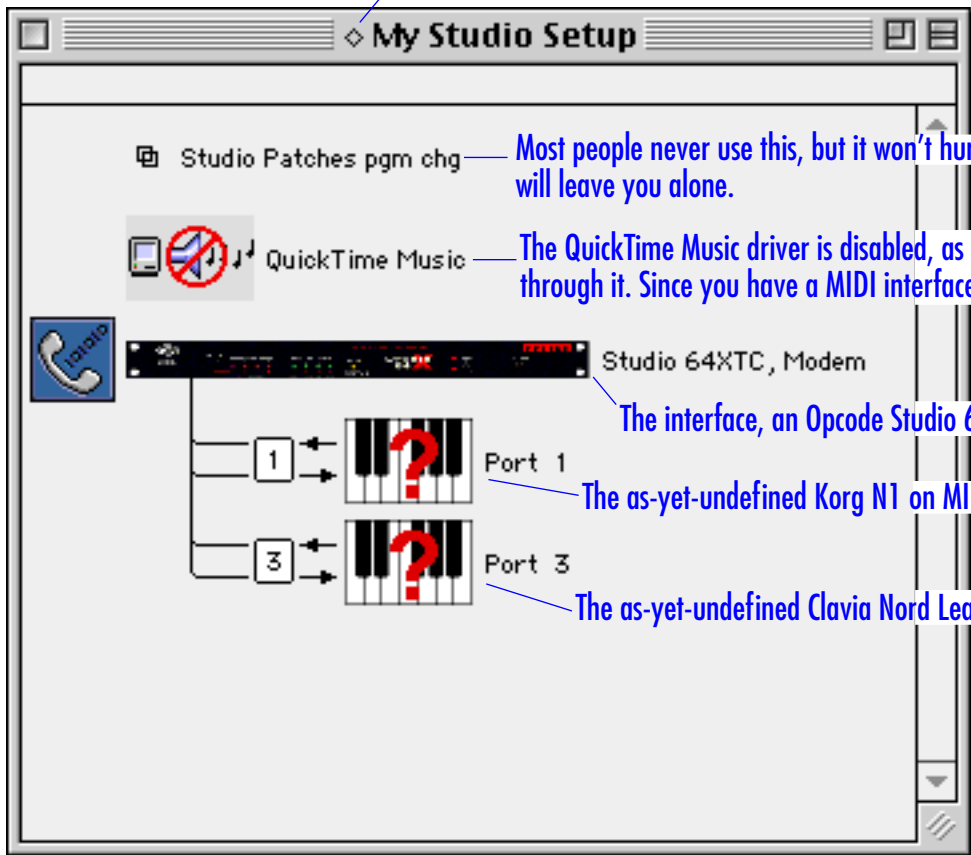
Studio Patches pgm chg — Most people never use this, but it won't hurt anything. Leave it alone, and it will leave you alone.

QuickTime Music — The QuickTime Music driver is disabled, as shown by the red circle with the line through it. Since you have a MIDI interface, you probably don't want to use this anyway.

Studio 64XTC, Modem — The interface, an Opcode Studio 64XTC on the Modem port.

Port 1 — The as-yet-undefined Korg N1 on MIDI port 1.

Port 3 — The as-yet-undefined Clavia Nord Lead on MIDI port 3.

Above is a picture of the OMS Studio Setup window (labeled so you know what everything is).

DEFINE YOUR SYNTHS

At this point you're mostly ready to go, but a few cosmetic improvements will help things make more sense. Let's define the synths as what they actually are, instead of little pictures of keyboards with question marks on them and generic names.

