

Midisoft®
Recording Session



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1

Overview of Recording Session



Recording Session is a powerful sequencer offering standard MIDI sequencing features, as well as an editable musical notation display.

The program contains three windows, or views that you use to play and edit your musical compositions.

Score View

This window (Figure 1-1) displays your music in standard musical notation. As you record, notes will appear onscreen. When you play back the song, you can see the notes highlighted as they are sounding. You can also add, delete and edit notes and phrases from this windows.

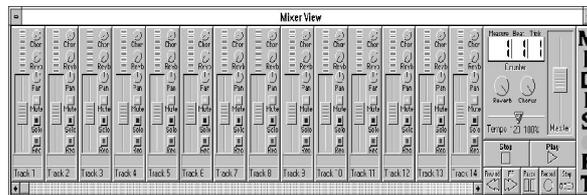
Figure 1-1
Score View



Mixer View

This window (Figure 1-2) is where you play, name, and adjust tracks. You have real-time control of the playback characteristics of each track, so you can experiment before making permanent changes.

Figure 1-2
Mixer View



This window also contains the transport button (Figure 1-3) similar to an audio tape deck, as well as a tempo slider, a Master Volume control, and a song location display (Counter).

Figure 1-3
Tape Deck buttons



MIDI List View

This window (Figure 1-4) displays your music as MIDI events. If you are more comfortable with a traditional MIDI sequencer, this affords you the flexibility of minute adjustments to the shape of each note. In addition, you can enter and edit MIDI messages such as Program Change, Aftertouch, Pitch Bend and others.

Figure 1-4
MIDI List View

MIDI List View - A_BRIDGE.MID									
Type	Chan	Start Time	Duration/Data	Pitch	Vel On	Vel Off			
1 -PIANO									
Controller	[1]	1	1	7	100				
Controller	[1]	1	1	64	0				
Controller	[1]	1	1	64	0				
Note	[1]	1	1	1	12	133	E4	78	64
Note	[1]	1	1	2	1	12	G3	76	64
Controller	[1]	1	1	4	64	0			
Note	[1]	1	3	49	0	10	G4	127	64
Note	[1]	1	3	95	0	10	C5	112	64
Note	[1]	1	4	45	0	10	E5	112	64
Note	[1]	1	4	96	0	1	D4	90	64
Note	[1]	2	1	1	0	1	B3	68	64
Note	[1]	2	1	3	0	1	F4	74	64
Note	[1]	2	1	3	0	10	E5	112	64

Toolbox

In addition, there is a Toolbox (Figure 1-5) in the Score View window, containing a Selection tool, a Note Add tool, a Note Delete tool, a Cut tool, and a Paste tool.

Figure 1-5
Toolbox



Default Views

When you start **Recording Session**, the windows (or views) that appear are:

- Score View: at the top of the screen, beneath the menu bar. A Toolbox appears on the left side.
- Mixer View: beneath the Score View.

You can move these windows to different locations, close them, and size them.

Online Help

There is an online help facility available at all times. Simply press F1 and you will open the Windows Help program. The information available online is more complete than this manual.

If you need information about using the Help feature, choose the *Using Help* item in the Help menu. This is brief introduction to using Help with any Windows program.

Recording Session

You can navigate through the **Recording Session** Help by clicking on the topics that need explanation or clarification. The information is organized in two ways--by procedure, and by command reference. There is also a glossary in case you want to look up a particular term.

Note: You must be running a version of the Windows Help program that ships with Windows 3.1 or Multimedia Windows. Earlier versions will not work with the online help file.

2

MIDI Setup

Before jumping into **Recording Session** with both feet, you need to make sure that your MIDI interface is set up and installed correctly.

MIDI interface

Interface type **Recording Session** works with any interface supported by Windows 3.1/Multimedia Windows. You need to set up the interface with the proper driver in the Windows Control Panel program before it will work with **Recording Session**.

Interrupts You need to determine something called an *Interrupt Request level* (IRQ) for the interface card. The IBM and compatible computers use interrupts to signal the CPU (Central Processing Unit, or brain) of your computer that a specific part of the system (the MIDI interface in this case) needs attention. Many items in a PC use interrupts -- hard and floppy disk drives, modems, serial ports, scanners, mice, and other pointing devices, network adapters, etc.

You must have your interface's IRQ set to a unique number, or there will be conflicts. If you do have a conflict, your MIDI interface will probably not work, or work intermittently.

