CUBASE

VST

System Exclusive Handling

5

Steinberg

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Introduction

Cubase VST allows you to record and manipulate System Exclusive data in various ways. This chapter points to various features that helps you manage and create System Exclusive data.

❐ **The Studio Module (described in its own book) handles virtually all your System Exclusive needs, giving you full control over your MIDI studio. The following information is for occasions when you choose not to use the Studio Module and instead use Cubase VST's normal recording and editing facilities.**
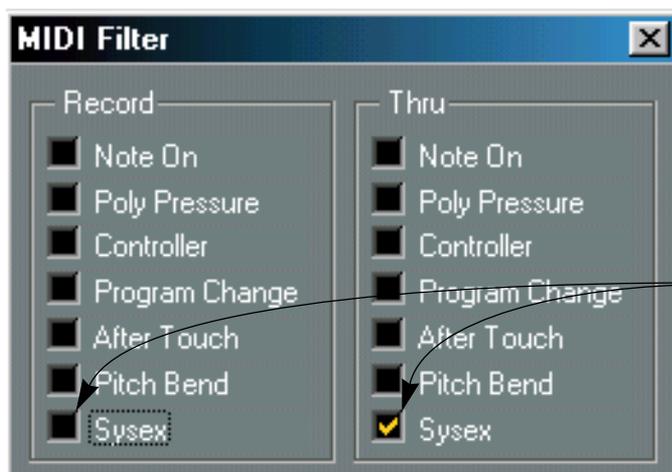

Bulk Dumps

Activating a Dump from the front panel of an Instrument

In any programmable device, all settings are stored as numbers in computer memory. Change those numbers, and you will change the settings.

Normally, MIDI devices allow you to dump (transmit) all or some settings in the device's memory, in the form of MIDI System Exclusive messages. Return these messages, and you get the settings back. This is (among other things) a way of making backup copies of the settings of any instrument.

If your instrument allows the dumping of a few or all of its settings via MIDI by the activation of some function on the front panel, this dump will most probably be recordable in Cubase VST.

1. **Connect the MIDI Out of the instrument to a MIDI In on the computer.**

2. **Open the MIDI Filter dialog and make sure it allows System Exclusive to get recorded (no filter activated) but prevents it from being Thru-put (filter activated).**

System Exclusive should be recorded, but not thru-put.

3. **Set up a Track for recording. Activate recording and initiate the dump from the front panel of the instrument.**

4. **When done recording, open List Edit and make sure the dump got recorded.**

Start-Pos.	Length	Val.1	Val.2	Val.3	Event Type	Chn	
1. 4. 1.1120	====.==.====	====	===	===	Sys Ex	==	33,0F,04,02,0

A System Exclusive dump as displayed in List Edit.

Activating a Dump using a Request message

Sometimes there is no way of initiating a dump from the front panel of the instrument. If this is the case, things are more complicated:

1. **Find out what message to send to the device to make it dump its settings via its MIDI Out.**
   This is hopefully listed in the device's operation manual.

2. **Use List Edit to insert that message into a Track.**

```
F0,42,30,28,10,00,F7
```

A System Exclusive "request" message entered in List Edit. This is just an example, each instrument requires its own manufacturer specific message.

3. **Connect the MIDI Out of the instrument to a MIDI In on the computer.**

4. **Connect the MIDI In on the instrument to a MIDI Out on the computer.**

5. **Make sure your Track with the "request" message is set to the MIDI Out Port that the instrument is connected to.**

6. **Open the MIDI Filter dialog and make sure it allows System Exclusive to get recorded (no filter activated) but prevents it from being Thru-put (filter activated).**

7. **Set up a separate Track for recording.**

8. **Activate recording so that the request message gets sent out to the instrument.**
   It should respond with a bulk dump that gets recorded on a separate Track.

9. **When done, stop Cubase VST.**

This Part contains the request message. When it is played back it makes the instrument transmit a dump...

...which gets recorded onto this Track.

10.Open List Edit and make sure the dump got recorded.

❐ Some devices require "handshaking" to transmit their settings. If they do, the procedure described above won't work!

Transmitting a Bulk Dump back to a Device

1. Connect the MIDI Out of Cubase VST to the MIDI In of the device.

2. Solo the Track containing the System Exclusive data (this might not be necessary, but it is a good safety measure).

3. Make sure the device is set up to receive System Exclusive data (often, the reception of SysEx is turned off by default).

