Build Your Own Music Maker

by Erick Tejkowski

TOUGH

WHAT YOU NEED

- Mac OS X (\$129, www.apple.com)
- QuickTime 5 or later
- REALbasic 5 or later (\$149.95, www.realsoftware.com)
- Music Project tutorial files (on the Disc)



Want a way to tap into your Mac's secret stash of musical instruments? Build your own keyboard application.

Pianos, guitars, sitars, tubas—musical instruments can be frivolous expenditures if you just want poke around but don't want to invest the time needed to learn them. Lucky for you, your Mac has a closet full of musical

ON THE DISC REALbasic 5.2.1 demo and Music Project tutorial files instruments stashed inside—you just need to coax them out to play. Wouldn't it be great to have an application that could put all of those instruments at your fingertips, playable from your own desktop keyboard?

Gain Some Control Launch REALbasic to start a new project. In the properties window for Window1, type a name for your application's interface in the Title field. From the controls palette, drag a NotePlayer, a Canvas, a horizontal ScrollBar, a LittleArrows, and two Slider controls into the window editor (the empty Untitled window that will become your keyboard interface). Click the Canvas1 control in the window editor. Change Width to 596 and Height to 99 in the properties window, and then resize the window to fit. ScrollBar1 will scroll the keyboard so you can play different keyboard octaves—click its control in the window editor, and set Width to 596 in the properties window. Slider1 will adjust volume and Slider2 will change the instrument—click each control and set Maximum to 127 in the properties window.

You can—and we show you how to build that app yourself.

The key ingredient here is REALbasic. We show you how to use it to build a desktop piano-style keyboard that will let you control volume and instrument selection, and then use REALbasic's NotePlayer control to play a tune, using one of 128 different instruments and sound effects from Apple's QuickTime Music Synthesizer (see "What's That Sound?", p70, for a complete list of instruments).



After changing the Canvas1 control's width and height, resize the window so it displays all controls fully.

Build the Interface Drag three StaticText controls from the controls palette into the window editor. Click StaticText1, and in the properties window, type *instLabel* in the Name field and check the Visible box; this control will display the current instrument number used by the NotePlayer (the default is 1, a piano sound). Drag this to the right of the LittleArrows control, which will allow you to change instrument numbers incrementally. The remaining two StaticText controls will label the sliders. Click StaticText2 and in the properties window, type *Volume:* in the Text field and check the Visible box. Click StaticText3, type *Instrument:* in the Text field, and check the Visible box. Then position all controls in your project so they look like those in our screenshot (right), and save your project in its own folder as a REALbasic Standard Project.

Add Some Class One of the great things about REALbasic is that you can use practically any *class* (a template that describes how an object behaves) from another project with your current one—we created a custom keyboard class for you, so you don't have sweat it out on your own unless you want to. Grab KeyboardCanvas from the Disc, and drag it into the project window (the one that holds project components

0 P	roperties		su
ID			Th
Name:	Canvas1		
Index:			pro
Super:	KeyboardCanvas	T	
Position		(anvas
ControlOrder:	0	K	leyboa
Left:	0		
Top:	42		
Width:	596		yoı
Height:	99		int
LockLeft:	8		
LockTop:			Ke
LockRight:	8		do
LockBottom:			uu
Appearance			No
Visible:			ko
HelpTag:		Θ	Key
BalloonHelp:		Θ	
DisabledBalloonH	•	Θ	
AutoDeactivate			
Backdrop:	None	-	
Enabled:			
UseFocusRing:			
Behavior			You
AcceptFocus:			K.
AcceptTabs:			Ke
			I

such as Window1 and App) to add it. The KeyboardCanvas class is already programmed to trigger note values. By using it, you gain the benefits boardCanvas of the class without the hassle

of recreating it. To tie it to your interface, click the Canvas1 control

in the window editor, and then select KeyboardCanvas from the Super dropdown menu in the properties window. Now Canvas1 has the functionality of a keyboard; it just doesn't look like one yet.