Some hints on interrupts --

Do not use IRQ 4 if you have an active serial port.

Do not use IRQ 3 (and 4) if you have two serial ports.

Do not use IRQ 7 if you use a print spooler. Otherwise, this is usually a good choice for an available interrupt.

If you have a mouse, it is probably set to IRQ 2 or IRQ 3.

Recording Session

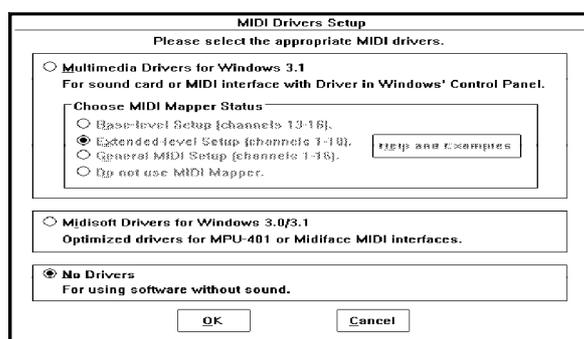
Port address Some MIDI interfaces allow you to change their *port*, or *I/O address*. On occasion, another peripheral card, such as a scanner or SCSI card, may be set to use the same port address. In this case, you will have to change the interface or the other peripheral to use a different port address.

Installing the card Once your interface is ready, install it into an empty slot in your computer case. (Remember to turn off the computer first!). Observe static electricity precautions, as MIDI interfaces are static sensitive devices.

Make sure that the card is seated firmly and correctly in the slot before turning the computer on again. If you do not feel comfortable taking your computer apart, you may want to ask a friend to help, or have a technician at a local computer store install it for a small fee.

When you start **Recording Session** for the first time, you will need to specify the MIDI driver you would like to use. The MIDI Drivers dialog box (Figure 2-1) will appear.

Figure 2-1
MIDI Drivers dialog
box



You have three choices: *Multimedia Drivers*, *Midisoft Drivers*, and *No Drivers*.

The *Multimedia Drivers* option uses generic drivers written to work with any MIDI program that supports Windows 3.1/ Multimedia Windows. You must have MIDI properly set up in the Windows Control Panel. Use this option if you need to use the Windows MIDI Mapper.

The *Midisoft Drivers* option uses a driver created specifically for **Recording Session**. If you use this, you will need to disable any standard MIDI driver settings in the Windows Control Panel.

The *No Drivers* option allows you to use the program for display and editing, but not playback. This is useful if you have not yet purchased a MIDI interface.

Recording Session should now run, if you have set up your interface correctly. Congratulations -- this is one of the most difficult areas for novices!

A MIDI system

To form a complete MIDI system, you need a *MIDI input device* (such as a keyboard) and a *MIDI output device* (such as a synthesizer module).

For many years, the word *synthesizer* was connected with the word *keyboard* in many people's minds. Today, synthesizers are recognized to be simply tone-generating devices which can be controlled by a keyboard, as well as drum pads, motion sensor, breath controllers, computer signal (and who knows what else). The synthesizer cannot distinguish between any of these -- it's all MIDI.

Although many synthesizer (especially older models) have keyboards attached, there is a growing trend toward separate components, as guitarists, drummers, wind players, etc. become interested in MIDI. We will assume for the sake of illustration that you have a separate keyboard controller and synthesizer module, even if they are housed in the same case.

The Keyboard is the MIDI input device in this case (substitute guitar controller / drum pads / pitch-to-MIDI converter etc. if you have those instead). Connect a MIDI cable from the MIDI OUT jack of the keyboard to the MIDI IN jack of your MIDI

interface. If you do nothing else, this now enables you to record music, although you won't be able to play it back.

The synth module is the MIDI output device in this case. Connect another MIDI cable from the MIDI OUT jack of the interface to the MIDI IN jack of the synth module. You now have a complete system -- an input device (the keyboard) to enter music into **Recording Session**, and an output device (the synth module) on which to play back the finished product.

A relatively new type of synthesizer is one contained on a sound card that installs inside a computer. These have the advantage of being compact and economical. Many of these cards are available with drivers for Windows 3.1 / Multimedia Windows.

Local Control On/Off, MIDI Thru, and MIDI feedback

Local Control On/Off When you are using a synthesizer which includes an integral keyboard, you will be using a feature called Local Control On. This means there is an internal connection between the keyboard and the synthesizer. If there was no connection, then you would not hear anything when you pressed a key.