4. If necessary, put the device in "Standby to Receive System Exclusive" mode.

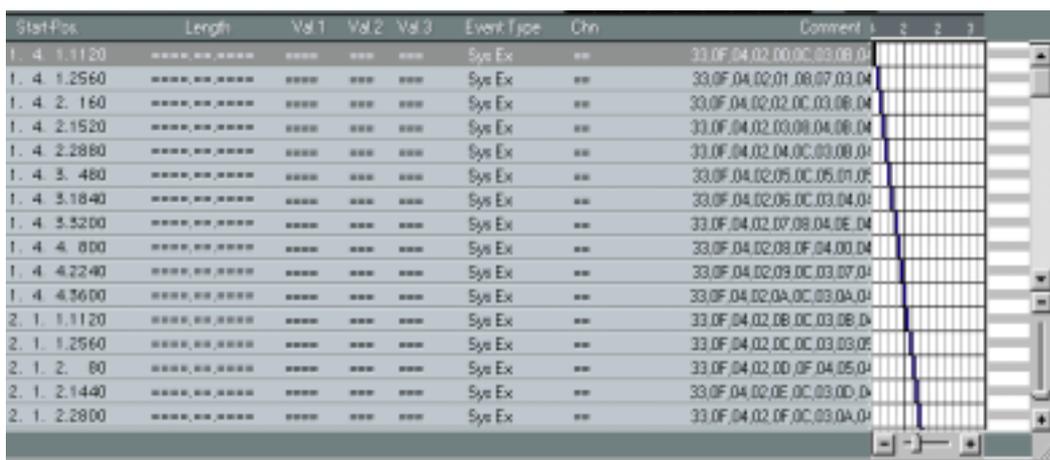5. Play back the data.

Some advice

- Don't transmit more data than you need. If all you want is a single program, don't send them all, it will only eat up precious sequencer memory. Usually, you can specify exactly what you want to send.
- If you want the sequencer to dump the pertinent sounds to your instrument each time you load a song, put the SysEx data in a silent "count-in" before the song itself starts.
- If the dump is very short (for instance, a single sound) you can put it in the middle of the Song to re-program a device on the fly. However, if you can achieve the same effect by using Program Change, this is definitely preferable, since less MIDI data is sent and recorded. Some devices may be set up to dump the settings for a sound as soon as you select it on the front panel.
- Do not transmit several SysEx dumps to several instruments at the same time.
- Make a note of the current Device ID setting of the instrument. If you change this, the instrument may refuse to load the dump later.

Recording System Exclusive parameter changes

Often you can use System Exclusive to remotely change individual settings in a device, open up a filter, select a waveform, change the decay of the reverb etc. Many devices are also capable of transmitting changes made on the front panel as System Exclusive messages. These can be recorded into Cubase VST, and thus incorporated into a regular MIDI recording.

Here's how it works: let's say you open up a filter while playing some notes. In that case, you will record both the notes and the System Exclusive messages generated by your opening of the filter. When you play it back, the sound changes exactly like it did when you recorded it.

1. **Open the MIDI Setup Filtering dialog and make sure that System Exclusive gets recorded.**

2. **Make sure the instrument is actually set to transmit front panel control movements as System Exclusive data.**

