MUSIC RECORDING AND EDITING SYSTEM

CUBASIS VST

Operation Manual

steinberg

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1

Introduction

Welcome!

In a few short years the world has changed. Once music making was strictly divided between those with access to professional studios, expensive equipment and other musicians, and those whose music making was confined to the realms of second rate equipment, limited funds and a good deal of dreaming.

We at Steinberg are pleased to be part of the continuing revolution that has broken down these barriers, allowing anyone with musical ambitions to realise their true musical potential.

Cubasis VST – the program you now have in front of you – embodies the experience of over ten years of Steinberg history. Together with Windows 95 or Windows 98, it provides an excellent framework for making music on computers.

Karl Steinberg Manfred Rürup

About Cubasis VST...

Now that you have Cubasis VST, which is a version of Cubase, you belong to one of the largest music software user groups in the world. Cubase is a family of music software, ranging from the easy-to-understand package for the beginner to professional tools for the most demanding applications. That's the Cubase advantage, Cubase grows as you develop musically.

Cubasis VST was created as a result of years of experience in both software engineering and listening to our users. A major component of this continuing success story is your active involvement. We welcome suggestions and comments about our software and the direction it should take in the future. Also we are very pleased to see independent Cubase Clubs appearing all over the world. These create networks of expertise and advice which helps all our users.

We are very proud of this, and would like to thank you for becoming part of the Cubase family.

Your Steinberg Team.

How you can reach us

The Help menu contains direct links to several of Steinberg's web pages. These allow you to get information about new products, upgrade offers and other important info.

- For the web links to work, you need to have a working Internet connection and properly set up browser software.

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Guided Tour

What is Cubasis VST?

Cubasis VST is an application that allows you to record, edit and mix music.

The program records two types of musical information, digital audio and MIDI. It allows you to do the following (among other things):

- Record any sound source such as a microphone, guitar, etc.
- Record MIDI data from synthesizers or other MIDI instruments.
- Play back up to 8 channels of audio and 64 MIDI Tracks!
- Apply cut and paste techniques to your music, to rearrange recorded parts.
- Perform detailed editing of your MIDI recordings.
- Mix your music, applying effects and EQ to your audio recordings.
- Create a mixdown audio file on your hard disk.
- View movies and play your music along with the movie playback.
- Create printed scores.

Real time

One specific point to note about Cubasis VST is that it operates in complete real time. You don't need to stop the music to perform any type of editing, switch between windows or anything else. You can even Save to disk while playing!

Undo/Redo

Practically any operation in Cubasis VST can be undone, using the Undo item on the Edit menu. After something has been undone, this item changes to Redo, allowing you to "undo the undo".

What is Digital Audio?

"Audio" is any sound source that you can connect to the sound input of your PC audio card, a microphone, an electric guitar or similar. "Digital" we say because the computer converts the audio signal to numbers, which Cubasis VST captures and stores on your hard disk. The fact that the sound is converted to numbers opens up enormous possibilities in terms of manipulation of recordings.

What is MIDI?

MIDI is a type of control information used with synthesizers. Let's explain this with an analogy: Your computer can send messages to a printer about how you want a page to look. The printer then takes care of converting this information to the actual "ink" on paper.

With MIDI the synthesizer works much like a "musical printer": the computer sends information to it, specifying which notes you want it to play, and it takes care of actually creating the audio.

One of the advantages of this technique is that a recording made with for example a piano sound can be played back with a harpsichord, brass or guitar sound, just by changing settings on the synthesizer.

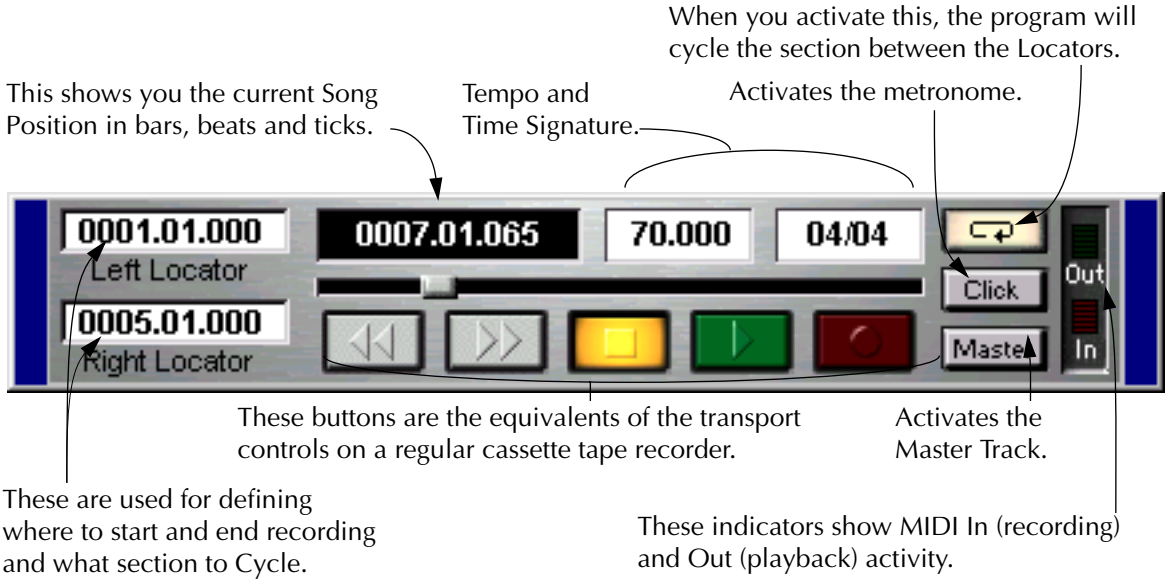
General MIDI (abbreviated GM) is an additional specification for MIDI instruments. If an instrument is General MIDI compatible, it will have a common, wide ranging set of sounds built in (piano, bass, drums, brass, strings etc). If you create music with a General MIDI compatible instrument it can be played back on any other GM instrument and the music will sound more or less the same. This allows you to share your Cubasis VST songs with other people, and even publish your works in a common data format, for example on the Internet!

Cubasis VST also supports two expansions of the GM standard, called GS (Roland) and XG (Yamaha).

The Main Windows in Cubasis VST

The Transport Bar

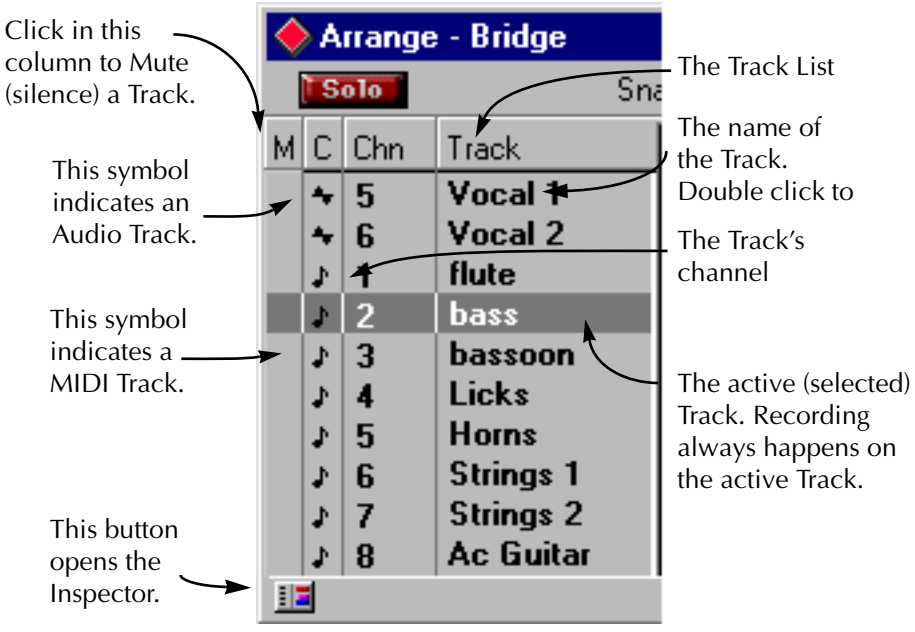
This is much like the transport control on any tape recorder. This is where you Play, Stop, “wind the tape” etc. But the Transport bar is also used for setting tempo, time signature etc.



The Arrangement

This is where you record and assemble your Songs.

Vertically, the Arrangement is divided into Tracks, letting you organise your recordings. You might use one Track for drums, another for bass, a third for main vocals, a fourth for vocal harmonies, etc.



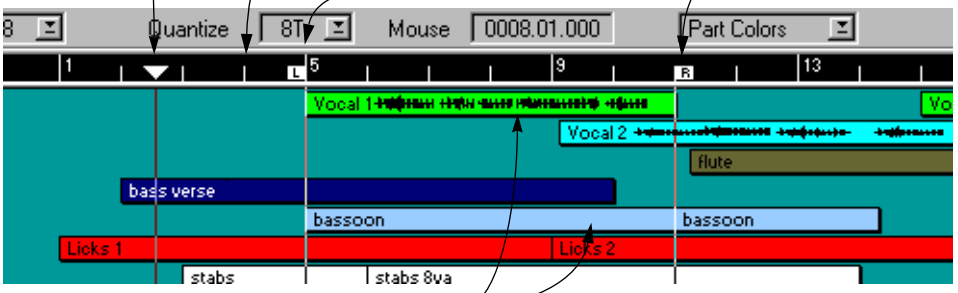
The right part of the Arrangement is called Part Display.

Time runs from left to right, as the ruler indicates.

The Song Position

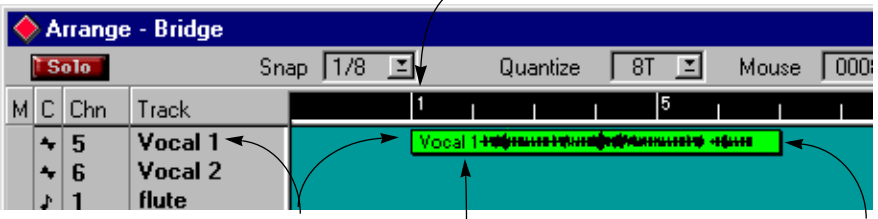
The Left Locator

The Right Locator



Each recording you make appears in the Part Display as a box, called a Part.

The horizontal position shows you where in the Song the Part starts.



The vertical position of the Part shows you which Track it is on.

The width of the box shows you the length of the recording.

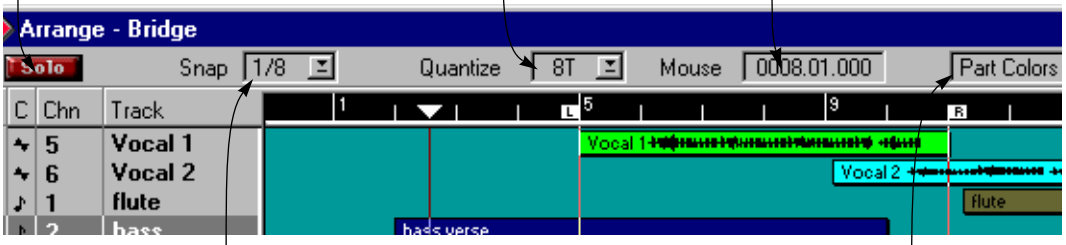
In the Part you will see a visual representation of the recording.

At the top of the Arrange window is a bar with various pop-ups and settings.

Click here to listen to the selected Track only.

This note value is used for the Quantize function.

The mouse pointer's position in bars, beats and ticks.



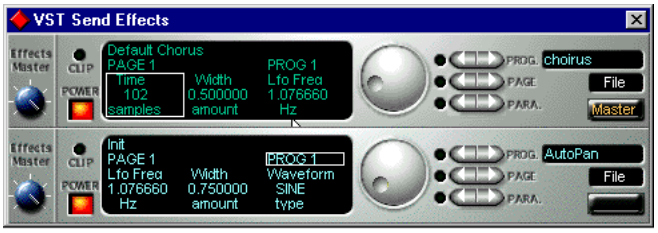
The "precision" for editing operations, like moves and splits.

This pop-up is used to give different Parts different colors.