MIDI Thru A MIDI THRU connector copies any data at the MIDI IN back out. Many MIDI software packages provide this same feature, usually called MIDI Thru.

A problem arises when you use a keyboard synthesizer with Local Control On and a sequencer with MIDI Thru On. The keyboard sends MIDI messages to both the synthesizer and the sequencer simultaneously. The sequencer passes the MIDI messages through and back to the synthesizer with a slight delay. The result is a doubling of notes, which is not often useful musically.

To avoid this problem, always use Local Control On (on your synthesizer) or MIDI Thru (on the sequencer) -- but never both together!

MIDI feedback A related problem is that many types of MIDI equipment (not only synthesizers) have an internal MIDI Thru capability. This can be useful in certain situations, but when hooked into a sequencer that also provides MIDI Thru, you end up with a classic feedback loop. MIDI output goes to an input, through to an output back into an input, and around the chain, where it starts all over again. You will either hear garbled or stuck notes, or everything will lock up and refuse to play.

Again, the solution is: never use MIDI Thru on both the MIDI equipment and the sequencer simultaneously. **Recording Session** allows you to switch the MIDI Thru feature on or off in the Options menu.

3

Keyboard Reference

Command Keys

Spacebar	Play / Record toggle
F1	Help Contents
F2	Stop button
F3	Rewind button
F4	Fast Forward (FF) button
F5	Play button
F6	Record button
F7	Pause button
F8	Step Record
F9	Step Play
Alt or F10	Activate menu bar
Shift + Del	(Edit) Cut
Shift + Ins	(Edit) Paste
Ctrl + Ins	(Edit) Copy
Ctrl + 1	(View) Score
Ctrl + 2	(View) Mixer
Ctrl + 3	(View) MIDI List

Ctrl + A	(Edit) Select All
Ctrl + B	(Options) Split Input at Middle C
Ctrl + C	(Music) Clef
Ctrl + D	(Track) Delete
Ctrl + E	(Music) Tempo
Ctrl + G	(Music) Time Signature
Ctrl + I	(Track) Insert
Ctrl + K	(Music) Key Signature
Ctrl + M	(Options) Metronome Enable
Ctrl + N	(File) New
Ctrl + O	(File) Open
Ctrl + Q	(Music) Quantize
Ctrl + S	(File) Save
Ctrl + T	(Music) Transpose
Ctrl + V	(Music) Velocity
Ctrl + W	(Options) Auto Rewind
Ctrl + X	(File) Exit
Alt + F	File menu
Alt + E	Edit menu
Alt + O	Options menu
Alt + S	Setup menu
Alt + V	View menu
Alt + T	Track menu
Alt + M	Music menu
Alt + H	Help menu

Dialog box keys

Tab	Moves to next list box, text box, check box, command button or group of option buttons.
Shift + Tab	Moves to previous list box, text box, check box, command button, or group of option buttons.
Arrow keys	Moves and selects within active group of option buttons.
Spacebar	Turns on or off active check box or chooses active command button.
Letter keys	Moves to next item beginning with that letter in an active list box..
Alt + Underlined letter	Selects item with that underlined letter.
Enter	Chooses active command button.
Esc	Cancels command and closes dialog box.

Keys for Switching Windows

For applications :

Alt + Esc	Next application
Alt + Shift + Esc	Previous application
Alt + Tab	Next windowed application
Alt + Shift + Tab	Previous windowed application
Ctrl + Esc	Display the Task List

For documents :

Ctrl + F4	Close window
Ctrl + F5	Restore window
Ctrl + F6	Next window
Ctrl + F7	Move window
Ctrl + F8	Size window
Ctrl + F10	Maximize window

Menu Keys

When menu bar is active :

Esc	Cancels menu.
Spacebar	Displays Application Control menu.
Hyphen	Displays Document Control menu.
Underlined letter	Displays menu.
Left or Right Arrow	Highlights the menu to the left or right.

When menu displayed :

Underlined Letter	Chooses command.
Enter	Choose highlighted command.
Esc	Cancels menu.
Up Arrow	Highlights previous command.
Down Arrow	Highlights next command.
Left or Right Arrow	Displays the menu to the left or right.

Appendix A

Tutorial

This is a short tutorial that will help introduces a few of the more important concepts of **Reording Session**.

In the following steps, you will record a short song, save it, edit it, and re-save it with a new name.

