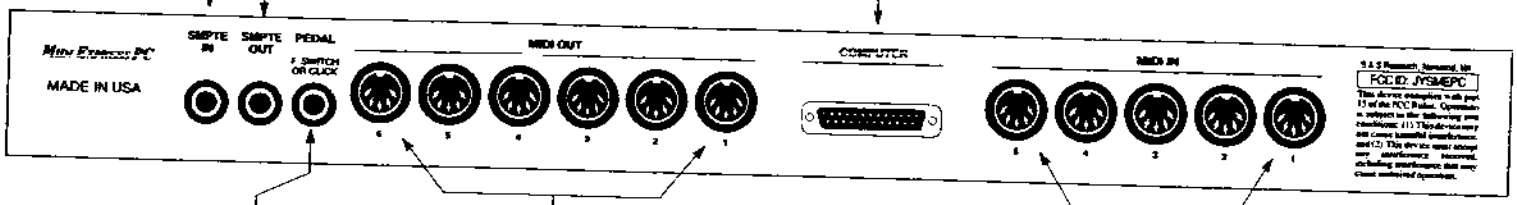
Mark of the Unicorn

MIDI EXPRESS PC

User's Guide

Table of Contents

Rear Panel



SMPTE IN is a 1/4" phone jack that receives SMPTE time code (LTC).

SMPTE OUT is a 1/4" unbalanced phone jack that emits SMPTE time code (LTC).

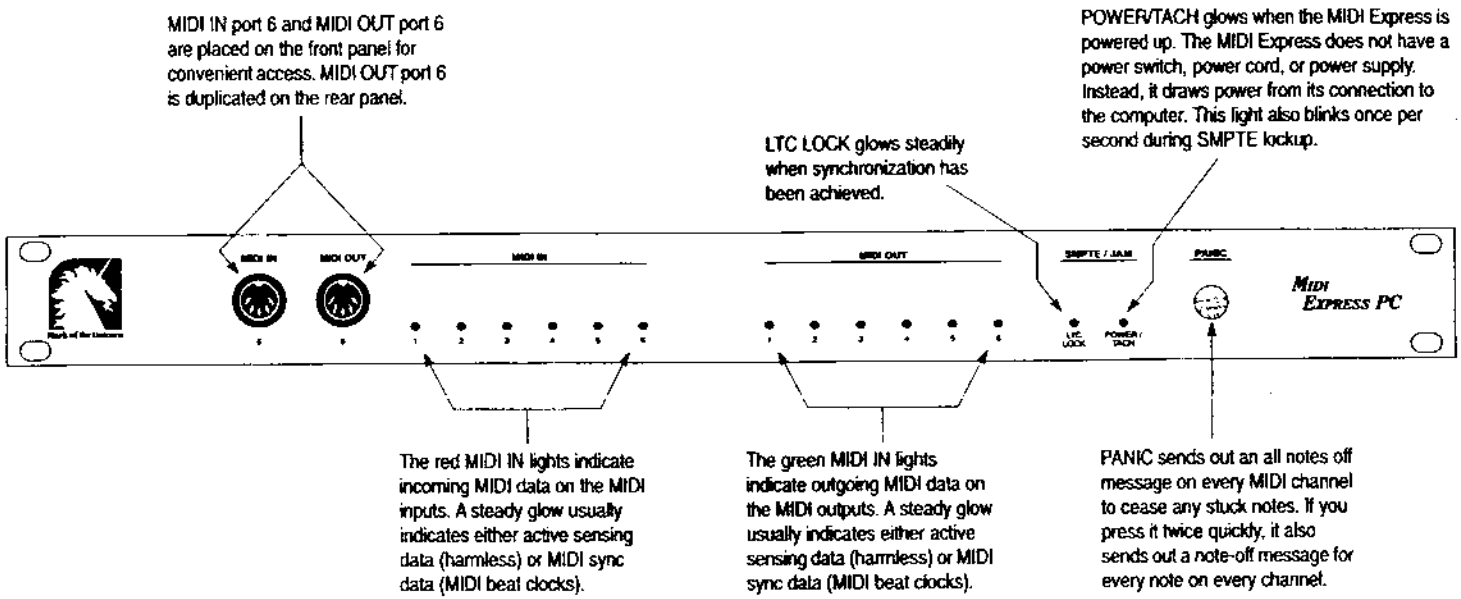
This is a DB-25 jack that connects the MIDI Express to the PC card with the cable that ships with the MIDI Express PC.

PEDAL is a 1/4" unbalanced phone jack that accepts a momentary foot switch jack. It can also receive an audio click, which the Express can convert into MIDI data. (It does not accept an "expression" pedal.)

These are the MIDI Express PC's six MIDI OUT jacks. Each cable can have its own set of sixteen MIDI channels when you use sequencing software that supports the MIDI Express multi-cable outputs.

These are the MIDI Express PC's five MIDI IN jacks. Each cable can have its own set of sixteen MIDI channels when you use sequencing software that supports the MIDI Express multi-cable inputs. MIDI IN port 6 is located on the MIDI Express front panel for convenient access.

Front Panel


MIDI IN port 6 and MIDI OUT port 6 are placed on the front panel for convenient access. MIDI OUT port 6 is duplicated on the rear panel.
LTC LOCK glows steadily when synchronization has been achieved.
POWER/TACH glows when the MIDI Express is powered up. The MIDI Express does not have a power switch, power cord, or power supply. Instead, it draws power from its connection to the computer. This light also blinks once per second during SMPTE lockup.
MIDI IN
MIDI OUT
SMPTE / JAM
PANIC
MIDI EXPRESS PC
The red MIDI IN lights indicate incoming MIDI data on the MIDI inputs. A steady glow usually indicates either active sensing data (harmless) or MIDI sync data (MIDI beat clocks).
The green MIDI IN lights indicate outgoing MIDI data on the MIDI outputs. A steady glow usually indicates either active sensing data (harmless) or MIDI sync data (MIDI beat clocks).
PANIC sends out an all notes off message on every MIDI channel to cease any stuck notes. If you press it twice quickly, it also sends out a note-off message for every note on every channel.

Chapter 1 Installation and Setup

Mail in the registration card

Please complete and mail in the registration card included with this manual; doing so entitles you to the conditions of the limited warranty, updates, technical support, and upgrade information. Since Mark of the Unicorn cannot provide customer support to non-registered users, please be sure to send the card in immediately after purchase.

Packing list

The MIDI Express PC is shipped with the items listed below. If any of these items are not present in your MIDI Express PC box when you first open it, please contact your dealer immediately.

- One MIDI Express PC rack mount unit
- One 8-bit PC card
- One DB-25 to DB-25 cable
- One floppy disk containing the MIDI Express PC software
- One MIDI Express PC Manual with Registration Card and Limited Warranty

Computer requirements

The MIDI Express runs under Windows 3.1 (or higher). The computer requirements are as follows:

- Enough processing power to run Windows 3.1
- At least one free card slot inside the machine
- 4 megabytes RAM
- A VGA monitor
- At least 2 megabytes of free hard disk space
- A mouse

Installation overview

Installing the MIDI Express PC is easy. Here is an overview of the installation:

1. Set the Express PC card I/O address if necessary
2. Install the Express PC card inside the computer
3. Connect the external rack mount unit to the Express PC card with the DB-25 to DB-25 cable provided with the MIDI Express PC
4. Connect your MIDI gear to the Express PC MIDI ports
5. (Optional) Make additional connections for SMPTE, a foot switch, and/or a click input

You are then ready to install the MIDI Express PC Console software:

1. Install the "MOTU MIDI Express PC" windows driver
2. Install MIDI Express PC Console (the control software for the MIDI Express PC)

If you are experienced with MIDI hardware and Windows MIDI software, you probably have a pretty good idea of what to do already. If not, the rest of this chapter covers the installation process step by step.

