Using OMS with a MIDI Patchbay

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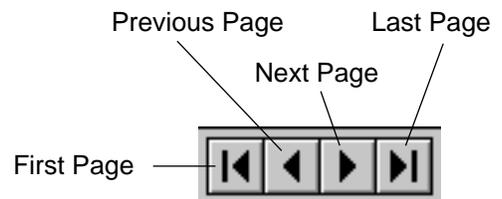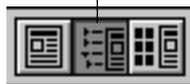
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CH 1: ADDING AND DEFINING A MIDI PATCHBAY

This technical publication discusses how to use OMS with MIDI patchers (sometimes called *patchbays*, *switchers*, or *thru boxes*) and how OMS automates the selection of programs within the patcher.

☆ *NOTE: This document discusses MIDI patcher techniques for both Macintosh and Windows. Screen-shots from both operating systems are used interchangeably. Whenever any platform-dependent differences occur, they are noted specifically.*

CONNECTING THE HARDWARE

Figure 1 shows an example of how to wire a MIDI studio containing a standard MIDI interface, a MIDI patcher, four sound modules, and a computer.
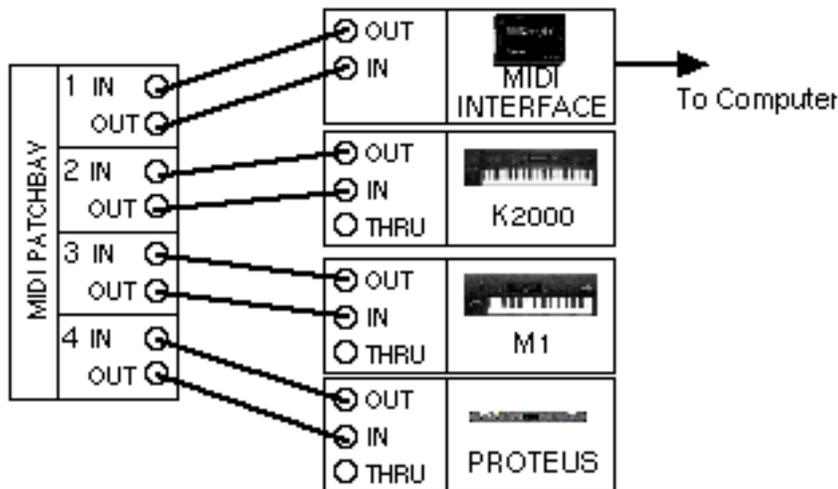

Figure 1: Typical Studio with MIDI Patcher

The studio configuration depicted in [Figure 1](#) would be represented in OMS Setup as shown in [Figure 2](#):
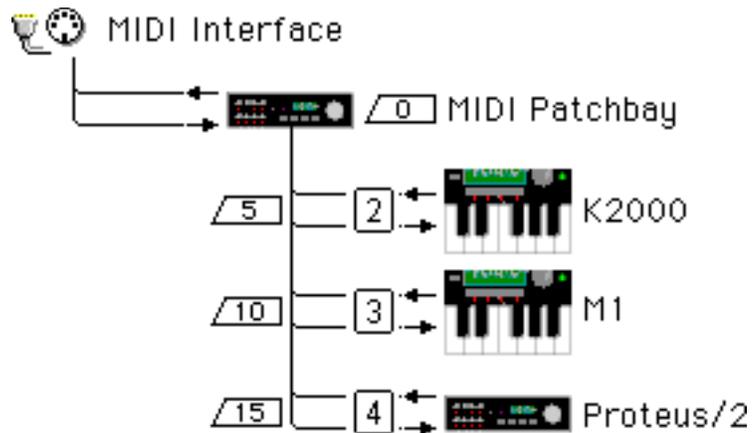

Figure 2: Studio Schematic w/Studio Setup Document

To connect a MIDI patcher in your MIDI studio:

① Turn off power to your computer, MIDI interface and MIDI patcher.

② Connect you computer to your MIDI interface.

③ Connect your patcher's MIDI IN jack to your interface's MIDI OUT jack.

④ Similarly, connect your patcher's like-numbered MIDI OUT jack to your interface's MIDI IN jack.

⑤ Connect all other MIDI devices directly to the MIDI patcher.

⑥ Turn on your patcher, interface, and computer.