Recording the first track

- Start the program by loading Windows and then clicking on the **Recording Session** icon.
- Click on the Option menu, and make sure the Lead-in Measure option is enabled. (It should have a check mark next to it. If not, drag the mouse down to the item and release the mouse button.)
- Click on the Record button in the Mixer View to begin recording. (You can press the F6 key on your computer keyboard instead.) The metronome will begin to sound, counting off one measure before actually recording.
- Start playing a short melody as soon as the first (lead-in) measure has passed.
- When you are done, click on the Stop button in the Mixer View. (You can press the F2 key instead.)
- If the *Auto Rewind* function is turned on, the song will return to the beginning. The Counter in the Mixer View will display 1|1|1|. Click on the Rewind button if necessary to return the song to the beginning.

Playing the first track

- To play back the track you recorded, click on the Play button in the Mixer View. (You can press the F5 key instead.) Your melody will begin playing back.
- Click on the Rewind button to return the song to the beginning, if the *Auto Rewind* function is not turned on.

Recording Session

- | | |
|--|--|
| Recording the second track | <ul style="list-style-type: none"><input type="checkbox"/> Click on the Record button again to record a second track along with the first. The metronome will sound for one measure before recording.<input type="checkbox"/> You will hear your melody track playing back. Play a harmony line along with the melody.<input type="checkbox"/> When you are done, click on the Stop button to stop recording. Click on the Rewind button if <i>Auto Rewind</i> is not turned on. |
| Naming the tracks | <ul style="list-style-type: none"><input type="checkbox"/> Click in the <i>Track Name</i> field for the first track. The <i>Track Settings</i> dialog box will open. Within this dialog you can not only name a track, but also assign Program Change numbers and MIDI Channels.<input type="checkbox"/> Type MELODY into the Description field. Click <i>OK</i> to name the track.<input type="checkbox"/> Repeat these steps for the second track, using HARMONY as the track name. |
| Saving the song | <ul style="list-style-type: none"><input type="checkbox"/> Click once in the menu bar on the File menu title. The File menu drops down. Choose the Save item by clicking on it. (Or you can use the Ctrl+S key combination instead.)<input type="checkbox"/> The <i>Save As</i> dialog box will open up (because you are saving your work for the first time).<input type="checkbox"/> Choose the <i>Studio File</i> radio button if it is not already selected.<input type="checkbox"/> Place the cursor into the <i>Filename</i> text box to the left of the asterisk character. The cursor changes to an I-beam shape.<input type="checkbox"/> Press the <i>Del</i> key once to erase the asterisk.<input type="checkbox"/> Type in <i>my-song1</i> .<input type="checkbox"/> Click on the <i>OK</i> button and the song will be saved as MY-SONG1.SNG in the \MIDOSOFT directory. |
| Adding notes with the Note Add tool | <ul style="list-style-type: none"><input type="checkbox"/> Make sure that you have the Score View open. You should see the two tracks you previously recorded in notation form. If not, choose the Score item in the View menu, or press the Ctrl+I key combination.<input type="checkbox"/> Click on the Note Add tool (shaped like a note) in |

the Score View Toolbox. A note palette will open up.

- Click in the note palette on the picture of an eighth note (a note with one flag on its stem).
 - The cursor is now a note shape, indicating that you can place a note on a staff in the Score View.
 - Place the cursor on the Track 3 staff. When you see a line joining the note cursor and the Ruler at the top of the Score View, you can place your note.
 - Click once to place a note on the staff. Repeat this a few times in different measures.
- Playing the new track**
- Click on the Solo Mode button in the Track module for Track 3. This will have the effect of muting all other tracks, so that you can focus on just the track you wish to hear.
 - Click on the Play button in the Mixer View. You will hear the notes you placed with the Note Add tool playing back.
 - Click on the Solo button in Track 3 to return that track to Play mode.
- Editing the new track**
- Open the MIDI List View by clicking on the MIDI List item in the View menu, or use the Ctrl+3 key combination.
 - The *Track* list box at the top of the window should be set to Track 3 (not MELODY or HARMONY). If not, click once on the arrow to the right of the list box. The list will crop down. Click once on Track 3 to choose it.
 - You will see the note events that you entered using the Note Add tool.
 - Click on any of the displayed values to change them. Clicking with the right mouse button will increase the value, and using the left mouse button will decrease the value. (Hint: Pitch and Location will have the most noticeable effect.)
- Saving the edited song**
- Click once in the menu bar on the File menu title. The File menu drop down.