You can reuse our homemade KeyboardCanvas class in your own keyboard project to play music.

Code the Canvas To make Canvas1 follow the settings dictated by the NotePlayer, ScrollBar, and Slider controls you created, you need to do a little coding. In the window editor, double-click the Canvas1 control to open the Code Editor window. Under the Canvas1 set of events, click the Open event and add the following code between the Sub Open and End Sub lines:

Scrollbar1.maximum = giantkeyboard.width-me.width me.thePlayer = NotePlayer1 me.theVolume=127 Slider1.value = 127 Scrollbar1.value=Scrollbar1.maximum/2 canvas1.horizScroll=-Scrollbar1.value



Design Is Key(board) Our

KeyboardCanvas class calls upon a collection of 14 PICT images to create the look of a piano keyboard. One image displays all 128 keys on the keyboard. Another displays a single keyboard octave. The remaining twelve show a keyboard octave with a particular key pressed. We included all 14 images on the Disc to save you *a lot* of time. Feel free to customize the images in your favorite graphics application. To add these graphics to your project, copy the Art folder from the Disc (in the Music Project folder) to the same folder that holds your project. Then drag the Art folder from your project folder to the project window to add them.

Once you drag our keyboard images into your project window, the KeyboardCanvas class can access them for display.





This bit of code tells your keyboard app how to display the scrollbar, that it should use NotePlayer1 for sound, and where to set the volume slider when the app is launched.

Add Control to the Controls Because the entire piano keyboard

display is very large (128 keys total), the ScrollBar control will enable you to horizontally scroll through the lowest to the highest octaves on the keyboard display. Click the ScrollBar1 control in the window editor, and then check the LiveScroll box at the bottom of the properties window. Double-click the ScrollBar1 control to bring up the Code Editor, click the ValueChanged event to select it, and add

the following code between the Sub lines:

Canvas1.horizScroll=-me.value

Canvas1.draw Canvas1.graphics

To program Slider1 to control volume, click the Slider1 triangle in the Code Editor window to display its events, click ValueChanged, and type Canvas1.theVolume = me.value between the Sub lines. To enable Slider2 to access the 128 instrument sounds, display Slider2's events, click ValueChanged, and enter this code between the Sub lines:

Canvas1.thePlaver.Instrument = me.value

instLabel.text = str(me.value)

To enable the LittleArrows control to increase the instrument number by one, display its events in the Code Editor, click the Up event, and type the following code between the Sub lines.

if slider2.value<slider2.maximum then slider2.value=slider2.value+1 else

slider2.value=slider2.minimum

end if

Then click its Down event and type the following code to enable it to decrease the instrument number by one.

if slider2.value>slider2.minimum then slider2.value=slider2.value-1

else

slider2.value=slider2.maximum end if

Now close the Code Editor window and save your project.

> This bit of code enables you to select one of 128 built-in instruments using the second (Instrument) slider.

00	Code Editor (Window1)
Controls Canvas1 Aa instabel SoucPlayer1 SoucPlayer1 SoucPlayer1 SoucPlayer2 Close DropObject Cotrocus MouseDown MouseDo	Sub ValueChanged() - Canvas 1.thePlayer.Instrument = me.value - inst.Labeltext = str(me.value) End Sub

Debug, Tickle, and Build The moment of truth arrives. From the Debug menu, select Run. REALbasic compiles your app and then launches it. Test it out by tickling the ivories (and ebonies), moving the Volume slider, and changing instruments. If everything looks, works, and sounds good, quit the test application, switch back to your REALbasic project, and select Build Settings from

the File menu. In the resulting dialog, you can choose any platform on which to build your app (Classic Mac OS, Mac OS X, Windows, or any mix of these). Since our project was designed for OS X, check only the Mac OS X (Carbon) box. From the pop-up menu, select Macintosh Settings, and then give your masterpiece a name in the Mac OS X Name field. Click OK to build the settings. Then select Build Application from the File menu to bring your app to life and play.

