OPCODE

OMS Studio Patches

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CH 1: STUDIO PATCHES INTRODUCTION

WHAT ARE STUDIO PATCHES?

Studio Patches route (and process) MIDI data to and from instruments contained in your *current* Studio Setup document. Studio Patches, which are created and edited with the Studio Patches Editor application, are stored in Patch documents on your hard drive.

Each Patch document may contain:

- Up to 128 patches
- Any number of Virtual Controllers
- Any number of Virtual Instruments
- Any number of Program Change Sources
- A Patch Chain

Patches can perform a wide range of MIDI processing and are constructed by connecting various modules together in the Studio Patches Editor. The patch modules include splitters (for channels, note range, and velocities), modifiers (for velocity, mono / poly aftertouch, and controller values), a transposer, and a control number mapper. The various patch modules are discussed in Chapter 2: Patch Modules.

Virtual Controllers and **Virtual Instruments** are extremely powerful features of Studio Patches. A Virtual Controller is the output of a MIDI device plus some form of MIDI processing. A Virtual Instrument is some form of MIDI processing routed to one or more MIDI devices. Virtual Controllers and Virtual Instruments can be valuable aids for both sequencing and live performance. They're discussed in Chapter 3: Virtual Controllers and Virtual Instruments.

Program Change Sources allow you to specify various ways to change Studio Patches. They're discussed in Chapter 4: Program Change Sources.

A **Patch Chain** is a sequence of patches that can be stepped through with a MIDI controller, or with the Studio 5's optional footswitches.

Patches are strictly real-time, live-playing MIDI connections; they do not actually affect the MIDI data that an application sends or receives. MIDI applications will always receive from the sources to which they are connected and be able to send to any destinations, regardless of what the current patch does.

☆ *Since most sequencers provide MIDI thruing (routing) from within the application, you may wish to keep Studio Patch #1 as an "empty" or "do nothing" patch for use with sequencer programs.*

COMPATIBLE MIDI INTERFACES

To use Studio Patches you must have an Opcode Studio 5, Studio 4, Studio 64X or Studio 64 XTC. Below are some important details, specific to each interface, that you should know.

- **Studio 5**: The Studio 5 has built-in RAM that can store a Studio Patch document. This means that the Studio 5 can use Studio Patches (recalled from its front panel) without being connected to a computer.
- **Studio 4**: In order to use Studio Patches, this interface must be connected to your Macintosh and an OMS application must be launched.

  Studio Patch processing occurs in addition to any processing performed by the Studio 4's Routing, Channelizing and Muting Window. When first learning to use Studio Patches, you may want to disable all routings in this window.
- **Studio 64X, Studio 64 XTC**: In order to use Studio Patches, this interface must be connected to your Macintosh and an OMS application must be launched.

  Studio Patch processing occurs in addition to any processing performed by the Studio 64X's User / Preset Programs, as defined in the Program Edit Window. When first learning to use Studio Patches, you may want to disable all routings in this window.

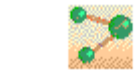
☆ *NOTE: Although Studio Patches require one of the above mentioned interfaces, you can use devices that aren't attached to your interface (such as a SampleCell card) in Patch documents.*

PATCH DOCUMENTS

This section discusses the terminology and techniques for working with Patch documents.

Balloon help is available from the Studio Patches Editor application. See your Macintosh documentation if you don't know how to access balloon help. In addition, you can hold down the shift, option, and command keys and point to any field, icon, button, or menu item for pop-up help.

Open the Studio Patches Editor application by double-clicking its icon.



OPENING A NEW PATCH DOCUMENT

Open a new Patch document by choosing **File>New Patch Document** (or type command-N).

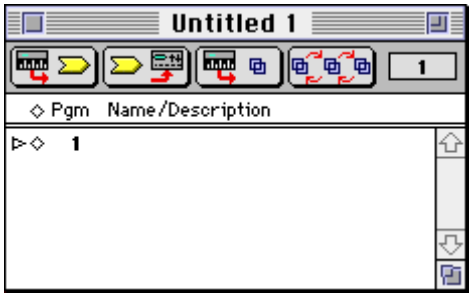


Figure 1: Patch Document Window

PATCH DOCUMENT WINDOW TERMINOLOGY

When you open a new Patch Document Window, you'll see four buttons under the title bar. From left to right these represent Virtual Controllers, Virtual Instruments, Program Change Sources, and the Patch Chain. Each of these buttons will be discussed later in this manual. Below the buttons is a line for the first patch in the document. This line consists of a selector dot, a diamond to indicate the current patch, the program (or patch) number and a Name/Description field that can hold as much text as needed to describe the operation of that patch.

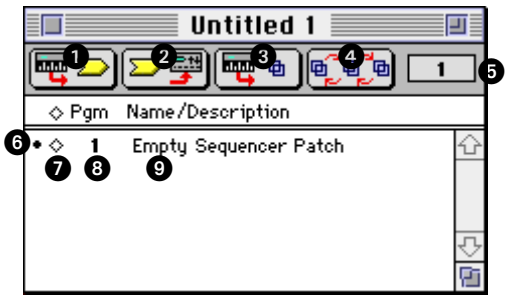


Figure 2: Anatomy of a Patch Document Window

1. Virtual Controllers Button
2. Virtual Instruments Button
3. Program Change Source Button
4. Patch Chain Button
5. Current Patch Selector
6. Selector Dot
7. Current Patch Indicator
8. Patch Number
9. Patch Description Field

You can have any number of Patch documents open at one time, but only one document can be the *current* Patch document. The current Patch document is indicated by a diamond next to its name.

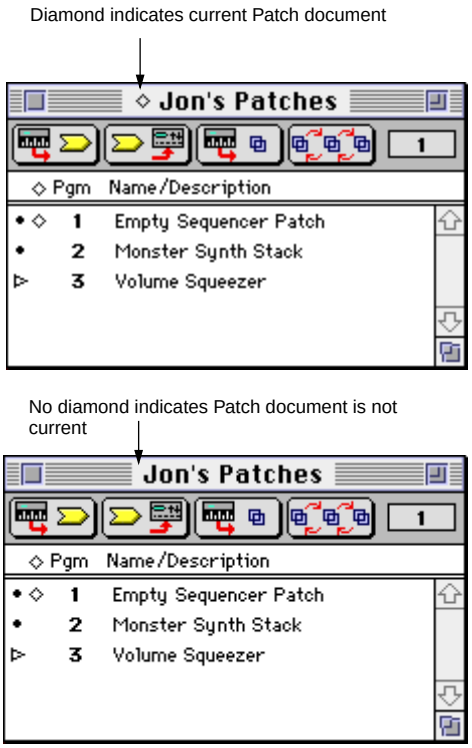


Figure 3: Indicating Current Patch Document

The current Patch document always reflects the exact state of the Studio Patches driver. Any changes made to a current Patch document take effect immediately in the connected interface.

☆ *NOTE: When using a Studio 5, making a Patch document current sends the patches in that document immediately to the interface.*

Patch documents are based on the devices defined in the current Studio Setup document. If you make a different Studio Setup document current, your current Patch document may not know about the devices in the new Studio Setup document. Similarly, the new Studio Setup document may not know about the devices referenced by the current Patch document.

☆ *NOTE: If you create two identical Studio Setup documents, with identical names for identical instruments on identical ports, Studio Patches will see the devices as different unless you copy and paste the devices between the two documents.*

Making Patch Documents Current

Choose **File>Save And Make Current** to make a Patch document current.

You'll see a standard Macintosh "Save As" dialog box. Save the file in the same folder as your Studio Patches Editor application. A diamond appears next to the Patch document's name indicating that it is now the current Patch document.

☆ *NOTE: If a Patch document has already been saved, the **Save And Make Current** command becomes a **Make Current** command.*

Adding Patches to a Patch Document

Choose **Patch>New Patch** (or type command-P) to add a new patch to the document.

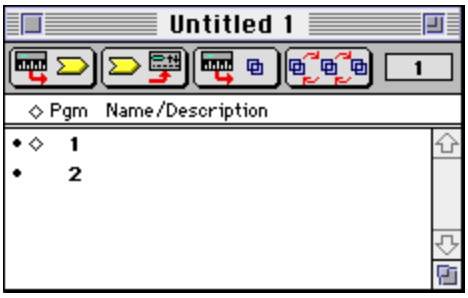


Figure 4: Adding a Patch

Selecting Patches

Unselected patches have a bullet dot to their far left. This is the patch selector dot. Selected patches have a small triangle instead of a bullet dot.

Click a patch's selector dot to select a patch; the bullet will turn into a triangle.

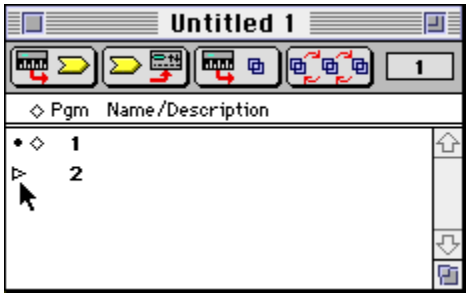


Figure 5: Selecting a Patch

Shift-click other selector dots to select additional patches.

MAKING PATCHES CURRENT

The diamond to the right of the selector dot is the current patch selector. You make a patch current by clicking in the column where the diamond would appear, or by selecting a patch and choosing **Patch>Recall Patch** (command-R).

The current patch is the patch that is being used by Studio Patches and the connected interface.

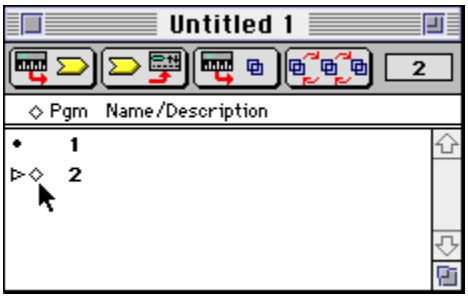
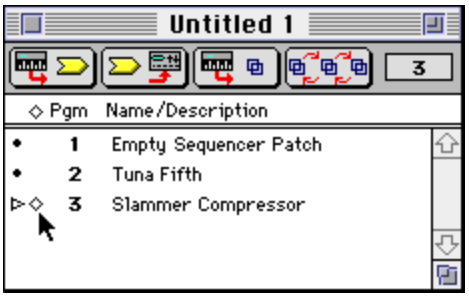


Figure 6: Making a Patch the Current Patch

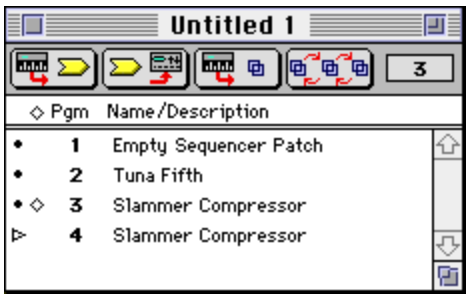
COPYING AND PASTING PATCHES

You can copy and paste patches to new locations. If, in the following example, you wanted to copy patch #3 as the basis for building a new patch, you would:

① Click Patch #3's selector dot to select it and then choose **Edit>Copy**.



② Choose **Edit>Paste**.



Patch #3 is copied to the next available patch location which, in this case, is Patch #4. Patch #4 is now an exact duplicate of Patch #3.

Patches can also be cut to the Clipboard, for pasting to another Patch document, or cleared.

☆ *NOTE: When a Patch Document Window is active, the **Paste** command always pastes a patch to the first undefined patch. You cannot paste a copied patch to an existing patch.*

CHANGING PATCH ORDER

You can rearrange patches by option-click-dragging a patch to a new location. In Figure 7, the Patch document shown in A is re-ordered by option-clicking Patch 2 (as shown in B), dragging it between Patches 4 and 5 (as shown in C), and releasing the mouse (as shown in D).

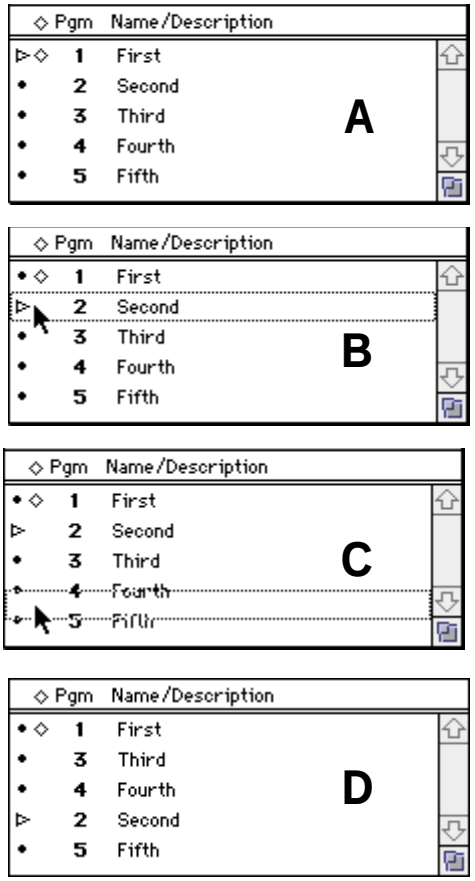


Figure 7: Re-ordering Patches

If you want to view your Patch document in numerical order, select **Patch>Sort by Patch Number**. This places a check mark to the left of the option. Patches will *always* be displayed in numerical order as long as **Sort by Patch Number** is checked. Selecting the command again will uncheck it. Patches can be displayed in *any* order when **Sort by Patch Number** is unchecked.

SEQUENCING PATCH CHANGES

You can switch Studio Patches from an OMS-compatible MIDI sequencer.

If Studio Patches is installed, OMS always adds a device called "Studio Patches pgm chg" to your Studio Setup document. You can send program changes to this device on MIDI channel 16 to change the current Studio Patch. The main purpose of this device is to let you sequence Studio Patch changes from a sequencer. To do so:

① Launch an OMS-compatible sequencer.

② Choose the "Studio Patches pgm chg" device as the record sequence's MIDI destination.

③ Record MIDI program changes into the sequencer.

④ Play back the sequence. Studio Patches will change with each MIDI Program change.

PATCH EDIT WINDOW

This section discusses the terminology and techniques for working with Patch Edit Windows.

OPENING A PATCH EDIT WINDOW

Select a patch and choose **Patch>Edit Patch**, or double-click its selector dot. A Patch Edit Window will open.

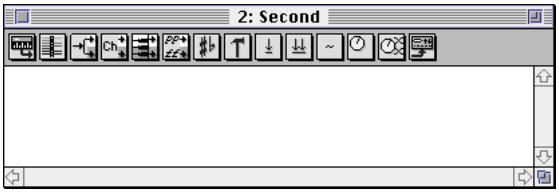


Figure 8: Empty Patch Edit Window

PATCH EDIT WINDOW TERMINOLOGY

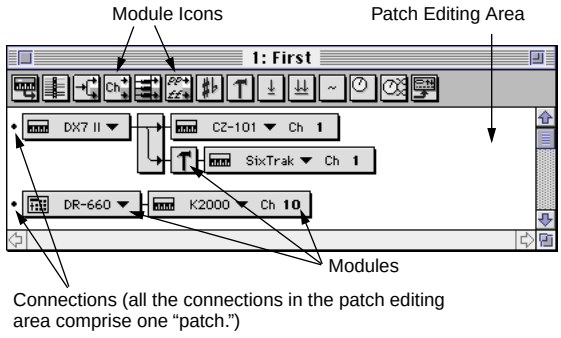


Figure 9: Anatomy of a Patch Edit Window

Figure 9 illustrates a basic Patch Edit Window. The window contains a row of module icons across the top of the screen. Each of these icons represents a MIDI Source, MIDI Destination, or MIDI Processing module. The row of module icons is called a module palette. The patch editing area contains "connections," each of which comprises a MIDI Source module and all modules connected to its right. Any amount of MIDI processing can be applied to any connection. A patch is made up of all the connections in the patch editing area.

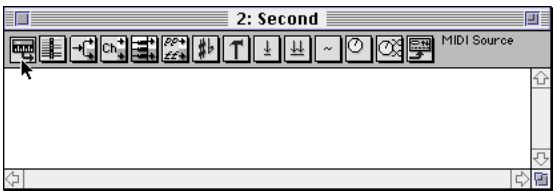
☆ *IMPORTANT: Since most sequencers control MIDI thruing (routing) from within the application, it's useful to keep patch #1 as an "empty" or "do nothing" patch for use with sequencer programs.*

CREATING CONNECTIONS

This section discusses the techniques needed to create connections. Don't worry if you don't understand the function of each module, they'll be discussed in Chapter 2: Patch Modules.

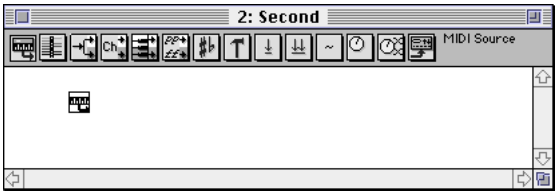
① Click the leftmost module icon in the module palette.

This is the MIDI Source (or controller) icon. When you click it, its name is shown to the right of the module palette.

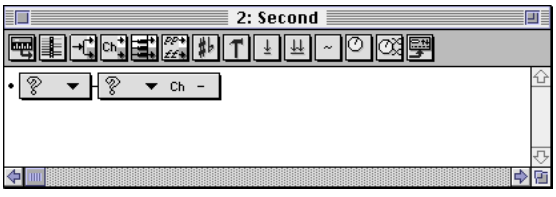


② Move the cursor into the patch editing area.

The cursor becomes a MIDI Source module icon.



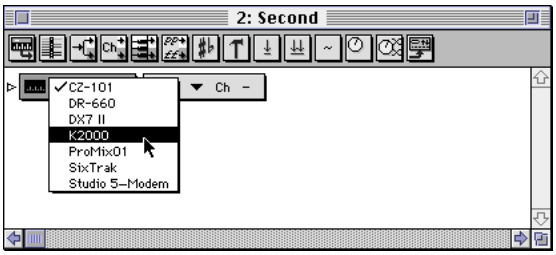
③ Click in the patch editing area to create an undefined connection.



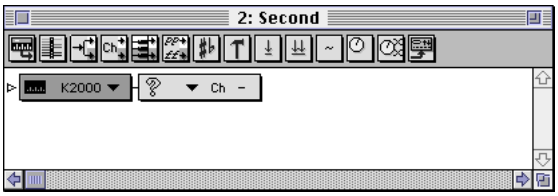
A connection appears as a selector dot along with some number of connected modules. Every connection needs both a MIDI Source and a MIDI Destination module (MIDI Source and Destination modules are explained in Chapter 2: Patch Modules). When a MIDI Source module is first placed in the patch editing area,

both an undefined MIDI Source module *and* an undefined MIDI Destination module appear. Each module contains a question mark until you choose a device from its pop-up menu.

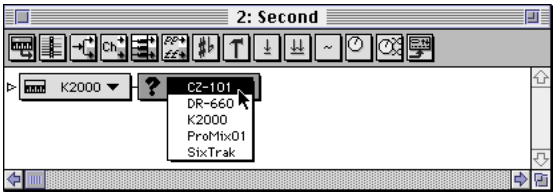
④ Click on the triangle to the right of the MIDI Source module's question mark to see a pop-up menu of devices defined in your current Studio Setup document.

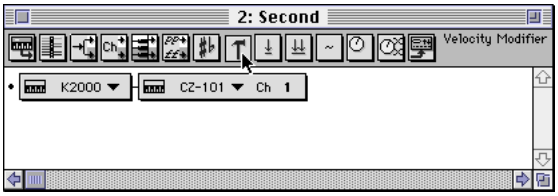


Select a device from the pop-up menu.



⑤ Click the pop-up menu in the MIDI Destination module and choose a destination device.



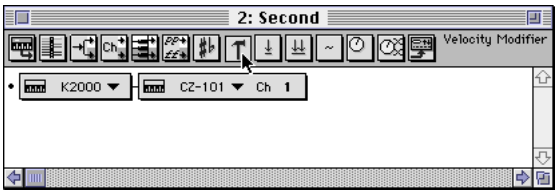


You've created a simple connection; the K2000 sends MIDI data directly to Channel 1 of the CZ-101. When you play the K2000, the CZ-101 will play on MIDI Channel 1.

ADDING MIDI PROCESSING

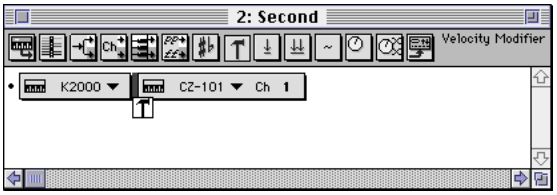
Use MIDI processing modules to filter, split, transpose, modify or map MIDI data in a variety of ways. In the following example, you'll add a Velocity Modifier module to your connection. Velocity Modifier modules (and other MIDI processing modules) are discussed in Chapter 2: Patch Modules.

① Click the Velocity Modifier module icon (the little hammer) in the module palette. Its name is shown to the right of the module palette.

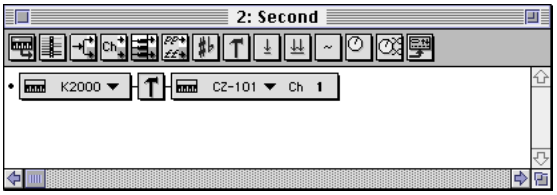


② Move the cursor into the patch editing area. The cursor will become a Velocity Modifier module icon (little hammer).

③ Position the cursor over the space between the MIDI Source and MIDI Destination modules. The area becomes highlighted.



④ Click the mouse to insert the module.



SELECTING MODULES AND CONNECTIONS

You can select a module or group of modules for cutting, copying, or pasting. To select a module, click anywhere within it that isn't a control (like a device menu or channel numerical). A selected MIDI Source or MIDI Destination module will have a thick border. A selected MIDI processing module becomes highlighted.

Figure 10: Unselected Modules

Figure 11: Single Selected Module

Shift-clicking a second module when one is already selected will select the second module *and* all modules between it and the first one.

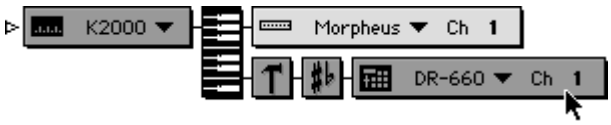


Figure 12: Shift-Clicking a Second Module

You can also select multiple modules by clicking in the white space around them and dragging a rectangle. All modules that intersect the rectangle become selected.

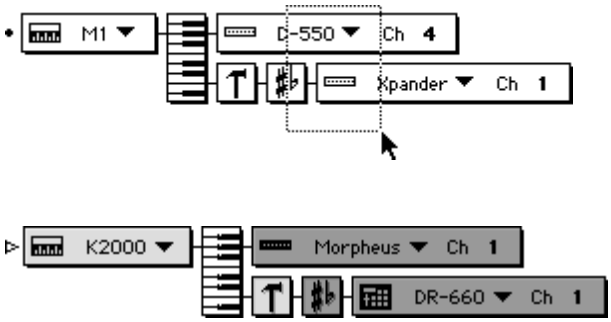


Figure 13: Dragging to Select Modules

You can select all modules in a connection by clicking the selector dot to the left of the modules.

Figure 14: Selecting All Modules

Command-clicking modules either adds or removes them from the selection. An unselected module becomes selected, a selected module becomes deselected. In the example, below, command-click the Velocity Modifier module to deselect it.

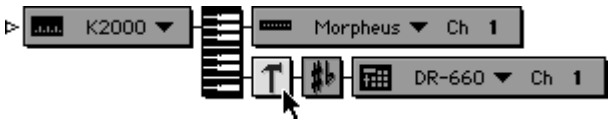


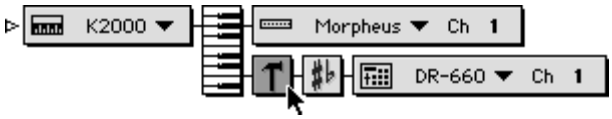
Figure 15: Command-Click to Deselect Modules

COPYING/PASTING MODULES AND CONNECTIONS

You may cut, copy, or clear selected modules. You cannot, however, cut or clear a Splitter module if it has more than one output. To remove a Splitter module, you must first remove either all or all but one of its outputs.