Doubleclick on a keyboard-with-a-question-mark-on-it to define the synth.
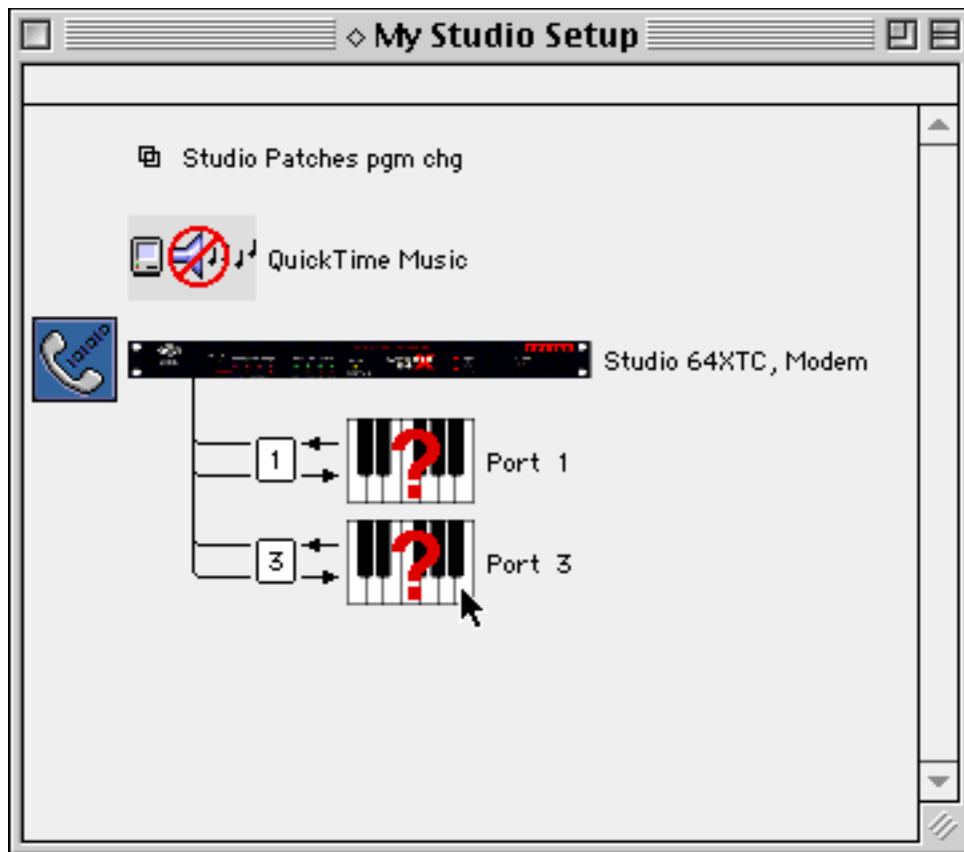
MIDI DEVICE INFO...

This is the MIDI Device Info Window. Right now OMS doesn't know anything about the Manufacturer, Model, Name, etc. of the synth we selected (we selected the synth on port 3, which is a Clavia Nord Lead). We're about to change all of that!

Device icon

Manuf: — Pop-up menu containing a list of manufacturers

Model: — Pop-up menu containing a list of device models

Device ID: 0 — More on this later

Name: Port 3 — Device name; set by default, but you can type in this field

Check this box if the device will be used to trigger MIDI messages (keyboards, wind controllers, guitar controllers, etc.) → ☑ **Is controller**

☑ **Is multitimbral**

Check this box if the device can receive MIDI on more than one channel simultaneously

Receives Sends
MIDI Time Code [X][X]
MIDI Beat Clock [X][X] — Synchronization settings; more on this later
MIDI Machine Control [X][X]