> REALbasic gives you the choice of building for Mac OS X, Classic Mac, and even Windows (if you dare go there). For this project, choose Mac OS X.

Build Settings		
Build for: 📄 MacOS 8-9 (Classic)		
🗹 Mac OS X (Carbon)		
Windows 9x/ME/NT/2000/XP		
Macintosh Settings		
Macintosh Name:		
Mac OS X Name: Noisemaker		
Creator Code: 7777 Register		
Memory Settings:		
Suggested: 4096 k		
Minimum: 2048 k		
(Icons) Cancel OK		

Erick Tejkowski is president of the Bring Back the Keyboard Power Button Club (BBKPBC). Unfortunately, the club currently has only one member.

WHAT'S THAT SOUND?

When you fire up your new keyboard app and start tinkering away, the default instrument you hear is QuickTime's Acoustic Grand Piano (instrument 1). But you've got another 127 diverse noisemakers at your fingertips. Here's the complete list of all instruments in QuickTime's synthesizer and their numbers for you to dial up in your spiffy new app.

Piano	Chromatic Percussion
1—Acoustic Grand Piano	9—Celesta
2—Bright Acoustic Piano	10—Glockenspiel
3—Electric Grand Piano	11-Music Box
4—Honky-Tonk Piano	12-Vibraphone
5—Electric Piano 1	13-Marimba
6-Flectric Piano 2	14-Xylophone
7—Harpsichord	15—Tubular Bells
8_Clavinet	16-Dulcimer
Organ	Guitar
Organ	Guitai
17—Drawbar Organ	25—Nylon String Guitar
18—Percussive Organ	26—Steel String Guitar
19—Rock Organ	27—Electric Jazz Guitar
20—Church Organ	28—Electric Clean Guitar
21—Reed Organ	29—Electric Guitar Muted
22—Accordian	30—Overdriven Guitar
23—Harmonica	31—Distortion Guitar
24—Tango Accordian	32—Guitar Harmonics
Bass	Strings
33—Acoustic Bass	41—Violin
34 Electric Bass (fingered)	12 Viola
35 Electric Bass (hingered)	43 Collo
35—Electric Bass (picked)	43-Cello
DD-Fretless Bass	44—Contrabass
sr—slap Bass I	45—1 remoto Strings
38—Slap Bass 2	46—Pizzicato Strings
39—Synth Bass 1	47—Orchestral Strings
40—Synth Bass 2	48—Timpani
Ensemble	Brass
49—String Ensemble 1	57—Trumpet
50—String Ensemble 2	58—Trombone
51 Synth Strings 1	59 Tuba
51—Synth Strings 7	60 Muted Trumpet
52—Synth Strings 2	60-Muted Humpet
53-Choir Aans	61—French Horn
54—Choir Uons	62—Brass Section
55—Synth Vox	63—Synth Brass 1
	C4 Curthe Durana O
56—Orchestra Hit	64—Synth Brass 2
56—Orchestra Hit Reed	64—Synth Brass 2 Pipe
56—Orchestra Hit Reed 65—Soprano Sax	Pipe 73—Piccolo
65—Orchestra Hit Reed 65—Soprano Sax 66—Alto Sax	Pipe 73—Piccolo 74—Flute