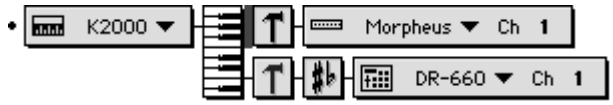
You can paste a copied module to a new location by clicking the desired location and selecting **Edit>Paste**. The contents of the Clipboard are inserted into the selected space.

① Click on the Velocity Modifier module to select it, then choose **Edit>Copy**.



② Place an insertion point between the Splitter module and the Morpheus Destination module by clicking the blank space between them (the space becomes highlighted).

③ Choose **Edit>Paste** to paste a copy of the Velocity Modifier module (with all of its parameters).



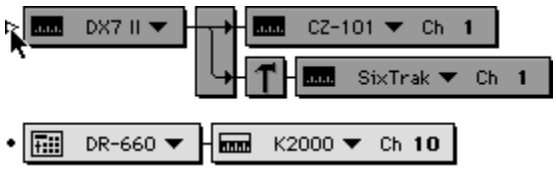
You may copy and paste entire connections without selecting a paste destination. The pasted connection appears below all other connections in the patch editing area.

You may also clear selected modules and connections, or cut them to the Clipboard.

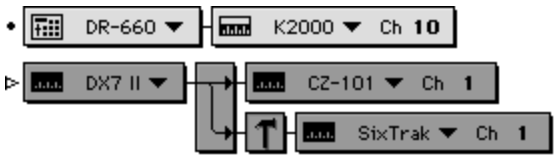
CHANGING CONNECTION ORDER

You can rearrange the patch editing area by option-dragging any connection's selector dot.

① Option-click the top connection's selector dot.



② While still holding the mouse button, drag the entire connection below the lower connection. Release the mouse button to see the new connection order.



SOURCE/ DESTINATION MUTING

You can mute any number of MIDI Source or Destination modules. Muting Source and Destination modules allows you to concentrate on specific sections of complex patches.

To mute a MIDI Source module or MIDI Destination module, double-click its device icon. The module is dimmed. To unmute the module, double-click its device icon again.

As an example, suppose you have the connection shown in Figure 16.

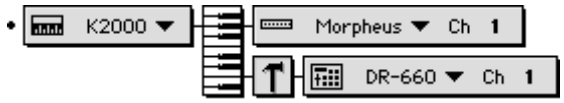
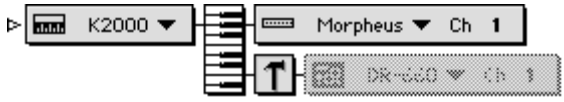
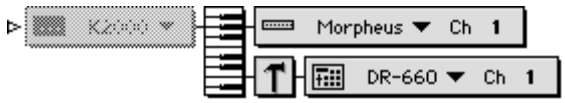


Figure 16: Simple Connection

① Double-click the DR-660 device icon to mute the module.
When you play the K2000, only the Morpheus is heard.



② Double-click the DR-660 device icon to enable the module, then double-click the K2000 device icon to mute that MIDI Source module.
Anything you play or do on the K2000 is ignored by the Morpheus and DR-660 modules.



☆ *NOTE: To mute a source or destination, be sure to double-click the device icon, not the device name.*

The **Solo** and **Unsolo** commands in the **Patch** menu are also useful in this regard. Soloing mutes all other destinations in the connection. When you are done soloing, choose **Unsolo** to re-enable all destinations in a patch.

CH 2: PATCH MODULES

This chapter describes how to configure and use each of the modules in the Module Palette.

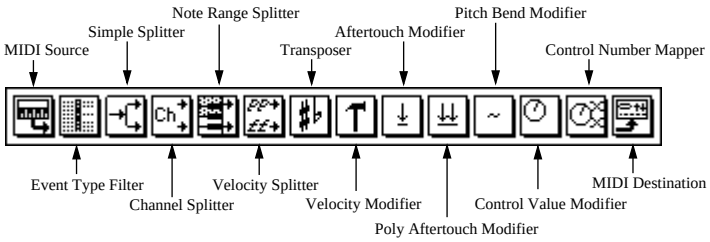


Figure 17: Anatomy of a Module Palette

MODULE EDITING BASICS

You can edit a module once it's part of a connection. Adding modules to connections was discussed in Chapter 1: Studio Patches Introduction. To access the editing window of any module (except the MIDI Source module, MIDI Destination module, or Simple Splitter module) simply double-click the module in a connection.

You can edit most modules using numerical editing techniques (as discussed in your OMS manual). You can also edit the following parameters from a MIDI controller:

- Control number selection in any highlighted control number pop-up menu
- Transposer map note numbers
- Note numbers in a Note Range Splitter module
- Velocity levels in a Velocity Splitter module

Select the device (or devices) you'll use for MIDI editing by choosing **Windows>Controllers for MIDI Editing**. This produces a dialog containing a list of all devices defined in your current Studio Setup document. Select (highlight) those items you wish to enable for MIDI data entry. If you don't plan to use a MIDI controller to edit patches, it's best to disable all controllers. That way you can't accidentally edit a module by playing your MIDI controller.

The following sections discuss each module in detail.

MIDI SOURCE MODULE

Figure 18: MIDI Source Module

As its name implies, a MIDI Source module represents a source of MIDI data. Use the MIDI Source module to choose which device's MIDI output you wish to route to other devices. When you first insert a MIDI Source module, a question mark appears. To define a MIDI Source module:

① Click anywhere to the right of the question mark to open a pop-up source menu. This menu contains all sources as defined in the current Studio Setup document. It also contains any Virtual Controllers that are defined in the current Patch document (Virtual Controllers are discussed in Chapter 3: Virtual Controllers and Virtual Instruments).

② Choose a source from the pop-up menu to define the MIDI Source module.

A Studio Patches compatible interface can also be a source of MIDI data, which can come from timing information (MTC, DTL, DTLe), footswitches (FS1, FS2), and foot controllers (FC1). The Studio 5 can even act as a note source when **Audio In** is enabled and in use. Select the interface as the MIDI source if you wish to use timing data, footswitches, the foot controller, or Audio Input in a Studio Patch.

You can change the source assigned to a MIDI Source module at any time by clicking the name and choosing a new source from the pop-up menu.

REFERENCING NON-CURRENT STUDIO SETUP DOCUMENTS

MIDI Source modules reference the devices in the current Studio Setup document. If the device name in a MIDI Source module is italicized, then the Patch document being edited probably references a non-current Studio Setup document. You can re-define the module by:

- making the old Studio Setup document current, or
- by selecting a different device for every module that is italicized.

If you want to use the current Patch document with your new current Studio Setup document, copy the devices from your original Studio Setup document into your current Studio Setup document, or just rename the devices in the new Studio Setup to match the old ones.

MIDI DESTINATION MODULE

Figure 19: MIDI Destination Module

A MIDI Destination module represents the device (or virtual destination) that is the final recipient of MIDI data. When you first insert a MIDI Destination module, a question mark appears. To define a MIDI destination:

- Click anywhere to the right of the question mark to open a pop-up destination menu. This menu contains all destinations as defined in the current Studio Setup document. It also contains any Virtual Instruments that are defined in the current Patch document (Virtual Instruments are discussed in Chapter 3: Virtual Controllers and Virtual Instruments).
- Choose a device or virtual destination from the pop-up menu to define the MIDI Destination module.

You can change the device or virtual destination assigned to a MIDI Destination module at any time by clicking the name and choosing a new destination from the pop-up menu.

Use the MIDI Destination module's channel numerical to channelize MIDI data. Set it to a value of 1-16 to channelize the incoming MIDI data. Set it to dash ("-") if you do not want to change the incoming MIDI channel number. Figure 20 illustrates use of the MIDI channel numerical.

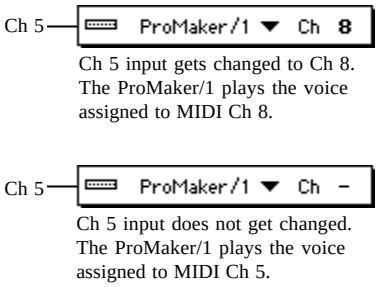


Figure 20: Destination Module Channelizing Example

MIDI Destination modules, like MIDI Source modules, reference the current Studio Setup document. If device names are italicized, the MIDI Destination module probably references a non-current Studio Setup document. See Referencing Non-Current Studio Setup Documents, pg. 17 for more details.

EVENT TYPE FILTER MODULE

Figure 21: Event Type Filter Module

An Event Type Filter module removes various types of MIDI events from the data stream. Double-click its icon after inserting it into the connection. You'll see a dialog box similar to the one shown in Figure 22.

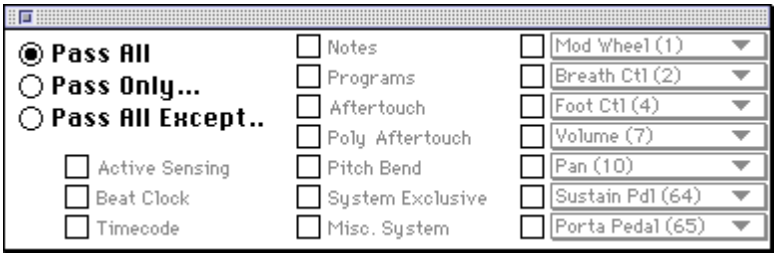


Figure 22: Event Type Filter Edit Window

The three radio buttons control whether the filter will **Pass All** events (useful for temporarily disabling the filter), **Pass Only** certain types of events, or **Pass All Except** certain events.

Checked boxes remove those event types when **Pass All Except** is chosen. Checked boxes pass those event types through the filter when **Pass Only** is chosen.

In Figure 23, only notes are passed through the Event Type Filter module. All other MIDI events are filtered out.

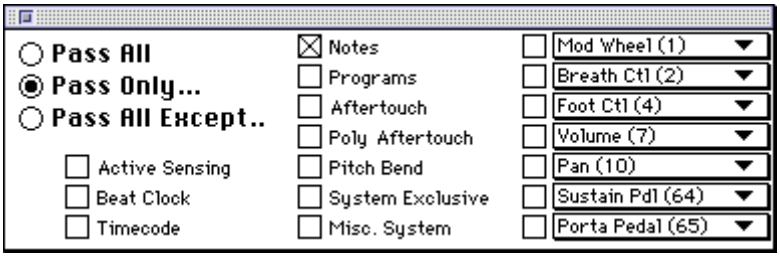


Figure 23: Passing Only Notes Through Filter

You can filter up to seven MIDI continuous controls; choose them from the pop-up menus next to the rightmost column of check boxes.

Most message types are self-explanatory. “Beat Clock” includes Song Position Pointer, Song Select, Timing Clock, Start, Stop, and Continue messages. “Misc. System” includes Tune Request, System Reset, and undefined MIDI status bytes 0xF4, 0xF5, 0xF9, and 0xFD.

☆ *TIP: The Event Type Filter module is useful for “thinning” the MIDI data stream prior to sending it to a Splitter module (discussed in the following section). A Splitter module can and often does increase the amount of MIDI data, so it’s desirable to remove unwanted data before it’s duplicated by a Splitter module.*

☆ *NOTE: DTL, DTLe, Full Messages and User Bits messages will not pass properly through an Event Type Filter unless System Exclusive events are allowed to pass. Also, DTL and DTLe will not pass through unless clock is also passed.*

EVENT TYPE FILTER MODULE EXAMPLE

Assume that you want your K2000 keyboard to play the Morpheus, but that you don’t want the Morpheus to respond to polyphonic aftertouch data.

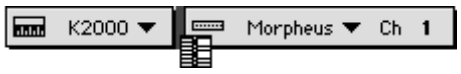
① Choose **Patch>New Patch**.

② Double-click the new patch’s selector dot to open a blank Patch Edit Window.

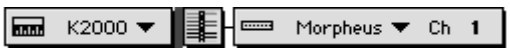
③ Click the MIDI Source module, then move the cursor into the patch editing area and click. You will create an undefined connection.

④ Choose the K2000 from the pop-up MIDI source menu and the Morpheus from the pop-up MIDI destination menu (these synthesizers may not be in your Studio Setup document, but are presented here as an example).

⑤ Click the Event Type Filter module, and move the cursor between the Source and Destination modules. The area becomes highlighted.



⑥ Click the mouse to insert the Event Type Filter module.



⑦ Double-click the Event Type Filter module to open its edit window.

⑧ Choose **Pass All Except** and check the **Poly Aftertouch** box to pass all MIDI events except polyphonic aftertouch through to the Morpheus sound module.

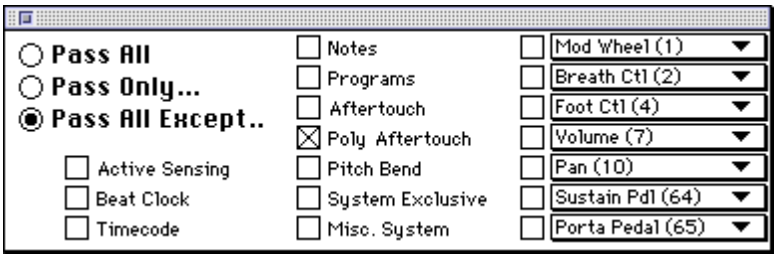


Figure 24: Filtering Poly Aftertouch

⑨ Choose **File>Save**.

In the future, when you need to play the Morpheus with polyphonic aftertouch data filtered out, you can select this patch.

SPLITTER MODULES

Figure 25: Splitter Module Group

A Splitter module takes a single MIDI source and sends it to multiple destinations. There are four kinds of Splitter modules:

- Simple
- Channel
- Note Range
- Velocity

If any Splitter module routes two or more of its outputs to the same channel of the same device, Studio Patches ensures that the destination device and channel do not receive duplicate MIDI data. If, however, you modify one of the splitter output's MIDI data streams, then the destination device and channel receives both the original MIDI stream and the modified events generated by the second MIDI stream from the splitter.

For example, if you simply split a MIDI data stream into two separate streams then route both streams to the same device and channel, Studio Patches ensures that only one stream reaches the destination. But, if you modify one of the streams (such as transposing a stream up an octave) before routing both streams to the same device and

channel, Studio Patches allows both MIDI data streams to reach their destination since they are no longer identical. In this example, notes and polyphonic aftertouch events are both affected by transposition and are both sent to the destination; other events (such as sustain pedal or pitch bend) are sent to the destination only once.

If, for any reason, you wish to send duplicate MIDI events to the same channel of the same device, split the controller into two Virtual Controllers and route them separately. Virtual Controllers are discussed in Chapter 3: Virtual Controllers and Virtual Instruments.

This discussion on Splitter modules will first cover common Splitter editing techniques and then describe each of the four Splitter modules in detail.

Adding Outputs to a Splitter Module

When you first insert a Splitter module into a connection, it doesn't perform as a splitter since it has only one output. However, you may still use it to limit the range of notes, velocities or channels sent to a single device.

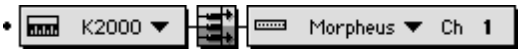


Figure 26: Note Range Splitter With One Output

To create a second output from the Splitter module:

① Click any module icon in the palette (except the MIDI Source module icon).

② Position the cursor below the Splitter module to highlight the area.

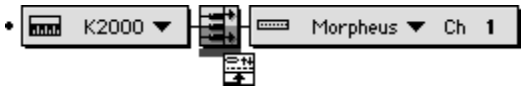


Figure 27: Adding Additional Splitter Outputs

③ Click the mouse and the connection appears as shown in Figure 28.

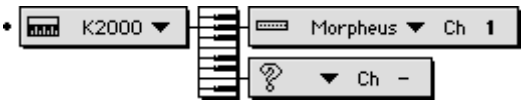


Figure 28: Splitter With Two Outputs

④ Choose a device for the second destination module.

You can add as many outputs as necessary underneath the splitter using the same techniques.

EDITING SPLITTER MODULES

You can edit Channel, Note Range, and Velocity Splitter modules. You cannot edit Simple Splitter modules.

① Double-click anywhere within an editable Splitter module to open its editing window.

Splitter module editing windows contain one line for each output of the splitter. In Figure 29, the top keyboard edits the note range of the ProMaker/1 (the top MIDI Destination module) and the bottom keyboard edits the note range of the Vectorific (the bottom MIDI Destination module).

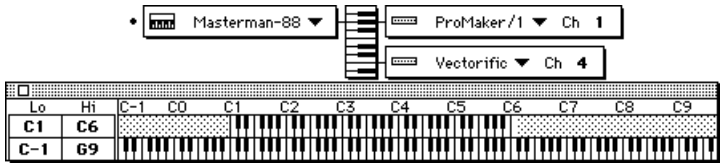


Figure 29: Note Range Splitter Module

② Move the cursor over an editing line to highlight that splitter output in the connection.

Notice, in Figure 30, that the top splitter output is highlighted when the cursor is over the top editing line, and that the bottom splitter output is highlighted when the cursor is over the bottom line. This makes it easy, when an input is split into many outputs, to keep track of which splitter output you are editing.

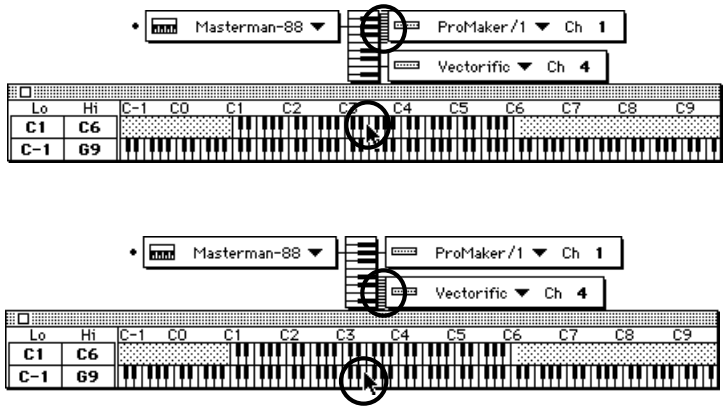


Figure 30: Highlighting a Splitter Segment

☆ *NOTE: A splitter module must have something connected to its output in order to be edited.*

EDITING NOTE RANGE AND VELOCITY SPLITTERS WITH MIDI

You can use a MIDI controller to set note numbers in a Note Range Splitter module or to set velocity levels in a Velocity Splitter module.

Assume, for example, that your Studio Setup document looks like the one shown in Figure 31, and that you want to edit Note Range Splitter modules and Velocity Splitter modules using either your K2000 keyboard or your Octapad.

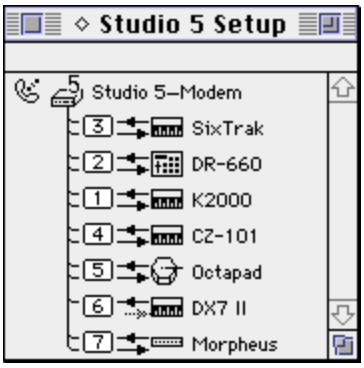


Figure 31: Sample Studio Setup Document

① In the Studio Patches Editor, choose **Windows>Controllers for MIDI Editing** to open a dialog containing a list of all devices defined in your current Studio Setup document.

Figure 32: MIDI Entry Controller Selection Window

② Select the K2000 and Octapad by clicking them. Checked devices are enabled for MIDI entry of notes and velocities. Unchecked devices are not enabled.

Figure 33: Selecting Controllers for MIDI Entry of Notes and Velocities

You can now use either the K2000 or Octapad to enter note and velocity data into patch editing modules. Simply highlight a note or velocity numerical and hit a note on either controller—this will set the numerical to the MIDI value generated by the master controller.

Gang Editing Note Range and Velocity Splitters

In both the Note Range and Velocity splitter modules, you can edit multiple outputs simultaneously by holding down the shift key while you make changes to one of the outputs. This is called "gang editing." Gang editing affects those outputs that are either equal to or within a value of "1" from the edited output. This makes gang editing particularly useful for editing one splitter output's high limit by the same amount as the other output's low limit.

Suppose, for example, that you have designed the patch shown in Figure 34, but that the velocity split point (set at 63/64) is too low. You want to raise the split point to 85/86.

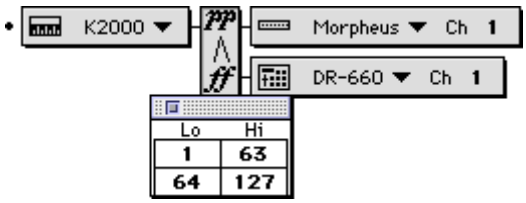


Figure 34: Velocity Split Patch

Shift-click the top output's Hi velocity value and drag the mouse up until the numerical is set for 85. The bottom output's Lo velocity value changes automatically to a value of 86.

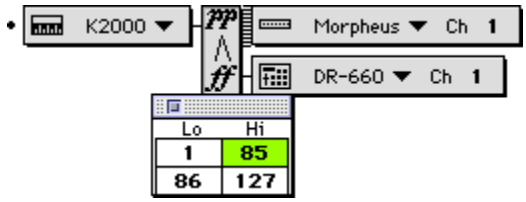


Figure 35: Gang Editing Velocity Split Points

Simple Splitter Module

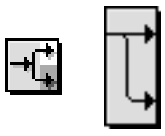


Figure 36: Simple Splitter Module

A Simple Splitter module sends one MIDI source to multiple destinations. A Simple Splitter module has no edit window.

CHANNEL SPLITTER MODULE

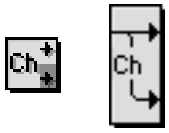


Figure 37: Channel Splitter Module

The Channel Splitter module splits the MIDI data by channel and, if desired, changes each output's MIDI channel. To open an edit window, insert a Channel Splitter module into a connection, then double-click the module.

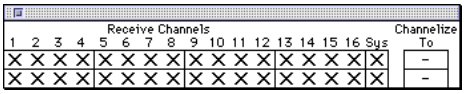


Figure 38: Channel Splitter Edit Window

Each row in the window controls which channels in the MIDI data stream are passed through to the corresponding splitter output. A checked channel passes data, an unchecked channel does not. **Sys** includes all MIDI System messages—system exclusive, MIDI Time Code, song select, tune request, clock, and system reset. The **Channelize To** numerical lets you change all the events passed to an output to the same MIDI channel. The "–" character means that the data is passed through without having its channel changed.

Read through the following examples to gain a better understanding of the Channel Splitter module.

CHANNEL SPLITTER MODULE EXAMPLES

Follow the signal path through these next two connections to understand Channel Splitter modules and channelizing.

Example 1: Look at Figure 39. Notice that the top of the Channel Splitter receives data on MIDI Channel 1. It is not channelized, so it exits the Splitter module on MIDI Channel 1. The top MIDI Destination module channelizes the MIDI data from Channel 1 to Channel 4. This means that the Morpheus plays the voice assigned to MIDI

Channel 4. The bottom half of the Channel Splitter module receives data on MIDI Channel 2 and channelizes it to MIDI Channel 3. The DR--660 MIDI Destination module is set to Channel "-", meaning that data received at its input is not channelized. Therefore, the DR-660 plays the voice assigned to MIDI Channel 3.

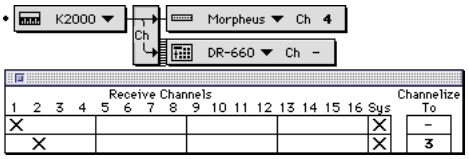


Figure 39: First Channel Splitter Example

Example 2: Look at Figure 40. The top half of the connection hasn't changed, but the bottom half is different. Notice that data is still received by the Channel Splitter module on Channel 2, channelized to MIDI Channel 3, and sent out the Splitter module. The DR-660 MIDI Destination module is now set to MIDI Channel 1. This means that data entering the MIDI Destination module is channelized *again* to MIDI Channel 1, and that the DR-660 plays the voice assigned to MIDI Channel 1.