Be Careful!

The MIDI Express PC card is packaged inside an anti-static bag that protects its sensitive electronic components from the discharge of static electricity. Before handling the card, always be sure to discharge your clothes and body by touching a grounded metal surface, such as the power supply inside your computer. This will prevent a static discharge while handling the card. (Static can permanently damage the components on the card.) When handling

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the card, always hold it by its edges or mounting bracket. Never touch the contact tab at the bottom of the card or any of the components or traces on the card itself.

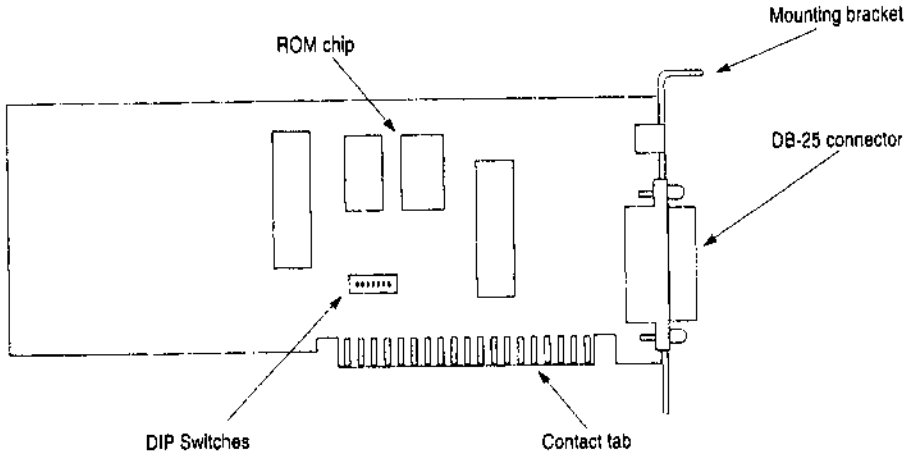


Figure 1-1: The MIDI Express PC Card. The DIP switches set the I/O address. The contact tab fits into an expansion slot inside the computer. The mounting bracket covers the expansion slot on the backside of the computer. The DB-25 cable connector accepts a cable that connects the PC card to the external MIDI Express PC rack space unit. The ROM chip contains the "brains" of the card and can be replaced, if necessary, with a updated versions that contain software enhancements.

Setting the PC Card I/O Address

When an PC card is placed in an expansion slot inside your computer, it must be assigned a unique I/O (input/output) address s that its address does not conflict with any other card in the compute If two cards accidentally share the same address, the computer wil not function properly.

The Default I/O Address is 340

The default I/O address for the MIDI Express PC card is 340. Othe MIDI interfaces are usually set to address 300 or 330. We chose 34 because is an address that is not typically used by other common expansion card devices, such as modems, monitors, printers, or oth MIDI interfaces.

Verifying the Default Address

If you do not have other expansion cards installed in your compute you do not need to change the I/O address. All you need to do is verify that the address is set properly to 340. To do so, locate the seven DIP switches on the card as shown in Figure 1-1 on page 1

and verify that they are set in the manner shown in Figure 1-2 below. Then proceed to the section called "Installing the Express PC Card" on page 15.

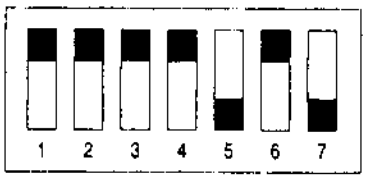


Figure 1-2: DIP switch settings for the factory default I/O address of 340.

Changing the I/O Address

If you have other expansion cards installed in your computer, check their documentation to determine what their I/O address is (alternately referred to as the "base address"). Chances are that there will be no conflicts. However, if you find that another card is assigned to address 340, you will either have to change its address or change the MIDI Express PC card's address. To change the MIDI Express PC card's address, we recommend setting it to address 344, 300, or 304, as shown in Figure 1-3 below.

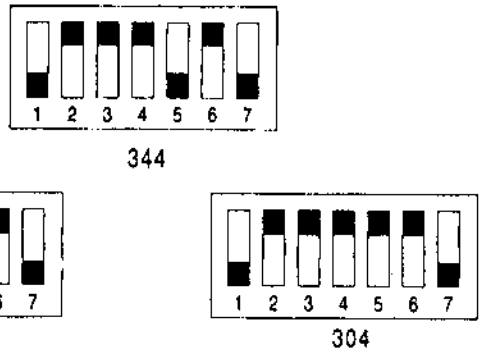


Figure 1-3: Alternate I/O addresses for the Express PC card.

A note about the IRQ (interrupt)

Each expansion card installed in a PC must also be assigned a unique IRQ setting. If two cards share the same IRQ assignment, the computer will not function properly.

Installing the Express PC Card

To help prevent conflicts with other cards, the Express PC card ships with no IRQ assignment. Instead, the Express PC card's IRQ gets set as soon as you boot up any MIDI software that supports the MIDI Express PC. The IRQ setting you choose in your MIDI software determines the Express PC card's IRQ and initializes the Express PC card to that interrupt.

Once you have dealt with the I/O address for the MIDI Express PC card as described in the above sections, the next step is to install the card inside the computer. To do so, follow these easy steps:

1. **Turn off the computer and unplug the power cord.**
2. **Position the computer so that the rear panel is facing you.**
3. **Remove the cover's mounting screws.**
4. **Remove the cover.**

   On most models, this can be accomplished by sliding the cover forward, away from the rear panel.

5. **Locate an empty expansion slot.**

   The slots are located at the rear of the computer. You can choose either an 8-bit or 16-bit slot, although a 16-bit slot offers no advantage to the Express PC card.

6. **Remove the expansion slot cover from the backside of the computer.**

   This may involve removing a screw at the top of the slot cover.

7. **Grasp the Express PC card by the edges and insert its contact tab into the expansion slot as shown in Figure 1-4 below.**

   Be sure not to touch any of its sensitive components. Also, do not touch the contact tab at the bottom of the card. (Figure 1-1 on page 13 shows where the contact tab is.)