The VST Channel Mixer

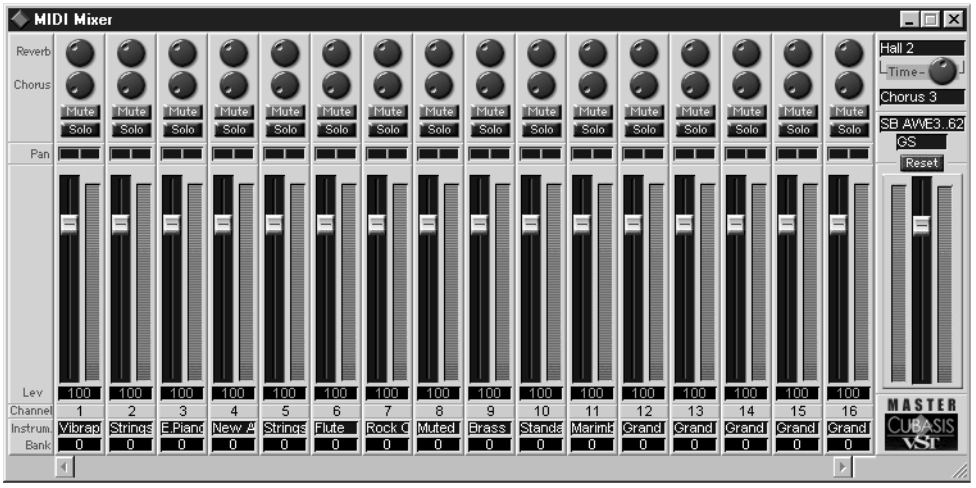
This is where you mix your Audio Tracks, that is, adjust the levels (volume) and stereo panning.

In addition, each audio channel has a two band parametric EQ, two effect sends and one insert effect slot.



The MIDI Mixer

This is one of the places where you can adjust the levels, panning and other parameters for the sounds created by your MIDI synthesizer. If you use MIDI instruments that are compatible with one of the standards GM, GS or XG, you can also use this editor to select sounds for each MIDI channel.

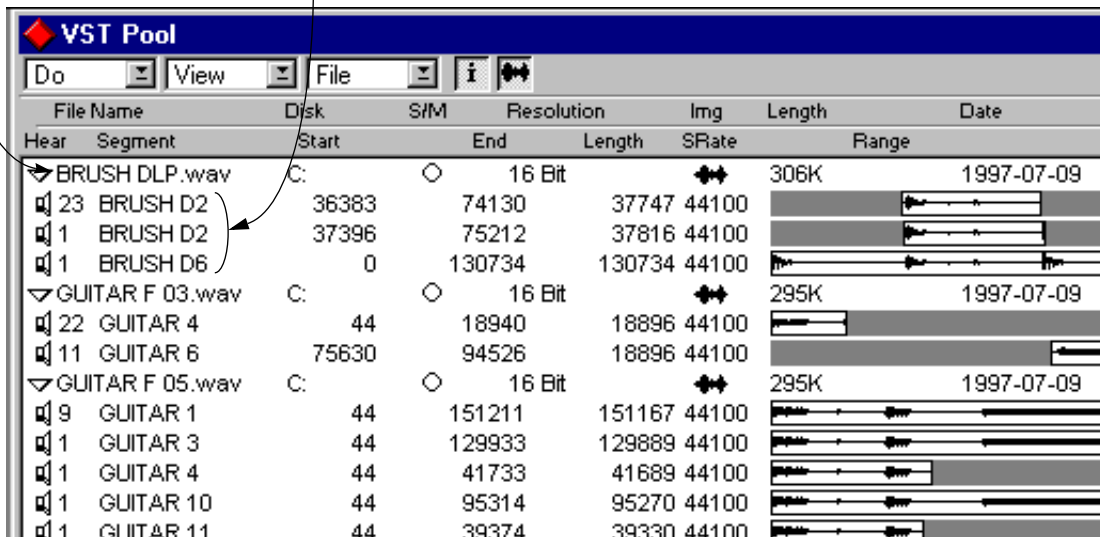


The Pool

This window lists all your audio recordings, allowing you to manage them in various ways.

This is a file containing an audio recording.

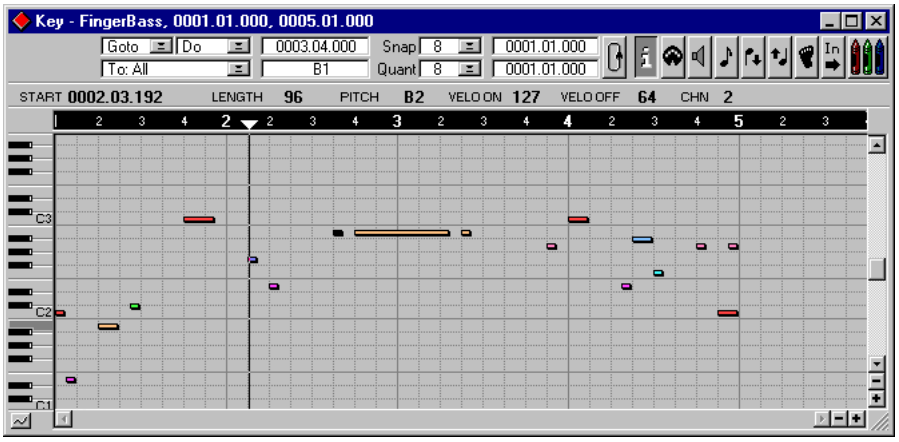
These are segments that play parts of the file. By dragging segments into the Arrangement, you can use the audio file in your Song.



The MIDI Editors

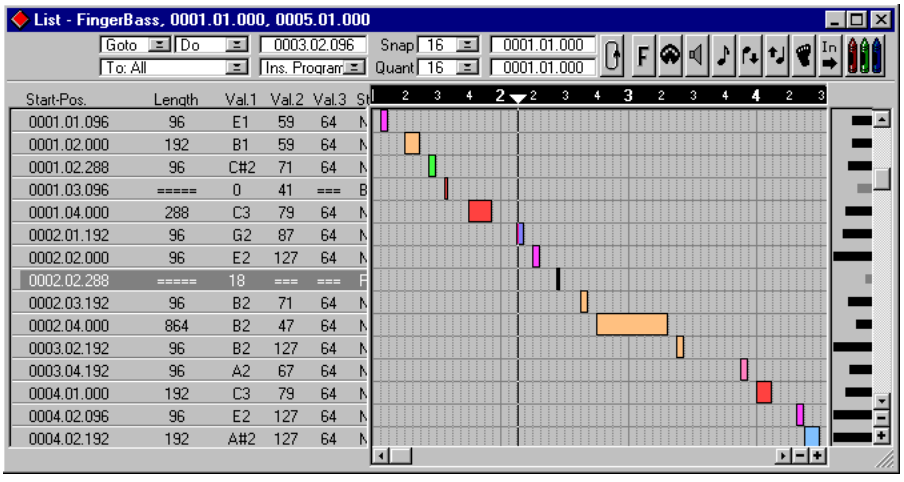
There are three different editors for editing your MIDI recordings:

Key Edit



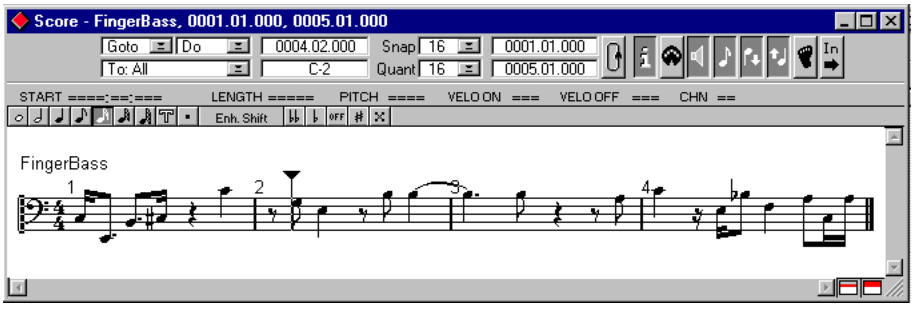
This editor consists of a “grid” with the notes shown as boxes. The pitch of a note is indicated by the vertical position, and the note length is indicated by the width of the box. This is the editor to use when you want quick graphical editing of notes and continuous controllers, such as modulation and volume.

List Edit



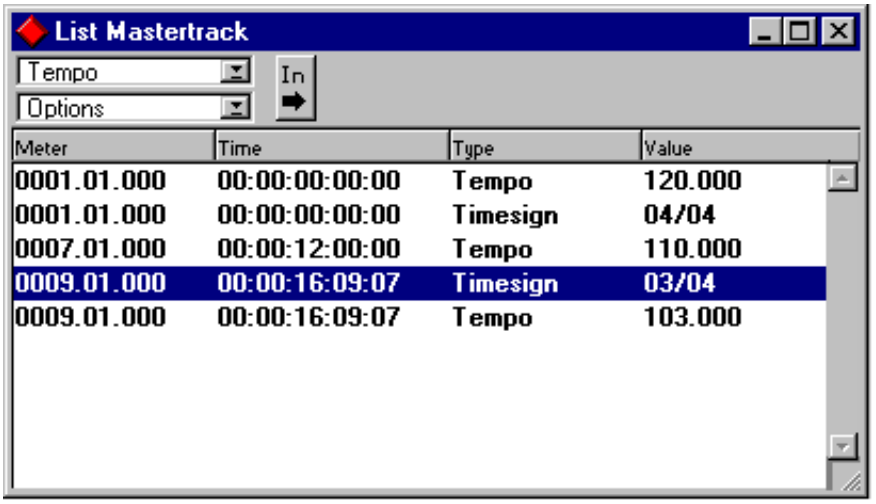
In this editor, all MIDI notes, controllers and other Events are shown and edited in a list. List Edit is useful when you want absolute control over values and positions, or if you are a “computer type of person”, used to numerical editing.

Score Edit



Here, the MIDI notes are presented as a musical score. Use Score Edit to make printed scores, or simply if you are used to working with musical notation.

The Master Track List



This window allows you to add tempo and time signature changes in the Song.

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Setting up your System

- Please refer to the documentation of the TASCAM device for information about how to connect the audio and MIDI devices.

Making Settings for Audio work

Connecting a musical instrument, a microphone or a mixer

About microphones

If you plan to record vocals or a musical instrument, we recommend that you contact a retailer of musical equipment to find a suitable microphone and a cable with the appropriate type of connector.

If you will not be using an audio mixer (see below) please make sure you get a microphone suitable for connecting directly to the microphone input of the audio card.

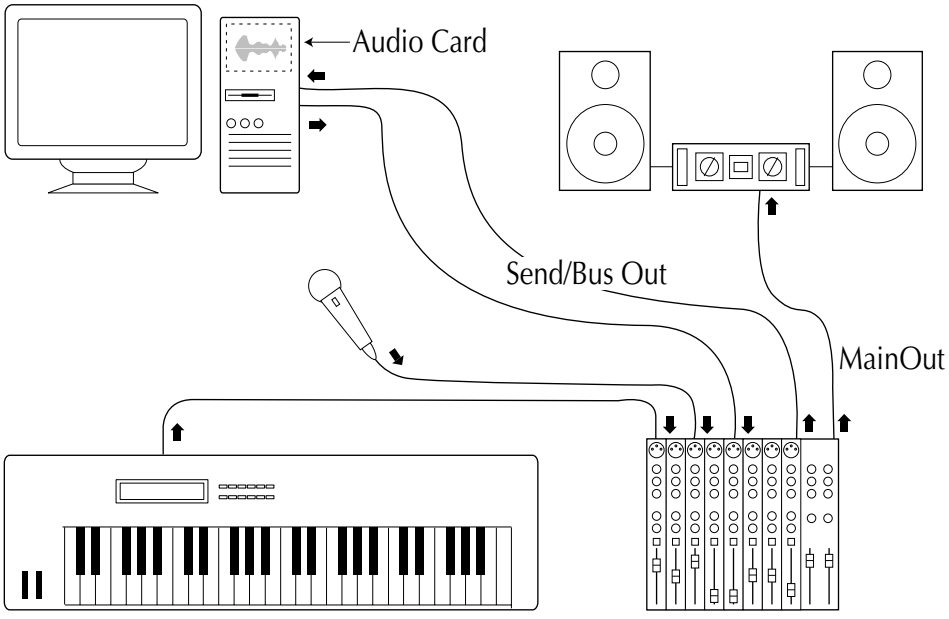
About electric instruments

You might have an electric instrument such as an electric guitar, electric bass, organ or similar, that normally requires an amplifier. If you do, you need to be a bit careful about how to connect it to the audio card, in order to make your recordings sound as good as possible. Generally, electric guitars and basses should be connected to the microphone input of the audio card, since they deliver a weak signal. Synthesizers, keyboards and other devices deliver a stronger signal called a “line level signal”. These should always be connected to the “line input” of the audio card.