DEFINING MIDI PATCHERS IN OMS SETUP

This section explains how to configure your Studio Setup document to contain a MIDI patcher. Before starting, make sure that the current Studio Setup document is open in OMS Setup. It it isn't, launch OMS Setup, then choose **File>Open Current Studio Setup**.

Follow these steps for each MIDI patcher in your studio.

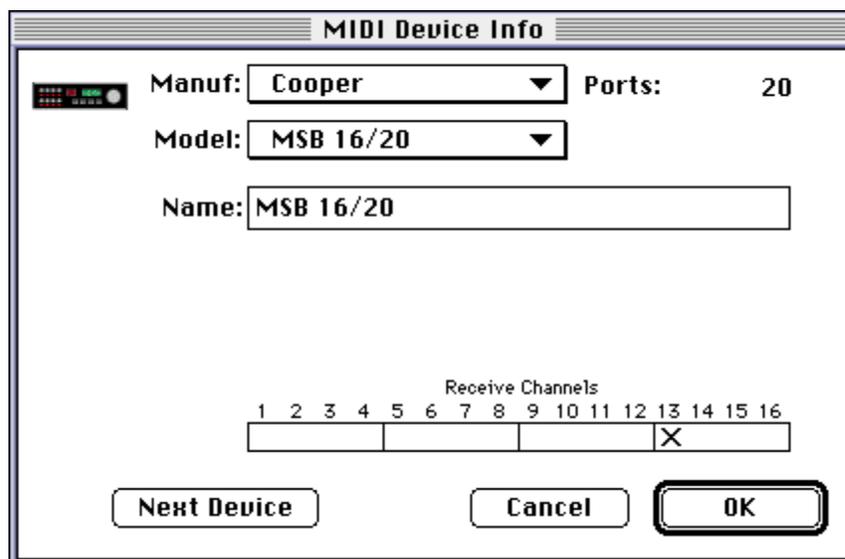① Choose **Studio>New Patcher**.

The Patcher Info dialog box appears.

Figure 3: Typical Patcher Info Dialog Box

② From the pop-up menus (drop-down list boxes for Windows), select the manufacturer and model of your MIDI patchbay.

You can select "other" if you don't see your patchbay in the list.

③ Use the **Ports** numerical to enter the number of MIDI ports (In/Out MIDI jack pairs) on your MIDI patchbay.

OMS Setup enters the number automatically when you select a known patchbay from the **Manuf** and **Model** drop-down lists.

Figure 3 shows a MIDI patcher with 20 ports.

④ Using the **Receive Channels** check boxes, select the MIDI channel on which your patchbay receives MIDI program change information.

OMS sends patcher program changes when an application (such as Galaxy or another librarian program) needs to establish 2-way communicate with a MIDI device. This is also the case when OMS Setup is in **Test Studio** mode.

Consult your MIDI patchbay manual to find out how to set it to respond to MIDI program change messages. Some patchers only respond to program change messages on one of their input ports—if this is true for your patcher, make sure the computer is connected to that MIDI port.

Figure 3 shows a MIDI patcher that receives MIDI program change messages on MIDI channel 13.

⑤ Click **OK**.

The newly defined patcher will appear in the Studio Setup document.

Repeat these steps for every MIDI patcher in your studio. When you are finished, choose **File**>**Save** to save your work.

STUDIOS WITH MORE THAN ONE PATCHER

If your studio contains more than one MIDI patchbay, your Studio Setup document will contain multiple patcher icons and their Patcher Info dialog boxes will contain an additional pop-up menu called **Send program changes to**.

Most MIDI patchers receive program changes only on one of their MIDI in ports. The **Send Program Changes to** pop-up menu allows you to specify which computer port, and consequently which patcher port, receives the program change.

SHARING A PATCHER BETWEEN TWO PORTS

It's conceivable that your MIDI studio could contain a single patcher with MIDI connections to two different serial port interfaces (particularly if you use a Macintosh). If your studio is set up this way, your Studio Setup document will need to show two patchers.