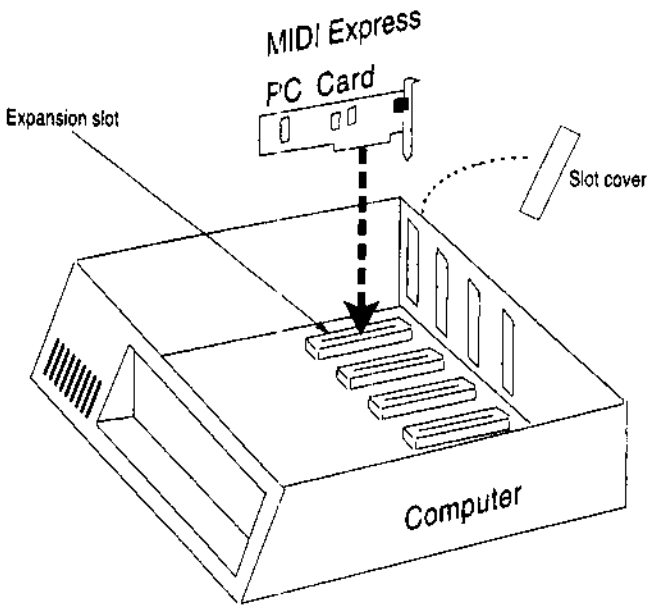


Figure 1-4 Installing the Express PC card into an expansion slot inside the computer.

8. **Be absolutely sure that the contact tab of the Express PC card is firmly seated in the expansion slot as shown in Figure 1-5.**

   ☛ Be careful! Do not push the card into the slot too hard.

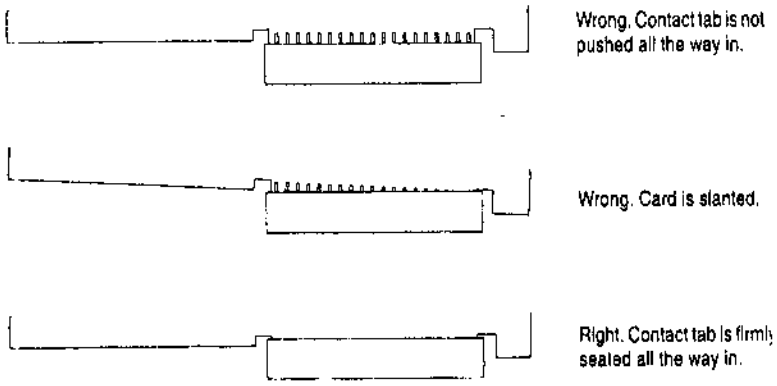


Figure 1-5: Seating the contact tab firmly into the expansion slot.

9. **Secure the mounting bracket with the screw that held the slot cover.**

10. **Put the cover back on the computer.**

    ☛ If you have trouble booting up your computer after installing the MIDI Express PC card, or if you experience problems transmitting and receiving MIDI data, you may need to try changing the I/O address of the card. See "Setting the PC Card I/O Address" on page 13.

Connecting the External Unit to the PC Card

To connect the external rack-mount unit to the PC card, use the cab that ships with the MIDI Express PC. Plug one end into the jack or the PC card, and plug the other end into the rear panel of the MID Express PC. Be sure to tighten the mounting screws so that the plu does not work itself loose.

Connecting MIDI gear

Using standard MIDI cables, connect each MIDI device's MIDI IN jack to one of the 6 MIDI OUT jacks on the MIDI Express PC as shown by Connection A in Figure 1-6 on page 18. Conversely, connect the MIDI OUT jack on the MIDI device to one of the 4 MIDI IN jacks on the MIDI Express PC as shown by Connection B.

MIDI devices that do not receive MIDI data, such as a dedicated keyboard controller, guitar controller, or drum pad, do not need Connection A shown below in Figure 1-6. Similarly, devices that never send data, such as a sound module, do not need Connection B. However, if you plan to use editor/librarian software with the sound module, or if you need to get system exclusive bulk dumps from it, make both connections. In general, make both connections for any device that needs to both send and receive MIDI data.

> ☛ Note: even though the MIDI Express PC does not require that you use the same numbered MIDI IN and MIDI OUT for each device, we recommend that you do so—especially if you will be using the "Live Keyboards" setup, which prevents MIDI feedback loops when you have both the MIDI IN and MIDI OUT on your controller connected to the MIDI Express PC.

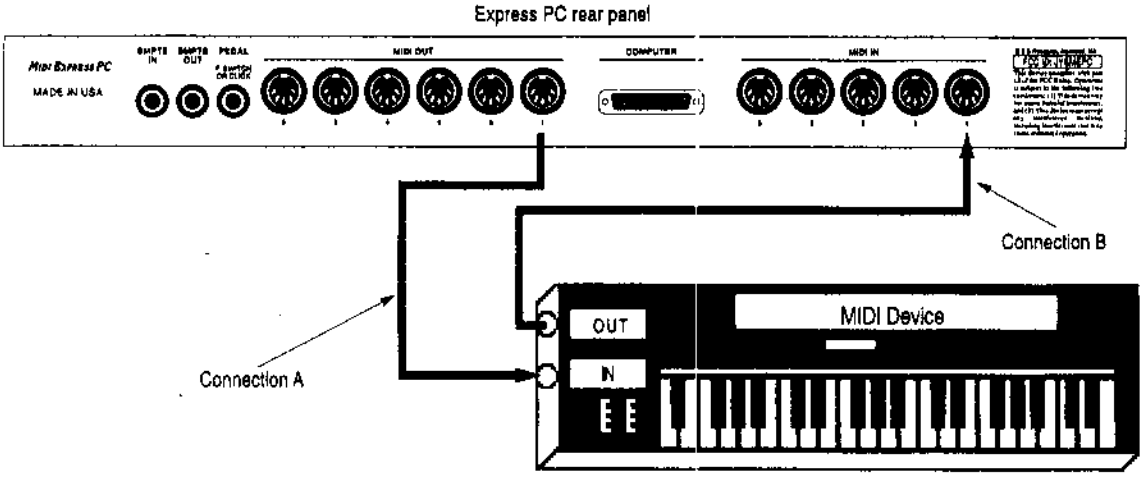


Figure 1-6: Connecting a MIDI device to the MIDI Express PC. If you are connecting a sound module or other device that does not need to transmit MIDI data, you do not need to make connection B shown above. Conversely, if the device is a MIDI controller such as a drum pad or guitar controller, you do not need to make Connection A.

MIDI connections work sheet

Here's a suggestion. If you have more than a few pieces of gear connected to the MIDI Express PC, jot down which device is connected to each input and output in the work sheet below. Later on, you'll enter this information into the MIDI Express PC Console software, which will allow you to refer to your MIDI devices by name (rather than cable number) in the software.

MIDI Cable Connections Work sheet

MIDI IN	MIDI OUT
1	1
2	2
3	3
4	4
5	5
6	6

Connecting audio cables for SMPTE

If you will be synchronizing the computer to an external time code source such as an audio tape recorder (ATR), make the audio connections shown in Figure 1-7 on page 20.

Normally, time code is recorded on an outside track of a multi-tracl tape deck. Take the audio out from this track and connect it to the SMPTE IN on the MIDI Express PC. If you need to record ("stripe") SMPTE time code on a track, connect the SMPTE OUT from the

Installing the MIDI Express PC Windows Driver

Before you can use any Windows software with the MIDI Express PC, you need to install the MIDI Express PC Multimedia Extensions driver in the control panel. To do so:

1. **Run the Windows Control Panel.**
2. **Double-click the "Drivers" icon.**
3. **Press Add.**
4. **Select "Unlisted or Updated Driver".**
5. **Insert the MIDI Express PC diskette, specify the disk drive, and click OK.**
6. **Select the MOTU MIDI Express PC driver.**

   The driver then presents you with a setup window to specify the port address and IRQ.