Receive Channels
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16
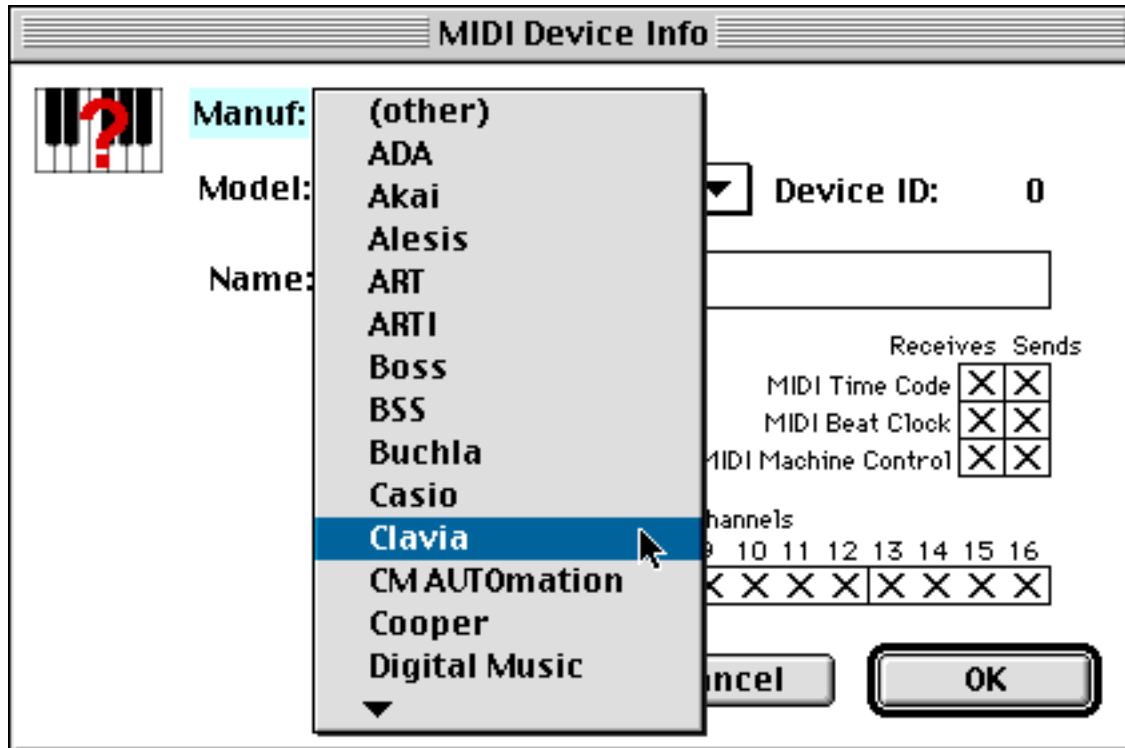[X X X X][X X X X][X X X X][X X X X]

X'ed channels will be available for sending MIDI to the device

Cancel   **OK**

Note that the synth is named "Port 3" by default, since that's the MIDI port that it's on.

The first thing we'll do is define the Manufacturer and Model. Click on the pop-up menu next to `Manuf`: to get a list of manufacturers.

Since this is a Clavia keyboard, we choose `Clavia` from the list.

Select **Nord Lead** from the **Model** popup menu, and define the MIDI channels you want to Nord Lead to receive on. In this example, the Nord Lead will be receiving on channels 1-4. Click to remove or insert an X.

When you're done with these definitions, click [OK]. This will bring you back to the OMS Studio Setup window.
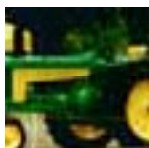
See the six little boxes on the right hand side, labeled Receives and Sends at the top? The settings in these boxes control the synchronization capabilities of the selected synth. In this case, OMS automatically knows that the Nord Lead can receive MIDI Beat Clock. Most people will never use these capabilities, so if you don't know what to check, don't worry about it. This won't affect basic MIDI communication (sending and receiving notes, controller data, etc.) at all.

Now let's define the Korg N1 (on port 1). Doubleclick on it (in the OMS Studio Setup window) to open the MIDI Device Info screen for that synth.

Choose **Korg** from the **Manufacturer** popup menu. Choose N1 from the **Model** pop-up menu.