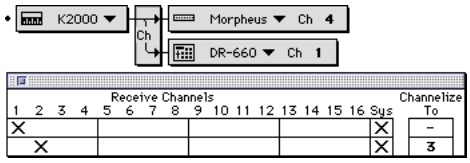


Figure 40: Second Channel Splitter Example

NOTE RANGE SPLITTER MODULE

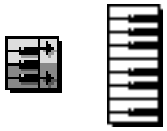


Figure 41: Note Range Splitter Module

The Note Range Splitter module limits the range of MIDI notes (and polyphonic aftertouch events) routed to each output of the splitter. To open its edit window, insert a Note Range Splitter module into a connection, then double-click the module.

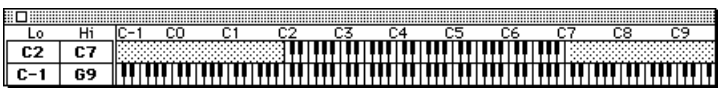


Figure 42: Note Range Splitter Edit Window

The edit window contains one line for each of the Splitter's outputs. You can edit each output's note range with the numericals, the graphic keyboard, or MIDI entry. When you click the lower half of the keyboard, all notes below the click point disappear, and the numericals indicate the new note range. Similarly, clicking high on the keyboard removes notes above the click point. Clicking and dragging changes the note range as you move the mouse back and forth across the keyboard. You can change split points by "gang editing" as discussed earlier.

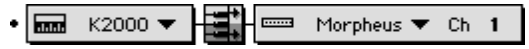
MIDI events other than notes and polyphonic aftertouch pass through to all outputs of the splitter.

NOTE RANGE SPLITTER MODULE EXAMPLE

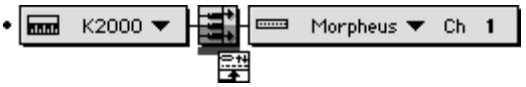
Assume, for example, that you want to split your K2000 keyboard to produce a right-hand melody sound on Channel 1 of the Morpheus and a left-hand bass sound on Channel 1 of the DX7 II.

① Create a new patch and define your Source and Destination modules as discussed previously.

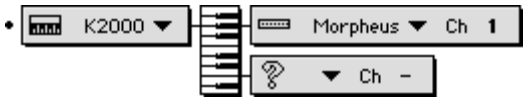
② Add a Note Range Splitter module between the MIDI Source and MIDI Destination modules.



③ Click the MIDI Destination module icon and move the cursor below the Note Range Splitter module. The area below the Splitter module becomes highlighted.

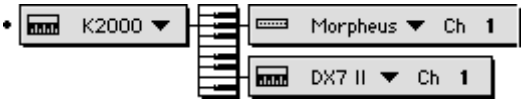


④ Click the mouse to add a new, undefined MIDI Destination module.

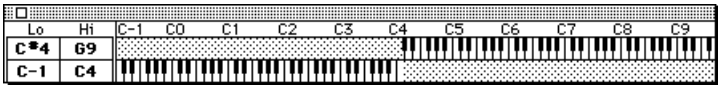


⑤ Select DX7 II from the MIDI Destination module's pop-up device menu.

⑥ Select MIDI Channel 1 in the MIDI Destination module's Channel numerical.



⑦ Double-click the Note Range Splitter module and enter note ranges for each Splitter module output.



As shown here, all notes from C#4 to G9 will be played by the upper MIDI Destination module (the Morpheus) and all notes from C-1 to C4 will be played by the bottom MIDI Destination module (the DX7 II).

VELOCITY SPLITTER MODULE

Figure 43: Velocity Splitter Module

The Velocity Splitter module allows notes with only specific ranges of note-on key velocities to pass through to each output of the Splitter module. To open an editing window, insert a Velocity Splitter module into a connection, then double-click the module.

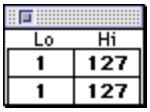


Figure 44: Velocity Splitter Edit Window

Like the Channel and Note Range Splitter modules, each row corresponds to one output of the splitter. You can enter velocity values with either numerical or MIDI input. You can "gang edit" multiple velocity values as discussed previously. Only notes with velocities within the specified range will pass through to the Splitter module's output.

MIDI events other than notes are passed through to all outputs of the splitter.

☆ *NOTE: Some notes may be cut off early when transposing the outputs of a velocity splitter and playing chords.*

TRANSPOSER MODULE

Figure 45: Transposer Module

Use the Transposer module to transpose note and polyphonic after-touch events. You can edit the Transposer module with either a simple edit window or a map edit window.

OPENING AND USING A SIMPLE TRANSPOSER EDIT WINDOW

To open a simple Transposer edit window:

① Insert a Transposer module into a connection.

② Double-click the module.
A simple Transposer edit window opens as shown in Figure 46.

Figure 46: Simple Transposer Edit Window

The transposition interval is expressed musically, not as a number of half-steps. If you prefer thinking in terms of half-steps, type the number of half steps into the numerical, then hit the Return or Enter keys. Negative values transpose downward and positive values transpose upward. The Transposer module in Figure 46 transposes the MIDI note values up 1 octave plus a Major 2nd (14 half-steps).

Figure 47 shows the relationship between intervals and half-step values.

m2	minor second	1 half-step
M2	major second	2 half-steps
m3	minor third	3 half-steps
M3	major third	4 half-steps
P4	perfect fourth	5 half-steps
#4	sharp fourth (tritone)	6 half-steps
P5	perfect fifth	7 half-steps
m6	minor sixth	8 half-steps
M6	major sixth	9 half-seps
m7	minor seventh	10 half-steps
M7	major seventh	11 half steps
+1 oct	up one octave	12 half steps

Figure 47: Relation of Intervals to Half-Steps

☆ *NOTE: Transposer modules change MIDI note numbers. They do not actually alter the internal tuning of your synthesizers. The musical intervals expressed in the Transposer module are based on standard Equal Temperament. Actual tuning amounts will change if you use alternate synthesizer tuning scales.*

Opening and Using a Map Transposer Edit Window

To open a map Transposer edit window:

① Click the Map button in the simple Transposer edit window.

A map Transposer edit window opens to show the current conditions of the simple Transposer (as seen in Figure 48).

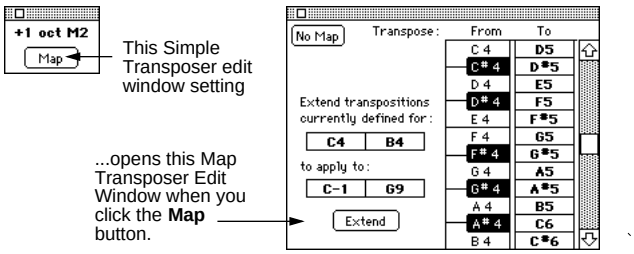


Figure 48: Opening the Map Transposer Edit Window

The scrolling keyboard along the right edge of the window lets you map any MIDI note to any other MIDI note. Use the **To** numerical to transpose each individual note (you can set each numerical using MIDI entry, see Module Editing Basics, pg. 16).

The controls in the left half of the window allow you to duplicate the transpositions defined in one note range for any other note range. For example, the default setting lets you create a transposition map for the twelve notes of one octave, then duplicate these transpositions for all octaves. Use the four numericals to set the two ranges, then click the **Extend** button to perform the extension.

☆ *NOTE: You may want to define some commonly used transposition maps as either Virtual Controllers or Virtual Instruments and use them instead of a map in your Studio Patches. Virtual Controllers and Virtual Instruments are discussed in Chapter 3: Virtual Controllers and Virtual Instruments.*

☆ *Maps use a relatively large amount of memory, so if you find yourself using the same map in multiple places in the same Patch document, you'll use less memory by putting maps into Virtual Controllers or Virtual Instruments.*

Choosing Between a Simple or Map Transposition

If you click the map edit window's close box, the map edit window closes and the Transposer module will use that map to transpose MIDI data. The map edit window opens the next time you double-click that Transposer module.

If you click the **No Map** button, you'll delete your custom map, close the map edit window, and re-open the simple edit window. The Transposer module will use the settings in the simple edit window to transpose MIDI data.

MODIFIER MODULES

Figure 49: Modifier Module Group

Use Modifier modules to alter note-on velocities, mono aftertouch, poly aftertouch, pitch bend and MIDI control values. Each Modifier module uses either a simple Modifier edit window or a map Modifier edit window to modify MIDI data.

Opening and Using a Simple Modifier Edit Window

To open a simple Modifier edit window:

① Insert a Modifier module into a connection.

② Double-click the new module.
A simple Modifier edit window opens as shown in Figure 50.

Figure 50: Typical Simple Modifier Edit Window

Each Modifier module's simple edit window contains a pop-up menu of modifiers. The choices are **Add**, **Scale**, **Invert**, **Max Limit**, **Min Limit**, **Set To**, and **Filter Out**. The modification amount is set by the numerical to the right.

- **Add**: Adds the specified number to each MIDI data value. Positive and negative values may be used.
- **Scale**: Scales the value by the specified percentage: 100% is unchanged, 50% halves each value, 199% (the maximum) nearly doubles each value (you cannot have values greater than 127 or less than 0, however).

- **Invert**: Changes 127->0, 126->1, 125->2, 1->126, and 0->127 except in the case of velocity where 0 (a note off) is left unchanged.
- **Max Limit**: Reduces all values higher than the specified value down to the limit you enter.
- **Min Limit**: Increases all values lower than the specified value up to the limit you enter.
- **Set To**: Changes all values to the one you enter.
- **Filter Out**: Removes the event type completely (not allowed for velocity).

Opening and Using a Map Modifier Edit Window

To open a Modifier module's map edit window, click the Map button in the Simple Modifier edit window. A map Modifier edit window opens to show the current conditions of the Simple Modifier (as seen in Figure 51).

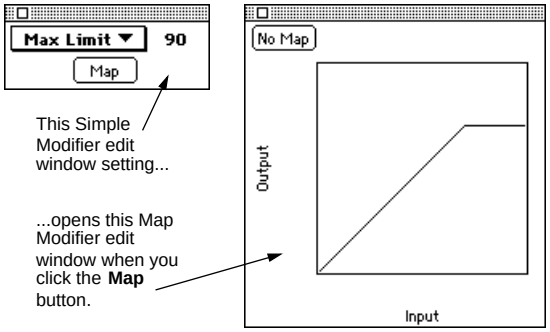


Figure 51: Opening a Map Modifier Edit Window

Click and drag inside the mapping area to create a new modifier map. The current cursor location's input value is shown below the map and its re-mapped value is shown to the left. MIDI data entering the Modifier module gets modified according to the curve.

Figure 52 illustrates a simple S-curve map—low and high input values result in very little output change, but middle input values create great changes in output values. Notice, as an example, that a value of 76 entering the Modifier module gets remapped to 95 before leaving the module.

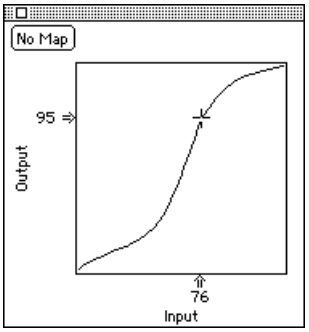


Figure 52: Simple S-Curve Modifier Map

To draw a straight line between two points, click at one end point, then shift-click at the other end point (see Figure 53).

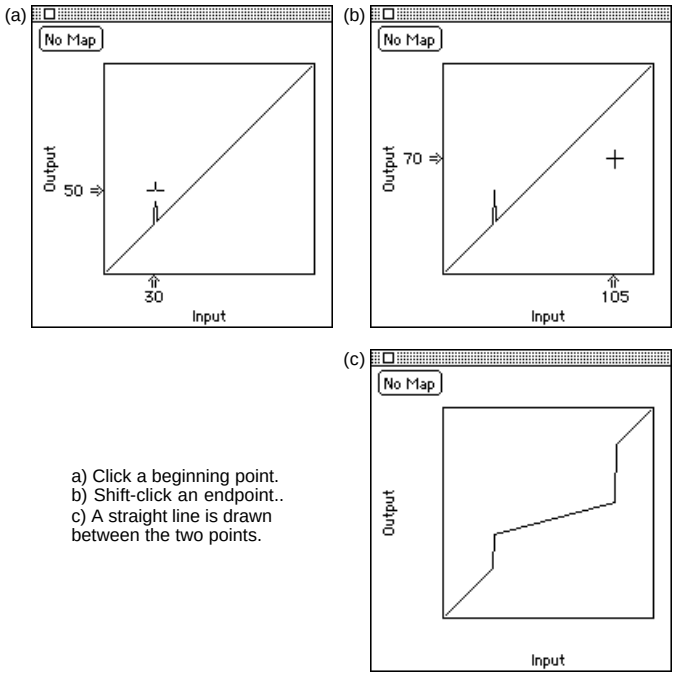


Figure 53: Drawing Straight Lines

☆ *NOTE: You may want to define some commonly used transposition maps as either Virtual Controllers or Virtual Instruments and use them instead of a map in your Studio Patches. Virtual Controllers and Virtual Instruments are discussed in Chapter 3: Virtual Controllers and Virtual Instruments.*

☆ *Maps use a relatively large amount of memory, so if you find yourself using the same map in multiple places in the same Patch document, you'll use less memory by putting maps into Virtual Controllers or Virtual Instruments.*

CHOOSING BETWEEN SIMPLE AND MAP MODIFIERS

If you click the map edit window's close box, the map edit window closes and the Modifier module will use that map to modify MIDI data. The map edit window opens the next time you double-click that Modifier module.

If you click the **No Map** button, you'll delete your custom curve, close the map edit window, and re-open the simple edit window. The Modifier module will use the simple edit window settings to modify MIDI data.

VELOCITY MODIFIER

Double-click the Velocity Modifier module to open its edit window. You can modify velocity values using either the simple or map edit windows. You cannot filter out velocity data, nor can you invert a note-off value of 0 (zero).

AFTERTOUCH MODIFIER

Double-click the Aftertouch Modifier module to open its edit window. You can modify mono aftertouch values using either the simple or map edit windows.

POLY AFTERTOUCH MODIFIER

Double-click the Polyphonic Aftertouch Modifier module to open its edit window. You can modify poly aftertouch values using either the simple or map edit windows.

PITCH BEND MODIFIER

Double-click the Pitch Bend Modifier module to open its edit window. You can modify pitch bend values using either the simple or map edit windows.

CONTROL VALUE MODIFIER

Double-click the Control Value Modifier to open its edit window. This window contains an additional pop-up menu for choosing which MIDI continuous control value to modify.

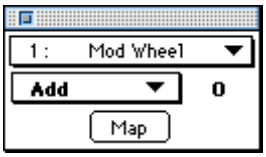


Figure 54: Control Value Modifier Edit Window

The Control Value Modifier module contains a small number in its lower right corner. This indicates the number of the control being modified.

Figure 55: Control Number Indicator

CONTROL NUMBER MAPPER MODULE

The Control Number Mapper module changes one type of MIDI control message into another. To open an edit window for the Control Number Mapper module, insert it into a connection, then double-click the module.

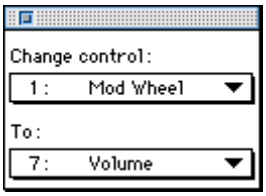


Figure 56: Control Number Mapper Edit Window

The Control Number Mapper module's edit window contains two pop-up menus. Choose the old control number from the top pop-up menu. Use the bottom pop-up menu to choose the new control number.

CONTROL NUMBER MAPPER MODULE EXAMPLE

Assume, for example, that you wanted to play your Morpheus from your K2000 keyboard, and that you wanted to control the Morpheus' volume with the K2000 modulation wheel.

① Create a connection with the K2000 as the MIDI source and the Morpheus as the MIDI destination.

② Insert the Control Number Mapper module into the connection, then double-click it to open its edit window.

③ Choose **Mod Wheel (1)** from the upper pop-up menu.

④ Choose **Volume (7)** from the lower pop-up menu.

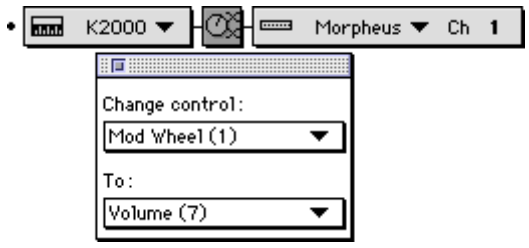


Figure 57: Mapping Mod Wheel to Volume

The K2000 modulation wheel now controls the Morpheus output volume.

CH 3: VIRTUAL CONTROLLERS AND VIRTUAL INSTRUMENTS

Virtual Controllers and Virtual Instruments are extremely powerful features of Studio Patches. Basically, they're enhanced versions of the MIDI devices defined in your current Studio Setup document. Any number of Virtual Controllers and Virtual Instruments can be stored within a Patch document.

A Virtual Controller is the output of a MIDI device plus some form of MIDI processing. A Virtual Controller is treated the same as any other MIDI controller defined in your current Studio Setup document, except that it enhances the performance of a MIDI controller by adding MIDI processing. Virtual Controllers have two important uses:

- They are used when common MIDI processing connections need to be used in multiple Studio Patches.
- They are used as sequencer inputs when you need to record a MIDI controller with some processing applied.

Basically, Virtual Controllers are additional sources of MIDI data (just like real MIDI controllers). You create these new sources by combining your real MIDI controllers with MIDI processing.

A Virtual Instrument is some form of MIDI processing routed to one or more MIDI devices. A Virtual Instrument is treated the same as any other MIDI destination defined in your current Studio Setup document, except that it enhances performance by stacking, splitting or layering various devices and adding MIDI processing. Virtual Instruments have two important uses:

- They are used when common MIDI processing connections need to be used in multiple Studio Patches.
- They are used as sequencer destination instruments—allowing the sequenced tracks to play into a MIDI processed stream.

Basically, Virtual Instruments are additional destinations of MIDI data (just like real MIDI sound modules). You create these new destinations by combining your real MIDI sound modules with MIDI processing.

☆ *NOTE: MIDI data can sometimes get very dense when working with Virtual Controllers and Virtual Instruments. Therefore, when designing your patches, it's a good idea to use Event Type Filter Modules to remove any unnecessary data.*

The following sections discuss Virtual Instruments and Virtual Controllers: why you may wish to use them, how to set them up, and how to access them within Opcode's Vision and Studio Vision.

USING VIRTUAL CONTROLLERS

A Virtual Controller is the output of a MIDI device *plus* some form of MIDI processing. Let's look at an example of a Virtual Controller.

Assume that your keyboard is too sensitive to aftertouch. Pushing just slightly on the keys causes it to send very high aftertouch values. You can design a Virtual Controller that processes the aftertouch data *before* sending it to your sequencer or MIDI devices.

① Click the **Virtual Controllers** button or choose **Patch>Edit Virtual Controllers** to open a Virtual Controllers Edit Window.

Figure 58: Virtual Controllers button

You'll see that the Virtual Controllers Edit Window looks very similar to the Patch Edit Window. Use the Virtual Controllers Edit Window to create and store as many Virtual Controllers as memory will allow.

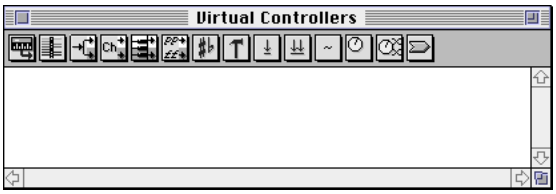


Figure 59: Virtual Controllers Edit Window

② Click the MIDI Source module icon. The cursor will turn into the MIDI Source icon. Click anywhere in the space below the Module Palette to create an undefined connection.

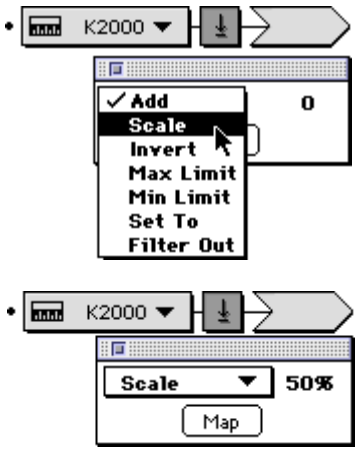
Notice that this connection looks very similar to an undefined patch connection; the only difference is that the MIDI Destination module is replaced by a Virtual Controller module.

③ Choose your master keyboard from the MIDI Source module's pop-up menu.

④ Insert a Mono Aftertouch Modifier module between the MIDI Source module and the Virtual Controller module.

⑤ Double-click the Mono Aftertouch Modifier module to open its editing window.

⑥ Choose **Scale** from the Modifier module's pop-up menu and enter a value of 50% into the Modifier module's numerical.



This will scale the Mono Aftertouch output by 50%, resulting in the desired decrease in Mono Aftertouch sensitivity.

⑦ Click the Virtual Controller Module. Its border will become thick and it will contain a flashing text-insertion cursor.

⑧ Type a suitable name for your new Virtual Controller.

⑨ Close the Virtual Controllers Edit Window.

If you open a patch in the Patch Edit Window, you'll see that "Master w/A.T. Scaling" has been added to your list of possible MIDI sources. Now, instead of using the K2000 as a controller, you can use the improved Virtual Controller as your MIDI source.

The previous example provided a graphic illustration of the Virtual Controller definition—Virtual Controllers are the output of a MIDI device *plus* some form of MIDI processing.

Virtual Controllers are edited similarly to patches, except that instead of MIDI Destination Modules, there are Virtual Controller Modules.

All of the modules and connections to the left of the Virtual Controller Module are used to define the output of that Virtual Controller. There may be any number of Virtual Controllers for each real controller.

Virtual Controllers appear in the pop-up MIDI source menus when you edit a patch. If you choose a Virtual Controller, it has the same appearance in the Patch Edit Window as in the Virtual Controllers Edit Window, except that you can't edit its name.

Efficient Use of Virtual Controllers

There are two kinds of Virtual Controller connections:

- Those that do not "multiply" MIDI data.

  In this type of a connection, no one MIDI event from a source reaches more than one Virtual Controller. You make non-multiplying Virtual Controller connections either by avoiding multi-output splitter modules or by extensive use of filtering. An example of two different non-multiplying connections is shown in Figure 60.

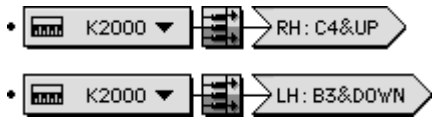


Figure 60: Non-Multiplying Virtual Controller Connections

- Those that do "multiply" MIDI data.

  In this type of connection, a single MIDI event from a source reaches more than one Virtual Controller. Connections that use unfiltered, multi-output splitter modules multiply MIDI data by sending duplicate data to numerous Virtual Controllers. An example of a multiplying connection is shown in Figure 61.

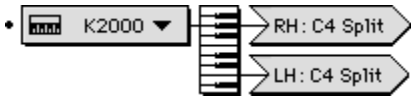


Figure 61: Multiplying Virtual Controller Connection

The connection shown in Figure 61 doubles all MIDI events (pitch bend, controls, mono aftertouch, etc.) except for notes and polyphonic aftertouch events.

When you design patches using Virtual Controllers created in a "multiplying" connection, avoid using the Virtual Controllers independently. Either use all of the Virtual Controllers created in a multiplying connection or don't use any at all. If you don't use all of a multiple connection's Virtual Controllers, you will waste microprocessor power since you'll send MIDI data to Virtual Controllers that aren't in your patch.

For example, if you wanted to create a patch where your left hand controls one module and your right hand controls another, you could use the two Virtual Controllers shown in Figure 62.