7. **If necessary, change the I/O address and IRQ setting and click OK to confirm your change.**

   For information about these settings, see the next two sections.

Setting the I/O address

The default I/O port address is 340. If you have changed the address as explained in "Setting the PC Card I/O Address" on page 13, make sure you match the new setting in the Control Panel driver setup window.

Setting the IRQ

Each expansion card installed in a PC must also be assigned a unique IRQ setting. If two cards share the same IRQ assignment, the computer will not function properly.

The default IRQ setting in the MIDI Express PC Windows driver is 5. If you later experience problems receiving or sending MIDI, the MIDI Express PC IRQ setting may be in conflict with another device you have in the computer. If so, set the MIDI Express PC IRQ setting to a value not shared by any other devices. Common sources of IRQ conflicts are:

- A hard disk on a card
- A bus mouse (one that connects to an expansion card instead of a serial port)

- A VGA card

Installing MIDI Express PC Console for Windows

Installing the MIDI Express PC Console software for Windows is as simple as running the SETUP program located on the Installation floppy diskette. This can be done in two ways:

1. Choose the File | Run menu selection in the Program Manager, type A:\SETUP, and hit OK.

2. Find the floppy diskette's SETUP.EXE icon in the File Manager, and double-click the icon.

The installation process will prompt you for a directory into which the software will be placed. A new group will be created in the Program Manager, and two items created in the new group. One of these items will allow you to run the new Express PC Console for windows, and the other will allow you to bring up a text document containing late-breaking news about the MIDI Express PC hardware and software.

Where to go next

Where you go next depends on what you would like to do.

If you want to use MIDI software...

If you would like to use your favorite MIDI software, no further preparation is necessary. You can run Windows MIDI software that supports Microsoft's Multimedia Extensions or directly supports the MIDI Express PC, such as Cakewalk Professional™ for Windows by Twelve Tone Systems, Cadenza™ for Windows by Big Noise Software, and Cubase™ for Windows by Steinberg Jones. MIDI Express PC input and output devices automatically become available to these other MIDI programs, and you can make MIDI input and output assignments with them.

☞ It is not necessary to have the MIDI Express PC Console software running at the same time as your other MIDI software. Use the Console to set up the Express PC as needed, and then if you don't need to make any further changes, you can quit the Console. "Set it and forget it", as they say. You can always re-open the console later to make further changes, if necessary.

Chapter 2 Using MIDI Express PC Console

About MIDI Express PC Console

MIDI Express PC Console serves as a "control center" for the MIDI Express PC. For example, you can make changes to the SMPTE settings or connect one MIDI device to another.

This chapter takes you through the process of opening Express PC Console for the first time. It also introduces you to several unique aspects of the windows you will use in the software.

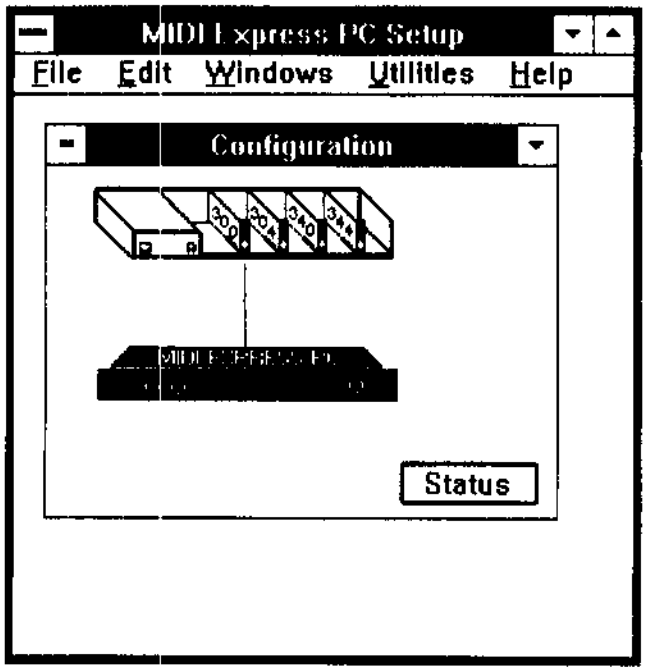
In explaining how to use MIDI Express PC Console, this chapter assumes that you are already familiar with the standard Windows interface conventions, such as how to select options using check boxes and radio buttons, how to type and edit text, and so forth.

Opening MIDI Express PC Console for the first time

After installing MIDI Express PC Console, follow the procedure below to ensure that it has successfully established communication with the MIDI Express PC. To open the MIDI Express PC Console:

1. **Double-click the Program Manager's MIDI Express PC Console icon.**

   If all goes well, you should see the Configuration window appear. The Configuration window confirms that the Console can successfully communicate with the MIDI Express PC.



2. **If you don't see the Configuration window, and instead see a message telling you that the Console can't communicate successfully with the MIDI Express PC, check the following things and try again.**

   - Make sure that the I/O address set in the Express PC Windows driver in the Control Panel matches the hardware setting on the PC card (as determined by the DIP switches on the card). See the diagrams in the section "Setting the PC Card I/O Address" on page 13 and make sure that the DIP switches match the diagram for the I/O address you want to use. Then make sure that the MIDI Express PC Windows driver setting in the Control Panel matches the DIP switches.

- Make sure that the IRQ used for the MIDI Express PC Windows driver in the Control Panel is not being used by another device.
- Make sure that the MIDI Express PC Windows driver is installed correctly—in the Control Panel Drivers window.
- If all of the above fail, make sure that the MIDI Express PC card is firmly and properly seated in its slot.

3. **Once you have verified your MIDI Express PC configuration, you are ready to begin using the other features in MIDI Express PC Console.**

   We recommend that you begin by naming the MIDI INs and OUTs in the network. After reviewing the rest of this chapter, see "Naming inputs and outputs" on page 41.

Check box grids

Several MIDI Express PC Console windows display an entire grid of check boxes (because each window offers so many possibilities!) A check box grid looks like this:

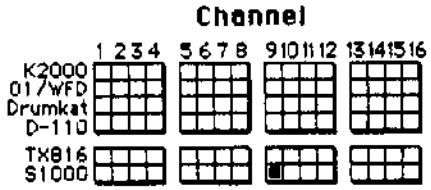


Figure 2-1: A Check box grid.

The grid consists of check boxes placed edge to edge in rows and columns. The rows and columns are arranged into groups of four for clarity.

A check box in the grid represents a connection between its row and column numbers. For example, the box that is checked in the grid shown in Figure 2-1 indicates channel 9 on the cable named "Akai S1000".

Check boxes in a grid function the same way as regular check boxes. In addition, we have added several shortcuts that you will find extremely useful when using the grids. To select several adjacent boxes, click and drag. To select an entire column, click the column number. Similarly, to select an entire row, click the row number.

To deselect an entire row or column, click the number again. The row will only deselect if all boxes in it are selected.

Controlling the MIDI Express PC from the Console software

The MIDI Express PC has power-up default settings that facilitate the use of MIDI software, especially sequencers that support multiple, separate-channel MIDI ports like Cakewalk Pro, Cubase, and Cadenza.

You can make changes to these power-up default settings by using any of the windows in the MIDI Express PC Console software. For example, you can use the Cable Routing window to connect a MIDI device on MIDI IN port 1 to another device on MIDI OUT port 5. Or you can use the SMPTE Controls window to stripe SMPTE time code.