56—Orchestra Hit Reed 65—Soprano Sax 66—Alto Sax 67—Tenor Sax	Pipe 73—Piccolo 74—Flute 75—Recorder
S6—Orchestra Hit Reed 65—Soprano Sax 66—Alto Sax 67—Tenor Sax 68—Baritone Sax	Piccolo 73—Piccolo 74—Flute 75—Recorder 76—Pan Flute
S6—Orchestra hit Reed 65—Soprano Sax 66—Alto Sax 67—Tenor Sax 68—Baritone Sax 69—Oboe	Pipe 73—Piccolo 74—Flute 75—Recorder 76—Pan Flute 77—Bottle Blow
S6—Orchestra Hit Reed 65—Soprano Sax 66—Alto Sax 67—Tenor Sax 68—Baritone Sax 69—Oboe 70—English Hom	Pipe 73—Piccolo 74—Flute 75—Recorder 76—Pan Flute 77—Bottle Blow 78—Skakuhachi
S6—Orchestra Hit Reed 65—Soprano Sax 66—Alto Sax 67—Tenor Sax 68—Baritone Sax 69—Oboe 70—English Horm 71—Rasson	64—Synth Brass 2 Pipe 73—Piccolo 74—Flute 75—Recorder 76—Pan Flute 77—Bottle Blow 78—Skakuhachi 79—Whistle
S6—Orchestra Hit Reed 65—Soprano Sax 66—Alto Sax 67—Tenor Sax 68—Baritone Sax 69—Oboe 70—English Horn 71—Bassoon 72_clarinet	Pipe 73—Piccolo 74—Flute 75—Recorder 76—Pan Flute 77—Bottle Blow 78—Skakuhachi 79—Whistle 80—0carina
S6—Orchestra Hit Reed 65—Soprano Sax 66—Alto Sax 67—Tenor Sax 68—Baritone Sax 69—Obole 70—English Horn 71—Bassoon 72—Clarinet Sumth Logal	Pipe 73—Piccolo 74—Flute 75—Recorder 76—Pan Flute 77—Bottle Blow 78—Skakuhachi 79—Whistle 80—Ocarina Screib Bad
SG—Orchestra Hit Reed 65—Soprano Sax 66—Alto Sax 66—Alto Sax 68—Baritone Sax 69—Oboe 70—English Horn 71—Bassoon 72—Clarinet Synth Lead 1. Genutification	B4—Synth Brass 2 Pipe 73—Piccolo 74—Flute 75—Recorder 76—Pan Flute 76—Pan Flute 78—Skakuhachi 79—Whistle 80—Ocarina Synth Pad
S6—Orchestra Hit Reed 65—Soprano Sax 66—Alto Sax 66—Alto Sax 68—Baritone Sax 69—Oboe 70—English Horn 71—Bassoon 72—Clarinet Synth Lead 81—Square Wave 81—Square Wave	b4—Synth Brass 2 Pipe 73—Piccolo 74—Flute 75—Recorder 76—Pan Flute 77—Bottle Blow 78—Skakuhachi 79—Whistle 80—Ocarina Synth Pad 89—Fantasy
Sb—Orcnestra Hit Reed 65—Soprano Sax 66—Alto Sax 66—Alto Sax 68—Baritone Sax 69—Oboe 70—English Horn 71—Bassoon 72_Clarinet Synth Lead 81—Square Wave 82—Sawtooth Wave	B4—Synth Brass 2 Pipe 73—Piccolo 74—Flute 75—Recorder 76—Pan Flute 75—Recorder 76—Pan Flute 80—Ocarina Synth Pad 89—Fantasy 90—Warm
Sb—Orchestra Hit Reed 65—Soprano Sax 66—Alto Sax 67—Tenor Sax 68—Baritone Sax 69—Oboe 70—English Horn 71—Bassoon 72—Clarinet Synth Lead 81—Square Wave 82—Sawtooth Wave 83—Calliope	94—Synth Brass 2 Pipe 73—Piccolo 74—Filute 75—Recorder 76—Pan Flute 77—Bottle Blow 78—Skakuhachi 79—Whistle 80—Ocarina Synth Pad 89—Fantasy 90—Warm 91—Polysynth