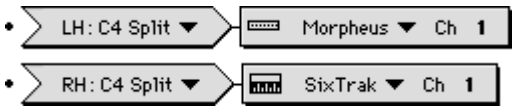


Figure 62: Patch Using Virtual Controllers from Multiplying Connection

If, however, you wanted to create a patch where only your left hand controlled a module, you should use the "LH: B3&DOWN" Virtual Controller shown in Figure 63.

Figure 63: Patch Using Virtual Controllers from Non-Multiplying Connection

If, instead of using the "LH: B3&DOWN" Virtual Controller in the patch, you used the "LH: C4 Split" Virtual Controller shown in Figure 62, you would waste processing power since all MIDI events generated by the K2000 (other than notes and poly aftertouch) are sent to both the "LH: C4 Split" and "RH: C4 Split" Virtual Controllers. Since this patch doesn't use the "RH: C4 Split" Virtual Controller, this would be an inefficient use of Virtual Controllers and your interface's microprocessor.

USING VIRTUAL CONTROLLERS WITH VISION

OMS applications such as Vision and Studio Vision (versions 1.3 or later) treat Virtual Controllers as they would any other MIDI input device.

Let's look at an example showing how to use Virtual Controllers with Vision. Assume that your Studio Setup document looks like Figure 64, and that you have defined a Virtual Controller like the one shown in Figure 65.

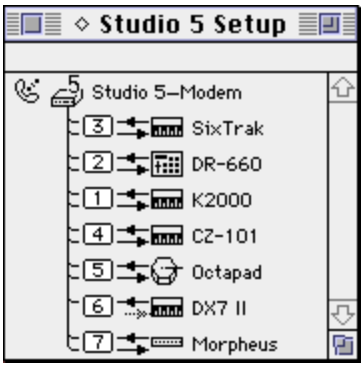


Figure 64: Studio Setup Document Example

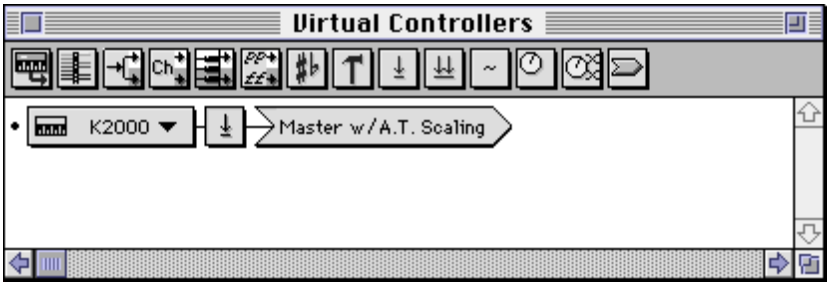


Figure 65: Virtual Controller Example

① Launch Vision.

② Choose **Setups>Enable Input Devices**.

You'll see a dialog box listing all possible MIDI input devices, including any Virtual Controllers, as defined by the current Studio Patch document.

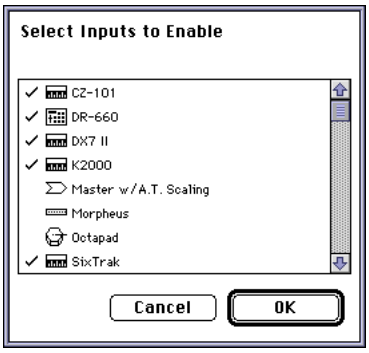


Figure 66: Vision's "Enable Input Device" Dialog Box

Notice, in this example, that the Virtual Controller named “Master w / A.T. Scaling” is available as a MIDI input source. You enable input devices by clicking them. In the following example, “Master w / A.T. Scaling” is checked and, therefore, is enabled as an input device.

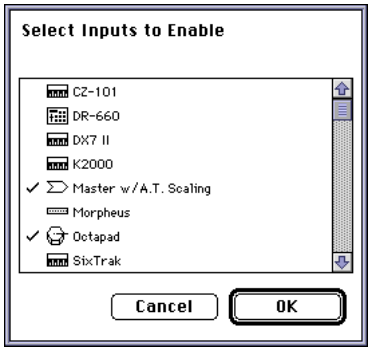


Figure 67: Enabling a Virtual Controller in Vision

By using the specially designed “Master w / A.T. Scaling” Virtual Controller as an input device, you can record data with satisfactory aftertouch values directly into Vision.

☆ *NOTE: Since Virtual Controllers use real MIDI input devices, it’s possible to accidentally enable an input device twice. For example, if you enable both “K2000” and “Master w/A./T. Scaling,” you will get two notes for every one you play. For this reason, make sure that you only enable one input for each real, physical device.*

VIRTUAL INSTRUMENTS

A Virtual Instrument is made up of one or more MIDI destinations *plus* some form of MIDI processing. Virtual Instruments are basically the opposite of Virtual Controllers. Let’s look at an example of a Virtual Instrument.

Assume that it’s common for you to “stack” instruments together to get a really big MIDI sound—particularly your K2000 and Morpheus sound modules playing on MIDI Channel 2. Using Virtual Instruments, you can create that stack and always have it available as a MIDI destination.

① Click the **Virtual Instruments** button in the Patch Document Window, or choose **Patch>Edit Virtual Instruments** to open a Virtual Instruments Edit Window.

Figure 68: Virtual Instruments button

You'll see that the Virtual Instruments Edit Window looks very similar to the Patch Edit Window. Use the Virtual Instruments Edit Window to create and store as many Virtual Instruments as memory will allow.

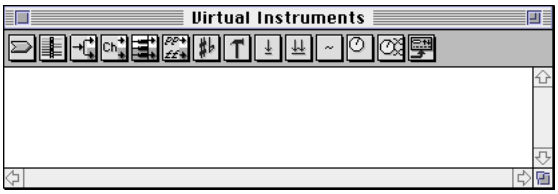


Figure 69: Virtual Instruments Edit Window

② Click the Virtual Instrument module icon.

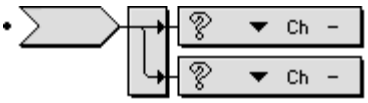
Figure 70: Virtual Instrument Module Icon

③ Click in the blank space below the Module Palette to create an undefined Virtual Instrument connection.

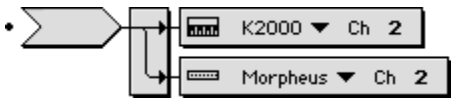
Notice that this connection looks very similar to an undefined patch connection; the only difference is that the MIDI Source module is replaced by a Virtual Instrument module.

④ Insert a Simple Splitter module between the Virtual Instrument and the MIDI Destination modules.

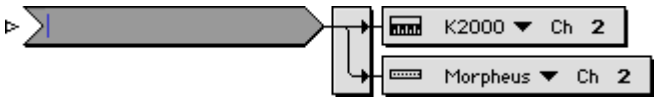
⑤ Add a second MIDI Destination module by clicking its icon and inserting it below the Simple Splitter module.



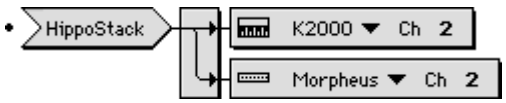
⑥ Choose the K2000 from the upper MIDI Destination module's pop-up menu, and the Morpheus from the lower MIDI Destination module's pop-up menu. Set their MIDI channels to 2.



⑦ Click the Virtual Instrument module to select it.



⑧ Type in the name of your new Virtual Instrument and hit the Enter key.



⑨ Close the Virtual Instruments Edit Window.

If you open a patch in the Patch Edit Window, you'll see that "HippoStack" has been added to your list of MIDI destinations. Whenever you want to play a stack made up of the K2000 and Morpheus synthesizers on MIDI Channel 2, simply choose this Virtual Instrument as the MIDI destination.

The previous example provided a graphic illustration of the Virtual Instrument definition—Virtual Instruments are made up of one or more MIDI destinations *plus* some form of MIDI processing.

Like Virtual Controllers, Virtual Instruments are edited similarly to patches with only minor exceptions. The Virtual Instruments Edit Window contains connections from Virtual Instruments to devices.

Instead of MIDI Source modules, there are Virtual Instrument modules:

Virtual Instruments appear in the pop-up MIDI destination menus when you edit a patch. If you choose a Virtual Instrument, it has the same appearance in the Patch Edit Window as in the Virtual Instruments Edit Window, except that you can't edit its name.

☆ *NOTE: System Exclusive messages should always be sent directly to the intended device. Sending System Exclusive to a Virtual Instrument containing a Splitter module and different devices thickens the MIDI data stream unnecessarily. Sending System Exclusive to a Virtual Instrument consisting of a Splitter module routed to different channels of the same device may corrupt the data.*

USING VIRTUAL INSTRUMENTS WITH VISION

OMS applications such as Vision and Studio Vision (versions 1.3 or later) treat Virtual Instruments as they would any other MIDI destination device.

Let's look at an example showing how to use Virtual Instruments with Vision. Assume that your Studio Setup document looks like Figure 71, and that you have defined a Virtual Controller like the one shown in Figure 72.

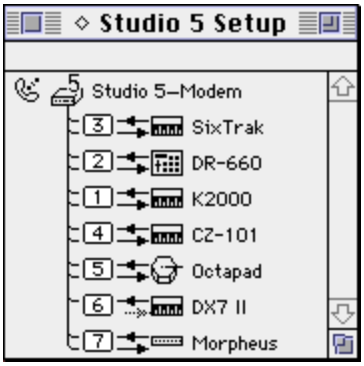


Figure 71: Studio Setup Document Example

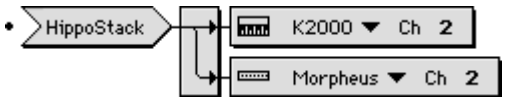


Figure 72: Virtual Instrument Example

① Launch Vision.

② Choose **Windows>Instruments**.

③ Choose **New Instrument** from the Instruments menu.

A new Instrument will be added to the MIDI Instruments list as shown in Figure 73.

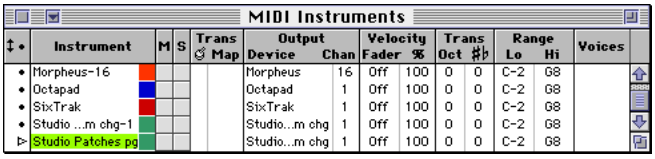


Figure 73: Adding an Instrument in Vision

④ Choose "HippoStack" from the MIDI Output Device pop-up menu.

This menu displays all MIDI destinations as defined in your current Studio Setup document as well as the Virtual Instruments in your current Studio Patch document.

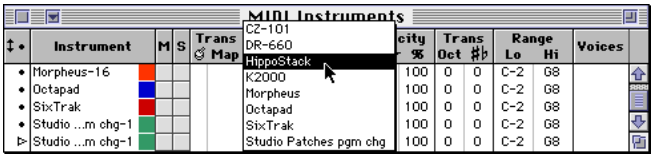


Figure 74: Selecting a MIDI Output Device in Vision

⑤ Choose Channel 2 from the MIDI Output Channel pop-up menu (since "HippoStack" was designed to play on MIDI Channel 2).

The MIDI Instrument's name becomes "HippoStack-2," indicating that it uses the Virtual Instrument named "HippoStack," and that it is set to receive on MIDI Channel 2. You can keep this name or type another.

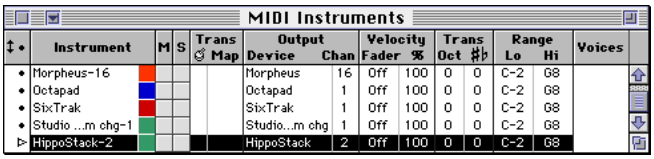


Figure 75: Newly Defined Instrument in Vision

⑥ Click on the Thru Instrument setting at the left side of Vision's Control Bar (the little keyboard).

You'll see a pop-up menu of MIDI Instruments as defined in Vision's Instruments Window.

Figure 76: Choosing a Virtual Instrument in Vision

⑦ Choose "HippoStack-2."

The Thru Instrument will now play the Virtual Instrument named "HippoStack," which is the combined sound of the K2000 and Morpheus sound modules on MIDI Channel 2.

Virtual Instruments can be used to define any number of MIDI Instruments within Vision. You can choose instruments within any of Vision's MIDI Instrument pop-up menus (as found in the Tracks Window, List Window, Graphic Window, and so on).There are two important advantages to using Virtual Instruments with Vision:

- **You wish to play a sequence using an interesting Studio Patch**.

  To do so, simply create a Virtual Instrument consisting of the entire patch connection (except for the source module) and use it as Vision's Thru Instrument. This is detailed in the following section.

- **You wish to have a sound made up of several channels on several devices playing the same part**.

  (This applies to Studio 5's only.) Without Virtual Instruments, you would have the Macintosh send a separate MIDI event to each destination channel on each device. Using a Virtual Instrument allows the Macintosh to send just one MIDI event to the Virtual Instrument, which actually exists inside the interface. This reduces the density of the MIDI data stream, making timing more efficient.

  It also transfers the Macintosh's work load to the interface, which gives the Macintosh more processing time for other events.

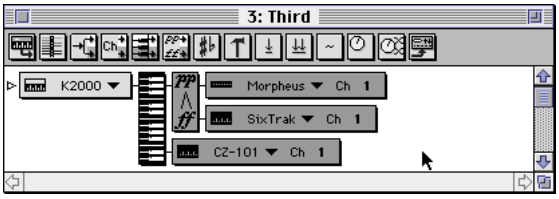
CREATING VIRTUAL INSTRUMENTS FROM EXISTING PATCHES

If you create an interesting Studio Patch and decide you want to use it as a Virtual Instrument in a MIDI sequence, you can simply copy the connection (less the MIDI Source module) from the Patch Edit Window and paste it into the Virtual Instruments Edit Window. To do so:

① Open the Patch Edit Window for the patch you want to turn into a Virtual Instrument.

② Select every part of the connection except the MIDI Source module.

There are two ways to do this: 1) click the selector dot to the left of the connection (selecting all modules), then option-click the MIDI Source module to deselect it; or 2) drag a rectangle around all the modules except the MIDI Source module.

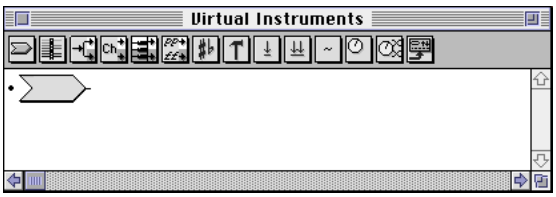


③ Choose **Edit>Copy**.

④ Open the Virtual Instruments Edit Window.

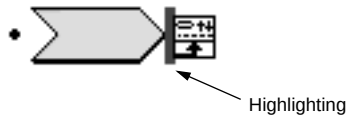
⑤ Click the Virtual Instrument module icon, then click in the blank space below the Module Palette to create an undefined Virtual Instrument connection.

⑥ In the new connection, click the MIDI Destination module to select it and hit the Delete key to remove the MIDI Destination module from the connection.

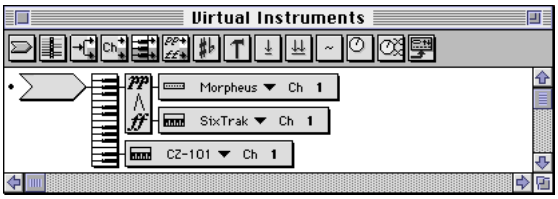


⑦ Click the MIDI Destination module icon, then move the cursor just to the right of the Virtual Instrument module. Do not click the mouse!

Notice that the area to the right of the Virtual Instrument module becomes highlighted.



⑧ Choose **Edit>Paste** to paste the contents of the clipboard into the highlighted area.



⑨ Type a name into the Virtual Instrument module and save it.

You're now ready to use this newly created virtual instrument in your sequencing program.

CH 4: PROGRAM CHANGE SOURCES

Use the Program Change Sources Window to specify various ways to change Studio Patches. You can design Program Change Sources to:

- Change Studio Patches from a MIDI controller.
- Change Studio Patches from a MIDI controller only if an additional MIDI control is activated.
- Step through a pre-determined Patch Chain using a MIDI controller.

Program Change Sources make it convenient to change Studio Patches from a MIDI controller when you're working within other MIDI applications. You don't have to use the Patch Document Window to change Studio Patches. A Patch document can contain any number of Program Change Sources.

OPENING A PROGRAM CHANGE SOURCES EDIT WINDOW

Click the **Program Change Sources** button in the Patch Document Window, or choose **Patch>Edit Program Change Sources** to open the Program Change Sources Window.

Figure 77: Program Change Sources button

You'll see that the Program Change Sources Window looks similar to the Patch Edit Window, except that the module palette is different.

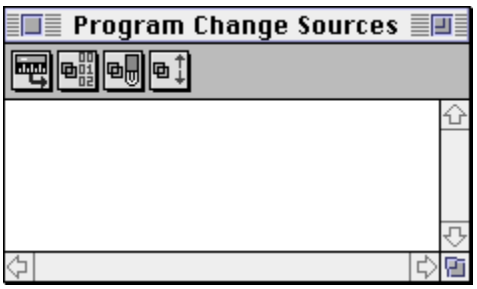


Figure 78: Empty Program Change Sources Window

PROGRAM CHANGE SOURCES EDIT WINDOW TERMINOLOGY

Figure 79 shows the terminology for the Program Change Sources Window.

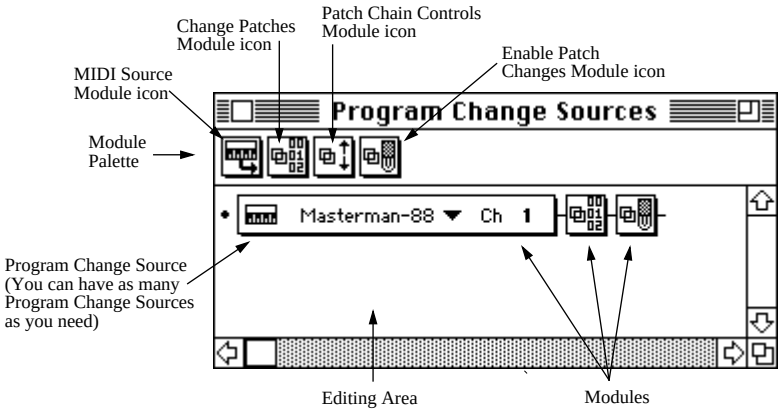


Figure 79: Anatomy of a Program Change Sources Window

Module placement and editing techniques are similar to those used for the Patch Edit Window. The following sections discuss each module in detail.

MIDI SOURCE MODULE

Figure 80: MIDI Source Module

The MIDI Source module in the Program Change Sources Window is very similar to the MIDI Source module in the Patch Edit Window. The only difference is that this MIDI Source module contains a MIDI channel numerical; the Patch Edit Window's MIDI Source module does not.

Use this MIDI Source module to specify which device and MIDI channel will control program changes using the other modules to which it's connected.

To insert and define a MIDI Source module:

① Click the MIDI Source module icon. The cursor will change into a MIDI Source module icon.

② Click in the blank space below the Module Palette to create an undefined Program Change connection.

③ Choose a MIDI source from the MIDI Source module's pop-up menu.

④ Use the Channel numerical to set a MIDI transmission channel. A dash ("-") means that the MIDI source data can come from any channel.

You will not yet be able to change Studio Patches via MIDI, since the MIDI Source module's only purpose is to define the source and channel of MIDI data. See the following sections to learn how to change Studio Patches using several different methods.

CHANGE STUDIO PATCHES

Figure 81: Change Studio Patches Module

If you want Studio Patches to receive MIDI program changes from a MIDI device, you must use the Change Studio Patches module (to change Studio Patches using MIDI program changes sent from an OMS application, send to the "Studio Patches pgm chg" device, described in Sequencing Patch Changes, pg. 9).

Place a Change Studio Patches module to the right of the MIDI Source module using techniques discussed previously.

Figure 82: Adding a Change Studio Patches Module

In the example shown in Figure 82, MIDI program changes transmitted by the K2000 on Channel 1 will change the Studio Patch number.

EDITING THE CHANGE STUDIO PATCHES MODULE

Double-click the Change Studio Patches module to open its edit window.

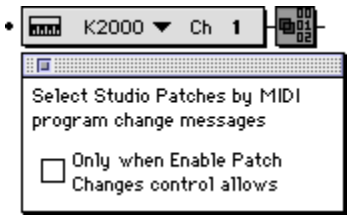


Figure 83: Change Studio Patches Module Edit Window

The edit window contains a single check box. When the box is unchecked, Studio Patches recognizes MIDI program changes directly. When the box is checked, the status of an additional MIDI controller (typically a footswitch or button) determines whether Studio Patches recognizes the program change message.

Uncheck the box if you want Studio Patches to *always* change patches when it receives a MIDI program change message. Often, however, it's undesirable to change the Studio Patch every time you send program changes from your master keyboard. If you check the check box, Studio Patches change *only* when an additional MIDI control event is received. This allows you to send program changes to MIDI devices without changing the Studio Patch.

If you check the check box, you'll need to use an Enable Studio Patch Changes module (see the following section).

ENABLE STUDIO PATCH CHANGES MODULE

Figure 84: Enable Studio Patch Changes Module

If you checked the check box in the Change Studio Patches module edit window, you must use the Enable Studio Patch Changes module to change Studio Patches.

① Add a new MIDI Source module to the Program Change Sources Window.

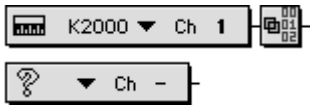


Figure 85: Adding a Second Connection

② Choose a MIDI Source and channel, then place an Enable Studio Patch Changes module to the right of the MIDI Source module.

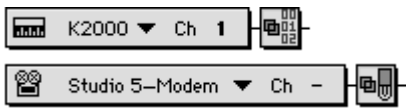


Figure 86: Defining Studio Patch Change Enabling Source

EDITING THE ENABLE STUDIO PATCH CHANGES MODULE

Double-click the Enable Studio Patch Changes module to open its edit window.

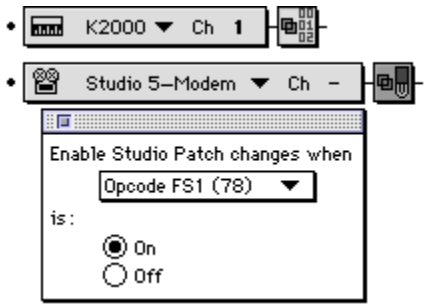


Figure 87: Enable Studio Patch Changes Module Edit Window

Use the pop-up menu to specify which MIDI control message enables Studio Patches program changes. You can choose whether the control message needs to be “on” or “off” in order to enable program changes.

In the connection shown in Figure 88, the Masterman-88 will change Studio Patches *only* if you send the program change while holding down the Studio 5’s Footswitch #1. Program Change messages from the Masterman-88 will not affect Studio Patch selection if the Studio 5 footswitch is not down (on).

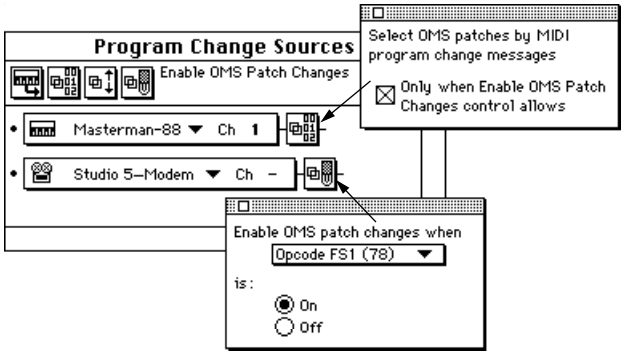


Figure 88: Example of an Studio Patch Change Connection

☆ *NOTE: Remember that Studio 5 footswitch and foot controller data is sent on MIDI Channel 15.*

USING A SINGLE STUDIO PATCH CHANGE AND ENABLE SOURCE

If you wish to use a single MIDI source for both Studio Patch changes and enabling, you'll use only one connection.