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- Choose the *Save As* item by clicking on it.
- Choose the *MIDI File* radio button. (We are going to give this sequence to a friend who has not yet purchased **Recording Session**.)
- Choose the *Type 1* radio button.
- Place the cursor into the *Filename* text box to the left of the asterisk character. The cursor changes to an I-beam shape.
- Press the *Del* key once to erase the asterisk.
- Type in *my-song2* .
- Click on the *OK* button and the song will be saved as **MY-SONG2.MID** in the \MIDISOFT directory.

Appendix B

Troubleshooting

I am confused. What is the difference between a track and a MIDI Channel ?

Glad you asked that. A track is a sequencer concept that imitates the many type tracks available in a recording studio. You can record many instruments on one track, but the most effective method is spreading instruments out on their own tracks, for ease of editing and enhancement. A MIDI Channels is a different concept entirely. It is a method for identifying MIDI data sent through a cable, so that only instruments that are tuned to a particular Channel will receive messages assigned to that Channel.

I just bought the new-fangled Hypemaster XJ-2001 multi-timbral synthesizer. I can only get it to play one part at a time. Why won't it play more ?

Many multi-timbral synthesizers need to be set up carefully. You may have only one MIDI Channel set. Check the owner's manual for the device, it will tell you how to switch it into multi-timbral mode and how to set each part.

*You also need to be sending out MIDI data on more than one Channel. Check to see if the Channels you are sending out from **Recording Session** and the Channels set on your multi-timbral synthesizer match up. An easy way to test different Channel settings is with the MIDI Channel column in the Mixer View.*

I have songs from another sequencer product. Can I load them into Recording Session ? How do I do this ?

***Recording Session** can load any song from any sequencer, as long as the song is saved in the Standard MIDI File format (Type 0 and Type 1). The vast majority of sequencers have the capability of saving in this format.*

My mouse was working fine before I installed my MIDI interface and Recording Session. Now it jumps around a lot and acts erratic. Do you know what is going on ?

This sounds like a classic example of an interrupt conflict. Your mouse and MIDI interface are probably set to the same interrupt. This kind of situation can be difficult to diagnose, because things don't fail, they just act weird. Try settings the mouse or the interface to a different interrupt. This should cure the problem.

The music in the Score View is sometimes displayed erroneously for standard musical notation. Is this a bug ?

No. MIDI is actually more flexible (in some ways) than standard music notation. We made a design decision to display all MIDI, regardless of whether it could be notated legally or not.

The music I recorded sounds fine, but the notation does not keep up with it when I use Follow Score View Notes. Why ?

We chose to give up priority to the proper playback of MIDI data, so dense music and/or slow computer systems can cause the display of notes to lag behind the music. To be able to Follow Score View Notes, you may have to 1) resize the Score View window so it displays fewer Tracks, or 2) lower the tempo setting while playing back the music.

I changed my MIDI driver in the Drivers applet in the Control Panel, but I still can't get anything working. What now ?

Anytime you change driver settings in the Control Panel, it is a good idea to reboot your machine. First, exit Windows. Next, take any floppy disk out of drive A. Next, press the Reset button (if you have one on your computer) or flip the power switch off and on. The new driver settings will now take effect within Windows.

I saved some song files with a MID extension, but my multimedia application cannot read them. Why not ?

*You most likely saved them as **Recording Session** song files. Most multimedia applications can only read Standard MIDI Files. Make sure to click on the Standard MIDI File radio button when you are saving the file.*

Appendix C

Multimedia Windows

Microsoft has released extensions to Windows, enabling it to work with advanced sound and graphics equipment.

These extensions, which bring animation, digital audio, MIDI, and video to the PC, are collectively called Multimedia Windows.

Windows Control Panel

MIDI setup is accomplished within the Control Panel program, located in the Accessories group in the Windows Program Manager.

You may have everything set up correctly. Multimedia Windows can detect many devices automatically. We have provided this section for your information, or in case of difficulty.

Within the Control Panel are two sub-programs, or applets -- Drivers, and MIDI Mapper.

Drivers Double - click (click twice rapidly) on the Drivers icon in the Control Panel. You will see a list of software drivers currently installed. You can add or remove drivers by highlighting a driver and clicking the Add or Remove button, respectively.