This is easiest to explain by example. Suppose you have the Studio Setup document shown in . It represents a single MSB 16/20 MIDI patcher shared between two serial ports. "MSB 16/20 Modem" and "MSB 16/20 Printer" represent one patcher operating on two serial ports.
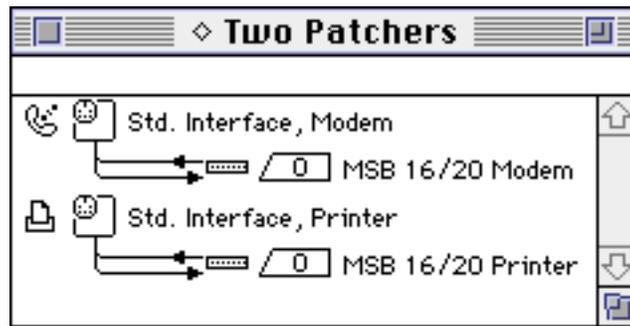

Figure 4: One Patcher Defined as Two

Since there are two patcher icons, each patcher icon's MIDI Device Info dialog contains a **Send program changes to** pop-up menu.
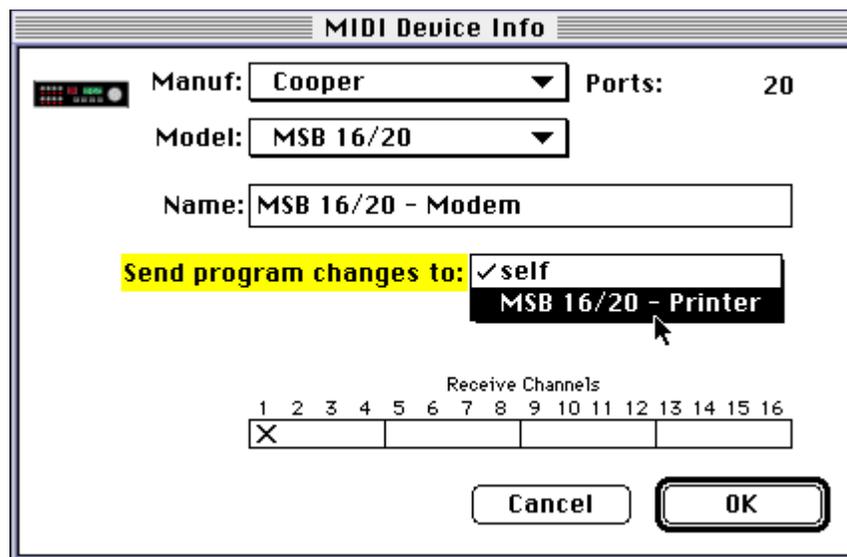

Figure 5: Send Program Changes to Pop-up Menu

In this example, the **Send program changes to** pop-up menu allows you to choose whether program changes are sent to the MSB 16/20 via the computer's Modem port or its Printer port. Choosing "self" in Figure 5 tells OMS to send program changes to the MSB MIDI port that's connected to the Modem port. Choosing "MSB 16/20 Printer" tells OMS to send program changes to the MSB MIDI port that's connected to the Printer port.

☆ *NOTE: If you share a single patcher between two serial ports (as shown in the previous example), you must give each patcher a unique name—in this example, we named one patcher "MSB 16/20 Modem" and the other, "MSB 16/20 Printer".*

CH 2: CONNECTING MIDI DEVICES TO PATCHBAYS

Figure 6 illustrates a typical MIDI patcher connected to a standard interface and the devices that are connected to the patcher.
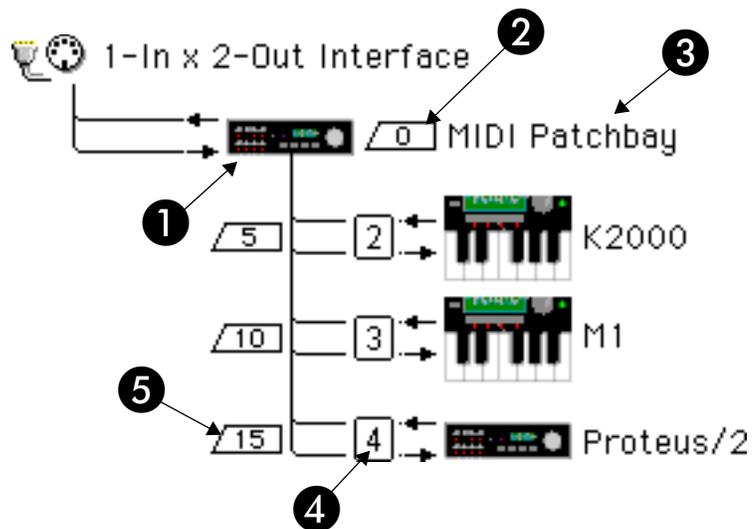