Assume, for example, that you wanted to send Studio Patch changes from your Masterman-88 controller while holding down its sustain pedal. You would create the connection shown in Figure 89.

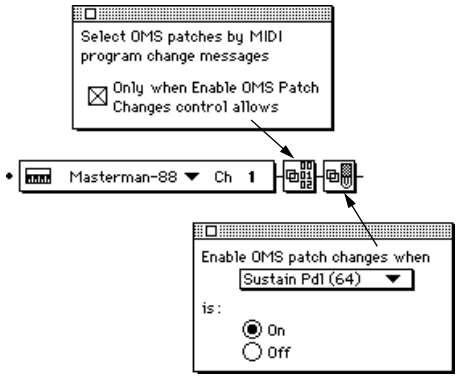


Figure 89: Single Studio Patch Change and Enable Source

PATCH CHAIN CONTROLS MODULE

Figure 90: Patch Chain Controls Module

Use this module to select a pair of MIDI controls to step up or down through a pre-defined Patch Chain. You define the Patch Chain in the Patch Chain Edit Window (see Chapter 5: Patch Chains).

Place a Patch Chain Controls module to the right of a MIDI Source module using techniques discussed previously.

Figure 91: Adding a Patch Chain Controls Module

① Double-click the Patch Chain Controls module to open its edit window.

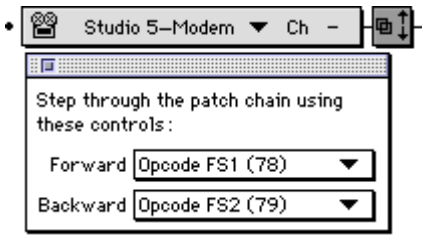


Figure 92: Patch Chain Controls Module Edit Window

② Choose (from the Forward pop-up menu) the MIDI control you wish to use to step forward through the Patch Chain.

③ Choose (from the Backward pop-up menu) the MIDI control you wish to use to step backward through the Patch Chain.

For the example shown in Figure 92, you would use the Studio 5's Footswitch #1 to step forward through a Patch Chain, and the Studio 5's Footswitch #2 to step backward through a Patch Chain.

Patch Chains wrap around. When you reach the last patch in a chain, the next step will return you to the first patch in the chain.

See Chapter 5: Patch Chains to learn how to set up a Patch Chain.

☆ *NETWORKING NOTE: If you're using multiple interfaces, Opcode recommends you connect all MIDI devices defined as Patch Chain control sources to the same interface. The reason is that each micro-processor (whether it's in the Macintosh or an interface) has its own concept of the current location in the Patch Chain. If you use different devices connected to different interfaces to advance a Patch Chain, you may get unexpected results.*

CH 5: PATCH CHAINS

The Patch Chain Edit Window creates a list of patches used by the Patch Chain Controls module (discussed in Chapter 4: Program Change Sources). The Patch Chain Controls module (found in the Program Change Sources Window) lets you step through a predetermined patch sequence using an external MIDI controller.

This chapter discusses creating and editing a Patch Chain.

OPENING A PATCH CHAIN EDIT WINDOW

Click the **Patch Chain** button in the Patch Document Window, or choose **Edit>Patch Chain** to open the Patch Chain Edit Window.

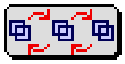


Figure 93: Patch Chain Button

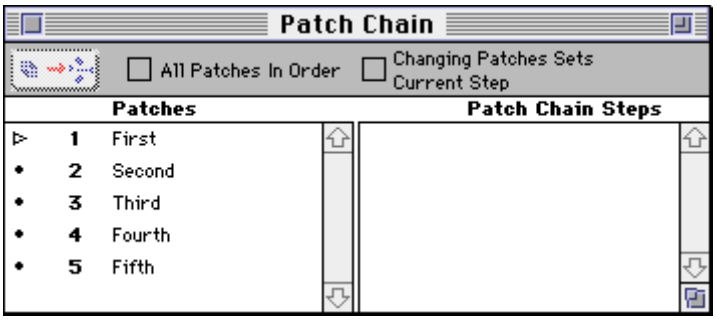


Figure 94: Empty Patch Chain Edit Window

PATCH CHAIN EDIT WINDOW TERMINOLOGY

Figure 95 shows the terminology for the Patch Chain Edit Window.

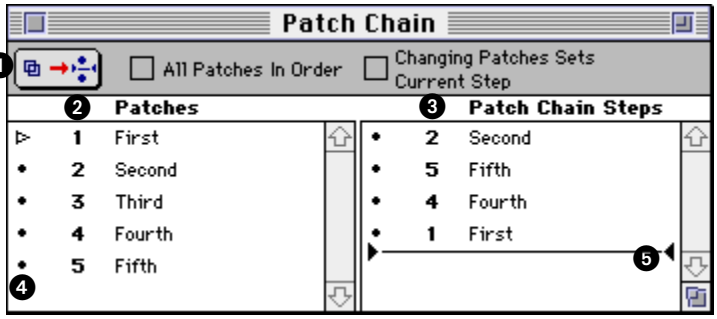


Figure 95: Anatomy of a Patch Chain Edit Window

❶ Insert Patch Chain Steps Button
❷ Patch Document List
❸ Patch Chain List (each item in the list is called a Step)
❹ Selector Dot
❺ Insertion Point

The Patch Chain Edit Window is divided into two scrolling lists. The list on the left is a copy of the current Patch document. It lists all the current patches and shows the first line of each patch description. The list on the right is the Patch Chain.

CREATING A PATCH CHAIN

You create a Patch Chain by defining an insertion point in the Patch Chain List and selecting patches from the Patch Document List.

The Patch Chain List is blank when you first open an empty Patch Chain Edit Window.

① Click the selector dot of a patch in the Patch Document List.

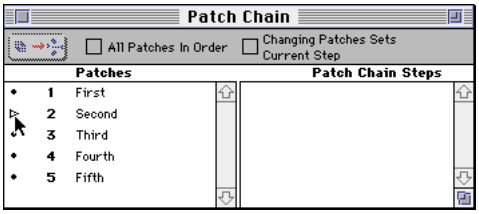


Figure 96: Select Patch from Patch Document List

② Click the **Insert Patch Chain Steps** button to insert the patch in the Patch Chain List.

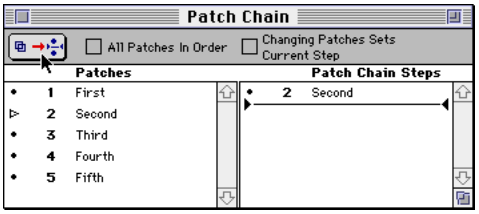


Figure 97: Click Patch Chain Steps Button

Notice that the insertion point moves to follow the step just inserted.

☆ *SHORTCUT: Double-click a selector dot in the Patch Document List to insert that patch into the Patch Chain List automatically. When you double-click a patch selector dot, you do not have to click the* ***Insert Patch Chain Steps*** *button to insert the patch.*

SELECTING MULTIPLE PATCHES

You can insert multiple patches into the Patch Chain List by selecting more than one patch at a time from the Patch Document List.

① Shift-click two or more patches in the Patch Document List.

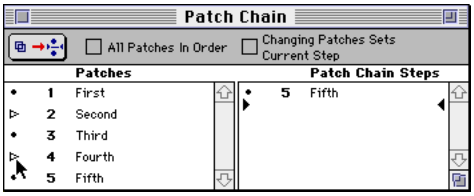


Figure 98: Shift-Clicking Multiple Patches

② Click the **Insert Patch Chain Steps** button to insert the selected patches at the insertion point in the Patch Chain List.

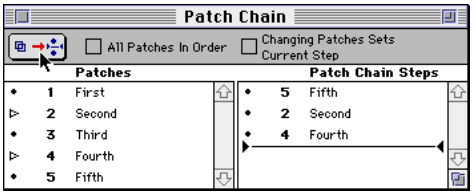


Figure 99: Inserting Multiple Patches

USING THE "ALL PATCHES IN ORDER" CHECK BOX

The **All Patches In Order** check box, when checked, *replaces* the current Patch Chain with a chain containing all patches in the Patch document. Patches appear in numerical order (not necessarily in the order they appear in the Patch Document List). If you add, remove, or renumber patches in a Patch document when **All Patches In Order** is checked, the Patch Chain will change to always reflect your Patch document.

You may not make changes directly to the Patch Chain List when **All Patches In Order** is checked. If you want to make changes to a Patch Chain List, first uncheck **All Patches In Order**.

Assume, for example, that you had the Patch Chain shown in Figure 100.

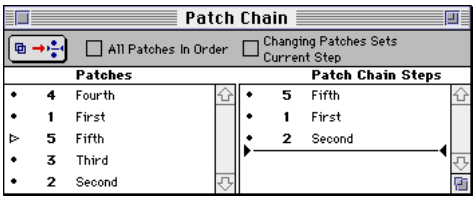


Figure 100: Patch Chain before Checking All Patches In Order

Click the **All Patches In Order** check box to check it. Your Patch Chain now lists, in numerical order, all the patches in your current Patch document (see Figure 101).

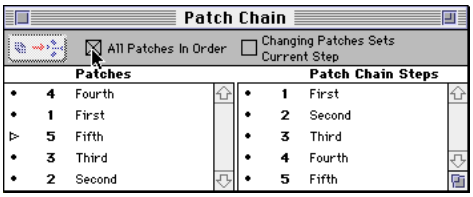


Figure 101: Patch Chain after Checking All Patches In Order

EDITING A PATCH CHAIN

You may cut, copy, paste and clear Patch Chain Steps. Cut and copied Patch Chain Steps appear in the Clipboard window. The following example shows how to copy and paste a Patch Chain Step.

① Click the selector dot next to the Patch Chain Step you wish to copy.

② Choose **Edit>Copy**.

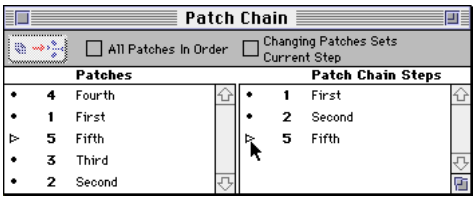


Figure 102: Select and Copy a Patch Chain Step

③ Click between Patch Chain Steps to select a new insertion point.

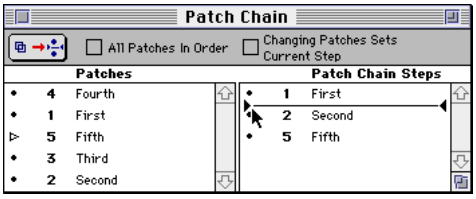


Figure 103: Defining an Insertion Point

④ Choose **Edit>Paste** to paste the copied Patch Chain Step at the insertion point.

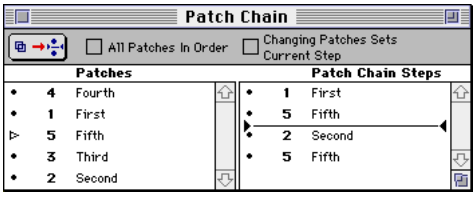


Figure 104: Pasting a Patch Chain Step

If you paste a Patch Chain Step without selecting an insertion point, it will be inserted at the end of the Patch Chain List. For example:

① Copy a Patch Chain Step to the Clipboard as shown in Figure 105.

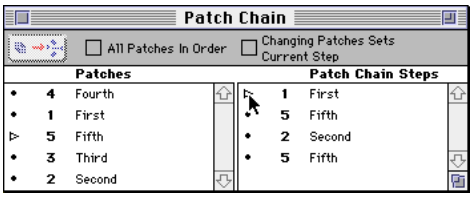


Figure 105: Copying a Patch Chain Step

② Paste the Patch Chain Step without choosing an insertion point. Look at Figure 106 to see that the Patch Chain Step was pasted to the end of the Patch Chain List.

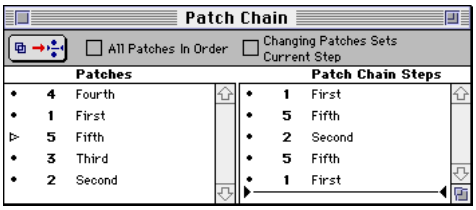


Figure 106: Pasting to the End of the Patch Chain List

☆ *NOTE: If the **Insert Patch Chain Steps** button is dimmed, it means you have not defined an insertion point. If you paste a Patch Chain Step without selecting an insertion point, it will appear at the end of the Patch Chain List.*

CHANGING THE PATCH DOCUMENT

If the Patch Chain references a patch that you later remove from the Patch Document Window, the Patch Chain continues to reference the patch by its number.

Follow this example to see how deleting a patch affects the Patch Chain:

① Look at the Patch Chain Window shown in Figure 107. Notice the position of Patch #8 in both the Patch Document List and the Patch Chain List.

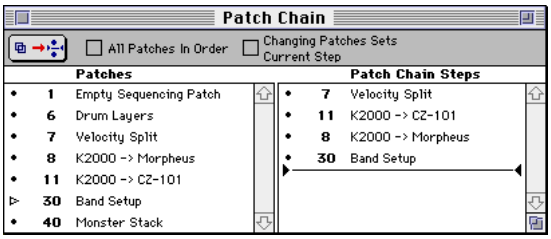


Figure 107: Typical Patch Chain Window

② Open the current Patch Document Window and select Patch #8.

Figure 108: Selecting a Patch in the Patch Document Window

③ Choose **Edit>Clear** to remove Patch #8.

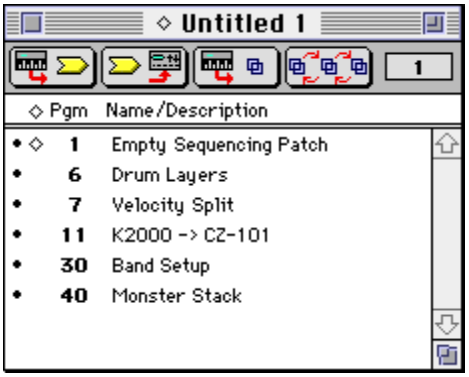


Figure 109: Clearing a Patch in the Patch Document Window

Look at the Patch Chain Window. Notice that Patch #8 has disappeared from the Patch Document List. Notice that the Patch Chain List still references the missing patch, but indicates that the patch has been removed.

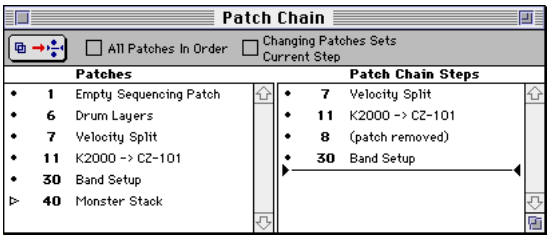


Figure 110: Patch Chain after Deleting a Patch

USING A PATCH CHAIN

To use the Patch Chain, you must define a connection using a Patch Chain Controls module in the Program Change Sources Window. See Chapter 4: Program Change Sources for details.

☆ *NETWORKING NOTE: If using multiple interfaces, Opcode recommends you connect all MIDI devices defined as Patch Chain control sources to the same interface. The reason is that each microprocessor (whether it's in the Macintosh or an interface) has its own concept of the current location in the Patch Chain. If you use different devices connected to different interfaces to advance a Patch Chain, you may get unexpected results.*

USING THE "CHANGING PATCHES SETS CURRENT STEP" CHECK BOX

There may be times that you want to interrupt a pre-determined Patch Chain to use a different patch. The check box for "Changing Patches Sets Current Step" determines how changing a patch affects your position in the Patch Chain.

If the check box for "Changing Patches Sets Current Step" is unchecked, then the current Patch Chain step will be unaffected by changing patches. Any manual patch changes will not affect the current Patch Chain step. This could be useful if, in a live performance, you want to deviate from your pre-determined sequence and then return to the Patch Chain exactly at the point you left.

If "Changing Patches Sets Current Step" is checked, then the current Patch Chain step will jump to the next step that matches the new patch. If the newly selected patch isn't contained in the Patch Chain, then the Patch Chain step does not change. This could be useful if, in a live performance, you want to jump around within your Patch Chain to change the order of your performance.

The following table illustrates how various changes affect the current Patch Chain step with and without the "Changing Patches Sets Current Step" option checked.

Assume your Patch document contains the following patches: 1 2 3 4 5 6 7 8 and that your Patch Chain is as follows: 2 5 6 4 8 6. THEN...			
If you current Patch Chain step is:	And you change the patch to:	Then, when you advance the Patch Chain with "Changing Patches Sets Current Step" *checked*, your chain advances to step:	When you advance the Patch Chain with "Changing Patches Sets Current Step" *unchecked*, your chain advances to step:
2 5 6 4 8 6	8	2 5 6 4 8 6	2 5 6 4 8 6
2 5 6 4 8 6	6	2 5 6 4 8 6	2 5 6 4 8 6
2 5 6 4 8 6	6	2 5 6 4 8 6	2 5 6 4 8 6
2 5 6 4 8 6	3	2 5 6 4 8 6	2 5 6 4 8 6

CH 6: PATCH SEQUENCES

Each Studio Patch can contain a pair of sequences—the Start Sequence and the End Sequence. A patch's Start Sequence is a short list of MIDI events sent to various devices when the patch is recalled. The patch's End Sequence is a short list of events sent when a different patch is called up.

Start Sequences are very useful for sending program changes, system exclusive patch data, initial controller values, or note off commands to a device when a patch is selected. End Sequences are often used, when leaving a patch, to undo the effects of the start sequence.

☆ *NOTE: Sequence events are sent one immediately after another. They do not contain timing information.*

CREATING/EDITING PATCH SEQUENCES

① Select a patch by clicking its selector dot.

② Choose **Windows>Edit Patch Start Sequence** or **Windows>Edit Patch End Sequence**.

The Sequence Edit Window opens.

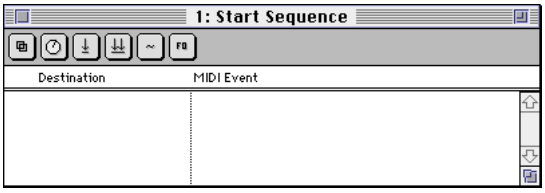


Figure 111: Start Sequence Edit Window

The seven buttons across the top of the Sequence Edit Window represent different MIDI events. These are, from left to right: Program Change, Control, Mono Aftertouch, Poly Aftertouch, Pitch Bend, System Exclusive, and All Notes Off.

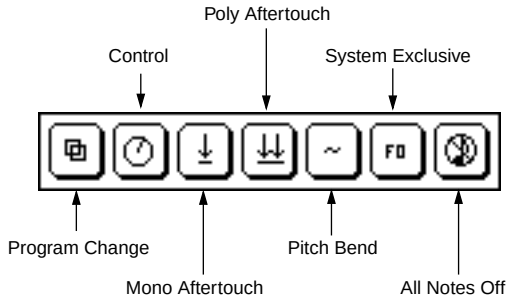


Figure 112: Sequence Event Buttons

Click each button and an undefined corresponding event appears in the space below the Module Palette.

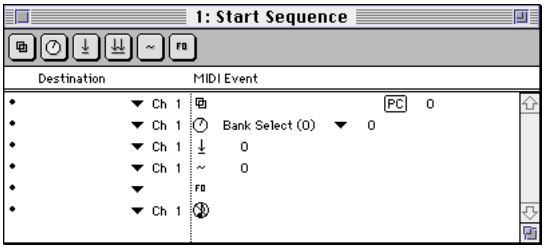


Figure 113: Undefined Start Sequence Events

Clicking a sequence event's selector dot selects that event. Shift-clicking sequence events selects more than one event for cutting, copying, or clearing. Sequence events can be rearranged by option-clicking their selector dots and dragging them to new locations.

EDITING EVENTS

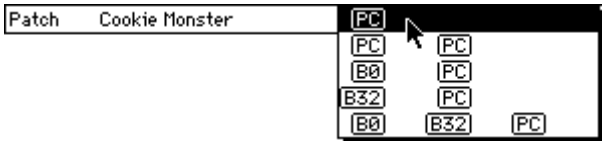
You define and edit most MIDI events by choosing MIDI destinations and MIDI control numbers from pop-up menus. Select MIDI channels and event values by their corresponding numericals.

PROGRAM CHANGE EVENTS

Program change events show up as numbers, names, or both. You can change the patch by clicking on it and choosing a new one from the Patch pop-up. For instructions on getting names to show up, see Chapter 7: The Names Window.

Figure 114: Patch Change Event

If the device isn't subscribed to a Patch Name document via the Name Manager, you will be able to click on the rightmost part of the patch line to display the following pop-up menu:



Using this menu you can access the five different types of patch change messages. The different types allow you to change patches on synths that access more than 128 patches via bank select messages, or multiple program change messages. In all cases, there will be numericals next to the boxed icons that you can set to the appropriate values. If you are using the Name Manager to provide patch names, you won't need to set the numericals manually; they are filled in automatically whenever you select a patch.

Here are the five types of patch change messages:

- **PC**: Sends a program change message only.
- **PC PC**: Sends two program changes in rapid succession. Some synths use the first message to set the hundreds digits and the second message to set the tens and ones digit. For example, PC 105 PC 38 would set the channel to program 538.
- **B0 PC**: Sends a bank select (controller) 0 message followed by a program change.
- **B32 PC**: Sends a bank select (controller) 32 message followed by a program change.
- **B0 B32 PC**: Sends a bank select 0 message, a bank select 32 message, and a program change.

Check your synthesizer's documentation to find out what sort of patch change message(s) it requires.

THE SYSTEM EXCLUSIVE EVENT

To edit a system exclusive event:

① Click the area to the right of the “F0” icon to open an Edit Event Window.

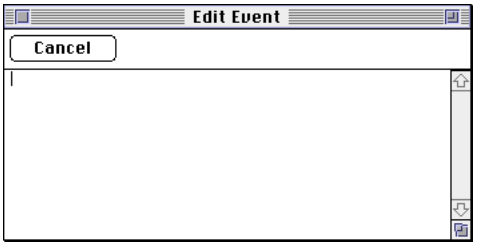


Figure 115: Empty Edit Event Window

② Type in the desired hexadecimal data.

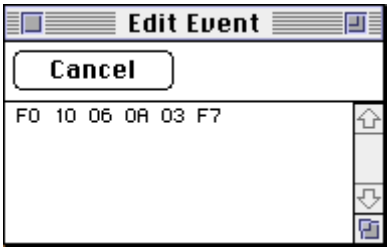


Figure 116: Entering Data Into Edit Event Dialog

③ Click the close box to return to the Sequence Edit Window. The data is displayed in the MIDI Event column.

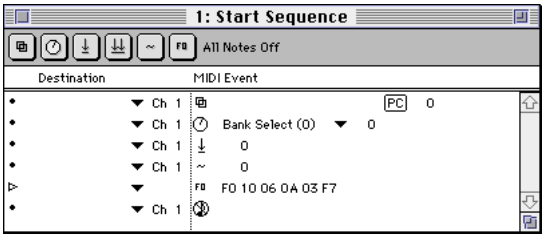


Figure 117: Sequence Edit Window w/SysEx Event Defined

You may enter any MIDI event into the system exclusive edit dialog. System exclusive data must be four bytes or more and end with F7. Non-system exclusive data must start with a value between 80 and FF (except F5 which is reserved) and it must be three bytes or less.

You can paste system exclusive data from the Mac Clipboard. If you have a large string of system exclusive data (like a patch dump), it can be copied to the Clipboard from within Vision (or Studio Vision) and then pasted into the Edit Event Window.

☆ *NOTE: System Exclusive messages in a Start or End Sequence should always be sent directly to the intended device. Sending SysEx to a Virtual Instrument containing a splitter module and different devices thickens the MIDI data stream unnecessarily. Sending SysEx to a Virtual Instrument consisting of a splitter module routed to different channels of the same device may corrupt the data.*

VIEWING SEQUENCE EVENT TYPES

You can move the cursor over a sequence event in a Sequence Edit Window and see the event type's name displayed. This makes it easier to edit long Start or End Sequences.