By Selecting your MIDI device and clicking on the Setup button, you can change the IRQ and port address settings.

You must set up your MIDI drivers correctly before using

Recording Session.

Recording Session

MIDI Mapper The MIDI Mapper applet performs a MIDI Channel, Program Change, and Key number mapping function. (The MIDI Mapper driver must be installed in the Drivers applet before the MIDI Mapper will function correctly.)

For example, if your sequence has MIDI data on Channel 13 - 16, but your synthesizer can only receive on Channels 2 - 5, the MIDI Mapper can load a *channel map* that will rechannelize 13 to 2, 14 to 3, 15 to 4, and 16 to 5.

Another example is if a sequence sends out Program Change 34, and was written to play a flute sound, your particular synthesizer may play a tuba sound when it receives a Program Change 34. A Program Change map written for your particular synthesizer would re-map the Program Change to a different number (one that corresponded to that elusive flute sound).

Recording Session passes all data to the MIDI Mapper when you are running in Multimedia Windows. This means that data may get changed or rerouted once it leaves our software. For example, if you inserted a Program Change number 45 in a sequence, but the MIDI Mapper switched that number to 79, all connected devices would respond to Program Changed 79, not 45.

Double-click on the MIDI Mapper icon in the Control Panel. You can look at and edit Channel maps, Patch maps or Key maps. A list box displays the currently selected map.

General MIDI

General MIDI specifies a patch-naming scheme, so that all synthesizers that conform to the standard will play a flute sound when they receive a Program Change 73, for example. Many popular synthesizers will have MIDI Mapper files designed so that the synthesizer can be General MIDI compatible *when used with Multimedia Windows*.

General MIDI Instrument Map

0-7 PIANO

0	<i>Acoustic Grand Piano</i>	1	<i>Bright Acoustic Piano</i>
2	<i>Electric Grand Piano</i>	3	<i>Honky-tonk Piano</i>
4	<i>Rhodes Piano</i>	5	<i>Chorused Piano</i>
6	<i>Harpsichord</i>	7	<i>Clavinet</i>

8-15 CHROMATIC PERCUSSION

8	<i>Celesta</i>	9	<i>Glockenspiel</i>
10	<i>Music box</i>	11	<i>Vibraphone</i>
12	<i>Marimba</i>	13	<i>Xylophone</i>
14	<i>Tubular Bells</i>	15	<i>Dulcimer</i>

16-23 OGRAN

16	<i>Hammond Organ</i>	17	<i>Percussive Organ</i>
18	<i>Rock Organ</i>	19	<i>Church Organ</i>
20	<i>Reed Organ</i>	21	<i>Accordion</i>
22	<i>Harmonica</i>	23	<i>Tango Accordion</i>

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24-31 GUITAR

24	<i>Acoustic Guitar(nylon)</i>	25	<i>Acoustic Guitar (Steel)</i>
26	<i>Electric Guitar (jazz)</i>	27	<i>Electric Guitar (Clean)</i>
28	<i>Electric Guitar (Muted)</i>	29	<i>Overdriven Guitar</i>
30	<i>Distortion Guitar</i>	31	<i>Guitar Harmonics</i>

32-39 BASS

32	<i>Acoustic Bass</i>	33	<i>Electric Bass (finger)</i>
34	<i>Electric Bass (Pick)</i>	35	<i>Fretless Bass</i>
36	<i>Slap Bass 1</i>	37	<i>Slap Bass 2</i>
38	<i>Synth Bass 1</i>	39	<i>Synth Bass 2</i>

40-47 STRINGS

40	<i>Violin</i>	41	<i>Viola</i>
42	<i>Cello</i>	43	<i>Contrabass</i>
44	<i>Tremolo Strings</i>	45	<i>Pizzicato Strings</i>
46	<i>Orchestral Harp</i>	47	<i>Timpani</i>

48-55 ENSEMBLE

48	<i>String Ensemble 1</i>	49	<i>String Ensemble 2</i>
50	<i>SynthStrings 1</i>	51	<i>SynthStrings 2</i>
52	<i>Choir Aahs</i>	53	<i>Voice Oohs</i>
54	<i>Synth Voice</i>	55	<i>Orchestra Hit</i>

56-63 BRASS

56	<i>Trumpet</i>	57	<i>Trombone</i>
58	<i>Tuba</i>	59	<i>Muted Trumpet</i>
60	<i>French Horn</i>	61	<i>Brass Section</i>
62	<i>Synth Brass 1</i>	63	<i>Synth Brass 2</i>