Sb—Orchestra Hit Reed 65—Soprano Sax 66—Alto Sax 66—Alto Sax 68—Bantone Sax 69—Oboe 70—English Horn 71—Bassoon 72—Clarinet Synth Lead 81—Square Wave 82—Sawtooth Wave 83—Calliope 84—Chiffer	84—Synth Brass 2 Pipe 73—Piccolo 74—Fiute 75—Recorder 75—Pan Flute 75—Sorte Blow 78—Skakuhachi 78—Skakuhachi 79—Whistle 80—Ocarna Synth Pad 89—Fantasy 90—Warm 91—Polysynth 92—Choir
S6—Orcnestra Hit Reed 65—Soprano Sax 66—Alto Sax 66—Alto Sax 68—Baritone Sax 69—Obde 70—English Horn 71—Bassoon 72—clarinet Synth Lead 81—Square Wave 82—Sawtooth Wave 83—Calliope 84—Chiffer 85—Charang	84—Synth Brass 2 Pipe 73—Piccolo 74—Fiute 75—Recorder 76—Pan Flute 76—Pan Flute 78—Skakuhachi 79—Whistle 80—Ocarina Synth Pad 89—Fantasy 90—Warm 91—Polysynth 92—Choir 93—Bowed
Sb—Orchestra Hit Reed 65—Soprano Sax 66—Alto Sax 67—Tenor Sax 68—Baritone Sax 69—Oboe 70—English Horn 71—Bassoon 72—Clarinet Synth Lead 81—Square Wave 82—Savtooth Wave 83—Calliope 84—Chilfer 85—Charang 86—Solo Vox	B4—Synth Brass 2 Pipe 73—Piccolo 74—Flute 75—Recorder 76—Pan Flute 77—Bottle Blow 78—Skakuhachi 79—Whistle 80—Ocarina Synth Pad 89—Fantasy 90—Warm 91—Polysynth 92—Choir 93—Bowed 94—Metallic
Sto-Orcnestra Hit Reed 65Soprano Sax 66Alto Sax 67Tenor Sax 68Baritone Sax 69Oboe 70English Horn 71Bassoon 72Clarinet Synth Lead 81Square Wave 82Sautooth Wave 83Calliope 84Chiffer 85Charang 86Solo Vox 87Fifthe Saw Wave	B4—Synth Brass 2 Pipe 73—Piccolo 74—Flute 75—Recorder 76—Pan Flute 77—Bottle Blow 78—Skakuhachi 79—Whistle 80—Carina Synth Pad 89—Fantasy 90—Warm 91—Polysynth 92—Choir 93—Bowed 94—Metallic 95—Halo
Sb—Orchestra Hit Reed 65—Soprano Sax 66—Alto Sax 67—Tenor Sax 68—Baritone Sax 69—Oboe 70—English Horn 71—Bassoon 72—Clarinet Synth Lead 81—Square Wave 82—Sawtooth Wave 83—Calliope 84—Chilfer 85—Charang 86—Solo Vox 87—Fifths Saw Wave 88—Bass & Lead	B4—Synth Brass 2 Pipe 73—Piccolo 74—Flute 75—Recorder 76—Pan Flute 77—Bottle Blow 78—Skakuhachi 79—Whistle 80—Ocarina Synth Pad 89—Fantasy 90—Warm 91—Polysynth 92—Choir 93—Bowed 94—Metallic 95—Halo 96—Sweep
Sb—Orcnestra Hit Reed 65—Soprano Sax 66—Alto Sax 67—Tenor Sax 68—Baritone Sax 69—Oboe 70—English Horn 71—Bassoon 72—Clarinet Synth Lead 81—Square Wave 82—Sawtooth Wave 83—Calliope 84—Chiffer 85—Charang 86—Solo Vox 87—Fifths Saw Wave 88—Bass & Lead Synth Effects	B4—Synth Brass 2 Pipe 73—Piccolo 74—Ficute 75—Recorder 76—Pan Flute 75—Recorder 76—Pan Flute 80—Ocarina Synth Pad 89—Fantasy 90—Warm 91—Polysynth 92—Choir 93—Bowed 94—Metallic 95—Halo 96—Sweep Ethnic