Changes you make to the MIDI Express PC setup in these windows are remembered. (They are saved by the MIDI Express Windows driver; they are not saved in the hardware of the MIDI Express itself.)

If you want to save a current state (we call it a "setup"), use the Setups window and Setups menu to save the setup. You can then recall the setup at any time. You can save a potentially unlimited number of setups on disk. For more information, see chapter 3, "Working with Setups" and chapter 4, "Working With Files".

Understanding the interaction between the software and hardware

MIDI Express PC Console always reflects the current state of the MIDI Express PC. (At least, it *should*.) If, at any time, you suspect that the windows in the software don't accurately reflect what's going on in the hardware for some reason, click the Status button in the Configuration window or choose Verify Connections from the Utilities menu. Doing so reestablishes communication between the software and hardware, and the software gets updated to the current state of the hardware.

When communication is successfully established, changes you make in MIDI Express PC Console are immediately reflected in the hardware.

Obtaining the ROM version

To obtain the ROM version of your MIDI Express PC, double-click its icon in the Configuration window. A dialog box appears displaying the ROM version number for the MIDI Express PC.

Chapter 3 Working with Setups

This chapter explains how to manage MIDI Express PC's setups. A setup is a "snapshot" of the MIDI Express PC settings. For example, the setup includes all of the settings that you see in each window, such as SMPTE Controls, Cable Routing, Channel Mapping, and so on.

This chapter explains how to use the Setups window to:

- Modify the factory default settings of the MIDI Express PC
- Create, save and recall a setup
- Create as many setups as you like
- Use the stock setups we have provided for common situations in which you will use the MIDI Express PC

Setup basics

When you first switch on the MIDI Express PC, it powers up with a factory default setup configured for use with MIDI software, especially sequencers like Cakewalk Pro, Cubase, and Cadenza. You should be able to run MIDI software without making any changes to the MIDI Express PC settings, including recording, playback and SMPTE synchronization via MIDI Time Code (MTC).

At some point, however, you may need to change the default setup. You can do so by using any of the windows in the MIDI Express PC Console software. For example, you can use the Cable Routing window to connect a MIDI device on MIDI IN port 1 to another device on MIDI OUT port 5. Or you can use the SMPTE Controls window to stripe SMPTE time code.

Changes you make to the MIDI Express PC setup in these windows are remembered. (They are saved by the MIDI Express PC Windows driver; they are not saved in MIDI Express PC hardware itself.)

If you want to save more than one setup, you need to use the Setups *Window and the Setups menu commands. You can then recall any* setup at any time. You can create and save a potentially unlimited number of setups in the Setups window. These tasks are covered in the rest of this chapter.

You can also save the entire contents of the Setups window as a file on disk. For information, see chapter 4, "Working With Files".

The Setups window

The Setups window in the MIDI Express PC Console software gives you an overview of information about all the setups. It lets you:

- View all setups
- View an itemized description of each setup
- Select, modify, create, save, and rename any setup

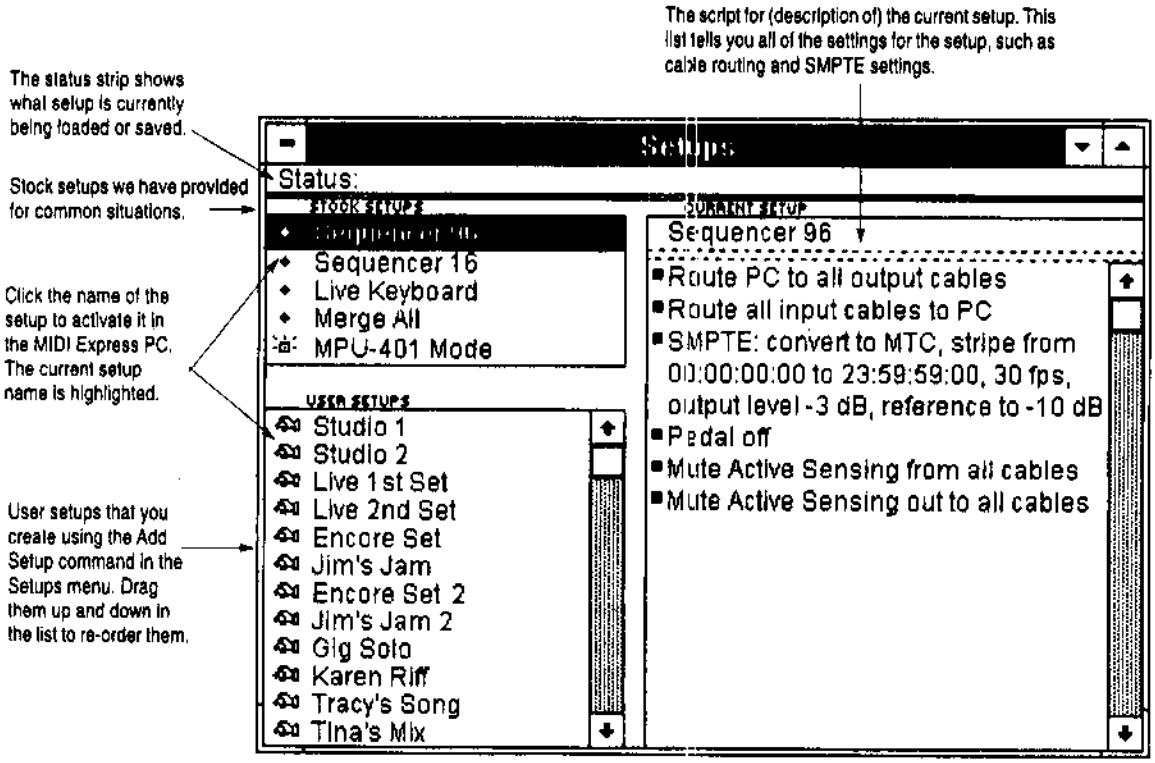


Figure 3-1: The Setups window.

Selecting the current setup

When one of the setups is highlighted as shown in Figure 3-1, it becomes the **current setup**. The current setup represents the current state of the MIDI Express PC.

To switch to a different setup, click the setup name in the Setups window.

You can select either a stock setup or a user setup in this manner.

Viewing the current setup script

The **setup script** is an itemized list of settings for the currently selected setup. The script is shown in the right-hand portion of the window with the name of the current setup shown at the top. (See Figure 3-1 on page 30.) The script is a comprehensive list of all of the MIDI Express PC settings for the setup. The next section explain how to add or remove a setting from the script.

Adding a script setting

You can change any settings of the currently selected setup in any window in MIDI Express PC Console. For example, you could add or delete a connection in the Cable Routing window, change a setting in the SMPTE Controls window, or mute something in the Event Muting window.

Any additions you make appear in italic text at the bottom of the setup script in the Setups window.

Saving changes to a setup

If a user setup is selected at the time you add or remove a script item, the change is automatically saved with the setup. (Saving occurs when you switch to a different setup or when you quit MIDI Express PC Console.)

If a stock setup is selected when you make the modification, the change remains in effect until you switch to a different setup. Since the modification can't be saved with the stock setup (stock setups can't be modified), MIDI Express PC Console presents you with a window asking you if you would like to save the current state of the MIDI Express PC as a user setup. Indicate what you would like to do and click OK. The modified stock setup gets saved as a user setup, and the original stock setup remains unchanged.