But wait! N1 isn't in the list! Luckily, this doesn't actually matter. Just choose (**other**) instead.
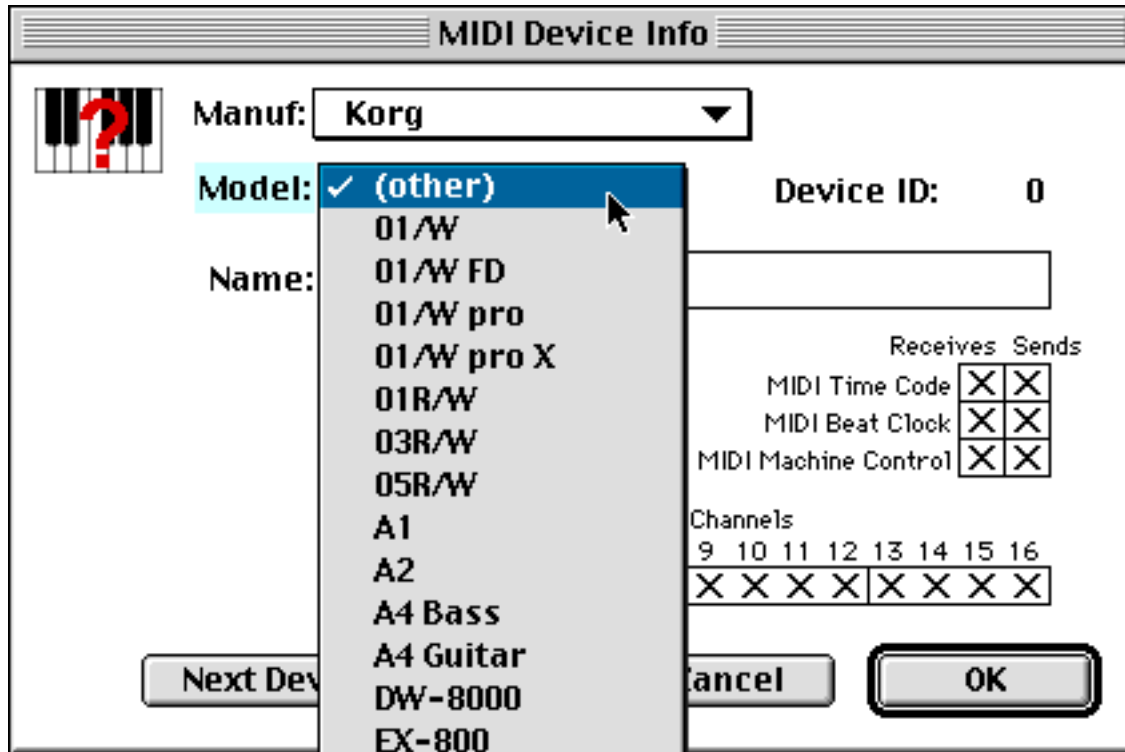
Then, type "**N1**" into the **Name** field. This is purely for your viewing pleasure. The name of the synth here will be the name shown in all of your OMS-compatible applications, but it won't actually change the way OMS communicates MIDI with they synthesizer (or sampler, controller, etc.). Heck--you can go ahead and call it "Harriett" if you want to...just remember that the N1 has a cute little name when you're working in another app.