Figure 6: Patcher in a Studio Setup Document (Mac Version)

STUDIO SETUP PATCHER ANATOMY

As you can see in Figure 6, the Studio Setup document contains numerous parameters that are associated with the MIDI patcher. These are:

❶ **Patcher Icon**—You can change this just like any other MIDI device icon in a Studio Setup document.

❷ **Patcher Default Program**—Every MIDI patcher needs one internal program that's designed to 1) transfer MIDI data from any MIDI controller to your PC, and 2) transfer MIDI data from the PC to every MIDI device. This is called the "default" program. Set the Default Program numerical to match the MIDI program number of the patcher's internal "default" program. For more information, see Patcher Default Program (pg. 8).

❸ **Patcher Name**—This is the name of the MIDI patchbay as defined in the Patcher Info dialog box.

❹ **Patcher Port**—These numericals correspond to the numbered ports on your MIDI patchbay. For example, if your Korg M1 is connected to port 3 of your MIDI patchbay, set the numerical next to the M1 to "3". For more information, see [Patcher Port Assignments (pg. 9)](#).

❺ **Patcher Program**—You should program your MIDI patcher such that each MIDI device has its own patcher program that sends MIDI data *only* to that device and receives MIDI data *only* from that device. Set each Program Number numerical to match the MIDI program number that does this in the patchbay's internal memory. For more information, see [Patcher Program Assignments (pg. 9)](#).

The following sections discuss some of these parameters in detail.

PATCHER
DEFAULT
PROGRAM

The small quadrangle with the number inside represents the patcher's default program number. The default program is that program used by the patcher whenever it's not routing data from a specific MIDI device to the computer. You need to design a patcher program to be your default program and assign it a program change number. Your patcher's default program allows your OMS applications to send data to any device at any time, so it must:

• Connect the computer's output to all MIDI devices connected to the patcher.

• Connect the computer's input to the controller keyboard.

See your MIDI patcher manual to learn how to program it and how to assign MIDI program change numbers to MIDI patcher programs.

Look at [Figure 7](#). The M1 is the master keyboard controller. The Matrix-1000 and Proteus are sound modules. The arrows indicate MIDI cable connections. The lines inside the patcher indicate its default program. Notice that MIDI data from the computer passes through to all devices and that the M1 sends MIDI data to the computer.
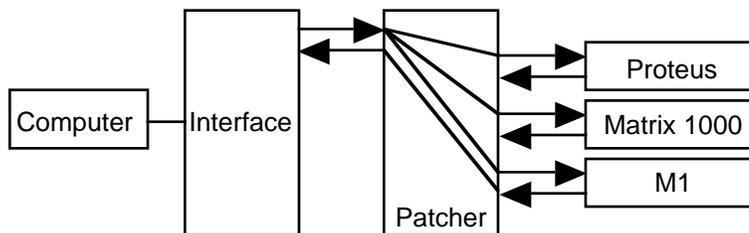

Figure 7: Default Program Example

To set the patcher default program number in the Studio Setup document:

① Click the number in the quadrangle and type the number of your patcher's default program.

PATCHER PORT
ASSIGNMENTS

Patchers have ports to which you connect MIDI devices. Port numbers are represented by small, boxed numericals in the MIDI path to each device. You must set the Studio Setup document's port numbers to match each device's patcher port number.

① Connect MIDI devices to the patcher in the Studio Setup document so that they mirror your actual connections (as discussed earlier in this document).

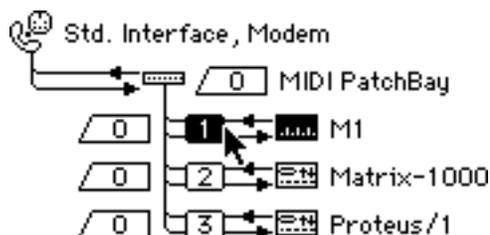② Select the patcher port numerical and enter the number of the patcher port to which that MIDI device is connected.