If you want to save changes you have made to a setup right away, choose the Save to Setup command in the Setups window. This saves the changes with the setup immediately, and the italicized text in the script becomes plain text.

Creating a user setup

A **user setup** is a setup that you create, with its own, customized settings. User setups are displayed in the User Setups list in the Setups window. You can create an unlimited number of your own setups.

To create a setup:

1. **Click an existing setup that most closely resembles the new setup you want to create.**

   This makes it the current setup.

2. **If desired, make any changes you would like to make to the current setup in any MIDI Express PC Console windows.**

3. **Choose Add Setup from the Setups menu.**

   A window appears asking you to name the new setup.

4. **Click OK to confirm the name.**

   The new setup appears in the "User setups" list in the Setups window. It is selected (which makes it the current setup), and the script to the right shows you all of its settings.

Modifying a stock setup

Stock setups cannot be modified (except for the MPU-401 setup). However, you can create a user preset based on a stock preset and then modify the user preset any way you wish. To do so, see "Saving changes to a setup" on page 31.

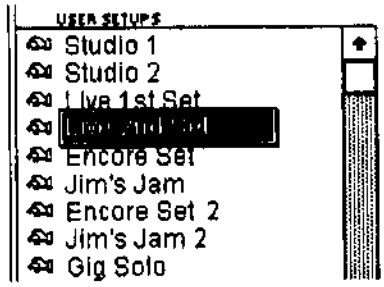
Renaming user setups

The stock setup names (the first eight setups in the list) cannot be changed. Any user setup name, however, can be changed.

To change the name of a user setup:

1. **Double-click the name to pop-edit it.**

   A pop-up box appears in which you can edit the text.



2. **Type the desired name.**

3. **Press return to confirm the new name or press the Escape key to cancel.**

Deleting a user setup

To delete a user setup, select it and choose Delete Setup from the Setups menu.

Listing user setups alphabetically

To list setups alphabetically, choose Sort Setups from the Setups menu.

Stock setups

The Setups window provides several stock setups. These setups provide you with cable routing, SMPTE, and other settings for various common situations in which you will use the MIDI Express PC.

The stock setups cannot be modified (with the exception below). However, you can create a user setup based on a stock setup and modify it. See "Saving changes to a setup" on page 31.

> ☛ The MPU-401 setup is an exception: it *can* be modified.

Each stock setup is described in the following sections, including situations in which you would find it useful. See the "Stock Setup summary" on page 36 for a itemized description of each setup.

Sequencer 96ch

This setup is designed for MIDI software, especially sequencing software, that supports multi-cable interfaces such as the MIDI Express PC. Use this setup if you have Cakewalk Pro™ or Cubase, which support the MIDI Express PC's full 96 channels. Each MIDI input and MIDI output on the MIDI Express PC has its own set of 16 MIDI channels, providing a total of 96 separate input channels and 96 separate output channels.

The specific settings for this setup are:

- Inputs 1 through 6 are all routed to the computer, so that all MIDI devices can send MIDI data to the computer.
- The computer is routed to all six outputs, so that MIDI software on the computer can send data to any MIDI device.
- SMPTE sync settings are as follows: Lock to MIDI Time Code (MTC) with jam sync (freewheeling) turned off.

Sequencer 16ch

Use this setup for MIDI software, especially sequencing software, that does not support multiple, independent output cables on multi-cable interfaces like the MIDI Express PC. With this setup, the computer can communicate fully with all MIDI devices connected to the MIDI Express PC, and all devices share one set of 16 MIDI channels.

Live Keyboards

Use this setup when you want to route any controller connected to a MIDI IN to all MIDI outputs. This setup is ideal for quickly routing a controller to a sound module and for using a MIDI controller without MIDI software on the computer. If you have connected both the MIDI IN and MIDI OUT of your keyboard controller to the MIDI Express PC, it is best to match the input/output port numbers on the MIDI Express PC. For example, if the controller is connected to MIDI IN port 3, connect it to MIDI OUT port 3 as well. If you do so, this setup prevents ugly MIDI feedback loops, which happen when the controller sends data back to itself via the MIDI Express PC. This setup avoids this problem by not sending data to the port that has the same number. For example, MIDI IN port 3 routes data to all MIDI OUT ports *except* MIDI OUT number 3.

Merge All

With this setup, any device connected to a MIDI IN will send data all devices connected to the MIDI Express PC outputs, including tl computer. This setup is ideal for troubleshooting because it routes everything to everywhere; any incoming data will be sent to all outputs. For example, if you are not getting sound from a sound module when you play notes on your controller, you can eliminat MIDI routing as the cause of the problem by temporarily using thi setup. You can rest assured that the MIDI Express PC is routing th data to the module correctly, and you can then focus your efforts (other possible causes, such as bad MIDI cables, volume settings, e

Use this troubleshooting technique if you cannot successfully reco data into your sequencer on the computer.

MPU-401 Mode

This setup is provided as an emulation of a Roland MPU-401 MIDI interface. Initially, MIDI IN port 1 is routed to the computer, a computer is routed to all MIDI OUTs for basic MIDI recording and playback. Based on these cable routings, the MIDI Express PC Windows driver provides MPU-401 compatible software with MPU 401 Multimedia Extensions input and output devices, which the software can send data to and receive data from. If you want, you c modify the MPU-401 cable routing configuration to provide up to s MPU-401 inputs instead of the default one input. Just add the inpu connections in the Cable Routing window. For more information (MPU-401 mode, see chapter 10, "Emulating the Roland MPU-401".

Stock Setup summary

Below is a summary of the settings for each stock setup. Following the table is a key for terms used in the table.

Setup	Cable Routing	SMPTE	Comments
Sequencer 96ch	IN 1-6 to computer Computer to OUT 1-6 Cablization enabled	Lock to MTC Jam sync off	--
Sequencer 16ch	IN 1-6 to Computer Computer to OUT 1-6 Cablization disabled	Lock to MTC Jam sync off	--
Live Keyboards	IN 1 to all OUT except 1 IN 2 to all OUT except 2 etc. for all inputs Computer to all OUTs	Lock to MTC Jam sync off	--
Merge All	All INs to All OUTs All INs to Computer Computer to all OUTs	--	--
MPU-401 mode	IN 1 to Computer Computer to all OUTs	Lock to MTC Jam sync off	–

Stock Setup Table Key

IN	Refers to a MIDI IN port
OUT	Refers to a MIDI OUT port
Cablization	A mode where each port has a separate set of 16 MIDI channels for a total of 96 input channels (6 ports x 16 channels = 96 total channels)
Computer	Refers to the computer the Express PC is connected to.
MTC	MIDI Time Code
Jam Sync	See "Using freewheeling to avoid time code dropouts" on page 53 for an explanation of Jam Sync.
MPU-401	A standard PC MIDI interface developed by Roland

Chapter 4 *Working With Files*

This chapter explains how you can save the contents of the Setups window as a file on disk, which you can reopen, modify, and save again at any time. This allows you to store a potentially unlimited number of MIDI Express PC setups.

In essence, a MIDI Express PC file stores the entire contents of the Setups window, which consists of all of the MIDI Express setups you have created and saved in this window. For information about setups, see chapter 3, "Working with Setups".