- It is very important to make sure you use the correct type of input on your audio card, or your recordings will either be distorted or unnecessarily noisy.

Using an audio mixer

This is usually the best option. If you have access to an audio mixer, connect your microphones, instruments etc, to this, and connect the output of the mixer to the line input on the audio card. The picture below shows a possible configuration:



In this example, the mixer is used not only for sending audio into the computer, but also for listening to all sound sources (including a MIDI synthesizer). However, this requires that the mixer has separate, independently controllable outputs for recording into the computer and listening to the mix. This is necessary, because otherwise you will not be able to record a separate sound source - as everything, the synthesizers, microphones and even the computer's own sound - will be recorded at the same time!

A common method is to use a special output on the mixer called a "monitor send" or a separate "bus", connected to the input of the audio card. This ensures you can separately control what gets recorded on an audio Track.

The main outputs of the mixer are connected to the speakers, and it is via this connection you are able to hear the output of the audio card and the synthesizers, blended to a final mix.

Naturally, there are endless variations on the above concept depending on the type of mixer, the sources to be recorded and the specification of the audio card. Contact your music dealer for help on configuring a system ideal for your specific needs.

Use the Sound Card Setup application

Normally, a sound card has several inputs: a microphone input, a stereo line input, possibly digital inputs and maybe a connection from the CD-ROM drive in your computer.

With the sound card you should have received one or more small applications that allow you to configure the inputs of the card to your liking. This includes:

- Selecting which in/outs are active.
- Turning monitoring via the card on/off (see page 37).
- Setting levels for each input. This is very important!
- Setting Levels for the Outputs, so that they match the equipment you use for monitoring.

● It is a good idea to make sure audio recording and playback works properly before you launch Cubasis VST. This is best done using Windows' Sound Recorder and Media Player applications.

Setting up for MIDI

This section describes how to connect and set up MIDI equipment. If you have no MIDI equipment you can skip this section and move directly to page 26.

Connecting the MIDI Equipment

The descriptions below describe four setup examples for small MIDI systems. You might need or want to hook things up differently!

Example 1A – Using the same Keyboard for recording and playback, via a separate MIDI Interface

1. **Connect the MIDI Out of the instrument to a MIDI In on the MIDI interface.**
   If you have several inputs, it doesn't matter which MIDI In you use. Cubasis VST can record from all inputs on a multi-port interface.

2. **Connect a MIDI Out on the interface to a MIDI In on the instrument.**
   Your MIDI interface may have more than one MIDI Out. Each MIDI port can address up to 16 different devices (or the 16 different voices in a multitimbral module). On smaller MIDI interfaces, the Outputs all carry the same information, so it doesn't matter which you use.

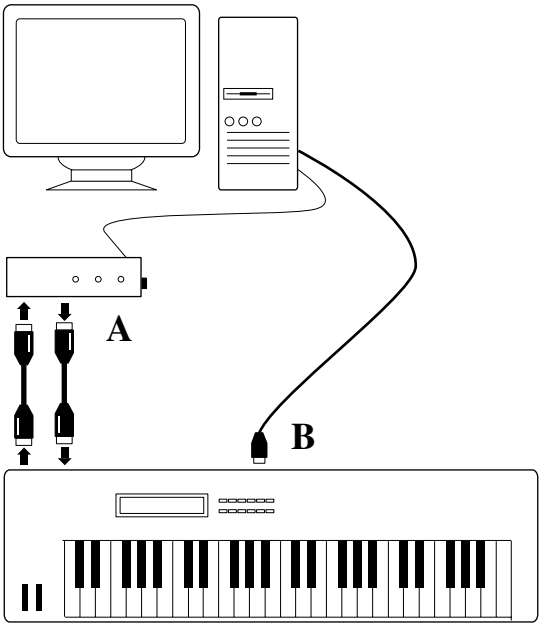
   On larger, multi-port interfaces, the MIDI Outputs are all separate, that is, they carry *different* sets of the 16 midi channels. This allows Cubasis VST to send MIDI data selectively to different MIDI channels on any of the available outputs. If you have a multi-port interface, you should connect the first output to your instrument, and use the following outputs if you need to connect more instruments.

Example 1B – Using a Keyboard with a built-in MIDI Interface

If your instrument has a built-in MIDI interface, no MIDI cables are needed, only a serial cable (see the instrument's documentation for cable specifications).

1. **Make the connections with computer and instrument turned off.**

2. **Connect the cable between the serial port on the computer and the computer connection on the instrument.**
   Many instruments have a special switch that needs to be set for the computer connection to be active (see the instrument's documentation).

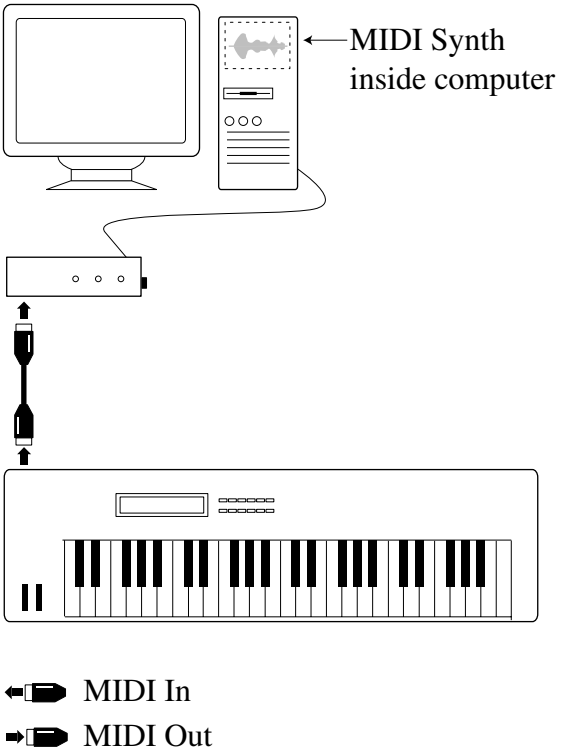


MIDI In (example 1A)
MIDI Out (example 1A)
Computer Connection (example 1B)

The connection above allows you to feed the computer with the signals from the keyboard, during recording. It also allows you to send MIDI signals from the computer to the instrument during playback.

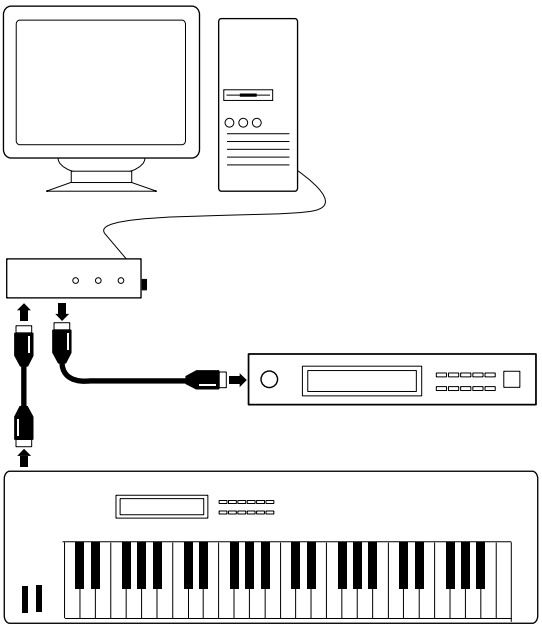
Example 2 – Using a separate Keyboard and MIDI Card

If you have a card in your computer with a built-in MIDI synthesizer (for example your audio card), you don't need to make any MIDI connection to get Cubasis VST to play back from the card. However, to be able to *record* MIDI data you need *at least* a separate MIDI keyboard, that produces no sound but only transmits MIDI signals. This should then be connected to the MIDI In on the computer.



Example 3 – Using a separate Keyboard and Sound Module

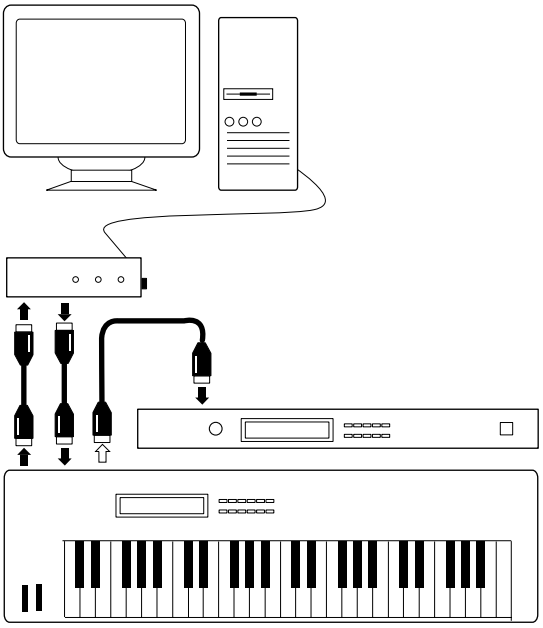
If you have a separate MIDI keyboard, that produces no sound, and a sound module without keyboard, you should hook things up as in the picture below. Using Cubasis VST's MIDI Thru feature (described later), you will still be able to hear the sound from the sound module while playing the keyboard and when recording.



MIDI In

MIDI Out

Example 4 – Adding more devices using the MIDI Thru connectors on the instruments



MIDI In
MIDI Out
MIDI Thru

You might want to use more instruments for playback. Connect MIDI Thru on the first instrument to MIDI In on the next, and so on. In this hook-up, you will always play the first keyboard when recording. But, thanks to the Thru connection, you can still use all your devices for providing sounds on playback.

- If you plan to use more than three sound sources we recommend that you either use an interface with more than one output, or a separate MIDI Thru box instead of the Thru jacks on each unit.

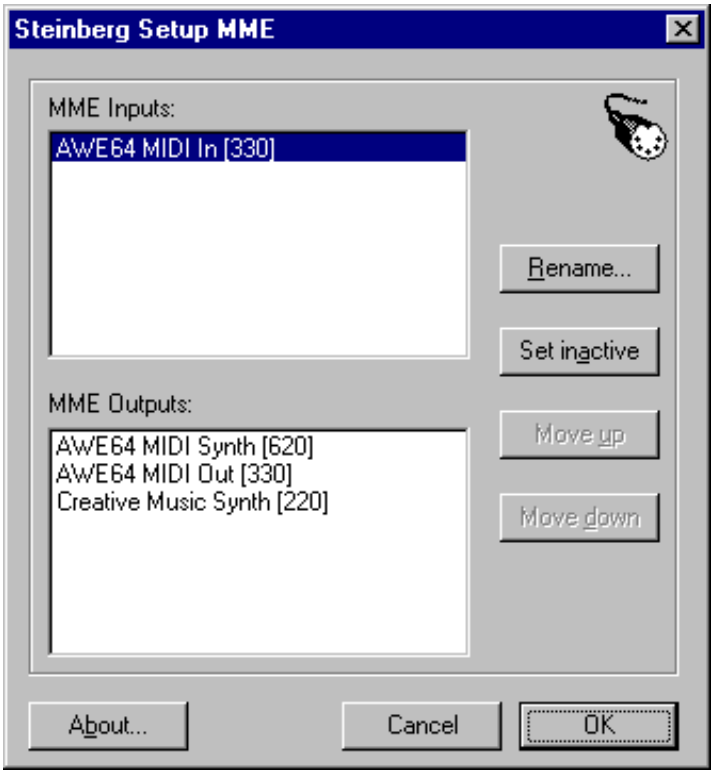
Setting up the Instruments

If you have a General MIDI, Roland GS or Yamaha XG compatible instrument, make sure it is set to its GM/GS/XG mode. If you have other types of instruments, set each Sound (Timbre, Part, Program, Patch) to receive on a different MIDI Channel.