Figure 8: Setting a Patcher Port

☆ NOTE: The numerical range of the patcher port assignment corresponds to the number of MIDI ports entered in the patcher definition.

☆ NOTE: If you are using different numbered ports on your patcher for MIDI In and MIDI Out of a single device, you will have to use two icons to represent the device. This type of connection is not recommended. See CH 3: Non-Standard Use of Patchers for more details.

PATCHER
PROGRAM
ASSIGNMENTS

Each device that's connected to a MIDI patcher has a quadrangle to its far left. The numerical inside the quadrangle represents a MIDI program change number. You can ignore this section if your MIDI patcher does not accept MIDI program changes.

If you want two-way communication between a MIDI device and the computer (such as when transferring patch banks between them), you'll need to program your patcher so that each MIDI device has a corresponding patcher program that allows it to send data to, and receive data from, the computer. See your MIDI patcher manual to learn how to program it and how to assign MIDI program change numbers to MIDI patcher programs.

Look at [Figure 9](#). The arrows indicate MIDI cable connections. The lines inside the patcher indicate a patcher program that sends MIDI data from the computer to the Proteus and MIDI data from the Proteus to the computer. This would be the patcher program for the Proteus.
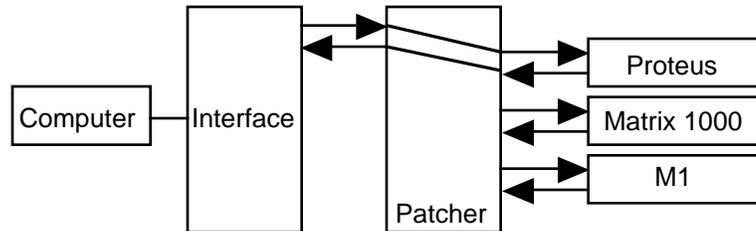

Figure 9: Patcher Program Example

To set the patcher program number in the Studio Setup document:
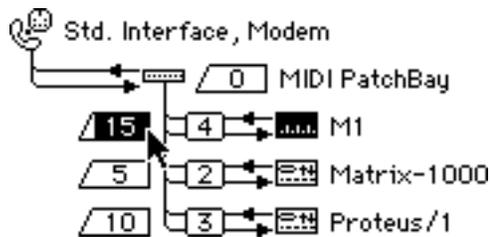
① Select the number in the quadrangle by clicking it.

Figure 10: Setting a Patcher Program

② Enter the patcher program number.

☆ *NOTE: OMS Setup uses the standard MIDI program change number range (0-127). Some patchers observe alternate numbering conventions (1-128 or 11-88). If your patcher uses a patch numbering scheme other than 0-127, see its manual to learn the relationship between its internal patch numbering and standard MIDI program change numbers.*

☆ *NOTE: Some patchers receive program changes on only one port— be sure to connect this port to your MIDI interface.*

USING THE TEST STUDIO COMMAND WITH A PATCHER

When in **Test Studio** mode, clicking the patcher icon also sends the appropriate two-way communication patcher program. Clicking the patcher icon recalls the patcher's default program.

PATCHER DELAY

In the OMS Preferences dialog box, there is an item called "Delay after sending program change to MIDI patcher(s)":
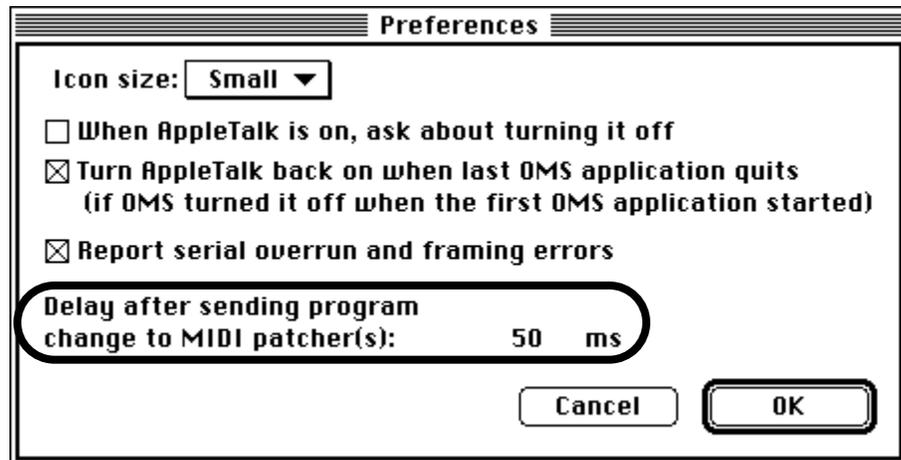
You can choose how many milliseconds you want to delay the transfer of MIDI data after sending a program change to a MIDI patcher. This is necessary because MIDI patchers take a small amount of time to rearrange their internal connections after receiving a program change message. OMS needs to wait before transmitting so that MIDI data following a program change is properly routed and transmitted through a patcher. If you are using a MIDI patcher and things don't seem to be working properly, try increasing the delay time. A good starting place is 50 milliseconds.