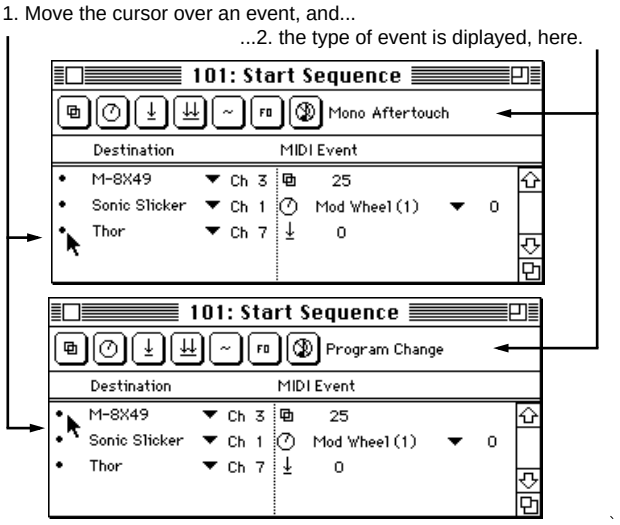


Figure 118: Viewing a Sequence's Event Type

You will also see the event name displayed when you move the cursor over any of the sequence event buttons.

SENDING ALL NOTES OFF EVENTS

OMS does not automatically send note off commands when you change patches. If you hold notes and change patches, any devices not used in the new patch will not receive note off commands. This is useful in live performance for changing patches while sustaining chords or synth pads. If you wish any held notes to turn off when you change patches, you should send an All Notes Off event in a Patch End Sequence.

There are two ways to send an All Notes Off event to your devices: use the MIDI All Notes Off command or use the All Notes Off button. If your device responds to the MIDI All Notes Off command, insert a Control Patch Sequence event, and select Control 123. If your device does *not* respond to the MIDI All Notes Off command, you should use the All Notes Off button—this sends actual note off commands to all 128 MIDI notes on the specified channel (and, consequently, takes a couple more seconds).

PATCH SEQUENCE EXAMPLE

Let's assume, for example, that you're performing in a live situation and need to define Patch #2 as a MIDI "stack" that combines a modulated vibe sound from the ProMaker/1 with a soft organ sound from the Vectorific.

DEFINING THE START SEQUENCE

① Define the patch using the techniques discussed in previous chapters.

You must now define a Start Sequence that sets the ProMaker/1 and Vectorific to the proper sounds, volumes and modulations.

② Choose **Patch>Edit Patch Start Sequence** to open a Start Sequence Edit Window.

Assume that the ProMaker/1 has Patch #12 defined as a Vibe sound.

③ Click the **Program Change** sequence event button to place an undefined Program Change sequence event in the edit area.

④ Choose the ProMaker/1 from the Destination pop-up menu.

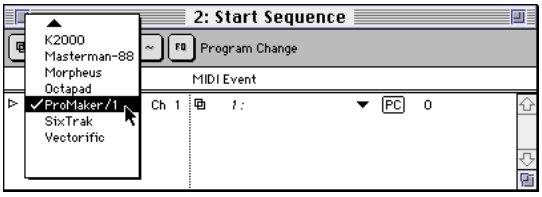


Figure 119: Selecting a Destination Device

⑤ Select Patch #12 as the Program Change number from the MIDI Event pop-up menu.

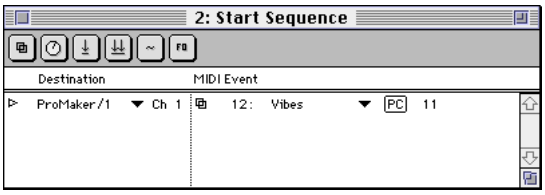


Figure 120: Selecting a Program Change Number

⑥ Click the **Control** sequence event button, choose the ProMaker/1 as the destination, the Mod Wheel as the MIDI Event and 127 as its value. This sets the vibe sound's modulation to full value.

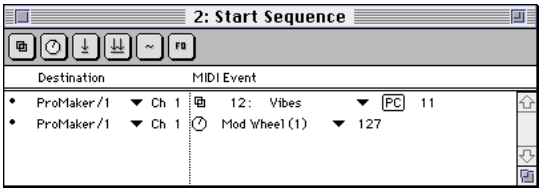


Figure 121: Setting a Control Event

⑦ Choose the desired organ patch for the Vectorific and set each synthesizer's volume level using MIDI Volume Control.

The final start sequence would look as shown in Figure 122.

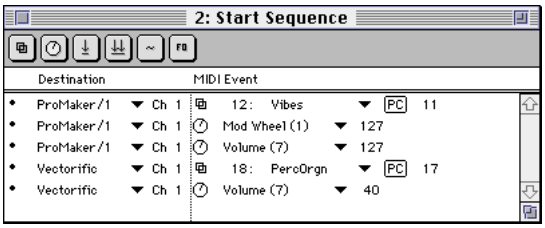


Figure 122: Fully Defined Start Sequence

Now, whenever you recall Patch #2, your Masterman-88 keyboard will control a stack that combines the ProMaker/1 (Channel 1, Patch #12 with full modulation and volume) with the Vectorific (Channel 1, Patch #63 and a MIDI volume level of 40).

DEFINING THE END SEQUENCE

You'll need to create an End Sequence to undo the effects of the Start Sequence. The End Sequence will play whenever you recall a patch other than Patch #2.

To create an End Sequence:

① Choose **Patch>Edit Patch End Sequence** to open an End Sequence Edit Window.

② Define Program Change and Control events to undo the effects of the patch's Start Sequence.

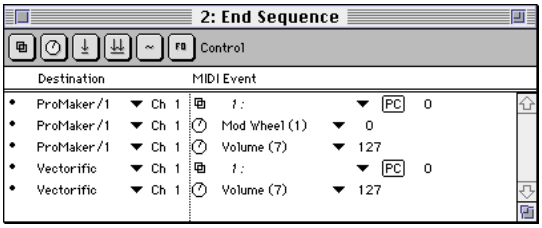


Figure 123: Fully Defined End Sequence

The End Sequence shown in Figure 123 will reset the ProMaker/1 and Vectorific to Patch #0, their volumes to 127, and the ProMaker/1's Mod Wheel value to zero whenever you select a different Studio Patch.

CH 7: THE NAMES WINDOW

Choosing **Windows>Device Patch Names** opens the OMS Name Manager.

The Name Manager integrates patch documents from a variety of sources:

- Galaxy Bundles
- Studio Patch documents
- Typed-in Patch Name documents
- Documents from other OMS-2 compatible librarians

Once you set up the Name Manager, the Studio Patches Editor's pop-up menus display the names of your synthesizer patches, not just their numbers. The Name Manager also takes care of the house-keeping involved when you open a file that uses a different set of patch names.

TERMINOLOGY

Every MIDI device manufacturer seems to use different terminology to describe similar features in their devices. For example, different synthesizer manufacturers use the terms "patch," "voice," "part," "program," or "sound" to mean the same thing—a collection of programmable parameters that work together to create a unique sound.

Because Opcode has no way of knowing which MIDI devices you own, we must describe certain Name Manager functions generically. The following mini-glossary lists the terms we'll use in describing the Name Manager.

PATCH A collection of parameters in a device that define the sound played when recalled. For example, one patch might create a trumpet sound and another might create a guitar sound.

BANK A collection of patches stored in a MIDI device. Most modern MIDI devices have storage for hundreds (or even thousands) of different patches. However, the MIDI specification only provides patch change messages for 128 patches. In order to access more than 128 patches, a device must store them in *banks*, which are accessed via *bank select* messages. The actual bank select messages vary from device to device.

MODE The state of a device that determines how MIDI program changes are interpreted.

Imagine a synthesizer with three different modes:

- **Patch Mode**: Individual sounds, such as "Electric Piano," "Acoustic Guitar," or "Flute."
- **Effect Mode**: Effects programs such as "Hall Reverb," "Slap Delay," or "Flange."
- **Performance Mode**: A combination of several individual sounds with an effects patch, such as an "Electric Piano" patch layered with a "Flute" patch and assigned to a "Hall Reverb" effect.

Usually devices access the different modes by interpreting patch change messages differently for different channels. For instance, General MIDI devices have "patch" channels and "drum" channels. Sending program change #1 to a channel in "patch mode" calls up a piano, whereas sending program change #1 to a channel in "drum mode" calls up a standard drum kit.

By using different device modes, OMS applications can display and select any patch type contained in your MIDI device.

Do not confuse modes with banks; a bank of patches for one mode might contain an entirely different number of patches than a bank for a different mode.

PATCH NAME DOCUMENT A document that stores and provides patch names and device modes for one or more devices. There are subtle differences in the way the Name Manager handles different types of document; these will be noted throughout the rest of this chapter.

CURRENT PATCH NAME DOCUMENT If a Patch Name document is *current*, OMS thinks that the patches in the document are loaded into the device. You can manually make a document current, or a librarian program like Galaxy might automatically do it for you when sending sounds to a device.

PATCH NAME PROVIDER

An application that can create a Patch Name document readable by the OMS Name Manager.

NAME SETUP

A mapping that associates each MIDI device in your current OMS Studio Setup document with a specified Patch Name document. There is only one Name Setup active at a time, and it "lives" inside OMS, not the application.

Since the Name Setup is handled by OMS, changes made to the Name Setup in one application affect the names seen in other OMS 2.0-compatible applications.

When you save a Studio Patches document, the current Name Setup is saved along with it.

NAME SETUP WINDOW

To open the Names Window, choose **Windows>Device Patch Names** in the Studio Patches Editor application.

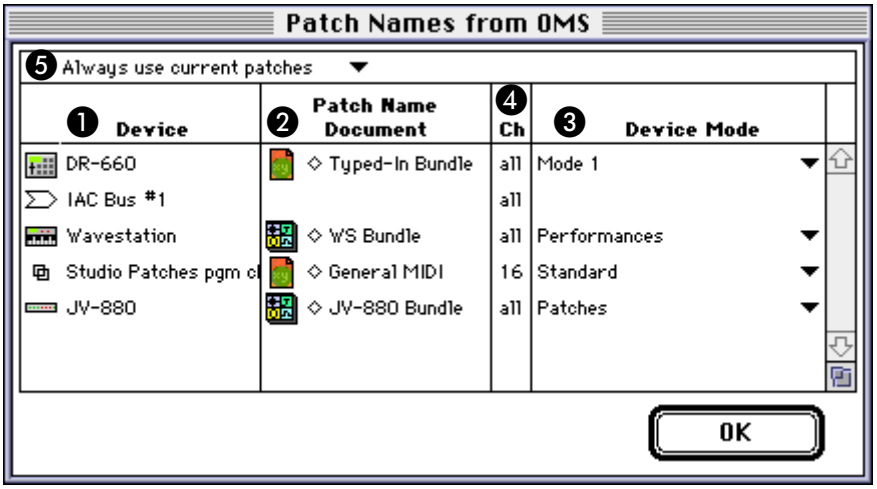


Figure 124: Anatomy of the Names Window

NAMES WINDOW ANATOMY

As you can see in Figure 124, the Names Window contains numerous elements:

❶ **Device column**: This column shows the name of each MIDI device contained in your current OMS Studio Setup document. You cannot edit the contents of this column. Its contents change whenever the current Studio Setup document changes.

Devices stored in a Name Setup but not defined in the current Studio Setup appear in *italics*.

❷ **Patch Name Document column**: This column shows the Patch Name document referred to by each of the devices. For more information, see Patch Name Document Column (pg. 77).

❸ **Device Mode column**: If a device supports multiple modes, then this column shows which mode it is using. You can change the mode directly in this column's pop-up menu.

❹ **MIDI Channel column**: Some MIDI devices let you select different modes on different MIDI channels. This column shows which MIDI channel uses the mode shown in the **Device Mode** column. For more information, see Channel and Device Mode Columns (pg. 80).

❺ **Name Setup control**: Use this pop-up menu to determine how changes made in other applications affect the Name Setup. For more information, see Name Setup Control (pg. 80).

The information contained in this window is saved with the Studio Patches document when using the **File>Save** or **File>Save As** commands.

The following sections discuss the Names Window in greater detail.

Patch Name Document Column

Use this column to select which Patch Name document is referenced by each MIDI device. This is called *subscribing* to a document. To subscribe to a Patch Name document:

① Click in the Patch Name Document column next to a MIDI device.

② Select **Names>Subscribe**.
A standard Open dialog box appears.

③ In the following dialog, navigate to and select the desired Patch Name document. Then click **OK**.
The column now shows the Patch Name document to which you subscribed.

☆ *NOTE: If you don't know where to find Patch Name documents, read the following section.*

WHERE TO FIND PATCH NAME DOCUMENTS

There are three sources for Patch Name documents:

- The Name Manager recognizes Bundles created by Galaxy and other OMS-2.0 compatible librarians as Patch Name documents.
- You can create your own “typed-in” Patch Name documents directly from the Name Manager.

  To do so, double-click in the Patch Name column to open the Patch Name Editor. Use the Patch Name Editor to create or edit a Patch Name document as described in Patch Name Editing (pg. 84).

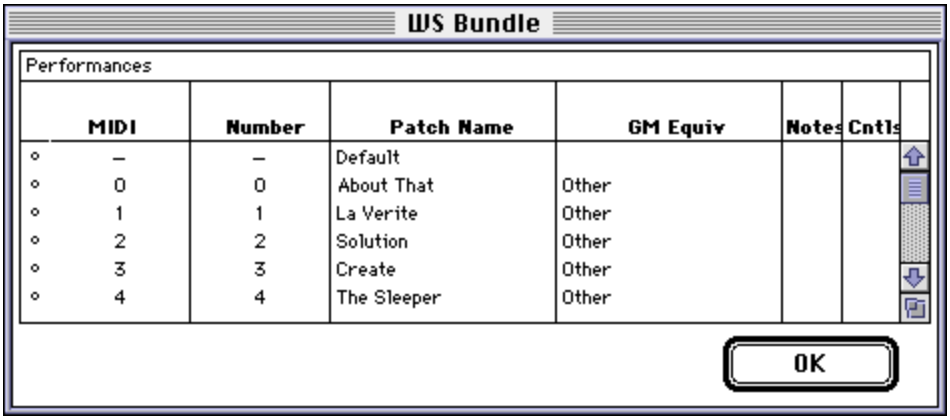


Figure 125: Blank Patch Name Editor Window

- Opcode supplies a collection of “factory” Patch Name documents for many popular synthesizers. If there is a factory Patch Name document for your device, choosing **Names>Use Factory/GM Names** enables it. See Use Factory / General MIDI Names (pg. 82).

CURRENT AND MISSING DOCUMENTS

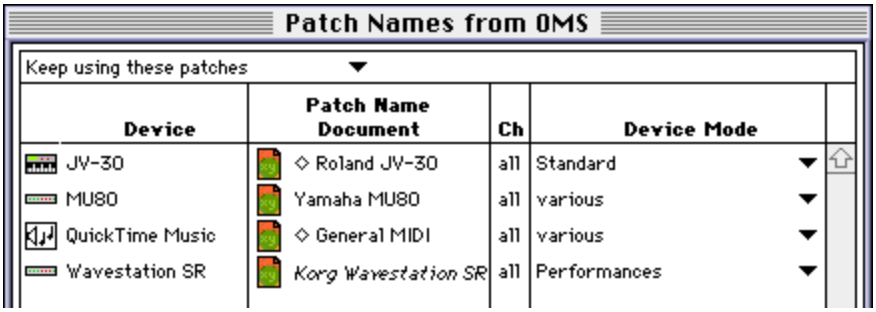


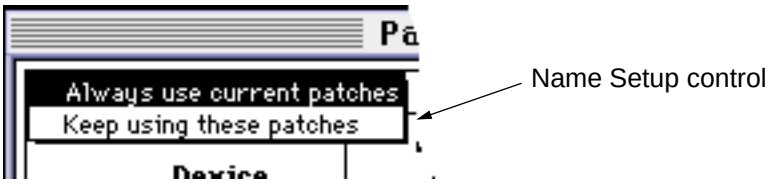
Figure 126: Name Setup showing current and missing documents

The Patch Name Document column displays additional information about subscribed documents by using italicized text and the small diamond icon:

- A small diamond appears before the name of each *current* Patch Name document. A current Patch Name document is the document that the Name Manager uses to supply names to all OMS 2.0-compatible applications. For more information, see Name Setup Control (pg. 80).

  In Figure 126, the MU80's Patch Name document is *not* current. This means that the patches actually resident in the MU80 don't match those currently subscribed.
- The Patch Name document is italicized if the Name Manager can't locate the document. In Figure 126, the document for the Wavestation SR is missing.

NAME SETUP CONTROL



Since the OMS Name Manager only references one Name Setup at a time, changes made to the Name Setup in other applications can affect the Studio Patches Editor. Use the Name Setup control to determine what happens when changes are made to the Name Setup:

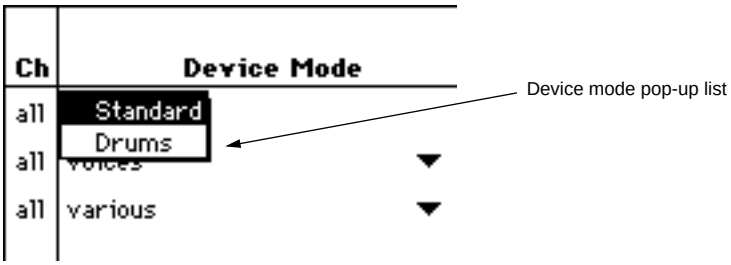
- **Always use current patches**: Making Patch Name documents current in another application changes the Name Setup in the Studio Patches Editor to match.
- **Keep using these patches**: "Locks in" the current Name Setup. Subscriptions can't be changed in the Studio Patches Editor by changing them in another OMS 2.0-compatible application.

  This setting is not remembered between sessions. Whenever you reopen the Studio Patches Editor, the control is reset to **Always use current patches**.

CHANNEL AND DEVICE MODE COLUMNS

The **Channel** and **Device Mode** functions are interrelated and are described here together.

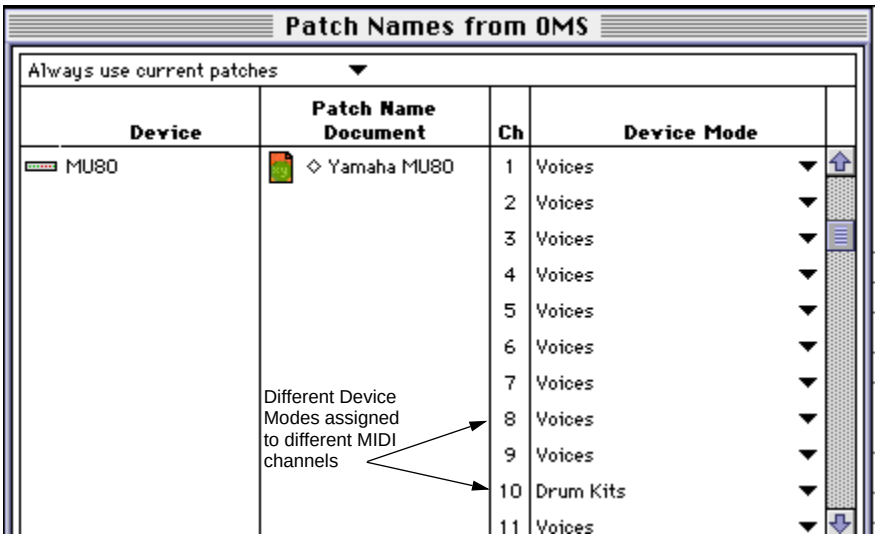
If a device supports multiple device modes, then the Device Mode column contains a pop-up menu listing all possible modes.



Since each MIDI channel can access a different device mode, the **Ch** (Channel) column displays which MIDI channels access which device modes. You can view *every* enabled MIDI channel or just a *summary* of all MIDI channels by clicking the desired device's selector icon, then choosing **Names>Show Channels**.

Show Channels is a toggle whose value is changed by choosing it repeatedly.

- When **Show Channels** is checked (on), the Names Window displays a separate row for every MIDI channel in that device (as assigned in the OMS Studio Setup document). You can then select a device mode for each MIDI channel.



- When **Show Channels** is not checked (off), the Names Window displays a single row for that MIDI device and the **Ch** column is labeled **all**. Changing the device mode affects all channels simultaneously.

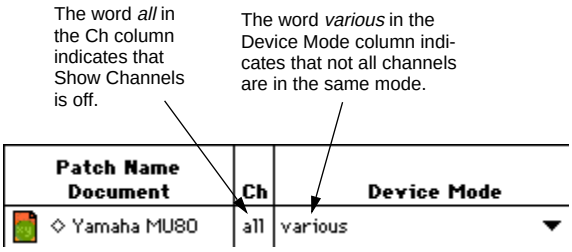
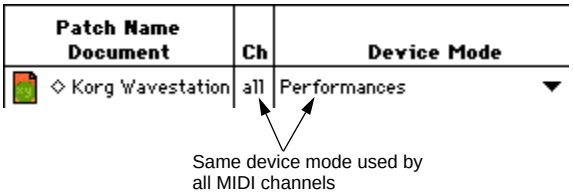


Figure 127: Channel mode indicators

EDITING DEVICE MODES WHEN SHOW CHANNELS IS OFF

If **Show Channels** is off and every MIDI channel is set to the same device mode, then that mode appears in the Device Mode column.



If **Show Channels** if off and different MIDI channels use different device modes, then the device mode column displays **various**, indicating more than one device mode is active for this device (see Figure 127).

EDITING PATCH NAME DOCUMENTS FOR MULTI-MODE DEVICES

If different MIDI channels reference different device modes, there is only one way to edit each mode's Patch Name document:

① Double-click a number in the **Ch** column.
A Patch Name Editor opens for that MIDI channel's mode. Patch Name Editing is discussed in Patch Name Editor Anatomy (pg. 85).

☆ *IMPORTANT: This is the only way to edit the patch names for a device with multiple modes.*

NAMES MENU

The **Names** Menu is available whenever a Names Window is active.

Figure 128: Name Window Menu

The following sections describe each command in the **Names** Menu.

SUBSCRIBE This command selects a Patch Name document to which all selected devices are subscribed.

USE FACTORY/ GENERAL MIDI NAMES If you're using a General MIDI synth, choose this command to subscribe to the General MIDI Patch Name document located in the Factory Names folder (in the OMS Folder inside the System Folder).

OMS also provides Factory Name documents for many popular instruments. If your device is supported, this command subscribes to these names.

If the device doesn't have an associated Factory Name file, the General MIDI patch names are used instead.

COPY SUBSCRIPTION This command copies the subscription for the selected device(s) to the Clipboard.

PASTE SUBSCRIPTION This command pastes subscriptions from the Clipboard onto the selected device(s). Any previous subscription is replaced and the new Patch Name document becomes current.

CLEAR SUBSCRIPTION Removes the subscription information from selected device(s).

MAKE CURRENT When choosing this command, the following alert appears:

Clicking **Don't Make Current** retains the previous subscription.

If the **Send the patches** option is available and checked, the Name Manager attempts to transmit the patches to the device when you click the **Make Current** button. The application that created the Patch Name document must be capable of this operation. For example, names obtained from a Galaxy Bundle can be sent (if Galaxy is available on your system), but typed-in name documents cannot and the **Send the patches** option won't appear in the alert.

USE CURRENT INSTEAD **Use Current Instead** replaces the selected device(s)' non-current subscriptions with subscriptions to the current Patch Name document(s).

NEW PATCH DOCUMENT Creates a blank, untitled Patch Name document for the selected device(s).

VIEW / EDIT PATCH NAMES

Selecting a device and choosing this command is equivalent to double-clicking a device's Patch Name document column.