Activating and Ordering MIDI Ports

Before you launch Cubasis VST, you should check your MIDI interface(s). This is done by using a small utility program called Setup MME:

1. **Open the Windows Start menu and select "Setup MME" from the Cubasis VST program group.**
   The Setup MME dialog appears. This lists the available MIDI Inputs and Outputs.



2. **Make sure the necessary Inputs and Outputs are activated.**
   To change the status of a port, select it in the list and click the "Set inactive/Set active" button.

3. **If you like, you can rename ports, to make them easier identifiable in Cubasis VST.**
   This is done by selecting the port, clicking Rename and typing in a new name.

4. **If you want to reorder the Outputs, select one of them in the list and use the Move Up and Move down buttons.**
   Since new MIDI Tracks in Cubasis VST will default to the first Output on the list, you may want to move the Output you are most likely to use to the top. For MIDI Inputs, this is not relevant, since Cubasis VST receives data on all activated Inputs, regardless of their order.

5. **Click OK.**

Launch Cubasis VST!

Now it's time to launch the actual program, and make a few settings there:

1. **Locate the Cubasis VST program on the Start menu or on the desktop.**

- **If you only want to use Cubasis VST for MIDI work (no audio), hold down [Shift] and proceed with launching.**
  This is the same as selecting Disable Audio on the Audio menu.

2. **Select the program from the menu (or double click on the icon) to launch the program.**
   Cubasis VST starts, and displays an Arrange window.

Audio Settings

1. **Pull down the Audio menu and select "System...".**
   The Audio System Setup dialog appears.

2. **Pull down the ASIO Device pop-up menu and make sure "ASIO Multimedia Driver" is selected.**
   In simple terms, the ASIO Device is the mechanism that allows audio data to be transferred between Cubasis VST and the audio card. While the ASIO Multimedia Driver is the default choice, there are situations when you may want to use the ASIO DirectX driver instead. The two drivers have the following properties:

- The ASIO Multimedia Driver supports audio input and output (recording and playback), but usually causes higher *latency* (a delayed response in fader and knob movements). If you want to be able to record audio, the ASIO Multimedia Driver must be selected.

- The ASIO DirectX Driver supports audio output (playback) only. It usually causes lower latency values. Therefore, you may want to use this driver when mixing down, since it will be easier to make fader and knob adjustments exact in time.

3. **Click the ASIO Control Panel button.**
   This opens the ASIO Multimedia Setup (or ASIO DirectX Setup, if the ASIO DirectX driver is selected).

4. **Make sure your audio card is selected on the Presets pop-up menu.**
   Since every single audio card model isn't included on the list, you may have to select a similar card from the same manufacturer.

- **It is possible to create a custom setup for your audio card, by clicking the Advanced Options button.**
  You should only do this if you are experiencing audio problems such as drop-outs and crackles. For more information, use the online help in the ASIO Multimedia Setup dialogs.

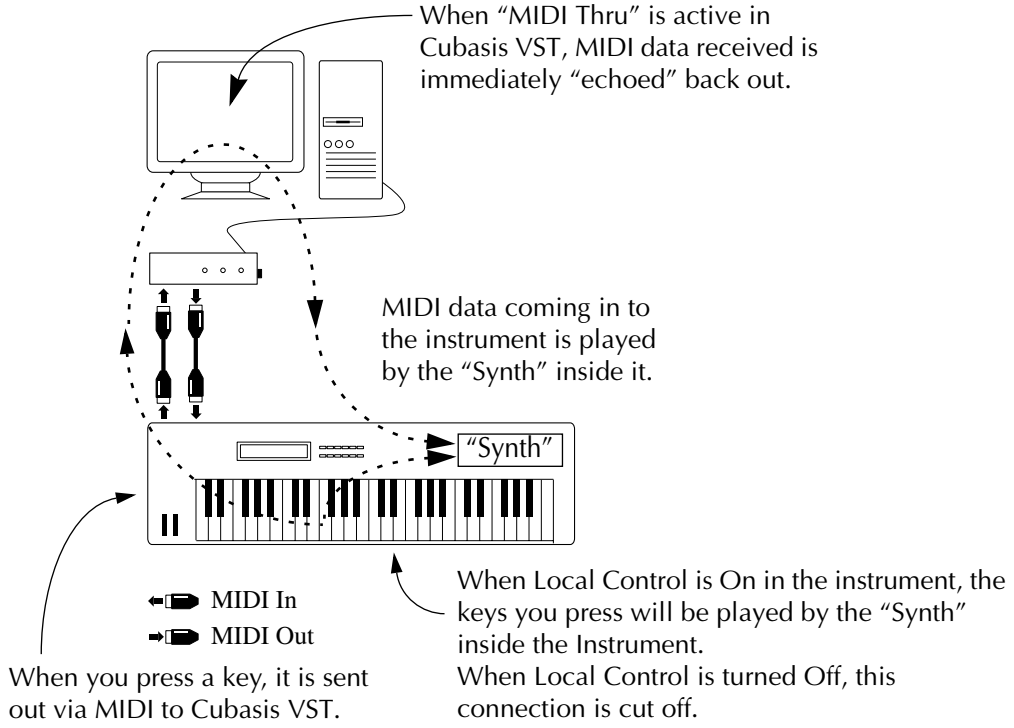
5. **Click OK to close the ASIO Multimedia Setup dialog.**
   If you have made any changes, you will be asked whether you want the new configuration to be tested. We recommend that you do this, following the instructions on screen.

6. **Close the System dialog by clicking OK.**

Setting MIDI Thru and Local On/Off

On the Options menu, you will find a setting called “MIDI Thru”, which can be enabled or not. This is related to a setting in your synthesizer called something like “Local On/Off” or “Local Control On/Off”.

- If you use a MIDI keyboard instrument, as described in Example 1 earlier in this chapter, MIDI Thru should be activated and the instrument should be set to Local *Off* (sometimes called Local Control Off – see the instrument’s operation manual for details). This will let the MIDI signal from the keyboard get recorded into Cubasis VST and at the same time re-routed back to the instrument so that you hear what you are playing, without the keyboard “triggering” its own sounds.



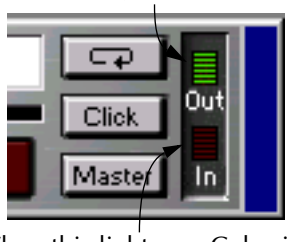
- If you use a separate MIDI keyboard, that does not produce any sounds itself, as in Examples 2, 3 and 4, MIDI Thru in Cubasis VST should also be activated, but you don’t need to look for any Local On/Off setting in your instruments.
- The only situation where MIDI Thru should be *deactivated* is if you use Cubasis VST with only one keyboard instrument and that instrument cannot be set to Local Off mode.

Checking your MIDI Setup

1. **Play your MIDI keyboard.**

2. **Check the "In" indicator on the Transport Bar so that you are sure that Cubasis VST receives MIDI data.**

3. **If you have Thru activated, the "Out" indicator should indicate Output of data.**
   When this lights up, Cubasis VST is transmitting MIDI data.



   When this lights up, Cubasis VST is receiving MIDI data.

4. **Make sure you hear the instrument that you are playing.**
   If not, check your MIDI connections and Cubasis VST's MIDI Thru setting. Also check the audio equipment and audio connections.

5. **If you listen to the sound of the same instrument as you are playing, make sure the sound from the instrument doesn't sound "thin" or "flanged".**
   If it does, you have probably not set the instrument to Local Off. This means that every key you press is played twice, once directly on the instrument and once via MIDI.

Saving the settings

The Audio System settings are automatically saved by Cubasis VST. Any other settings you have made you will want to save, so that you don't have to redo them each time you launch Cubasis VST:

1. **Pull down the File menu and select "Save As...".**
   A file dialog appears.

2. **Navigate to the Cubasis VST program folder.**

3. **Make sure "Songs (*.all)" is selected on the Save as type pop-up menu.**

4. **Type in the name "def.all" (make sure you type the name exactly like that, but without the quotes of course!).**

5. **Click Save.**
   You will be asked whether you want to replace the existing def.all. Click Yes.

Now the next time you launch the program, Cubasis VST will automatically open the def.all Song you just saved, and your settings will automatically be loaded.

4

Recording Audio

Preparations

- To be able to record audio, the ASIO Multimedia Driver must be selected in the Audio System Setup dialog! See page 26.

Selecting a Sound Source

Before starting to record audio, you must decide what type of sound source you want to record. There are (usually) two basic options:

- **Recording a sound source connected to the audio inputs of the audio card.**
  As described in the chapter "Setting up your System", this could be a microphone, a mixer or an electric instrument.

- **Recording audio from an internal CD-player.**

  Proceed like this:

1. **Locate and launch the mixer software included with the audio card.**

2. **Use the settings in the mixer program to select an input source.**
   There may be several options, such as line and microphone inputs, internal CD-player and possibly digital inputs. Refer to the audio card documentation for more information.

- A standard stereo audio card often allows you to mix several input sources. However, if you plan to record a single sound source, we recommend that you turn down or deactivate the other sources, to avoid unnecessary noise.

3. **Quit the mixer program and return to Cubasis VST.**

Choosing a Sample Rate

Before you can start recording you have set the sample rate for the Song:

1. **Open the Audio System Setup dialog by selecting "System..." from the Audio menu.**

2. **Use the Sample Rate popup to select a sample rate.**
   This setting determines the audio quality of your recordings. The higher the value, the better the quality, but when you raise the value, each recording also uses up more disk space and computer processing power. For recordings where the audio quality is important, 44100 Hz is the most common sample rate. This is also the format used on audio CDs, so if you are planning to burn a CD somewhere down the line, choose 44100.
   For multimedia purposes, or in situations where you want to keep the audio files reasonably small, 22050 Hz may be a better choice.
   Please note that some audio cards might only support a limited number of sample rates (see the card's documentation for details).

● This setting is done once and for all for the whole Song. You cannot make some recordings at one sample rate and others at some other sample rate.

3. **Close the dialog by clicking OK.**

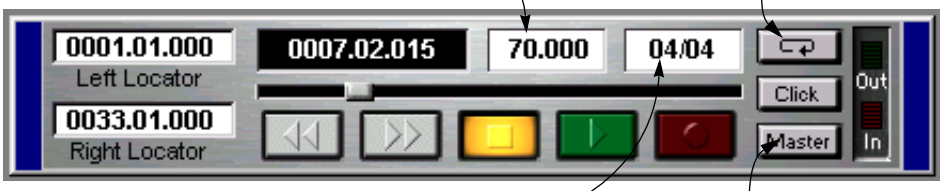
   Once the settings are done, they are automatically saved together with the song.

Setting a tempo and time signature for the Song

Before you start you should decide for a tempo and time signature. These are both adjusted on the Transport bar:

The tempo determines the “speed” of the music. The number is in beats (quarter notes) per minute.

For now, we recommend you leave the Cycle deactivated.



The time signature determines the number of beats to each bar. 4/4, for example is often used in rock and pop. 3/4 is used for waltz.

For now, make sure Master is not activated on the Transport bar.

Tempo tip

A good way of setting the tempo is to activate playback and adjust the tempo on the Transport Bar while listening to the metronome (Click) that is generated on each beat (quarter note). For the metronome to be heard, you need to make sure that the Click button on the Transport bar is activated:

Click activated on the Transport Bar.

- **If you start playback with Click activated and still cannot hear the metronome, you need to adjust the settings in the Metronome dialog on the Options menu.**
  You can select audio click, MIDI click or both. This is also where you specify how many bars of precount you want.