Creating a new file

To create a new file:

1. **Choose Save from the File menu.**
2. **A window appears asking you for a file name and a location on your computer hard disk.**
3. **Type in a name, select a directory, and click OK.**

Opening an existing file

To open an existing file from within MIDI Express PC Console:

1. **Select Open from the File menu.**

   A dialog box appears containing a list of files in the current directory. Change the directory, if necessary.

2. **Click on the name of the file you wish to open.**
3. **Click on the Open button.**

   The file you selected will be opened. Double-clicking on the name of the file will also open the file.

Saving files

When you open a file from a disk, MIDI Express PC Console makes a copy of that file and puts it in the computer's temporary memory (called Random Access Memory, or RAM). When you work with the file, you are actually working with the copy that is in RAM, not the original file on the disk. If you choose *Save* from the File menu, MIDI

Express PC Console writes the changes you have made into the original file on the disk. If you do not save, the changes you have made are never written to the disk. For example, if you Exit without saving changes, the work you have done is not saved on the disk and is permanently deleted from the computer's memory.

Here's the basic procedure to save a file:

1. **Choose the Save command from the File menu.**

   Your file is saved on the disk in its current state, replacing the old version with the same name. If you want to keep the old version, use the Save As command in the File menu (see below) instead to save the current version under a different name. If you are saving the file for the first time, a dialog box will appear prompting you for a name.

Saving a file under a different name

The Save As command is used to save a file under a different name or to a different disk:

1. **Choose *Save As* from the File menu.**

   The Save As dialog box will appear.

2. **Type in the new name for the file.**

3. **Click on the Save button.**

   Your file is saved on the disk in its current state under the new name.

Reverting to a previously saved version of the file

If you've made unwanted changes to a file, you can undo the changes you've made by returning to the last saved version. This operation is identical to closing the file and opening it from the disk again.

1. **Choose Revert to Saved from the File menu.**

   A dialog box asks you to confirm this choice.

2. **Click on OK to confirm the action, Cancel to withdraw it.**

   Reverting to the last saved version of the file means that all changes you've made since you opened or last saved the file will be lost.

Reverting to a previously saved version is useful when experimenting with a file. You can quickly remove any changes by using this command. Make sure that you save the file in the state you want it before beginning to experiment.

Exiting MIDI Express PC Console

Exiting MIDI Express PC Console returns you to Windows.

- Choose *Exit* from the File menu.

A dialog box may appear asking you if you want to save changes made to the file. To save the changes, press Yes. If you don't want to save changes, press No. To withdraw the Exit command and return to your MIDI Express PC Console file, press Cancel.

Chapter 5 Making Connections with the Cable Routing Window

The Cable Routing Window provides you with complete con
the flow of MIDI data through the MIDI Express PC.

Naming inputs and outputs

Before you begin using the Cable Routing window, we rec
that you name the inputs and outputs to make it easier to r
what is connected to each one.

Use the "MIDI connections work sheet" on page 19 to jot dc
is connected to each input and output on the MIDI Express
enter the names as follows:

1. **Click the input or output cable name to pop-edit it.**

   A pop-up box appears to let you edit the name.

2. **Type the name you want, and press return to confirm you
   press the down (or up) arrow key to name the next (or pr
   cable.**

3. **To change from one side to the other, press the tab key.**

When you have finished, Express PC Console remembers t
names.

Cable Routing window basics

The cable routing window shows you how MIDI data is rc
between the Express PC's MIDI inputs, MIDI outputs, and
computer. Inputs are on the left, outputs are on the right, a
computer appears in the middle. The "Show..." commands
Routing menu control what is displayed in the window. Cl

menu item for the type of connections you want to see: cable-to-cable connections or cable-to-computer connections. Below in Figure 5-1, the window displays connections to and from the computer.

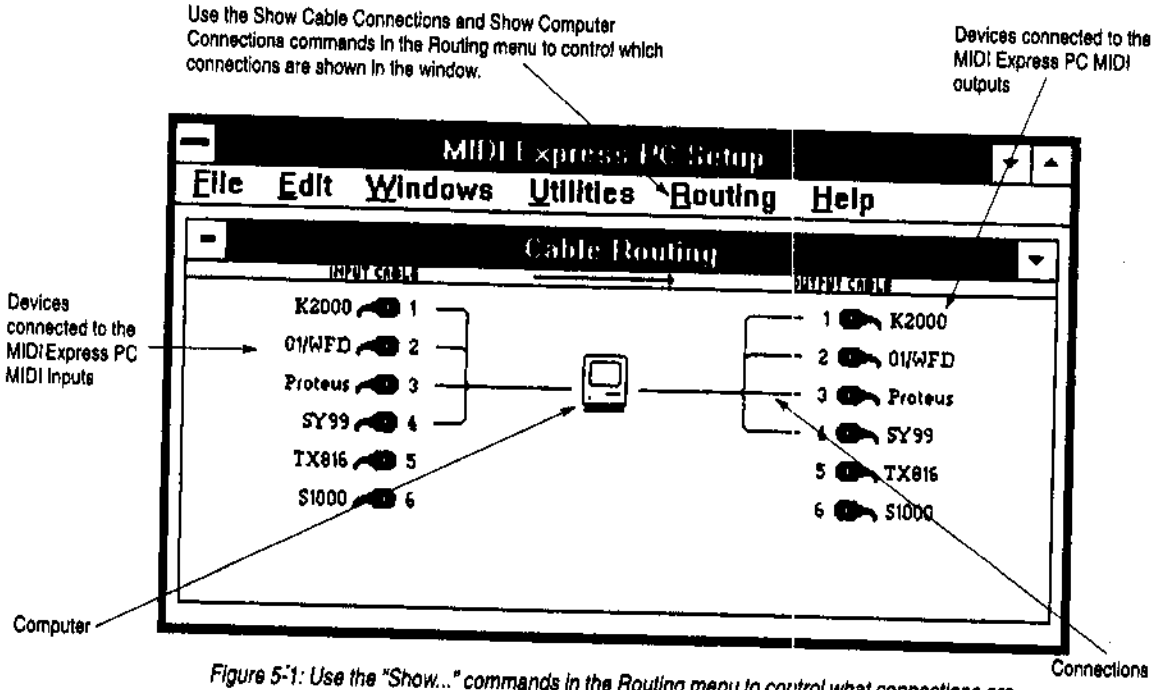


Figure 5-1: Use the "Show..." commands in the Routing menu to control what connections are displayed in the window. In this example, the window is showing the connections between MIDI devices and the computer. MIDI data inputs going from the MIDI devices to the computer are shown on the left. MIDI data outputs going from the computer to the MIDI devices are shown on the right.

If you ever need to check how MIDI data is being routed in the MIDI Express PC, use the Cable Routing window to do so. In the rest of this chapter, you'll learn how to make and break your own connections.

Making a connection

To connect a piece of MIDI gear to another in the network:

1. **Choose Show Cable Connections from the Routing menu.**
2. **Click the source cable icon on the left and drag to the destination cable icon on the right.**

3. **Press the return key to confirm the connection.**

The "all" box displayed on the connection means that all ch on the K2000 are currently routed to all channels on the P If you want to connect specific MIDI channels, you can typ in before pressing the return key. See "Specifying channels connection" on page 43.