3. **Record normally.**

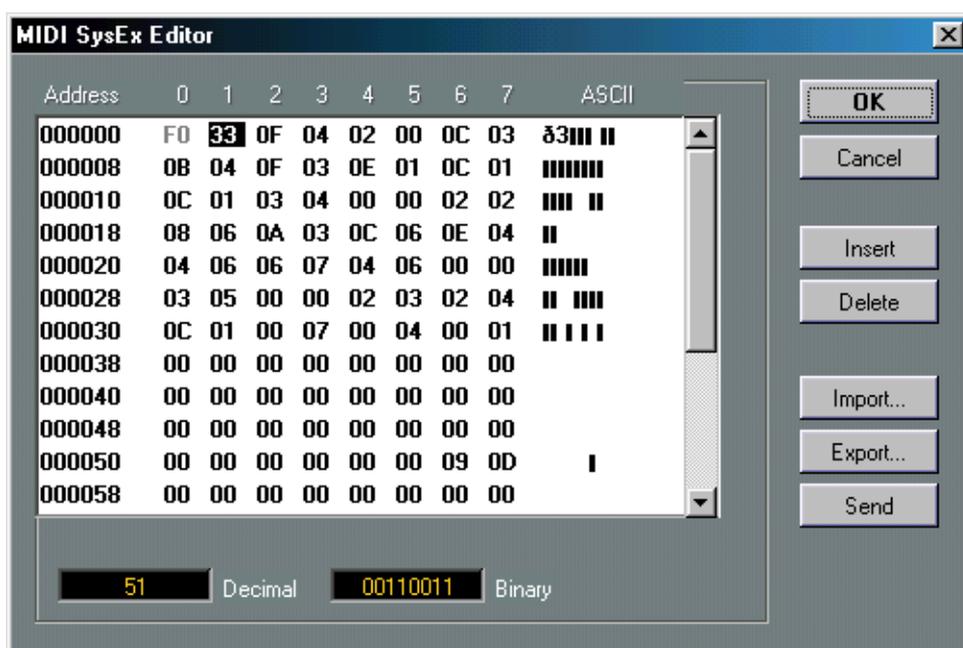System Exclusive parameter Events recorded and displayed in List Edit.

Editing

In List Edit

System Exclusive data can be edited in List Edit as described in the List Edit chapter in the Getting into the Details document. However, this type of editing can only be applied to shorter messages.

In the System Exclusive Editor

The System Exclusive editor is a Module. For instructions on how to Install Modules, see the Modules book.

This editor facilitates editing of System exclusive messages in many ways, but one of the most important features is that allows you to edit much longer messages.

Opening the Editor

- **To open the SysEx editor, select a System Exclusive event in List Edit and select "MIDI SysEx Editor" from the Modules menu.**

How the Display is organized

- The display shows the entire message on one or several lines. All System Exclusive messages always begin with F0 and end with F7 with a number of arbitrary bytes in between.
- If the message contains more bytes than fits on one line, it continues on the next. The "ADDR" (address) indication helps you find out on which position in the message a certain value resides.
- The ASCII column helps you interpret messages that contain letters and other characters.

Selecting a Value

You can select a value either by clicking on it or by using the cursor keys.

Checking data in various formats

The selected byte is indicated in various formats:

- In the main display, values are shown in Hexadecimal.
- To the right of this, values are shown as ASCII.
- At the bottom of the dialog, it is shown in decimal and binary formats.

Editing a value

The selected value can be edited directly in the main display or in the decimal and binary displays. Just double click on it and type in the desired value as usual.

Adding and Deleting bytes

Using the Insert and Delete buttons, or their corresponding computer keyboard keys, you can add and delete bytes from the message. Inserted data will appear *before* the selection.

Importing and Exporting Data

The Import and Export buttons allow you to get SysEx data from disk and to Export the edited data into a file. The file format used is called "Raw SysEx" (.SYX), which means that data is saved exactly as is, in a binary file. Only the first dump in a "SYX" file will be loaded.
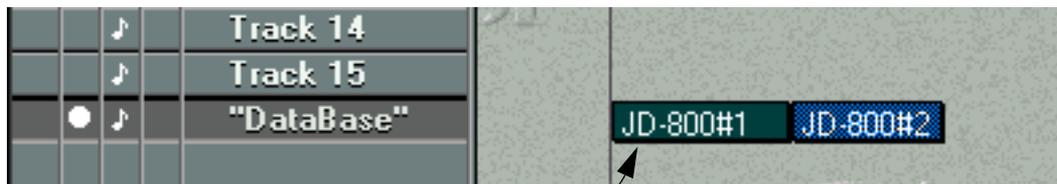
This format should not be confused with MIDI Files.

Sending Data

When you click this button, the data in the window is sent out via MIDI, to the MIDI Output specified for the edited Part/Track.

Creating a System Exclusive "Data Base"

If you create Parts with useful "SysEx Dumps", you can put these on a special muted Track. When you want to use one of them, drag it to an empty unmuted Track and play it back from there.

Parts containing System
Exclusive "bulk dumps".

System Exclusive in the MIDI Mixer

The MIDI Mixer is especially designed for transmitting System Exclusive messages from its Objects. This can be used to create "editor mixer maps" that allow you to set up and control your MIDI instrument from Cubase VST. See the MIDI Mixer document for details.

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