TELL PATCH PROVIDER

This menu item contains a sub-menu listing the commands that can be sent to the Patch Name Provider.

If the Patch Name Provider understands the selected message, it performs that action. For example, if patch names come from a Galaxy Bundle and **Send Patches To Device** is the selected command, Galaxy sends the bundled patches to the selected device.

SHOW CHANNELS

Show Channels controls whether the Names Window displays one row per MIDI channel or a single row representing all MIDI channels. To assign different device modes to different MIDI channels, this option must be enabled (checked). For more information, see Channel and Device Mode Columns (pg. 80).

PATCH NAME EDITING

Use the Patch Name Editor to display or edit Patch Name documents.

OPENING THE PATCH NAME EDITOR

To open a Patch Name Editor:

① In the Names Window, double-click in the Patch Name Document column next to a device.

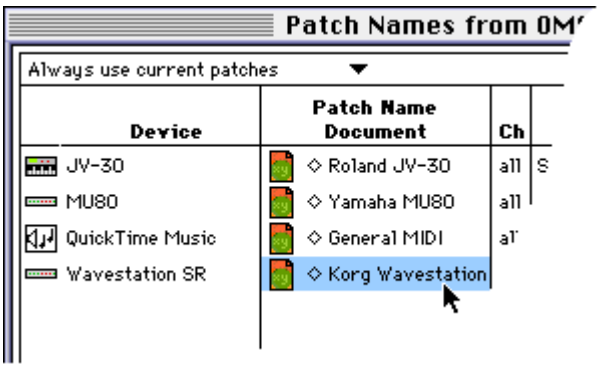


Figure 129: Double-click to open a Patch Name Editor

A Patch Name Editor opens for that Patch Name document. The Editor shows all the Patch Names for that device.

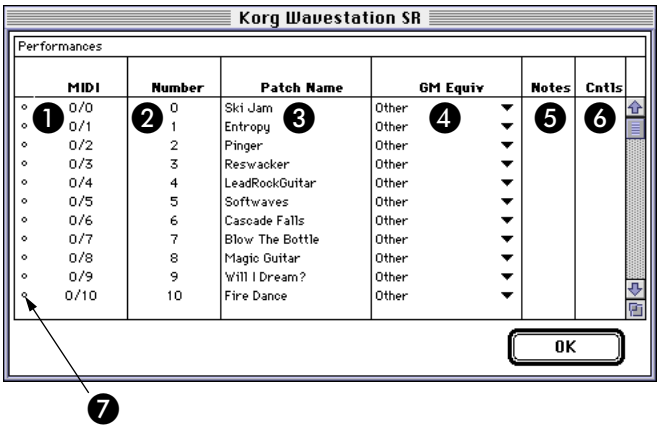


Figure 130: Typical Patch Name Editor

If you open a Patch Name Editor for an unsubscribed device, a blank Patch Name Editor opens, which you may use to create a Patch Name document. Documents created this way are called “Typed-In” Patch Name documents.

☆ *NOTE: If a Patch Name document contains multiple device modes, the Patch Name Editor displays names only for the selected channel’s current device mode. For more information, see Channel and Device Mode Columns (pg. 80).*

PATCH NAME EDITOR ANATOMY

Figure 130 shows the various elements in the Patch Name Editor. These are:

❶ **MIDI Program Number**: The **MIDI** column in the Patch Name Editor displays MIDI representations of patches in the form bank0 / bank32 / patch number (0-127). For example, if the current bank requires a bank32 message with value “1” to be sent to access the patches, each patch will have “1 / x” as its program number, where x is the number within the bank.

bank0 and bank32 are each omitted when not used, which is the case for the default first bank. Consult your synthesizer’s documentation to determine how bank0 and bank32 messages affect patch selection.

These numbers can’t be changed directly, and if the Patch Name document comes from an external librarian, they can’t be changed at all. If the document in question is a Typed-In Patch Name document, the numbers are affected by settings in the Bank Select / Numbering dialog box. See Bank Select / Numbering (pg. 92).

❷ **Device Program Number**: This column shows how the MIDI device's *internal* program numbering corresponds to the actual MIDI program number.

For example, some devices number their internal programs 1-128, which corresponds to MIDI programs 0-127. This results in the pattern shown in Figure 131 in the MIDI and Numbers column.

The device shown in this example, organizes its programs in banks of 50, which are numbered 0-49.

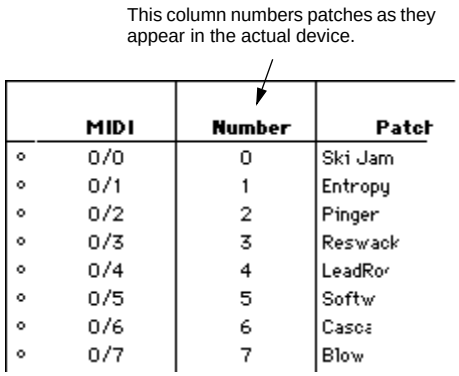


Figure 131: MIDI and device numbering

❸ **Patch Name**: This column shows the name of each patch. New patch names can be typed directly into this column if this Patch Name document was created in the Name Manager (i.e. Galaxy and other librarian documents can't be edited from here). These names appear wherever patch names are seen in any OMS 2.0-compatible application.

❹ **GM Equivalent**: If this patch corresponds to a General MIDI patch, choose the relevant GM patch from the pop-up menu in this column. The Name Manager applies all attributes and benefits of General MIDI groupings to that patch.

For example, assume you have a piano sound in your Patch Name document, and you assign "GrandPno1" as its GM Equivalent. Then, if you choose to display patch names by General MIDI Groups, this piano sound appears whenever you ask to see all the piano sounds in your MIDI device. For more information about selecting patches by General MIDI Group, see Using Patch Groupings (pg. 96).

❺ **Note Name Indicator**: The OMS Name Manager can store custom MIDI note names along with patch names. Custom note names have many uses. For example, names can be assigned to the notes in a drum kit patch, causing edit windows to display notes named “kick,” or “snare,” instead of “C3” or “D3.”

This column uses a small note icon to indicate that a patch has custom note names. The Note Name Editor can be opened by double-clicking in this column. For more information, see Note and Control Names (pg. 93).

❻ **Control Name Indicator**: The OMS Name Manager allows storage of custom MIDI control names along with the name of the patch. Custom control names have many uses. For example, a MIDI effects device might use MIDI control numbers to edit its internal parameters. By entering custom control names, edit windows display controls named “Reverb Time,” or “Pre-Delay,” instead of “Control 48,” or “Control 37,” making it easier to edit these devices within OMS 2.0-compatible applications.

This column indicates that a patch has custom control names if it contains a small knob icon. The Control Name Editor can be opened by double-clicking in this column. For more information, see Note and Control Names (pg. 93).

❼ **Program Selector Dot**: If you are pasting names into a typed-in name document, you can select the range where the names will be pasted by shift-clicking or dragging over the Program Selector Dots. If no dots are selected, names are pasted starting at the top and working down until the names on the Clipboard are exhausted. See Paste Name List (pg. 89) for more information.

PATCHES MENU

The **Patches** Menu is available whenever a Patch Editor is active.

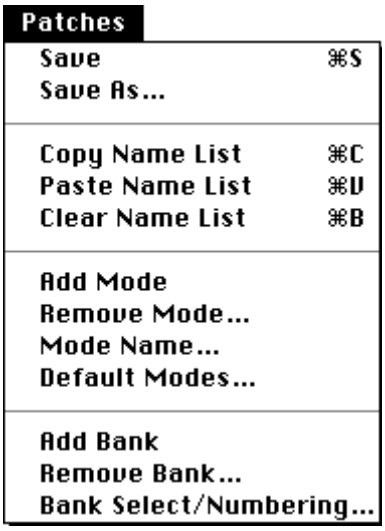


Figure 132: Patches Menu

☆ *NOTE: Most of these menu items apply only to typed-in Patch Name documents; they're disabled for Patch Name documents that come from other applications, such as Galaxy.*

SAVE

Choose this command to save any changes you've made to the current Patch Name document. If you've previously saved a document, then the **Save** command replaces the old document with the new version. If you haven't yet saved the active document, choosing **Save** opens the Save As dialog box, in which you name the document and select a location in which to store it.

This command behaves differently depending on where the document comes from:

- Typed-In Patch Name documents are saved normally.
- Documents from Galaxy or other OMS-compatible Patch Name providers are converted to Typed-In Patch Name documents. For this reason, the **Save** command is not available when you are in a librarian's document. In this situation, only the **Save As** command is available.

SAVE AS

Use this command to save a copy of the active document using a different name. Choosing **Save As** opens the Save As dialog box, in which you name the document and select a location in which to store it.

SAVING NOTE / CONTROL NAMES

If Note or Control Names have been added to a document created by another application, the **Save Note/Control Names** command becomes available. This command adds the note and control name information to the saved Patch Name document.

COPY NAME LIST

Choose **Copy Name List** to copy the list of Patch Names from a Patch Name document onto the Clipboard.

Names are copied to the Clipboard as text, and can be pasted into other applications. For example, you can paste names into a word processor or database to format, search, or print name lists. Each line is copied as:

Patch Number <tab> Patch Name

PASTE NAME LIST

Choose **Paste Name List** to copy text from the Clipboard into the Patch Name Editor. If the lines of text contain tabs, they are interpreted as:

Patch Number <tab> Patch Name

Otherwise, each line of text becomes a patch name. If you have access to a scanner and OCR (optical character recognition) software, you can scan patch name lists for your synthesizers, convert them to word processing files, then paste them into the Patch Name Editor.

If any patches in the Patch Name Editor are selected (that is, their selector dots are black), then pasting names overwrites only the selected patches. For example, if you have ten patch names on the Clipboard, but select only three patches, only the first three names on the Clipboard are used (see Figure 133).

	MIDI	Number	Patch Name
○	0/0	0	Ski Jam
●	0/1	1	Entropy
●	0/2	2	Pinger
●	0/3	3	Reswacker
○	0/4	4	LeadRockGuitar
○	0/5	5	Softwaves
○	0/6	6	Cascade Falls
○	0/7	7	Blow The Bottle
○	0/8	8	Magic Guitar
○	0/9	9	Will I Dream?
○	0/10	10	Fire Dance

Figure 133: Only patches 1-3 will be pasted, regardless of the Clipboard's contents

CLEAR NAME LIST

This command erases the currently selected name list, should you wish to start with a "clean slate."

ADD MODE

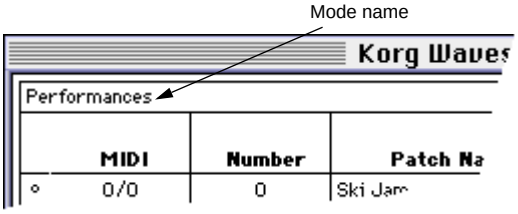
Choose **Add Mode** to create an entirely new device mode for the document, and open a new window to display it.

REMOVE MODE

Choose **Remove Mode** to delete the device mode displayed in the active window.

MODE NAME

Choose **Mode Name** to name (or rename) the device mode displayed in the active window. The mode name appears on the top line of the window.



DEFAULT MODES

Choose **Default Modes** to open a window in which you select a default mode for each channel. Whenever this Patch Name document is subscribed, the channels are set to the modes designated in this window.

For example: General MIDI devices have two modes: **standard** and **drums**. Channel 10 is always in drums mode, and all other channels are in standard mode. Figure 134 shows the default mode screen set up for a General MIDI device.

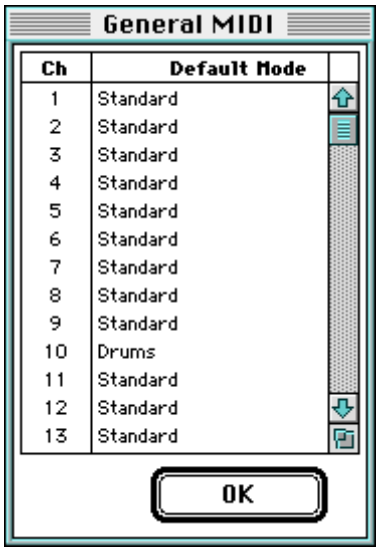


Figure 134: Default Mode Window

ADD BANK

Choose **Add Bank** to create a new bank of 128 patches following the bank containing the currently selected patch, or at the end of the document if there is no selected patch. When you choose this command, the Bank Select / Numbering dialog box opens as discussed in Bank Select / Numbering (pg. 92).

REMOVE BANK

Choose **Remove Bank** to delete the bank in which the selected patch resides.

☆ *NOTE: If the device has less than 128 patches in a bank, leave the unused patches blank—blank patches won't be displayed in patch selection menus and dialog boxes.*

BANK SELECT/NUMBERING

Adding a bank or choosing the **Bank Select/Numbering** command opens the Bank Select / Numbering dialog box:

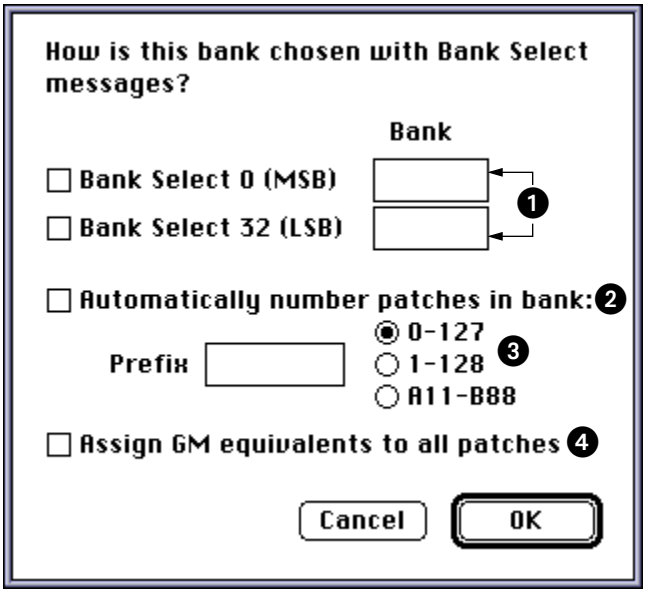


Figure 135: Bank Select/Numbering dialog box

Figure 135 displays the various elements in the Bank Select / Numbering dialog box. Specifically:

❶ A Bank Select message may be specified by checking one or both of the Bank Select checkboxes, and by entering a bank select value in the box to the right. Consult your synthesizer's documentation to determine the appropriate values for these boxes.

☆ *IMPORTANT: Each bank must have a unique combination of bank select messages. A warning message appears if two banks have the same bank select combination.*

❷ If the **Automatically number patches in bank** option is checked, the patches are automatically numbered according to the selected numbering convention:

- **0-127**: Used for synthesizers with a "0 based" numbering convention.
- **1-128**: Used for synthesizers with a "1 based" numbering convention.
- **A11-B88**: Used for synthesizers with a "bank based" numbering convention (most Roland devices use this scheme).

❸ Patch prefixes can be entered in the **Prefix** box. For example, a synth may use banks with names such as “RAM1.” The patches could be numbered “RAM1-0” thru “RAM1-127” by entering “RAM1-” in the **Prefix** box and selecting **0-127**.

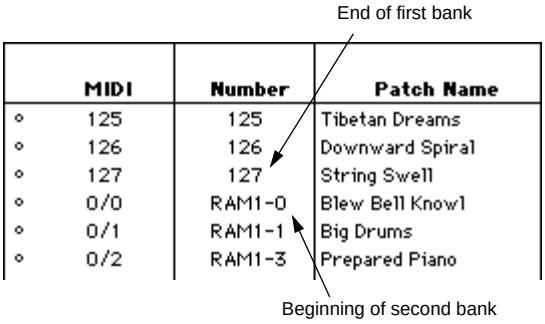


Figure 136: Using the Prefix feature

❹ If the **Assign GM equivalents to all patches** option is checked, each patch is assigned a General MIDI patch equivalent. This sets each patches’ number equal to the GM equivalent. This is useful to configure a bank to match the GM defaults without changing the names.

NOTE AND CONTROL NAMES

Double-click the **Cntls** column in the Patch Name Editor to open a Control Names Window. Similarly, double-click the **Notes** column to open a Note Names Window.

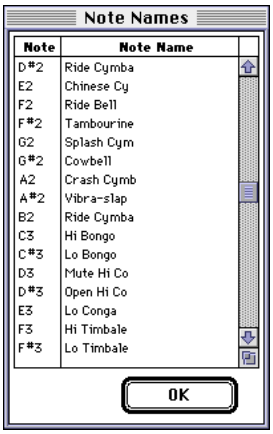


Figure 137: Note Names Window

Saving note names or control names adds them to the Patch Name document, regardless of whether it is typed-in or from another application.

Note names are useful for drum machines or samplers. For example, it's easier to edit MIDI data for a drum machine if notes appear named "Kick" or "Snare" rather than "C2" or "D2." Similarly, if you're using a sampler to trigger sound effects, notes named "Crash" or "Gunshot" are more useful than notes named "G3" or "D5."

Control names are useful if you perform real-time edits to synthesizer or effects patches. For example, it's easier to edit controllers named "RevTime" or "HPFiltr" than controllers named "Control 41" or "Control 73."

DEFAULT NOTE AND CONTROL NAMES

At the top of every Patch Name document is a line marked **Default**. You can add a set of default note and controller names to a Patch Name document by double clicking in the appropriate column and typing names into the Note Names Window or Control Names Window. These default Names are used for every patch that doesn't specifically override them.

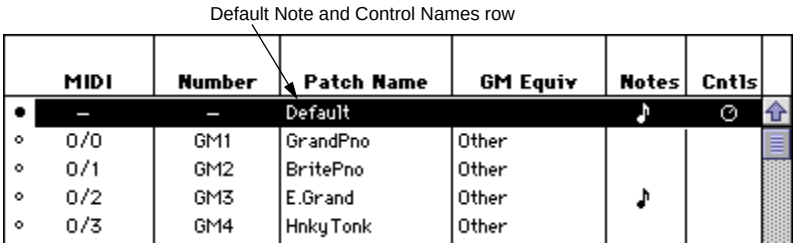


Figure 138: Default Note and Control Names

In Figure 138, there is a set of default Note Names. All the patches in this bank use these note names. However, the note icon in the row for patch number 2 indicates that it has its own set of Note Names that override the defaults.

SELECTING NAMES

Once the various name lists are set up properly, the Studio Patches Editor will display names in all appropriate places (such as in Program Change events in Patch Start Sequences).

There are two ways to choose names:

- A simple pop-up menu of choices, either sorted alphabetically or numerically. This appears when you click on a name field.

- The Name Browser. This is a more sophisticated window where you can view names numerically or alphabetically—or even group them by keyword or patch type. The Name Browser Window appears when you command- or option-click a name field.

  Figure 139 shows the pop-up menu that appears when you click on a patch name field.

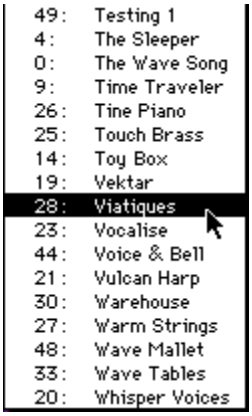


Figure 139: Pop-up Patch Name Menu

NAME BROWSER

If you option or shift-click on a name field, the Browser Window opens:

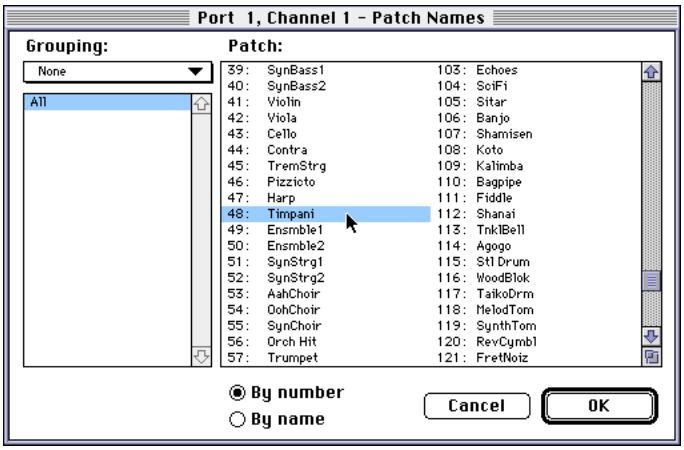


Figure 140: Patch Name Browser

The Name Manager sends the necessary command (program change / bank select) each time a patch is selected. The By number / By name radio buttons sort the list by number or name; this is global and applies to pop-up menus as well.

USING PATCH GROUPINGS

The Grouping pop-up menu allows you to choose a grouping assignment for the current patch document. For example, the General MIDI patch names contains the groupings **None**, **General MIDI Groups** and **General MIDI Patches**. If you select General MIDI Groups from the Grouping pop-up menu, you will be presented with this list of groupings in the Browser Window:

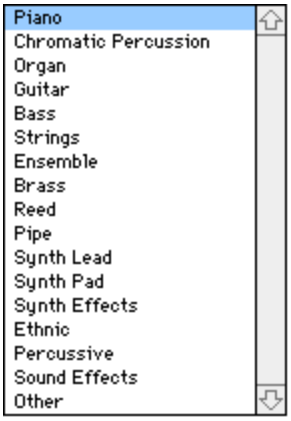


Figure 141: General MIDI Groups

Selecting an item from this list narrows the list of available patches to show only those patches that belong to the selected group. For example, patches in the Piano group include Grand Piano, Brite Piano, and so forth.

An additional advantage to using groupings is that patch selection menus display their contents hierarchically; that is, arranged by group (as shown in Figure 142).

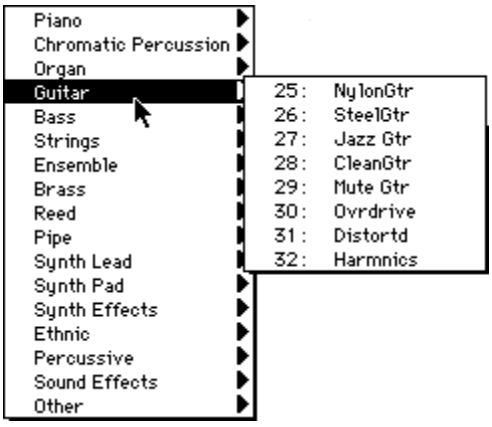


Figure 142: Hierarchical Patch Selection

You can create your own groupings with Galaxy, Opcode's patch librarian application. Also, Galaxy automatically provides groupings for certain synthesizers. You cannot create groupings with typed-in Patch Name documents.

BROWSER MENU

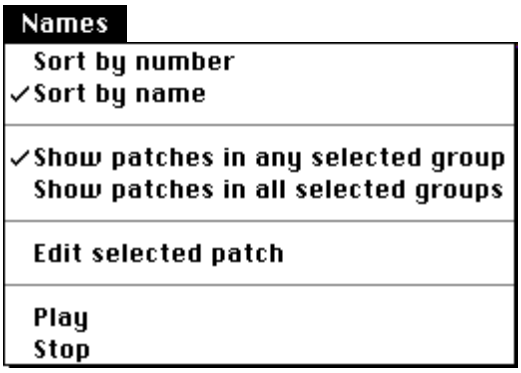


Figure 143: Browser Menu

When you use the Name Browser, the menu shown in Figure 143 becomes available.

SORT BY NUMBER/SORT BY NAME

These commands duplicate the function of the "By Name / By Number" buttons in the Browser Window.

SHOW PATCHES IN ANY/ALL SELECTED GROUP(S)

With "any selected group" selected, shift-clicking multiple groupings in the browser displays patches that belong to any of the selected groups (if you have programming experience, think of this as the "or" condition).

With "all selected groups" selected, shift-clicking multiple groupings in the browser only displays patches that belong to all of the groups (programmers can think of this as the "and" condition).