CH 3: NON-STANDARD USE OF PATCHERS

In a standard patcher connection, you connect the MIDI inputs and outputs of your MIDI devices to MIDI port pairs on your patcher. Patcher/device connections that deviate from this scheme are called "non-standard".

One possible non-standard patcher connection is shown in Figure 11. Outputs from MIDI devices connect to the patcher, but inputs to MIDI devices connect to the standard interface. This is what the actual cable routing would look like:
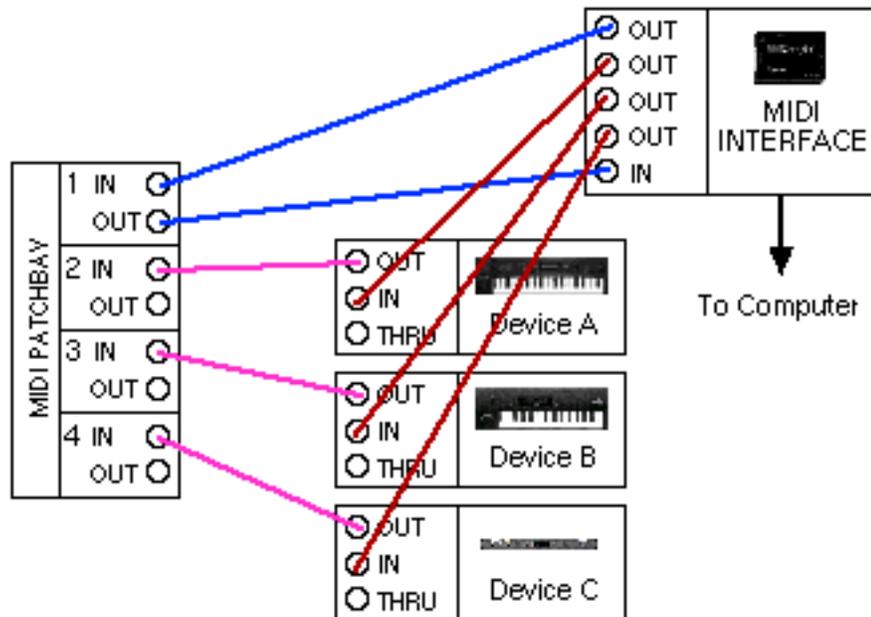
Figure 11: Actual MIDI Cable Routing

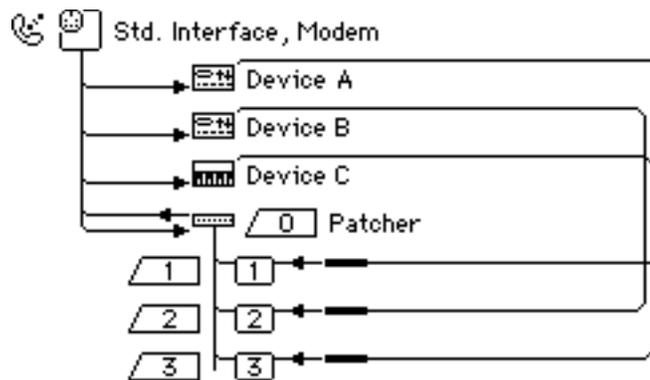Here's what you would do in OMS Setup to create that configuration:

Figure 12: Equivalent Studio Setup Document

Use the **Studio**>**Different In/Out Ports** option to configure each device as shown.

In the example shown in Figure 12, you send program changes to the patcher, routing MIDI to the computer from a particular device. Every device is always available for output from the computer.