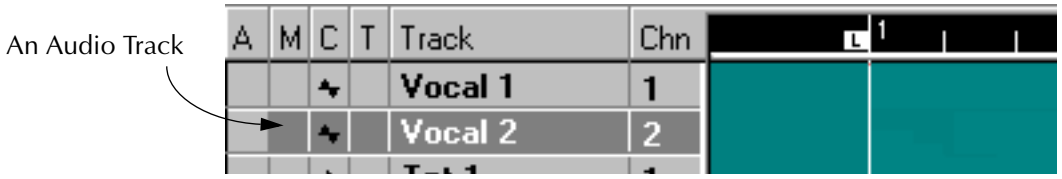
Selecting and setting up a Track

Before you select a Track to record on, it is necessary to understand the basic concept about audio channels and how Cubasis VST handles mono and stereo recordings:

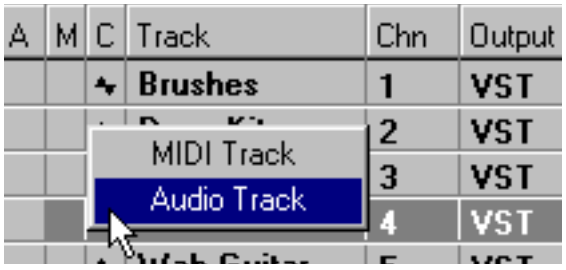
- All audio is played back via *audio channels.* There are 8 audio channels.
- Each audio channel can play back one mono audio recording at a time.
- Stereo recordings play back on two audio channels, one for each “stereo side”. A stereo channel pair always consists of an odd channel and the next even channel (e.g. channel 1+2, 3+4, etc.).
- Channels that are used in stereo pairs cannot be used for mono recordings.

Set up a Track for recording as follows:

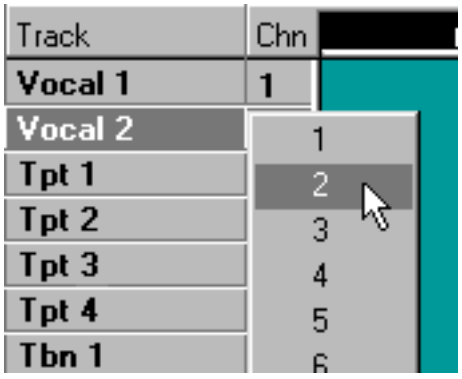
1. **Select an Audio Track by clicking on its name field in the list.**



- **If you don’t have any empty Audio Tracks in your Arrangement, you need to create one, for example by using the Create Track item on the Parts menu.**
  To make sure the Track is an Audio Track, position the mouse in the “C” column for the Track, pull down the pop-up menu and select “Audio Track”.

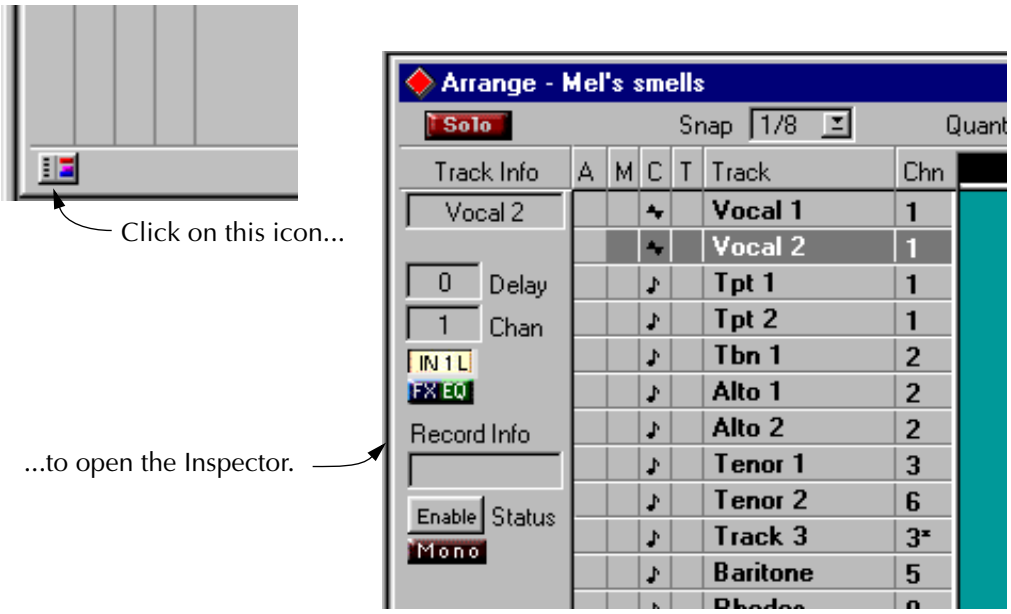


2. **Set the Track’s channel (Chn) to the audio channel you plan to record on.**
   If this is the first Audio Track you record on, select 1. Generally, you should avoid using a channel already used by another Track, since each channel only can play one recording at the time.



● If you plan to make a stereo recording, you must select an odd channel number.

3. Open the Inspector.
This is done by clicking on the Inspector icon below the Track list.



4. Decide if you want the recording to be mono or stereo by using the Mono/Stereo switch in the Inspector.
The label on the switch (Mono/Stereo) indicates which mode is currently selected for the Track. But the switch also indicates whether it is possible to switch mode or not:

The Track is set to Mono. You can switch to Stereo by clicking on the button.

The Track is set to Stereo. You can switch to Mono by clicking on the button.

The Track is set to Mono and cannot be switched to Stereo. This is either because the Track is set to an even channel, or because the next channel is already used for a mono recording.

The Track is set to Stereo and cannot be switched to Mono. This is because there is already a stereo recording on the Track.

If you select Stereo for a Track, it will use the audio channel you set in step 2 above for the left side of the stereo recording, and the next channel for the right side. These two channels are then reserved for stereo use, so that no mono Track can be set to any of these channels.

5. Double click on the Track name, type in a new name for the Track and press [Return].
Since the recorded audio file will get the name of the Track, it is a good idea to use descriptive Track names.

Now you need to make sure that the correct inputs are selected for the audio channel(s) you have selected. As default, the left input on your audio card is assigned to odd-numbered channels, and the right input is assigned to even-numbered channels, but you may want to change this:

6. **Pull down the Audio menu and select VST Channel Mixer.**
   The VST Channel Mixer window opens.

7. **Locate the "mixer strip" for the audio channel(s) you have selected for recording.**
   There is one mixer strip for each audio channel (the value you set in the Chn column for the Track). At the top of the strip, you find a button with the name of the Input selected for the channel.

8. **Hold down [Control] and click on the Input button to pull down a pop-up menu with the two Inputs.**

9. **Select the Input to which your sound source is connected.**
   If you have selected Stereo above, you need to select different Inputs for the two audio channels.

10. **Go back to the Arrange window and click on the Enable button in the Inspector, to make the Track and its selected audio channel ready for recording.**
If this is the first time you enable audio recording in the Song, you will be asked to select a folder for storing your recorded audio files.

Selecting a folder for your Audio Files

When you enable recording for the first time in a new Song, a file dialog box will appear, asking you to select a folder for your audio files. This folder will be used to store all audio files recorded for the Song. If you have the opportunity, we recommend that you store your audio files on a separate hard disk.

- **If you want to change folder during the session, you can do this at any time by selecting "Audio Files Folder..." on the File menu.**
This opens the same file dialog, letting you select a new folder, which will be used from that point on.

Monitoring

In this context "monitoring" means listening to the signal being recorded while preparing to record or while recording. Cubasis VST in itself does not handle monitoring, that is, audio signals sent into the program are not "echoed" back out again.

Instead, we recommend using the mixer application included with the audio card to route the audio input back to the outputs, if possible. This is done differently for different audio cards; some cards have a dedicated "Direct Through" switch, others have separate volume controls for recording and playback signals. See the audio card's documentation for details.

Checking the Input Levels

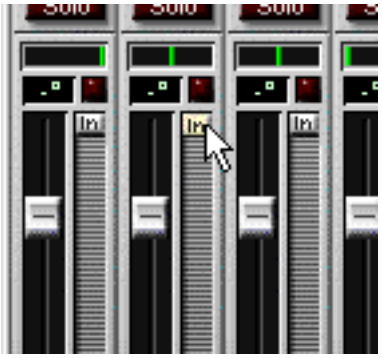
Digital recording (as in Cubasis VST) is different from analog recording when it comes to recording levels. Whereas with analog recording it is often perfectly acceptable to let the "needle hit the red" (record at levels actually higher than the system can reproduce accurately), this is *not* true when it comes to digital recording.

The term used here is *headroom*. The headroom is the difference in level between the signal you record and the maximum level the system can handle. When the signal increases, the headroom diminishes towards 0 dB (decibels).

When the signal is stronger than the system can handle - when you exceed the available "headroom" - in a digital recording system, *hard clipping* occurs, which results in clearly audible and very unpleasant distortion. To avoid this, you should use the Input meter function in the VST Channel Mixer window to accurately check the recording levels:

1. **Pull down the Audio menu and select VST Channel Mixer.**
The VST Channel Mixer window opens.

2. **Click the “In” button above the level meter for the recording channel to activate the Input meter function.**



In this mode, the meter shows the signal level at the input selected for the audio channel.
When the button is *deactivated*, the meters show the *output* level of each audio channel, which is what you want when you play back your recordings.

- **If you are making a stereo recording, activate the “In” buttons for both channels in the stereo pair.**

3. **Sing or play the connected instrument and check the meter and the numeric level display above the fader.**
The level should be as high as possible, without ever clipping (exceeding 0 dB).

Clipping is indicated by the red clip light above the “In” button. To reset the clip indicator, click on it.

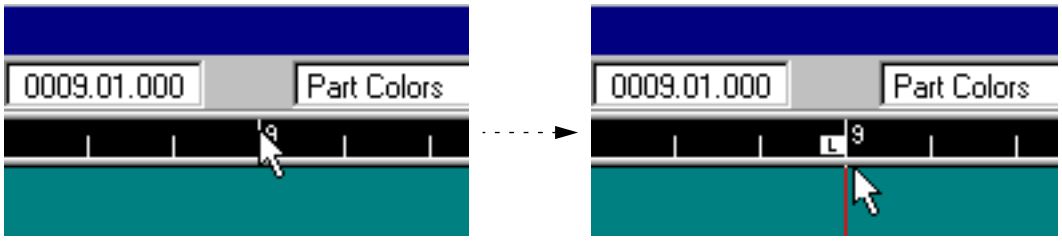
4. **If needed, adjust the recording level in the audio card’s mixer application (or adjust the output level of the sound source or external mixer).**

Performing the first recording

Setting start- and end-points for the recording

Recording starts at the position of the Left Locator and ends at the Right Locator.

To position the Locators, simply click on the ruler - the left mouse button sets the Left Locator to where you clicked, the right button sets the Right Locator.



Recording

1. **Click the Record button.**

2. **After the two bar precount, start performing.**
   Recording will automatically be deactivated when you reach the Right Locator, if you don't hit Stop before that.

3. **When you are done, press Stop.**
   The program will now calculate an image file so that a waveform can be displayed in the program. Depending on the length of your recording, this may take a few seconds, during which a dialog box shows the progress of the calculation.

About Parts

Each time you record on a Track, a Part is created. The Part is a container for your recording. It begins where you activated recording and ends where you stop. As described in the chapter "Arrangement Editing", you can move, copy and paste and manipulate Parts in many other ways to edit and assemble Songs.

A Part.

Listening to the Recording

1. **To hear what you just did, use the Transport Controls to move back to the beginning of the recording and click Play.**

2. **Stop when you are done.**

If you don't like what you just recorded

If you are not satisfied with the recording, you can select Undo from the Edit menu to remove the recorded Part, or select the Part (by clicking on it) and press [Backspace].

However, neither of these methods will remove the actual audio file on your hard disk! If you want to permanently delete the recorded audio file, proceed as follows:

1. **Click on the Part to select it.**

2. **Hold down [Ctrl] and press [Backspace].**
   You will be asked whether you want to delete the audio file permanently. Click Yes.

Recording more on the same Track

To record more on the same Track, proceed as follows:

1. **Move the Left Locator to the next position you want to start recording.**
   This can be at a "free" area on the Track, or at some place where something is already recorded, as described below.

2. **Activate recording just as you did the first time on the Track.**
   A new file is automatically created. This will have the file name you originally specified for the Track, followed by a number (1, 2, 3, etc.).

About overlap

When you record again, where something has already been recorded on the Track, you will get a new Part which overlaps the previous one(s). However, when you play back, only the Parts that you can actually *see* are played back. This is because each audio channel can only play back one audio file at the time.