MIDI Device Info

Manuf: Korg

Model: (other)   Device ID: 0

Name: N1

☑ Is controller

☑ Is multitimbral

	Receives	Sends
MIDI Time Code	X	X
MIDI Beat Clock	X	X
MIDI Machine Control	X	X

Receive Channels

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X

Next Device   Cancel   OK

Since the N1 receives on all 16 channels and is a controller, we'll leave all of these options checked.
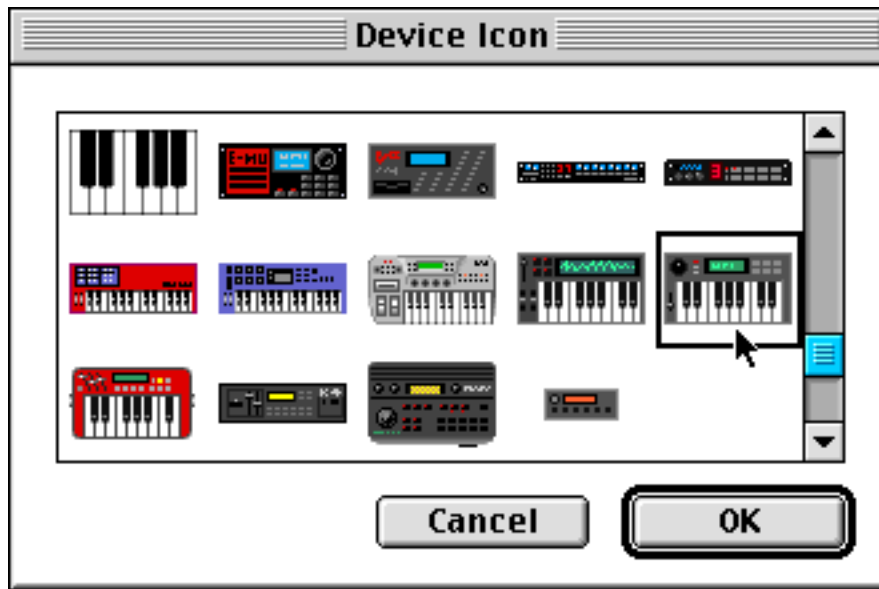
Now let's get rid of the goofy keyboard-with-a-question-mark-on-it icon. Click on the icon (in the upper-left-hand corner) to change it.
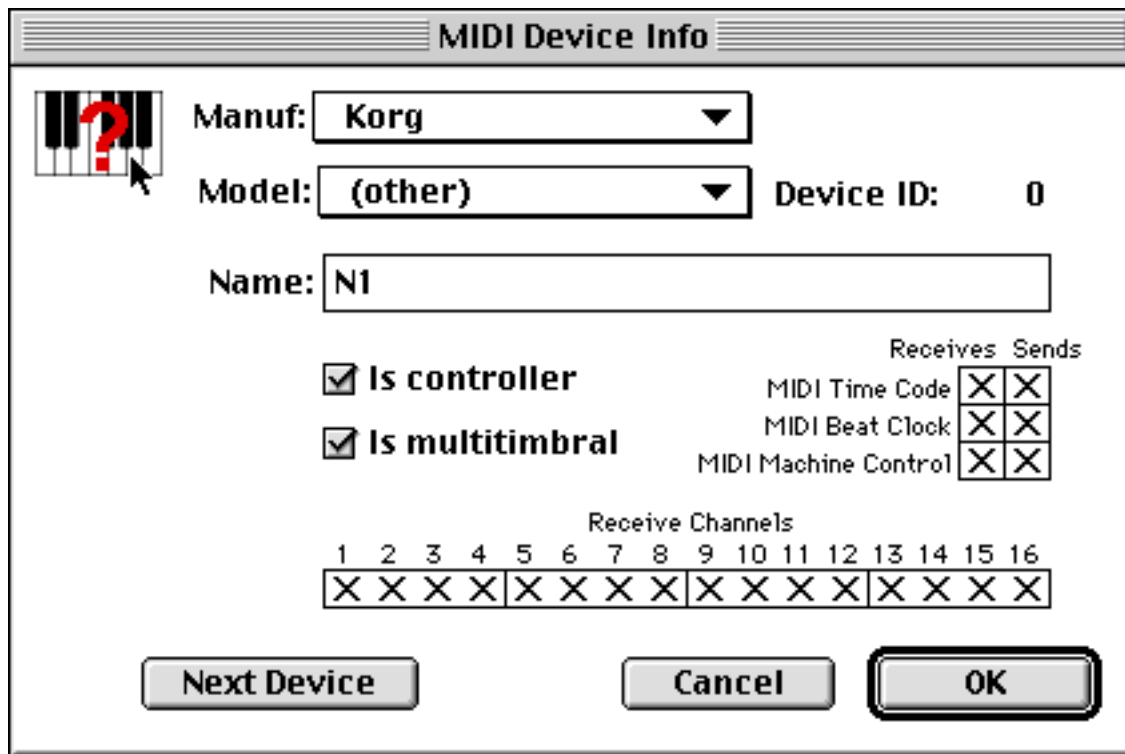
DEVICE ICON