Sb—Orchestra Hit Reed 65—Soprano Sax 66—Alto Sax 67—Tenor Sax 68—Bantone Sax 69—Oboe 70—English Horn 71—Bassoon 72—Clarinet Synth Lead 81—Square Wave 82—Sawtooth Wave 83—Calliope 84—Chiffer 85—Charang 86—Solo Vox 87—Fifths Saw Wave 88—Bass & Lead Synth Effects 97—Rain	B4—Synth Brass 2 Pipe 73—Piccolo 74—Flute 75—Recorder 76—Pan Flute 77—Sottle Blow 78—Skakuhachi 79—Whistle 80—Crarina Synth Pad 89—Fantasy 90—Warm 91—Polysynth 92—Choir 93—Bowed 94—Metallic 95—Halo 96—Sweep Ethnic 105—Sitar
Sb—Orchestra Hit Reed 65—Soprano Sax 66—Alto Sax 66—Alto Sax 68—Baritone Sax 69—Oboe 70—English Horn 71—Bassoon 72—Clarinet Synth Lead 81—Square Wave 82—Sawtooth Wave 83—Calliope 84—Chiffer 85—Solo Vox 87—Fifths Saw Wave 88—Bass & Lead 97—Fain 97—Rain 98—Soundrtar-tr	B4—Synth Brass 2 Pipe 73—Piccolo 74—Flute 75—Recorder 76—Pan Flute 77—Sottle Blow 78—Skakuhachi 79—Whistle 80—Ocarina Synth Pad 99—Warm 91—Polysynth 92—Choir 93—Bowed 94—Metallic 95—Halo 95—Star 105—Star Starino
Sb—Orcnestra Hit Reed 65—Soprano Sax 66—Alto Sax 66—Alto Sax 66—Alto Sax 68—Baritone Sax 69—Oboe 70—English Horn 71—Bassoon 72—clarinet Synth Lead 81—Square Wave 83—calliope 84—Chiffer 85—Charang 86—Solo Vox 87—Fifths Saw Wave 88—Bass & Lead Synth Effects 97—Rain 98—Soundtrack 98—Contral	B4—Synth Brass 2 Pipe 73—Piccolo 74—Flute 75—Recorder 76—Pan Flute 77—Sottle Blow 78—Skakuhachi 79—Whistle 80—Ocarina Synth Pad 89—Fantasy 90—Warm 91—Polysynth 92—Choir 93—Bowed 94—Metallic 95—Halo 96—Sweep Ethnic 106—Star 106—Star 107—Sharinspin
Sb—Orchestra Hit Reed 65—Soprano Sax 66—Alto Sax 67—Tenor Sax 68—Baritone Sax 69—Oboe 70—English Horn 71—Bassoon 72—Clarinet Synth Lead 81—Square Wave 82—Sawtooth Wave 83—Calliope 84—Chiffer 85—Charang 86—Solo Vox 87—Fifths Saw Wave 88—Bass & Lead Synth Effects 97—Rain 98—Soundtrack 99—Crystal 100_Attworkstraft	B4—Synth Brass 2 Pipe 73—Piccolo 74—Flute 75—Recorder 76—Pan Flute 77—Bottle Blow 78—Skakuhachi 79—Whistle 80—Ocarina Synth Pad 99—Warm 91—Polysynth 92—Choir 93—Bowed 94—Metallic 95—Halo 96—Star 105—Star 106—Banjo 107—Shamisen 109—Khango