Recording the Next Track - Overdubbing

Recording the next Track is done just as with the first. Here follows a summary of the steps:

1. **Select another audio Track and make sure it's set to another audio channel.**

2. **Set up the Locators and activate recording.**

   Now, the previously recorded Tracks will play back and you are able to record the new Track as an overdub.

Editing the Recorded Audio

There are two principal ways in which you can edit your audio recordings:

- **By editing the Audio Parts in the Arrange window.**
  This allows you to cut up, duplicate and resize audio recordings, or rather, affect how they play back. This method does not change the actual audio files on your hard disk. See the chapter "Arrangement Editing".

- **By using an external audio editor application.**
  In the Preferences dialog on the Audio menu, you can specify your favorite audio editor application. Then, selecting an Audio Part and selecting "Edit Audio..." from the Audio menu will automatically open the external audio editor, and allow you to edit your recording in detail.

● Note that this will change the audio file permanently! If the audio file is used in other Songs, or in other places in the same Song, you may want to create a copy of the file first.

If you get Audio Performance Problems

If you experience audio dropouts, crackles or "untight" playback, there are some audio settings you can adjust:

- **Try selecting another Disk Cache Scheme in the Audio System Setup dialog.**
- **Adjust the MIDI to Audio Time Offset in the Audio System Setup dialog.**
  This is useful if there is a fixed time offset between the MIDI and audio playback.

- **Adjust the settings in the ASIO Control Panels.**
  These are opened by clicking the ASIO Control Panel button in the Audio System Setup dialog. See the online help for the ASIO Control Panels for more info.

5

Recording MIDI

Preparations

This chapter assumes the following:

- The instrument you use is General MIDI compatible and set to its General MIDI mode.
- You are already familiar with Audio Recording as described in the previous chapter.

● If your instrument is not General MIDI compatible, you will not be able to select sounds from the Program pop-ups in the MIDI Mixer (see page 45). The actual recording procedure is not affected.

Tempo, Time Signature and Click

If this is your first recording in a new Arrangement, set up the time signature, tempo and Click as described on page 33 in this book.

Selecting and naming a Track

The Tracks with the note symbol in the "C" column are for MIDI recording.

1. **Select a Track by clicking on its name in the list.**

- **If you don't have any empty MIDI Tracks in your Arrangement, you need to create one, for example by using the Create Track item on the Edit menu.**
  To make sure the Track is a MIDI Track, position the mouse in the "C" column for the Track, pull down the pop-up menu and select "MIDI Track".

2. **Double click on the Track name, type in the name you desire and press [Return].**

3. **Make sure the correct MIDI Output is selected in the "Output" column.**
   If you cannot see the Output column, point at the Divider (the border between the Track list and the Part Display), click and drag it to the right.

4. **Set a MIDI channel for the Track in the "Chn" column.**

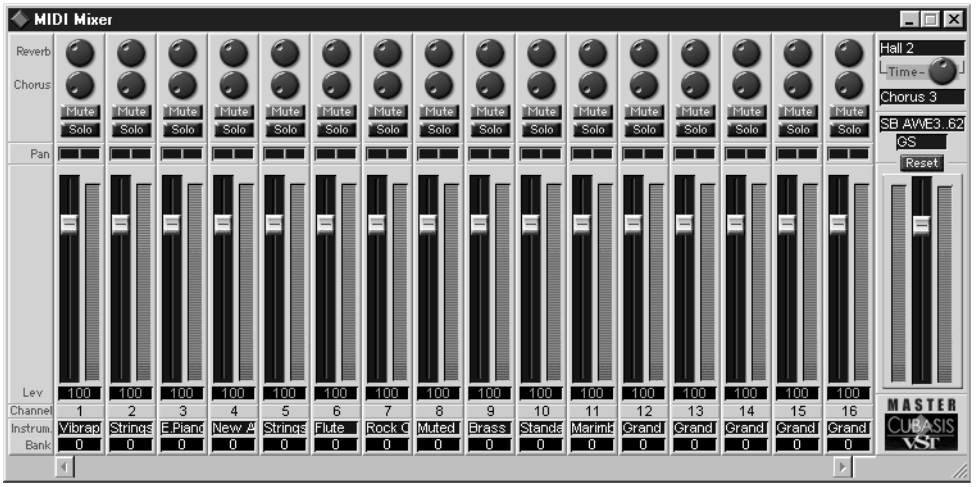
● In General MIDI, channel 10 is always used for drums!

Selecting a sound and setting levels

When you play your keyboard, you should now hear the sound that the instrument plays on this MIDI Channel (the Track's "Chn" setting).

To select a sound and adjust its level, proceed as follows:

1. **Pull down the Edit menu and select "MIDI Mixer".**
   A window with 16 sections of controls, one for each MIDI Channel, appears.



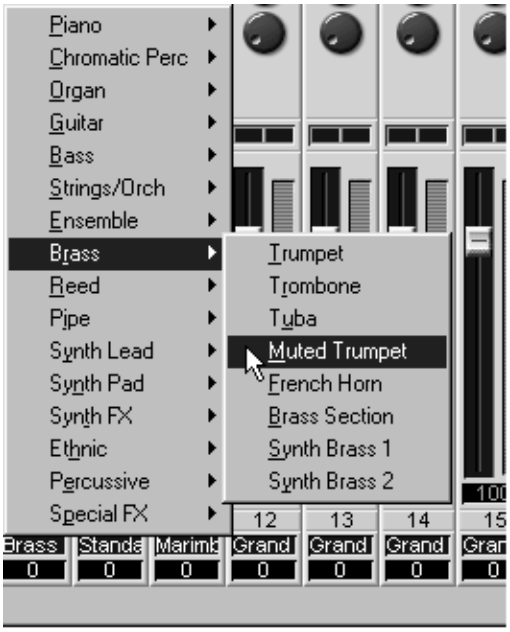
2. **Use the Mode pop-up to select GM, GS or XG Mode.**
   Select the mode that is appropriate for your instrument.

3. **Pull down the Output pop-up and select the MIDI Output port your instrument is connected to.**

4. **Locate the channel section corresponding to the MIDI Channel you have chosen.**

5. **Click on the Instrum. box at the bottom of the channel section.**

6. Use the hierarchical menus to select a sound.



7. Play the keyboard to try out the new sound.

If you don't get the desired sound, this could have many causes:

- Your instrument is not set to its General MIDI (or GS/XG) mode. Make sure the correct mode is selected on the Mode pop-up.
- Your instrument is not set up to react to MIDI *Program Change* messages. Consult the documentation for the instrument you are using.
- Your instrument isn't General MIDI compatible. In this case, you should set the Mode pop-up to "Off" and try selecting sounds for each MIDI channel manually on the instrument instead.

8. Adjust the "Vol." fader for the channel to adjust the volume of the sound, if desired.

9. Close the window.

Recording

1. **Set start and end-points using the Locators, and decide if you want a Click or not, just as when recording audio.**
   If you pull down the Options menu and select “Metronome...” you can select whether you want an audio click from the computer (“Beep”) or a MIDI click, or both.

2. **Click the Record button.**

3. **Perform the recording and press Stop.**
   A Part appears.

   Now, you can listen, Undo or record more on the same Track, just as with Audio Tracks.

About overlap

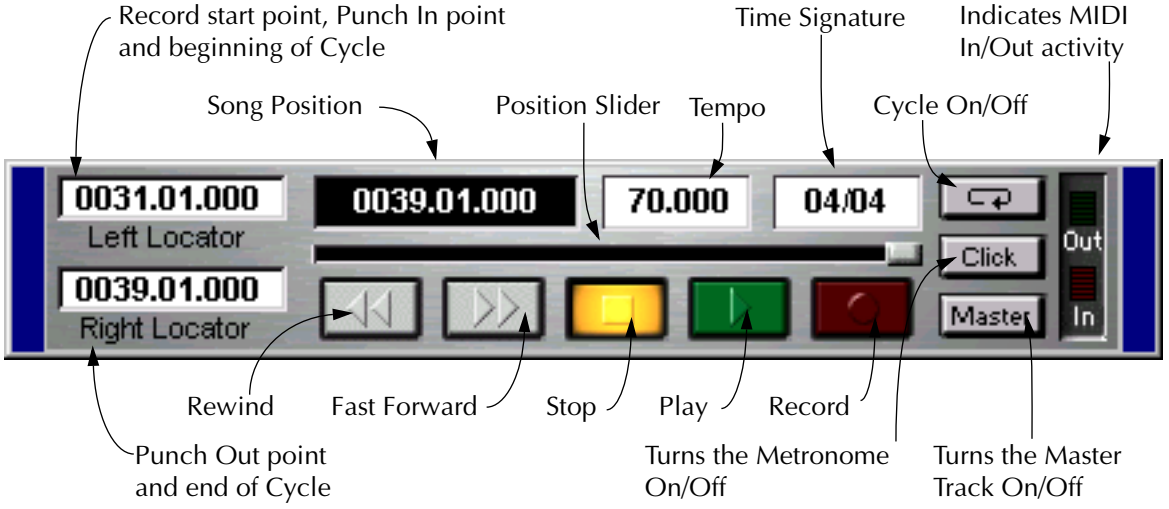
MIDI Tracks are different from Audio Tracks when it comes to overlapping Parts. When you record again, where something has already been recorded on the Track, the new recording is simply added to whatever was on that Track before. When you play back, you will hear both recordings.

6

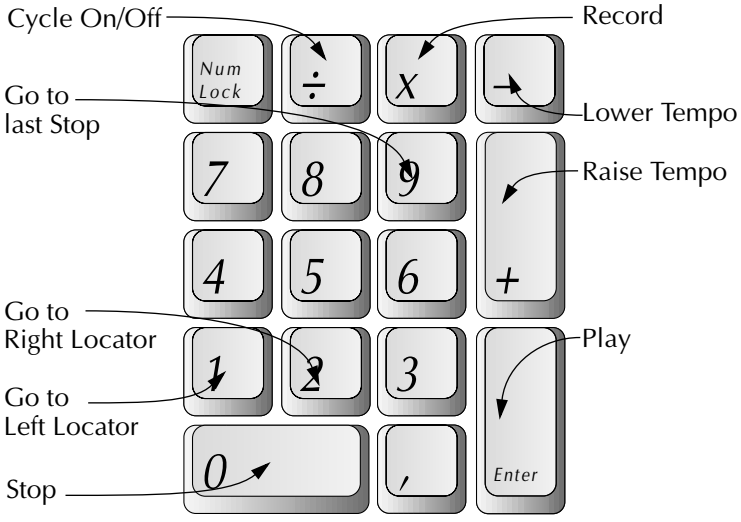
Playback, Tempo and the Transport Bar

The Transport Bar

Below, you will find a brief description of what each control on the Transport Bar is used for:



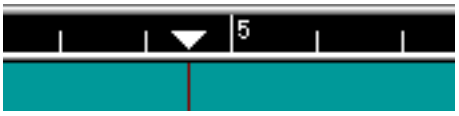
- **You can hide and show the Transport Bar by selecting "Hide/Show Transport" on the Windows menu, or by pressing [F12] on the computer keyboard.**
  Regardless of whether the Transport Bar is visible or not, you can use the Numeric Key Pad to control many of the transport functions:



In addition to this, the Page Up and Page Down keys function as Fast Forward and Rewind, and the space bar serves as an additional Stop key.

Setting the Song Position

The Song Position Pointer is displayed in the Arrange window as a vertical line with a triangular head in the Ruler.

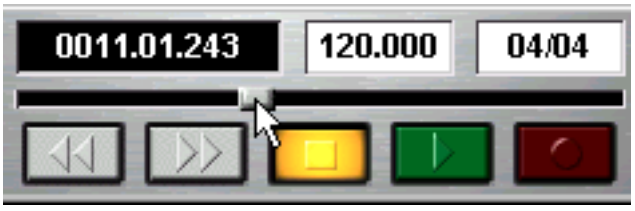


There are several ways to move the Song Position:

- **By using Fast Forward and Rewind on the Transport Bar.**
  If you hold down [Shift] while clicking the button, Rewind/FF is much faster.

