Using Synthesizer Editor

Document Number 007-3213-003

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Chapter 1

Synthesizer Editor

This chapter contains:

- “Using Synthesizer Editor”
- “Reference to Synthesizer Editor Controls”
- “Troubleshooting Synthesizer Editor”

Using Synthesizer Editor

This section contains:

- “Introduction to Synthesizer Editor”
- “Starting Synthesizer Editor”
- “Selecting Presets to Edit”
- “Creating a Preset”
- “About Oscillator Control”
- “About Filter Control”
- “About Envelope Control”
- “About General Preset Parameter Control”
- “Setting the MIDI Channel”

Introduction to Synthesizer Editor

Synthesizer Editor is an application for creating, modifying, and auditioning MIDI synthesizer *preset* files. It enables two different types of editing:

- Editing a preset file independent of the internal MIDI synthesizer.
- Modifying sound as it is transmitted through the internal MIDI synthesizer.

This introduction contains: "Concepts and Terms to Know," "Overview of Preset Structure," and "Some Background on MIDI."

Concepts and Terms to Know

Before using Synthesizer Editor, it helps to understand the following related concepts and terms:

Software synthesizer
The documentation often mentions the "software synthesizer." This term refers to the *MIDI* synthesizer that is included in your system software. It is an internal program that can be controlled and monitored with programs like Synthesizer Editor and MIDI Keyboard. For example, when you use Sound Player to play a MIDI file, what you are hearing is the software synthesizer.

MIDI Channel
Any one of 16 pathways that the *MIDI* standard provides for the transmission and reception of data. The number of the channel over which MIDI data should be transmitted is specified by a number in the MIDI data stream.

Voice
A note generated by a synthesizer.

Preset
A preset is template for MIDI voices. It specifies all the parameters that determine the synthesizer voice, timbre, and behavior. For example, if the Clarinet preset is assigned to MIDI channel 1, each played over channel 1 will create a voice that sounds like a clarinet, and although different keys generate different voices, the preset (clarinet) remains the same.

Glossary

cent

In the world of audio, a cent is a unit of pitch measurement corresponding to one one-hundredth of a semitone.

desktop

The screen background. By default, several icons are placed on the desktop: a folder icon representing your home directory, a dumpster icon, several application icons, and an icon for each peripheral you have installed. You can place other icons on the desktop so that you can access them more easily.

In this way, the desktop is similar to an actual office desk. For example, on your desk, you might have a telephone, a container of pens and pencils, and a stack of folders or notebooks related to the projects on which you're currently working, Other items that are used less are stashed away in desk drawers.

envelope

An envelope is a preset element that generates time-varying control values (usually in response to a key press). These control values are used to modulate the parameters of other preset elements. For example, an envelope could be created that would cause a voice volume to start soft, become loud, and then gradually fade.

filter

Filters are optional preset components that allow detailed tone control through the process of weakening or strengthening specific signal frequencies.

gated

In a gated envelope, the duration of the sustain is determined by how long the key is held down. The envelope progresses through its segments until it reaches the last level associated with the sustain portion of the envelope (typically Level 2). It remains at this level until the key is released, at which time it continues through any remaining segments.

General MIDI

A standard subset of the *MIDI* protocol designed to ensure compatibility among MIDI different instruments. All General MIDI compatible instruments have the same mapping of instrumental sounds to preset/patch numbers, and always use MIDI Channel 10 for drum parts. They can all play at least 16 sounds at once, and have at least 24-note polyphony.

loop

A loop is a portion of the sound *sample* that is repeated over and over, sustained for as long as the key is held down, or faded for as long as the release time indicates. See Figure 1-5 for an example of a sustain loop.

menu button

A button that reveals a popup menu. Place the cursor over the button; then press the left mouse button.

MIDI

MIDI stands for Musical Instrument Digital Interface. It is a standardized digital language (and hardware specification) that enables computers and a wide variety of electronic musical instruments/devices to communicate with each other.

MIDI channel

Any one of 16 pathways that the *MIDI* standard provides for the transmission and reception of data. The number of the channel over which MIDI data should be transmitted is specified by a number in the MIDI data stream.

MIDI controller

A MIDI controller is any piece of hardware or software that transmits MIDI data.

MIDI device

A product that responds to or generates MIDI data. Common examples of MIDI devices are modern keyboards and drum-pads, which include MIDI **IN**, **OUT**, and **THRU** ports.

MIDI interface adapter

A hardware device that lets a computer communicate with MIDI devices such as instruments and synthesizers.

modulate

To alter the characteristics of another element of the *preset*. See *modulation element*.

modulation element

Within a MIDI voice structure, there are two basic types of signals, an audio signal and a control (modulating) signal. The audio signals produce a directly audible sound, whereas the modulating signals alter the parameters of other elements. Modulation elements are elements of the *preset* that generate modulation signals. Envelopes are always modulation elements—they are used to modulate oscillators, filters, or other envelopes. Filters never function as modulation elements. Oscillators can be used as an audio signal or they modulate other oscillators or filters. For example, Figure 1-1 (click linked text to display Figure 1-1) diagrams one possible MIDI voice structure. In this diagram, Envelope 1 is a modulation element for the gain of Oscillator 1, Oscillator 2 is a modulation element for the frequency of Oscillator 1, and Envelope 2 is a modulation element for the gain of Oscillator 3.

Note On

A MIDI message that tells the synthesizer to begin playing a voice with a particular key number and velocity.

Note Off

A MIDI message that tells the synthesizer to put a currently sustaining note into release mode.

oscillator

An oscillator is a *preset* element that contains sound samples and the keyboard mapping for the samples.

pan

Pan is the effect of converting one channel output into two channel signals, creating a stereo affect.

pathname

The list of directories that leads you to a specific file or directory in the file system. For example: **`/usr/people/jane/test.results`** is a pathname. Note that directories contain other directories and files. The *root* (`/`) directory is the original directory, in which all other directories reside.

preset

A preset is template for MIDI voices. It specifies all the parameters that determine the synthesizer voice, timbre, and behavior. For example, if the Clarinet preset is assigned to MIDI channel 1, each played over channel 1 will create a voice that sounds like a clarinet, and although different keys generate different voices, the preset (clarinet) remains the same. See Figure 1-2 for a breakdown of the technical parameters that structure a preset.

reverberation

The simulation of natural room acoustics (such as the echoing caused by sound reflection), in order to add a sense of spaciousness and ambience to a sound.

root pitch

The root pitch is the is the original source pitch for a sample range in a key map. On the Synthesizer Editor keyboard, the orange keys indicate root pitches.

sample

A sample is a sound file plus additional information concerning its placement on the keyboard (key map), loop points, tuning, and more. An oscillator can contain any number of samples.

sequencer

A digitally-based device used to record, edit, or play MIDI data.

software synthesizer

Refers to the *MIDI* synthesizer that is included in your system software. It is an internal program that can be controlled and monitored with programs like Synthesizer Editor and MIDI Keyboard. For example, when you use Sound Player to play a MIDI file, what you are hearing is the software synthesizer.

velocity

The speed at which a note has been pressed or released. Velocity is used to determine the volume of a note, and sometimes used to determine other parameters, such as brightness.

voice

A note generated by a synthesizer.

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