The Device Icon window opens. Select an itty bitty picture that you like from the icons shown here. Remember to scroll down to see all of the available options.
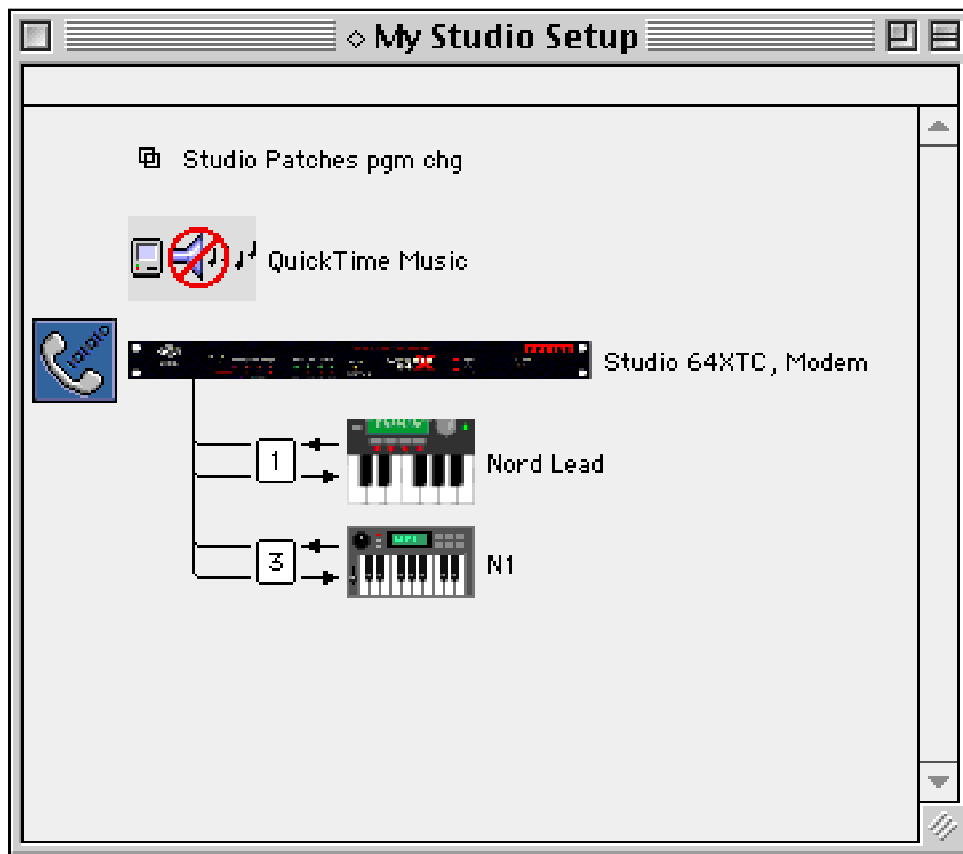

When you've chosen an icon that you like, click [OK].

Your Studio Setup is complete! It looks mah-velous.

Save! Save! Save!

Go to the next page for some **very important** conceptual information.

What's the difference between OMS automatically detecting my synthesizer and me defining it?

Trick question--**there is no difference**! OMS doesn't alter the MIDI that it sends and receives based on the device's Manufacturer/Model/Name definition (in OMS). It just doesn't. The Manufacturer, Model, and Name settings are just there for you--they make it easier for you to know which synth you're dealing with when you're working in an OMS-compatible application. The **only** time that the Manufacturer/Model settings change communication patterns **at all** is when you're working with Galaxy. (The Name setting never has any effect on anything except the way that the device shows up in a list of devices.) If you don't believe us, try defining your devices as all the wrong stuff and giving them silly names. You'll still be able to control them in OMS (and any OMS-compatible applications).

What do I set my Device ID's to? What is that, anyway?

The Device ID is a way to distinguish between two of exactly the same device in a setup. For example, if you have **two** Korg N1s in the same setup, you'd want to give them different Device ID's. The Device ID setting is also important when working with System Exclusive information (SysEx data)--if a device's Device ID is set incorrectly, the SysEx probably won't be received. SysEx isn't MIDI, though. Librarian applications like Galaxy use SysEx to communicate, but sequencers generally do not. So this is kind of a trick question too--**you don't have to worry about Device ID settings** in most cases. Usually the default setting is just fine--don't bother changing it. And, contrary to semi-popular belief, your Device ID does not have to match a receive channel.

What are those six little boxes on the right hand side of the MIDI Device Info window?

As described in a Tractor Tip earlier, the settings in these boxes control the synchronization capabilities of the selected synth. For example, if you want to sync the internal sequencer of a synth so that it will play back in tandem with your software, you set it up here. Most people never use these capabilities, so if you don't know what to check, don't worry about it. This won't affect basic MIDI communication (like sending and receiving MIDI notes and controller information) at all.

Why exactly did you give the informational notes a title like "Tractor Tips"?

Because of the picture of the tractor.

We certainly hope this was helpful. Please keep your eye out for more "Dear Opcode" letters.

Sincerely,

Opcode