As an example, imagine you have a grouping for "bright" and a grouping for "piano." With "all selected groups" chosen, you would see only bright pianos listed, whereas with "any selected group," you would see all bright patches and all piano patches listed together.

EDIT SELECTED PATCH

Tells the patch provider to open an edit window for the selected patch, if the application supports the command.

OPENING FILES WITH DIFFERENT NAME SETUPS

The Studio Patches Editor saves Name Setups in its Patch document files. When you open a file that references a different name setup, you have to answer some questions to let the Name Manager know how you want to handle the different assignments. This section walks you through the possible outcomes.

First, you see the following dialog box:

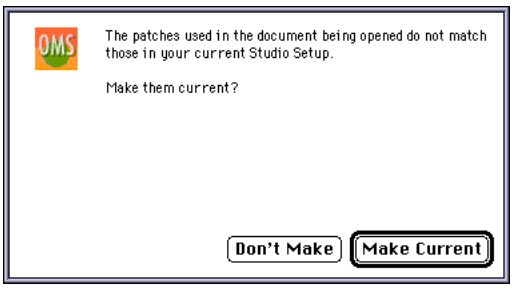


Figure 144: Different Name Setups - first dialog box

You have two choices at this point. The following sections describe these choices.

MAKE CURRENT

This choice overrides all current Name Setup information with the information in the file being opened.

Usually if you want to change subscriptions, you also want to send the new patches to your synthesizers, and the Name Manager assumes that this is what you want to do. You will see a dialog box similar to the following, letting you know that transmission is going to start:

Figure 145: "Getting Ready To Send" dialog box

Typed-in patch documents have an asterisk (*) next to their name, letting you know that they can't be sent automatically. You should load up your devices with these patches in whatever manner is appropriate.

Documents that can't be found are displayed in *italics.*

When you are ready, you can click...

- **Send**: to send the bundles to the devices.
- **Don't Send**: to proceed without sending any data.
- **Go Back**: to return to the previous dialog box.

DON'T MAKE

Clicking **Don't Make** leaves the current patches *current*. However, you still have a choice to make: do you want to change the document being opened to use the current Name Manager subscriptions, or do you want to leave the file alone?

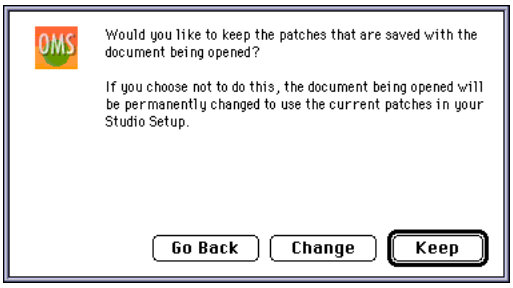


Figure 146: "Don't Make Current" dialog box

If you click...

- **Keep**: the document is unchanged.
- **Change**: the document is updated to use the current Name Manager subscriptions. If you save the file without changing its name, any record of the old subscriptions is lost.
- **Go Back**: returns to the previous dialog box.

CH 8: MENU REFERENCE

This chapter documents each menu item and its function.

FILE MENU

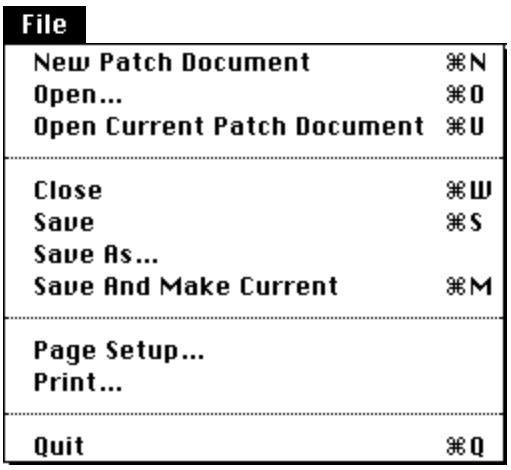


Figure 147: File Menu

NEW PATCH DOCUMENT Creates a blank, untitled Patch document.

OPEN Presents a directory dialog box in which you can locate a previously-saved Patch document to open. If the new document contains a name setup that differs from the current name setup, you are asked how you want to handle this situation. See Opening Files With Different Name Setups (pg. 98) for more information.

OPEN CURRENT PATCH DOCUMENT Automatically finds and opens the current Patch document.

CLOSE Closes the currently open Patch document.

SAVE/SAVE AS Writes the current Patch document to disk. If the document has never been saved, **Save** and **Save As** both present directory dialog boxes, allowing you to choose a folder and name for the new file. If the file has already been saved, **Save** overwrites it without prompting.

SAVE AND MAKE CURRENT Like **Save** (above), only it makes the document current at the same time. If the document doesn't need to be saved, this command appears just as **Make Current**.

PAGE SETUP Opens the Page Setup dialog box for the currently chosen printer.

PRINT Prints a list of the patches in the open Patch document, along with their numbers.

EDIT MENU

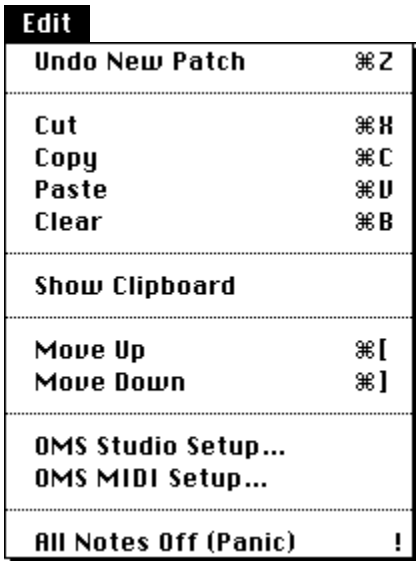


Figure 148: Edit Menu

UNDO Reverses the previous operation, if possible.

CUT Erases the current selection and puts it on the clipboard (presumably for pasting somewhere else).

COPY Copies the current selection to the clipboard.

PASTE Pastes the contents of the clipboard at the selection point, if the data is compatible (you can't, for instance, paste a copied patch into a patch's name field).

CLEAR Erases the current selection completely (you can still undo if you make a mistake).

SHOW CLIPBOARD Shows the current contents of the clipboard.

MOVE UP Moves the selected item up the screen. Useful for rearranging patch lists or the patches themselves, to group similar entries together, for example.

MOVE DOWN Moves the selected item down the screen.

OMS STUDIO SETUP Opens the OMS Setup application. See the OMS manual for a detailed description of this program.

OMS MIDI SETUP Opens the OMS MIDI Setup dialog box. See the OMS manual for a detailed description of this dialog box.

ALL NOTES OFF (PANIC) Sends an "All Notes Off" message to every channel of every device on every interface. Useful for getting rid of stuck or hung notes.

PATCH MENU

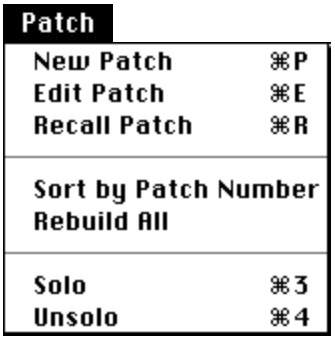


Figure 149: Patch Menu

NEW PATCH Choose **New Patch** to add a new empty patch to the Patch document. Each Patch document can hold up to 128 patches.

EDIT PATCH Choose **Edit Patch** to open a Patch Edit Window. This is the same as double-clicking a patch selector dot in the Patch Document Window.

RECALL PATCH Choosing **Recall Patch** is the same as clicking in a patch's diamond column. It makes the selected patch the current patch. After choosing **Recall Patch**, you will see a diamond next to the patch number to indicate that it is the current patch.

SORT BY PATCH NUMBER Choose the **Sort by Patch Number** command to view your Patch document in numerical order. When the command is enabled (checked), patches will *always* be displayed in numerical order. When the command is unchecked, patches can be in *any* order.

REBUILD ALL Choose this command to rebuild all your patches. You will need to use **Rebuild All** only if your patches, virtual controllers, virtual instruments or program change sources aren't working, and the device menus in the appropriate windows don't contain italicized choices. This situation is most likely to occur if you switch between two very similar Studio Setups (for example, one with a Studio 4 on the modem port, and another with the same devices, but with the Studio 4 on the printer port).

SOLO Mutes all destinations in a patch except for the currently selected one(s).

UNSOLO Unmutes all selected destinations in a patch.

WINDOWS MENU

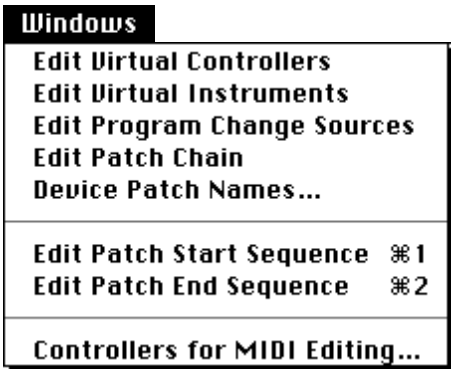


Figure 150: Windows Menu

EDIT VIRTUAL CONTROLLERS Choose **Edit Virtual Controllers** to open the active Patch document's Virtual Controllers Edit Window. Choosing this menu item is the same as clicking the **Virtual Controllers** button in the Patch Document Window. Virtual controller editing is discussed in Chapter 3: Virtual Controllers and Virtual Instruments.

EDIT VIRTUAL INSTRUMENTS Choose **Edit Virtual Instruments** to open the active Patch document's Virtual Instruments Edit Window. Choosing this menu item is the same as clicking the **Virtual Instruments** button in the Patch Document Window. Virtual Instrument editing is discussed in Chapter 3: Virtual Controllers and Virtual Instruments.

EDIT PROGRAM CHANGE SOURCES

Choose **Edit Program Change Sources** to open the active Patch document's Program Change Source Edit Window. Choosing this menu item is the same as clicking the **Program Change Sources** button in the Patch Document Window. Virtual Instrument editing is discussed in Chapter 4: Program Change Sources.

EDIT PATCH CHAIN

Choose **Edit Patch Chain** to open the active Patch document's Patch Chain Edit Window. Choosing this menu item is the same as clicking the Patch Chain button in the Patch Document Window. Patch Chains are discussed in Chapter 5: Patch Chains.

DEVICE PATCH NAMES

This command opens the OMS Name Manager. See Chapter 7: The Names Window for more information.

EDIT PATCH START SEQUENCE

Choose this item to open a Patch Start Sequence Edit Window for the selected patch. For information on editing and using Start Sequences, see Chapter 6: Patch Sequences.

EDIT PATCH END SEQUENCE

Choose this item to open a Patch End Sequence Edit Window for the selected patch. For information on editing and using End Sequences, see Chapter 6: Patch Sequences.

CONTROLLERS FOR MIDI EDITING

Choose **Controllers for MIDI Editing** to produce a dialog containing a list of all devices defined in your current Studio Setup document. In the dialog, select those devices you wish to use for MIDI entry of patch edit parameters.

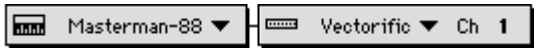
CH 9: PATCH IDEAS

This chapter contains some ideas on how to apply the various features of Studio Patches, and also some troubleshooting tips.

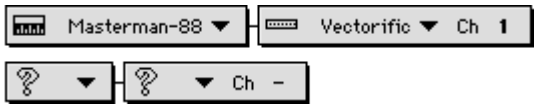
MIDI MERGING

An individual patch can contain more than one MIDI routing. As an example, let's say that you (operating your Masterman-88 keyboard controller) and your drummer (playing his new GeoSkin MIDI percussion pads) both want to control the same Vectorific sound module patch from your individual controllers. This is a classic example of MIDI merging.

① Choose **Patch>New Patch** and create a Studio Patch with the Masterman-88 as the MIDI source and the Vectorific module as the MIDI destination.



② Click the MIDI Source module icon and create a second connection below the first.



③ Choose the GeoSkin drums as the MIDI source and the Vectorific as the MIDI destination.

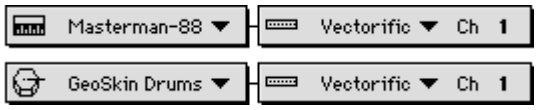


Figure 151: MIDI Merging Patch

With this patch, both the Masterman-88 keyboard and the GeoSkin drums will play MIDI Channel 1 of the Vectorific module.

BAND ROUTINGS

You can route your entire band through your MIDI interface. For instance, you could have the MIDI Tuba playing the Digiwhiz 2000, the GeoSkin drum pads playing the Banger Man II drum module, and the Masterman-88 keyboard playing a ProMaker/1 stacked with a Vectorific. This configuration would have a Patch Edit Window similar to the one shown in Figure 152.

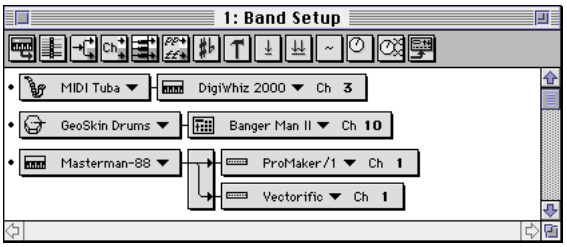


Figure 152: A Band Routing Patch

STUDIO 5 FOOTSWITCH IDEAS

The Studio 5's two footswitches (FS1, FS2) and one foot controller (FC1) can be used as controllers in a Studio Patch. To use the footswitches or foot controller in a patch, simply choose the Studio 5 as your MIDI source.

VOLUME PEDAL

A simple volume pedal is created in the following example. The Masterman-88 controls MIDI Channel 1 of the Vectorific synth module. The foot controller (FC1) controls the volume of the Vectorific.

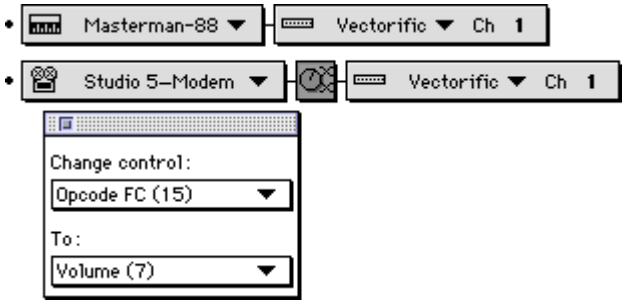


Figure 153: Volume Pedal

☆ *NOTE: Make sure that **Studio 5>Foot Controller In** is checked (enabled) in the OMS Setup application so that Foot Controller information is recognized. Foot Controller status is saved within the Studio 5's internal memory.*

IMPROVED VOLUME PEDAL

You can improve upon the above example by adding an Event Type Filter module. Use the filter to pass only Opcode foot controller data from the Studio 5 to the Vectorific as shown below. This prevents MIDI Time Code, if it's in use, from being sent to the Vectorific—thus thinning the MIDI data stream.

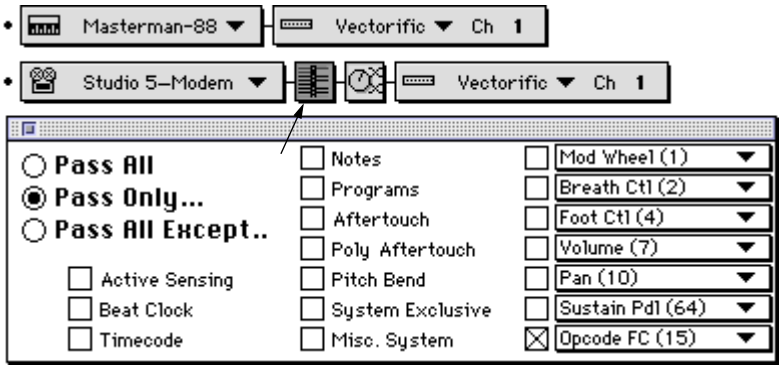


Figure 154: Improved Volume Pedal

VIRTUAL PEDALS

As another example, assume that you want to use the Studio 5 foot controller (FC1) as a volume pedal, and a Studio 5 footswitch (FS1) as a sustain pedal. Using Virtual Controllers is the easiest and most efficient way to handle this task.

① Choose **Patch>Edit Virtual Controllers** or click the **Virtual Controllers** button in the current Patch Document Window to open the Virtual Controllers Edit Window.

② Design a Virtual Controller similar to the one shown in Figure 155.

See Chapter 3: Virtual Controllers and Virtual Instruments to learn about Virtual Controllers and Virtual Instruments.

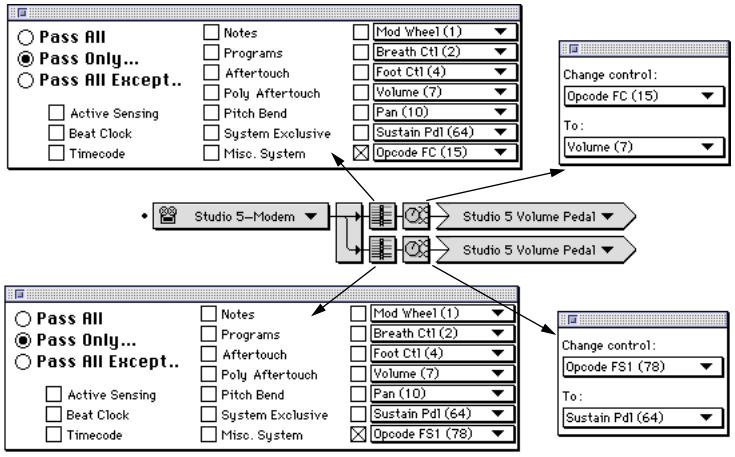


Figure 155: Defining Virtual Pedals

You can then use these Virtual Controllers in any patch, without worrying if they are sending MIDI Time Code to your MIDI output devices. The following example illustrates the use of these Virtual Controllers in a patch where the Masterman-88 plays Channel 1 of the Vectorific while the Studio 5's foot controller controls Vectorific volume and the Studio 5's FS1 acts as a sustain pedal.

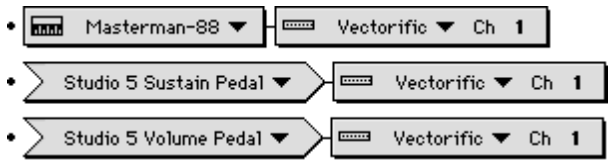


Figure 156: Using Virtual Pedals

EXPRESSIVE INSTRUMENTS

You can use velocity switching to trigger different sounds—the triggered sound depends on the note-on velocity. Velocity switching can add greater dynamic realism to instruments, or provide startling special effects. You can design patches to perform velocity switching if your synthesizers don't offer it. Even if your synthesizers do offer velocity splitting, Studio Patches provide the additional advantage of velocity switching *between* different devices.

Assume, for example, that your Vectorific sound module has a nice pianissimo piano sound, and that the Digiwhiz 2000 sampler has good mezzo-forte piano and forte piano sounds. Build a patch similar to the one shown in Figure 157.

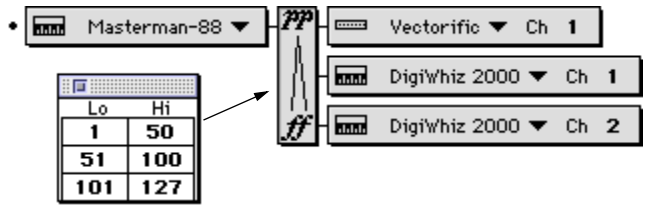


Figure 157: Velocity Switching

Notice that a soft touch plays the Vectorific piano sound, medium playing triggers a mezzo-forte piano sound on the Digiwhiz 2000 (Ch. 1), and banging on the keys plays a forte piano sound on the Digiwhiz 2000 (Ch. 2).

ONE FINGER CHORDS

To ease the pressure during a live performance or to compensate for a short reach, you can use splitters and transposers to build one-finger chords.

The patch example shown in Figure 158 produces a minor ninth chord from just one note.

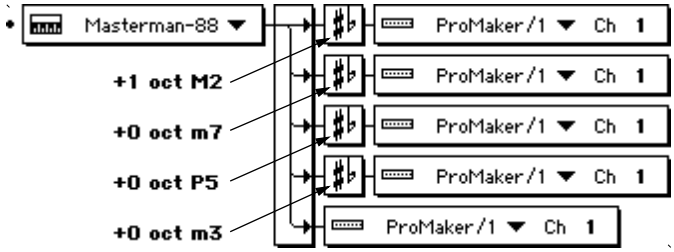


Figure 158: One Finger Chord

If you hit a C, then your sound module would produce the chord shown in Figure 159.


Figure 159: Cm9 Chord

BANK SELECTION

You can use the Start and End Sequences to send bank select messages to your synthesizers. For each bank in your synthesizer, simply design a Studio Patch that recalls and plays that bank.

The Patch document shown in Figure 160 contains 10 different patches for playing the Matrix-1000 synthesizer. Each patch contains a Start Sequence with a system exclusive event that selects and locks a Matrix-1000 bank. The End Sequence unlocks the bank when you leave the patch.

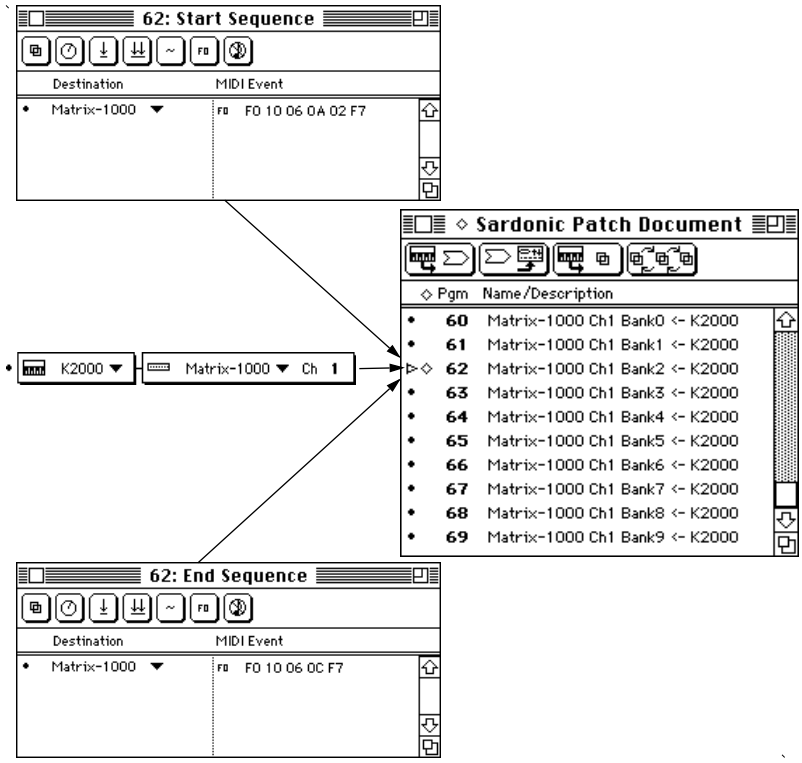


Figure 160: Studio Patch Selects Matrix-1000 Bank

STUDIO PATCH PROBLEMS

A MIDI SOURCE OR DESTINATION MODULE CONTAINS A QUESTION MARK

Question marks indicate undefined modules. Click anywhere to the right of the question mark to open a pop-up menu of MIDI devices as defined in your current Studio Setup document. See Chapter 2: Patch Modules for more details.

ONE OR MORE MIDI DEVICES DO NOT APPEAR IN THE MIDI SOURCE POP-UP MENU

The MIDI device is being used elsewhere within the same patch as a MIDI source.

PATCHES DON'T WORK—MIDI SOURCE OR DESTINATIONS ARE ITALICIZED

You probably have a Patch document that was created with a Studio Setup document other than the one that is now current. Either make the other Studio Setup document current, make another Patch document current, or re-select any italicized MIDI Source or Destination modules in the current patch and save it. See Chapter 1: Studio Patches Introduction for more information.

PATCHES DON'T WORK—MIDI SOURCE OR DESTINATIONS ARE NOT ITALICIZED

Choose **Patch>Rebuild All** to rebuild patches.