Sb—Orcnestra Hit Reed 65—Soprano Sax 66—Alto Sax 66—Alto Sax 68—Baritone Sax 69—Oboe 70—English Horn 71—Bassoon 72—Clarinet Synth Lead 81—Square Wave 82—Sawtooth Wave 83—Calliope 84—Chiffer 85—Charang 86—Solo Vox 87—Frifthe Saw Wave 88—Bass & Lead Synth Effects 97—Rain 98—Soundtrack 99—Crystal 100—Atmosphere	B4—Synth Brass 2 Pipe 73—Piccolo 74—Flute 75—Recorder 76—Pan Flute 77—Bottle Blow 78—Skakuhachi 79—Whistle 80—Ocarina Synth Pad 89—Fantasy 90—Warm 91—Polysynth 92—Choir 93—Bowed 94—Metallic 95—Halo 96—Sweep Ethnic 105—Sitar 106—Skamisen 108—Koto 109—Koto
Sb—Orchestra Hit Reed 65—Soprano Sax 66—Alto Sax 67—Tenor Sax 68—Bantone Sax 69—Oboe 70—English Horn 71—Bassoon 72—Clarinet Synth Lead 81—Square Wave 82—Sawtooth Wave 83—Calliope 84—Chiffer 85—Charang 86—Solo Vox 87—Fifths Saw Wave 88—Bass & Lead Synth Effects 97—Rain 98—Soundtrack 99—Crystal 100—Atmosphere 100—Atmosphere	B4—Synth Brass 2 Pipe 73—Piccolo 74—Flute 75—Recorder 76—Pan Flute 77—Bottle Blow 78—Skakuhachi 79—Whistle 80—Ocarina Synth Pad 89—Fantasy 90—Warm 91—Polysynth 92—Choir 93—Bowed 94—Metallic 95—Halo 96—Sweep Ethnic 105—Sitar 106—Sanjo 107—Shamisen 108—Koto 109—Kalimba
Sb—Orcnestra Hit Reed 65—Soprano Sax 66—Alto Sax 67—Tenor Sax 68—Baritone Sax 69—Oboe 70—English Horn 71—Bassoon 72—Clarinet Synth Lead 81—Square Wave 82—Sawtooth Wave 83—Calliope 84—Chiffer 85—Charang 86—Solo Vox 97—Fifths Saw Wave 88—Bass & Lead Syn-Rain 98—Soundtrack 99—Crystal 100—Atmosphere 101—Brightness 102—Goblins	B4—Synth Brass 2 Pipe 73—Piccolo 74—Flute 75—Recorder 76—Pan Flute 77—Bottle Blow 78—Skakuhachi 79—Whistle 80—Ocarina Synth Pad 89—Fantasy 90—Warm 91—Polysynth 92—Choir 93—Bowed 94—Metallic 95—Halo 96—Sweep Ethnic 105—Sitar 106—Banjo 107—shamisen 108—Koto 109—Kailmba 1109—Bagpipe
Sb—Orchestra Hit Reed 65—Soprano Sax 66—Alto Sax 67—Tenor Sax 68—Baritone Sax 69—Oboe 70—English Horn 71—Bassoon 72—clarinet Synth Lead 81—Square Wave 82—Sawtooth Wave 83—Calliope 84—Chiffer 85—Charang 86—Solo Vox 87—Fifths Saw Wave 88—Bass & Lead Synth Effects 97—Rain 98—Soundtrack 99—Crystal 100—Atmosphere 101—Brightness 102—Gobins 103—Echoes	B4—Synth Brass 2 Pipe 73—Piccolo 74—Flute 75—Recorder 76—Pan Flute 77—Sottle Blow 78—Skakuhachi 79—Whistle 80—Ocarina Synth Pad 89—Fantasy 90—Warm 91—Polysynth 92—Choir 93—Bowed 94—Metallic 95—Halo 96—Sweep Ethnic 106—Sharisen 106—Sharisen 106—Koto 109—Kalimba 110—Bagpipe 111—Fiddle