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64-71

64 *Soprano Sax*
66 *Tenor Sax*
68 *Oboe*
70 *Bassoon*

REED

65 *Alto Sax*
67 *Baritone Sax*
69 *English Horn*
71 *Clarinet*

72-79

72 *Piccolo*
74 *Recorder*
76 *Bottle Blow*
78 *Whistle*

PIPE

73 *Flute*
75 *Pan Flute*
77 *Shakuhachi*
79 *Ocarina*

80-87

80 *Lead 1 (Square)*
82 *Lead 2 (Calliope lead)*
84 *Lead 5 (charang)*
86 *Lead 7 (fifths)*

SYNTH LEAD

81 *Lead 2 (Sawtooth)*
83 *Lead 4 (Chiff lead)*
85 *Lead 6 (voice)*
87 *Lead 8 (bass + lead)*

88-95

88 *Pad 1 (new age)*
90 *Pad 3 (polysynth)*
92 *Pad 5 (bowed)*
97 *Pad 7 (halo)*

SYNTH PAD

89 *Pad 2 (warm)*
91 *Pad 4 (choir)*
96 *Pad 6 (Metallic)*
98 *Pad 8 (sweep)*

96-103

96 *FX 1 (rain)*
98 *FX 3 (Crystal)*
100 *FX 5 (brightness)*
102 *FX 7 (echoes)*

SYNTH EFFECTS

97 *FX 2 (soundtrack)*
99 *FX 4 (atmosphere)*
101 *FX 6 (Goblins)*
103 *FX 8 (sci - fi)*

Recording Session

104-111

104 *Sitar*
106 *Shamisen*
108 *Kalimba*
110 *Fiddle*

ETHNIC

105 *Banjo*
107 *Koto*
109 *Bagpipe*
111 *Shanai*

112-119

112 *Tinkle Bell*
114 *Steel Drums*
116 *Taiko Drum*
118 *Synth Drum*

PERCUSSIVE

113 *Agogo*
115 *Woodblock*
117 *Melodic Tom*
119 *Reverse Cymbal*

120-127

120 *Guitar Fret Noise*
122 *Seashore*
124 *Telephone Ring*
126 *Applause*

SOUND EFFECTS

121 *Breath Noise*
123 *Bird Tweet*
125 *Helicopter*
127 *Gunshot*

General MIDI Percussion Key Map

Key Percussion sound	Key Percussion sound
35 <i>Acoustic Bass Drum</i>	36 <i>Bass Drum 1</i>
37 <i>Side Stick</i>	38 <i>Acoustic Snare</i>
39 <i>Hand Clap</i>	40 <i>Electric Snare</i>
41 <i>Low Floor Tom</i>	42 <i>Closed Hi Hat</i>
43 <i>High Floor Tom</i>	44 <i>Pedal Hi Hat</i>
45 <i>Low Tom</i>	46 <i>Open Hi Hat</i>
47 <i>Low-Mid Tom</i>	48 <i>Hi-Mid Tom</i>
49 <i>Crash Cymbal 1</i>	50 <i>High Tom</i>
51 <i>Ride Cymbal 1</i>	52 <i>Chinese Cymbal</i>
53 <i>Ride Bell</i>	54 <i>Tambourine</i>
55 <i>Splash Cymbal</i>	56 <i>Cowbell</i>
57 <i>Crash Cymbal 2</i>	58 <i>Vibraslap</i>
59 <i>Ride Cymbal 2</i>	60 <i>Hi Bongo</i>
61 <i>Lo Bongo</i>	62 <i>Mute Hi Caonga</i>
63 <i>Open Hi Conga</i>	64 <i>Low Conga</i>
65 <i>High Timbale</i>	66 <i>Low Timbale</i>
67 <i>High Agogo</i>	68 <i>Low Agogo</i>
69 <i>Cabasa</i>	70 <i>Maracas</i>
71 <i>Short Whistle</i>	72 <i>Long Whistle</i>
73 <i>Short Guiro</i>	74 <i>Long Guiro</i>
75 <i>Claves</i>	76 <i>Hi Wood Block</i>
77 <i>Low Wood Block</i>	78 <i>Mute Cuica</i>
79 <i>Open Cuica</i>	80 <i>Mute Triangle</i>
81 <i>Open Triangle</i>	