- **By double clicking in the Ruler.**
  If you double click somewhere in the Ruler, the Song Position Pointer is moved there. Note that the Snap value determines to which positions you can move the Song Position Pointer with this method (e.g. if Snap is set to 1/4, the Song Position will be moved to the closest quarter note position).

- **By using the Position Slider on the Transport Bar.**
  The position slider is located on the Transport Bar. Drag the handle or click directly somewhere on the line to move the handle there.



The range of the slider relates to the length of your Arrangement. This means that if you drag the slider all the way to the right, the Song Position will appear at the end of the last Part.

- **By editing the Position value on the Transport Bar.**

Returning to the beginning of the Song

If the Song is stopped and you click the Stop button again (or press [0] on the numeric key pad), the following happens:

- The Song Position is moved to the Left Locator.
- If the Song Position is already at the Left Locator or to the left of it, the Song Position is moved to the beginning of the Song.

This means that you can always click twice on the Stop button to return to the beginning of the Song.

Tempo and Time Signature Handling

Transport Bar and Master Track Tempo

There is actually a choice of two sources for Cubasis VST's tempo:

- When the song uses a steady tempo throughout, you can turn off the Master button and simply set the right tempo directly on the Transport Bar. The tempo can be adjusted at any time, even while playing back.
- When the song contains tempo changes, you need to use the Master Track, (which is Cubasis VST's tempo Track). For those tempo changes to actually "happen" on playback, the Master button on the Transport Bar must be activated.

The Tempo setting on the Transport Bar is used.

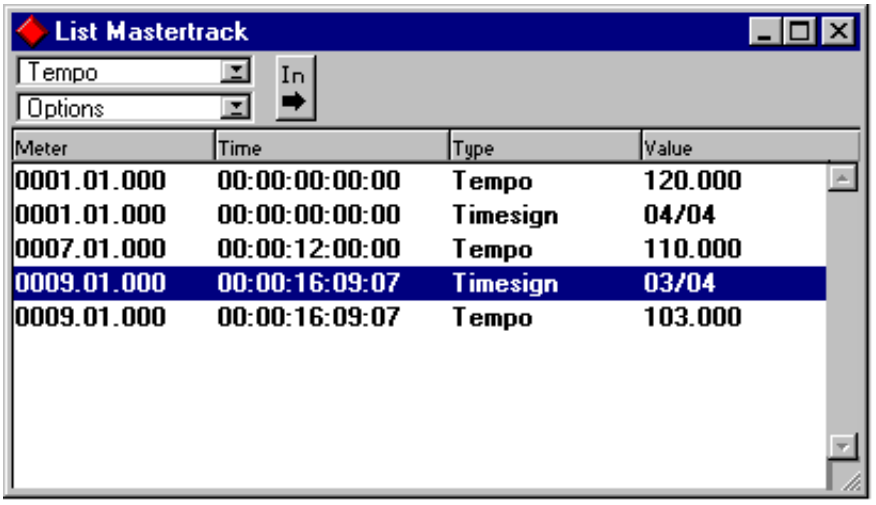
The Tempi set on the Master Track are used and shown on the Transport Bar.

Setting the Transport Bar Tempo

The tempo value on the Transport Bar is adjusted by clicking with the left or right mouse button (to lower and raise the tempo respectively), or by double clicking and typing. The value is in BPM (Beats Per Minute). The integer and fraction part can be adjusted separately, if needed.

Using the Master Track

If you want tempo changes in your Song, you need to use the Master Track. You open the Mastertrack window by selecting Mastertrack on the Edit menu.



The Mastertrack window displays a list of all Tempo and Time Signature Events in your Song. To insert a new tempo within the Song, proceed as follows:

1. **Move the Song Position Pointer to where you want the new tempo to be inserted.**

2. **In the Mastertrack window, pull down the topmost pop-up menu and make sure "Tempo" is selected.**
   This determines the type of event to be inserted.

3. **Click the "In" button.**
   A new tempo event is inserted at the Song Position.

4. **Adjust the new tempo in the "Value" column.**
   Click with the left mouse button to lower the value, click with the right button to raise the value, or double click and type in a new tempo value.

   If you now rewind and activate playback (with the Master button activated on the Transport Bar) you will note how the tempo changes when the Song Position Pointer reaches the correct position.

- **To delete a tempo event from the Mastertrack, select it and press [Backspace].**
  You cannot delete the first tempo event.

● You should avoid changing the tempo after you have recorded audio! Even though each separate Audio Part will start at the correct position in the new tempo, the actual audio recordings within the Parts will still be playing in the tempo you had set when recording!

Time Signatures

The time signature is the number of beats to the bar, e.g. 4/4 (four beats) or 3/4 (three beats). You can adjust the basic time signature directly on the Transport Bar, but you can also add time signature changes in the Master Track window, in the same manner as with tempo changes (you only have to select "Timesigns" from the pop-up menu in step 2 above).

Locators

The Locators are the two “L” and “R” flags in the Ruler. They have two main uses:

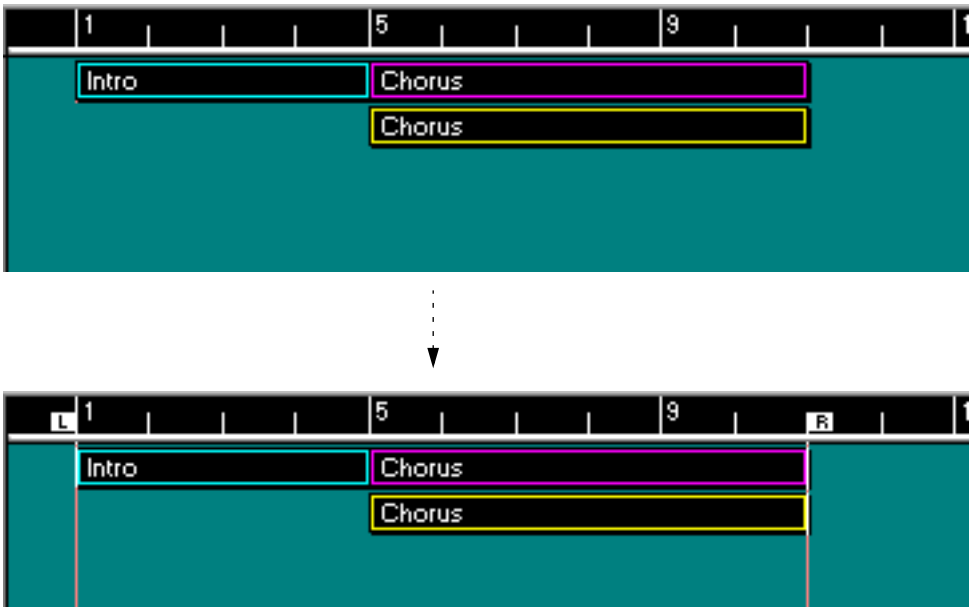
- Recording starts at the Left Locator and ends at the Right Locator.
- If you activate the Cycle button on the Transport Bar, playback will loop between the Left and Right Locator.

As with the Song Position, there are several ways to set the position of the Locators:

- **By clicking in the Ruler.**
  Click with the left mouse button to set the Left Locator, and with the right mouse button to set the Right Locator. The Snap value affects where the Locator is positioned.

- **By adjusting the Locator values numerically on the Transport Bar.**

- **By enclosing a Part.**
  If you select a Part in the Arrange window (see page 59) and press [Alt Gr]-[P] on the computer keyboard, the Locators are moved to the start and end position of the selected Part, respectively.



This method also works with several Parts selected, as shown in this figure.

Moving the Song Position to the Locators

If you press [1] on the numeric key pad, the Song Position is moved to the Left Locator. If you press [2] on the numeric key pad, it is moved to the Right Locator.

About the Cycle

Cubasis VST can play back and record in a Cycle – a loop. You decide where the Cycle starts and ends by setting the Left and Right Locators. When the Cycle mode is active you can repeatedly listen to a section of the Arrangement, and record, adding more on each lap etc. Cycled playback is also convenient when editing and when making adjustments in the Inspector.

You set up and activate the Cycle in the following way:

1. **Set the Left Locator to the position where you want the Cycle to begin.**

2. **Set the Right Locator to the position where you want the Cycle to end.** For this to make sense, the Right Locator should be to the right of the Left Locator.

3. **Click on the Cycle button on the Transport Bar so that it gets activated, or press [÷] on the numeric key pad.**

Cycle activated on the Transport Bar.

Now, when the Song Position Pointer reaches the Right Locator during playback, it will jump back to the Left Locator.

7

Arrangement Editing

About Songs and Arrangements

A Song is the main Cubasis VST document format. This contains all your recorded music and all settings.

- **You can only have one Song open at a time.**
  In fact, there is always one Song open - you cannot run Cubasis VST without a Song opened. This is very important to realize.

- **If you open a Song, this will replace the current Song.**
  If you have unsaved changes, you will be asked whether you want to save the current Song first.

Within the Song, an arrangement contains your music. You can have several Arrangements in the same Song (up to 16), each with its own Arrange window. This allows you to create several versions of the same piece, use one Arrangement as a "storage facility" for recordings, phrases and alternate takes, etc. You can also use this feature to create a collection of favourite pieces and save them all as one document (a Song).

- **To create a new Arrangement, select New from the File menu.**
- **To select between open Arrangements, click on the windows, or use the Windows menu, which lists all Arrangements in the Song.**
- **If you close an Arrangement, a dialog appears that allows you to save your changes. In this dialog, you will find an option called "Set Aside". By using this option, you will close the Arrangement window but the actual data are kept in memory. To reopen the window, select the Arrangement from the Windows menu.**

About Closing - Important!

The "Close" item on the File menu closes the current *Arrangement*! It is *not* possible to close the Song. Therefore, if you are finished working with a Song, either quit Cubasis VST or start with a new Song, in the following way:

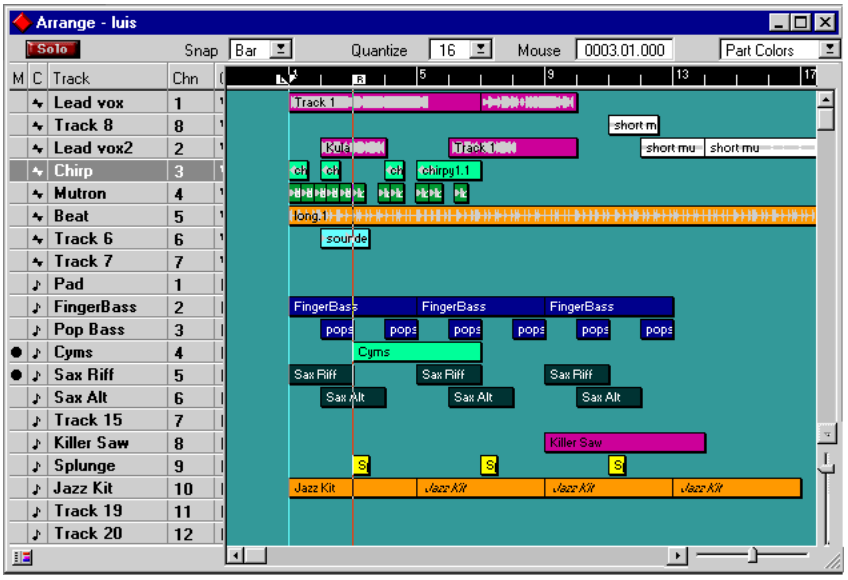
1. **Select Open from the File menu.**

2. **Navigate to the Cubasis VST program folder.**

3. **Select the file "Def.all" and click Open.**
   This opens the default Song, allowing you to start with a clean slate.

About Tracks, Parts and Arranging

As you have already seen, the Cubasis VST Arrangement is roughly structured in two “levels”: Several *Tracks*, each containing a number of *Parts*. This chapter is about Arrangement editing - in other words, re-arranging Tracks (done in the *Track list*, to the left in the Arrange window) and Parts (done in the *Part Display*, to the right in the Arrange Window).



The Track List. The Part Display.