Sb—Orchestra Hit Reed 65—Soprano Sax 66—Alto Sax 66—Alto Sax 68—Baritone Sax 69—Oboe 70—English Horn 71—Bassoon 72—Clarinet Synth Lead 81—Square Wave 82—Sawtooth Wave 83—Calliope 84—Chiffer 85—Charang 86—Solo Vox 87—Fifths Saw Wave 88—Bass & Lead 97—Fain 98—Soundtrack 99—Crystal 100—Atmosphere 101—Brightness 102=-Echoes 103=-Echoes 104—Space	B4—Synth Brass 2 Pipe 73—Piccolo 74—Flute 75—Recorder 76—Pan Flute 77—Sortle Blow 78—Skakuhachi 79—Whistle 80—Ocarina Synth Pad 99—Warm 91—Polysynth 92—Choir 93—Bowed 94—Metallic 95—Halo 95—Star 106—Banjo 107—Shamisen 108—Koto 109—Kalimba 110—Bagpipe 111—Fiddle 112—Shanai
Sb—Orcnestra Hit Reed 65—Soprano Sax 66—Alto Sax 67—Tenor Sax 68—Baritone Sax 69—Oboe 70—English Horn 71—Bassoon 72—Clarinet Synth Lead 81—Square Wave 83—Calliope 84—Chiffer 85—Charang 86—Solo Vox 87—Fifths Saw Wave 88—Bass & Lead Synth Effects 97—Rain 98—Soundtrack 99—Crystal 100—Atmosphere 101—Brightness 103—Echoes 104—Space Parcussive	B4—Synth Brass 2 Pipe 73—Piccolo 74—Flute 75—Recorder 76—Pan Flute 77—Bottle Blow 78—Skakuhachi 79—Whistle 80—Ocarina Synth Pad 89—Fantasy 90—Warm 91—Polysynth 92—Choir 93—Bowed 94—Metallic 95—Halo 96—Sweep Ethnic 105—Sitar 106—Banjo 107—Shamisen 108—Koto 110—Bagpipe 111—Fiddle 112—Shanai Sound Effects
Sb—Orchestra Hit Reed 65—Soprano Sax 66—Alto Sax 66—Alto Sax 67—Tenor Sax 68—Bartone Sax 69—Oboe 70—English Horn 71—Bassoon 72—Clarinet 81—Square Wave 82—Sawtooth Wave 83—Calliope 84—Chiffer 85—Charang 86—Solo Vox 87—Fifths Saw Wave 88—Bass & Lead 97—Rain 98—Soundtrack 99—Crystal 100—Atmosphere 101—Brightness 102—Goblins 103—Echces 104—Space 104—Space 104—Space	B4—Synth Brass 2 Pipe 73—Piccolo 74—Flute 75—Recorder 76—Pan Flute 77—Bottle Blow 78—Skakuhachi 79—Whistle 80—Ocarna Synth Pad 99—Warm 91—Polysynth 92—Choir 93—Bowed 94—Metallic 95—Halo 96—Star 105—Slar 106—Banjo 107—Shamisen 108—Koto 110—Bagpipe 111—Fidde 112—Shanai 121—Guitar Fret Noise
Sb—Orcnestra Hit Reed 65—Soprano Sax 66—Alto Sax 67—Tenor Sax 68—Baritone Sax 69—Oboe 70—English Horn 71—Bassoon 72—Clarinet Synth Lead 81—Square Wave 82—Savtooth Wave 83—Calliope 84—Chiffer 85—Charang 86—Solo Vox 87—Fifths Saw Wave 88—Bass & Lead Synth Effects 97—Rain 98—Soundtrack 99—Crystal 100—Atmosphere 101—Brightness 102—Goblins 103—Echoes 104—Space Percussive 113—Tinkle Bell 114—Agogol	B4—Synth Brass 2 Pipe 73—Piccolo 74—Flute 75—Recorder 76—Pan Flute 77—Bottle Blow 78—Skakuhachi 79—Whistle 80—Carina Synth Pad 89—Fantasy 90—Warm 91—Polysynth 92—Choir 93—Bowed 94—Metallic 95—Halo 96—Sweep Ethnic 105—Star 106—Banjo 107—Shamisen 108—Koto 109—Kalmba 110—Bappipe 111—Fiddle 121—Guitar Fret Noise 122—Break Noise
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