Connecting one input to multiple outputs

To connect an input to more than one output, make each conn separately as described in the previous section. As a shortcut, shift-drag (hold down the shift key before you click and drag the input cable on the left over to the first output, and then d directly to each additional output on the right. As you "touch" output, it highlights and a connection is made.

Selecting a connection

To select a connection, click the connection's input cable icon left or any one of its output cable icons on the right.

Deselecting all connections

To deselect all connections, click in a blank area anywhere i middle of the window between the two columns of cables. (click on a cable connection).

Breaking a connection

To break a connection:

1. **Select the connection.**
2. **Press the delete (or backspace) key.**

Specifying channels in a connection

The MIDI Express PC lets you route specific channels to any outputs. For example, you could route channel 2 from your c to a sound module, while you route channel 3 to your samp is great for routing keyboard splits to different destinations.

☛ If you need to rechannelize data see chapter 6, "Channel Remapping".

To specify the channel to be routed:

1. **Click the Input device.**
2. **Click the box on the connection.**

3. **Type in the desired MIDI channel and press return to confirm your choice.**

   If you want, you can type in several channels. This is useful if you are using a keyboard split on your controller and you want to send the splits to different channels of the same synth. For example, a K2000 keyboard could be split into three parts, transmitting on channels 1, 2, and 3, which are being connected to channels 1, 2, and 3 on a Proteus, as well as channel 2 on another synth and channel 3 on yet another. If you want all channels to be connected, type "a" for "all" (connect all channels). When all channels are connected, channel 1 is connected to 1, 2 is connected to 2, etc.

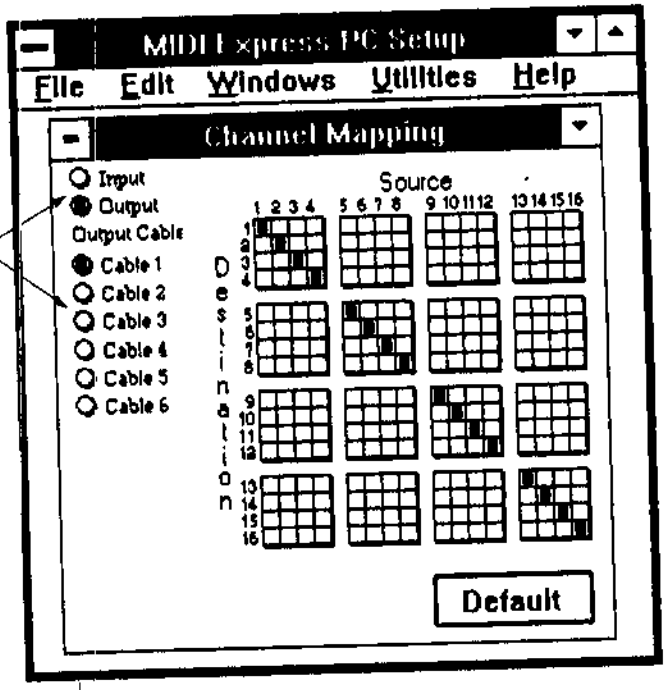
   ☛ Note: channel remapping cannot be done in this window. For example, you cannot route channel 3 on the K2000 to channel 5 on the Proteus. To accomplish this, see chapter 6, "Channel Remapping".

Making and breaking connections to the computer

To edit connections to and from the computer, make sure that "Show Computer Connections" is checked in the Routing menu. Edit these connections in the same manner as described earlier in this chapter.

Chapter 6 Channel Remapping

The Channel Mapping window controls the channelizing of data on all MIDI IN and MIDI OUT ports in a MIDI Express I complete flexibility, this window can switch data from its cu MIDI channel to any other channel immediately when the da enters or exits the MIDI Express PC.



These options set up the check box grid on the right. Choose MIDI input ports or MIDI output ports, and then choose the MIDI port (device) that you want to rechannelize. Then click the appropriate source/ destination channel check box in the grid.

Map the origi (across the t new channel by clicking th that intersec

Basics

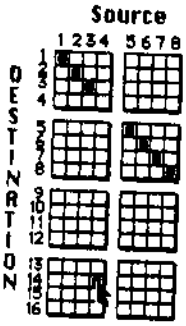
Channel mapping can be easily understood if you consider imagine that each MIDI IN or MIDI OUT port on the MIDI E has a filter just inside the socket. MIDI data enters the filte channel and as it passes through the filter, it gets switched different channel.

On a MIDI IN port, data enters the MIDI Express PC on a given channel. But before it goes anywhere else, either to the computer or to a MIDI OUT cable, the Channel Mapping window can switch the data to a different MIDI channel.

On a MIDI OUT port, before data exits the MIDI Express PC, the Channel Mapping window can switch the data to a different channel.

Using channel mapping

Channel Mapping like this is useful in many different situations. For example, you may have a MIDI keyboard that only transmits data on MIDI channel 1. If you want to transmit its data on a different channel, you can map channel 1 on the keyboard's MIDI IN cable to any other MIDI channel. To the rest of the MIDI Express PC, it will then appear as if the keyboard is transmitting on the new, destination channel.



To map a source channel to a different destination channel, locate the source channel's column (across the top of the grid) and click the check box in the column that corresponds to the desired destination channel (indicated along the left side of the grid).

For example, to remap channel 4 to channel 14, click the check box in column 4, row 14 as shown to the left.

The default check box (column 4, row 4) will deselect, indicating that data will no longer be sent to channel 4. Now data received on MIDI IN cable 1, channel 4 will be remapped to channel 14.

Muting source channels

The Channel Mapping window will route each source channel to *only one* destination channel. On the check box grid, this means that one, and only one, check box can be selected in each column of the grid. You therefore cannot mute a source channel by deselecting all check boxes in its column. However, you can mute a channel by using the Event Muting window. For more information about muting, please refer to chapter 7, "Muting MIDI Data".

You can, however, select as many check boxes in a row as you like. Doing so simply routes data from all the source channels to a single destination channel.

Muting and remapping

For information about when muting occurs before channel mapping and vice versa, see "Muting and remapping" on page 50.

Chapter 7 Muting MIDI Data

The Event Muting window is a sophisticated MIDI data filter controls what types of data will be sent and received by eac OUT and MIDI IN port in a MIDI Express PC. You can filter type of MIDI data on any channel on any port. In addition, ea channel can have its own unique muting setup. The Event M window shows the muting status for each type of data on all channels and all 6 cables (input or output) at once, giving y comprehensive feedback on the state of your MIDI Express

Basics

A simple way to think of data muting is this: imagine that ea IN or MIDI OUT port on the MIDI Express PC has a filter ju the socket. A MIDI data stream enters the filter and then cont past the filter with certain types of data removed. The filter h "swallowed" the data types that are being muted.

On a MIDI IN port, data is muted before it enters the MIDI Express PC. On a MIDI OUT port, data gets muted just befo transmitted out the cable.

☛ When data is muted on a MIDI IN port, the light on front panel still blinks when the data is received on port. Don't be concerned. The light blinks to let y know that the MIDI Express PC is indeed receiving data on that port. However, the data does get mut (On output, however, since muted data doesn't actually get sent, the light does *not* blink.)