Creating and Managing Tracks

The Track is one of the most basic concepts in Cubasis VST. Every time you record something in Cubasis VST, the recorded material is placed on a Track. You can have up to 64 Tracks in each Arrange window, and you can easily move or copy material between Tracks, as long as they are of the same type (MIDI or Audio).

When you are working with audio, different Tracks can be set to play back on different audio channels, which is essential if you want several audio files to be played back simultaneously. In MIDI recording, the most obvious reason for putting the recorded material on different Tracks is perhaps that you want to have your music played back by different “instruments” - or maybe rather by different sounds on a MIDI sound module or keyboard.

Creating Tracks

You create Tracks by using any of the following methods:

- **Double click in the empty area below the last Track in the Track list.**
- **Pull down the Parts menu and select “Create Track”.**
- **Press [Ctrl]-[T] on the computer keyboard.**

After creating a Track, you may want to change its Track Class (MIDI or Audio). This is done by clicking in the “C” column for the Track and selecting MIDI Track or Audio Track from the pop-up menu that appears.

Making Track Settings

You make settings for a Track by adjusting the values in the Track columns:

Column	Description
A (Activity)	Indicates playback or recording on a Track. You cannot change anything in this column.
M (Mute)	Used for muting the Track (see page 58).
C (Class)	Used for selecting MIDI or Audio Tracks.
Track	The name of the Track. Double click to change.
Chn (Channel)	For MIDI Tracks, this is the MIDI channel (1-16) for the Track. Use this to direct the output of the Track to a specific sound in your MIDI instrument. For Audio Tracks, this is the audio channel (1-8) (see page 34).
Output	If you have more than one MIDI output, you use this pop-up menu to select an output for each MIDI Track. For example, if you have a sound card with a built-in MIDI synthesizer - the Output menu allows you to route some MIDI Tracks to the built-in MIDI synthesizer, and some to the output on the MIDI interface, for controlling external MIDI instruments. You cannot change the Output setting for Audio Tracks.

- **Some of the Track column settings can also be changed in the Inspector.**

Selecting Tracks

You select a Track by clicking on its name field in the Track List, so that it is highlighted. Selecting a Track allows you to make settings in the Inspector for all Parts on that Track. Recording is also automatically routed to the selected Track.

Moving and Duplicating Tracks

To move a Track up or down in the list, click on its name and drag it to the desired position (the Parts on the Track will follow). To duplicate a Track, including its Parts, press [Alt] and drag it to the empty area below the last Track in the list.

Deleting Tracks

To delete a Track, proceed as follows:

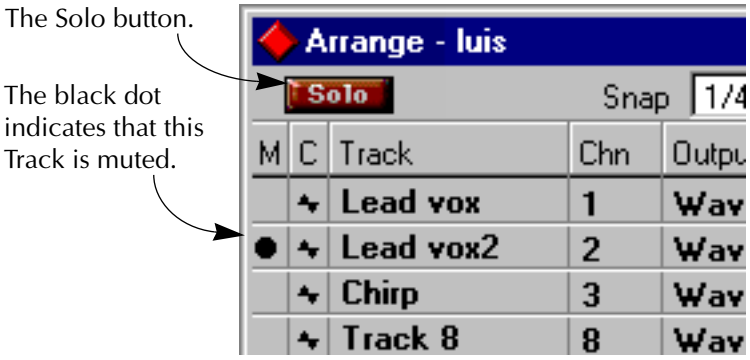
1. **Click in an empty area in the Part display, to make sure no Parts are selected.**

2. **Select the Track.**

3. **Click [Backspace] or select Delete Track from the Edit menu.**

Mute and Solo

- **If you click the Solo button at the top of the Arrange window, you will only hear the active Track.**
- **By clicking in the Mute (M) column in the Track list, you can silence any Track temporarily.**



Working with Parts

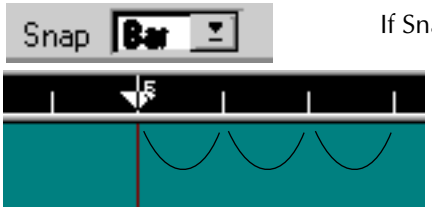
Parts can be viewed as “containers” for your MIDI and audio data. By manipulating Parts in the Part Display, you can quickly rearrange and structure your Arrangement.

About the Snap value

When you are moving, duplicating or changing the length of Parts, the result of your actions depends on the Snap value.

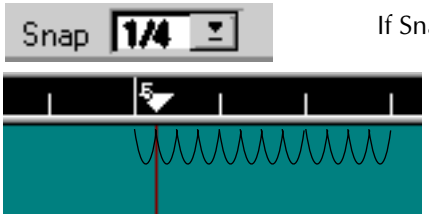
The Snap pop-up menu.

This value puts a restriction on the positions where you can perform editing actions. If you for example set snap to “Bar” and move a Part by dragging it, it will always start at an exact bar line when you release it. Likewise, if you cut the Part in two, with the scissors, the split will then always occur at an exact bar line.



If Snap is set to Bar...

...Parts can only be dragged to exact bar lines.



If Snap is for example set to 1/4...

...Parts can be put on any quarter note position.

The Snap values are as follows:

Snap Value	Description
Off	Any position is allowed.
Bar	Actions are restricted to exact bar lines.
1/2 to 1/16	Actions are restricted to the selected note value.

Selecting Parts

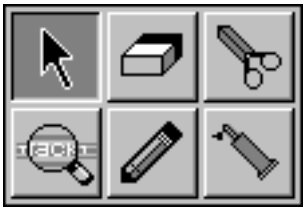
You have to select a Part in order to move, delete or manipulate it in any way . Selecting a Part can be done in several different ways, using the following techniques:

- **Clicking on a Part selects it.**
- **Holding down [Shift] and clicking on Parts selects these too, without deselecting other Parts.**
- **By pressing the mouse button with the pointer in a "free" area of the Part Display, you can drag to create a selection rectangle.**
  This works just like when selecting files and folders on the desktop.
- **The "Select All" item on the Edit menu allows you to select all Parts in the Arrangement.**

Using the Arrange Window Tools

Many of the Part operations in the Arrange window are done using different tools. You select tools from a special pop-up menu called the Toolbox:

- **To display the Toolbox, press the right mouse button in the Part display.**
  The Toolbox appears. Select one of the tools by positioning the pointer on it and releasing the mouse button.



The Arrange window's Toolbox.

The Arrow pointer

- **To move one or more Parts, select it/them and drag them to the new position.**
  You can move Parts within and between Tracks of the same type (audio or MIDI).

- **If you hold down [Alt] before clicking, dragging the selected Part(s) creates duplicates.**

The Pencil

The Pencil tool is used to draw in empty Parts or to change the length of a Part, by clicking on its outline and dragging left or right.

● If you make a MIDI part shorter using this method, the notes in the "removed" section will be erased.

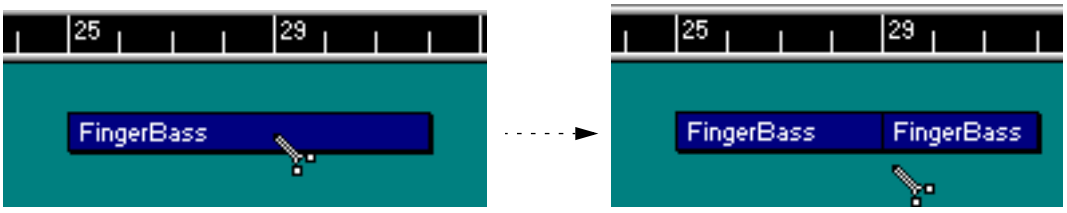
The Eraser

This is used for deleting Parts.

- **To delete one Part, click on it.**
- **To delete several, drag over them with the mouse button down.**

The Scissors Tool

The Scissors tool is used for splitting one Part into two.



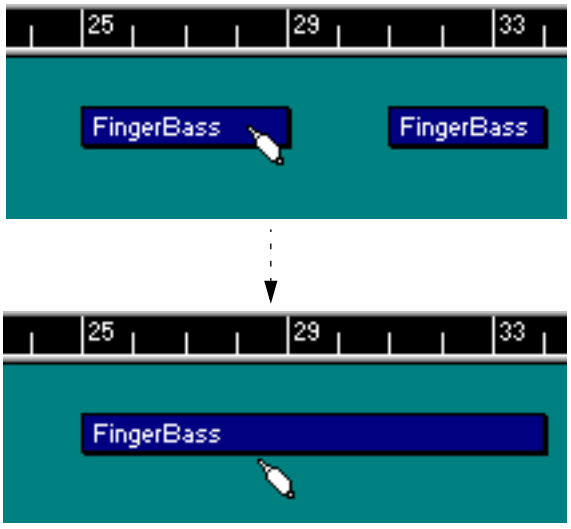
The Magnifying Glass Tool

Use this tool to check what music a Part contains.

- **With Audio Parts, you simply click with the Magnifying Glass anywhere in a Part to monitor the contents of the Part.**
- **With MIDI Parts, you can click and drag the Magnifying Glass forwards or backwards over a Part to perform what is known as "scrubbing".**
  The MIDI Events in the Part are played back according to how fast you drag.

The Glue Tube Tool

This works contrarily to the Scissors tool: If you click on a Part with the Glue Tube, you “glue together” that Part and the next Part on the Track. The resulting, longer Part will have the name of the first Part. It is ok if there is a gap between the Parts.



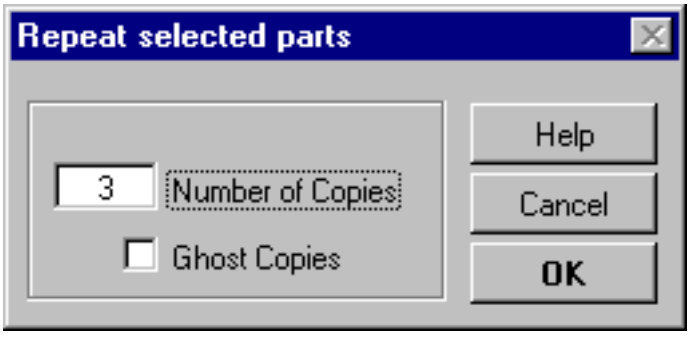
Before and after gluing two Parts together.

Repeating Parts

You can repeat one or several Parts, on the same or different Tracks, using the Repeat function on the Parts menu:

1. **Select the Part(s) you want to repeat.**

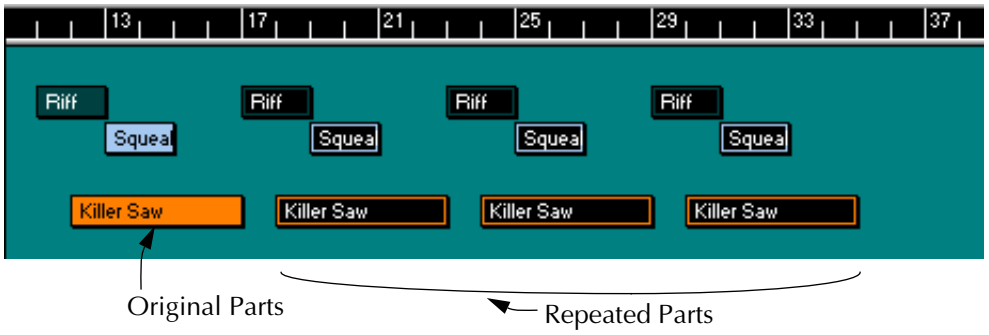
2. **Select the “Repeat...“ item on the Parts menu...**
   ...or press [Ctrl]-[K] on the computer keyboard.



3. **Enter the desired number of copies in the dialog box that appears.**

4. Click "OK".

The selected Part(s) are repeated, and the copies are lined up "end-to-start" after the original(s). The selected Parts are treated as one block, so the relative spacing between the created Parts is determined by the beginning of the first selected Part and the end of the last.



Using Copy and Paste

You can apply standard Copy and Paste techniques to your Parts. This, among other things, allows you to move Parts between Arrangements (see below).

Cut and Copy work just like in any Windows Program with the following additional rules.

- **Pasted Parts always appear on the same Track(s) as they originally came from.**
- **If you Paste in just one Part, it appears at the Song Position. If you Paste several, the first Part in the "block" appears at the *Song Position*. The other Parts keep their relative positions to the first.**

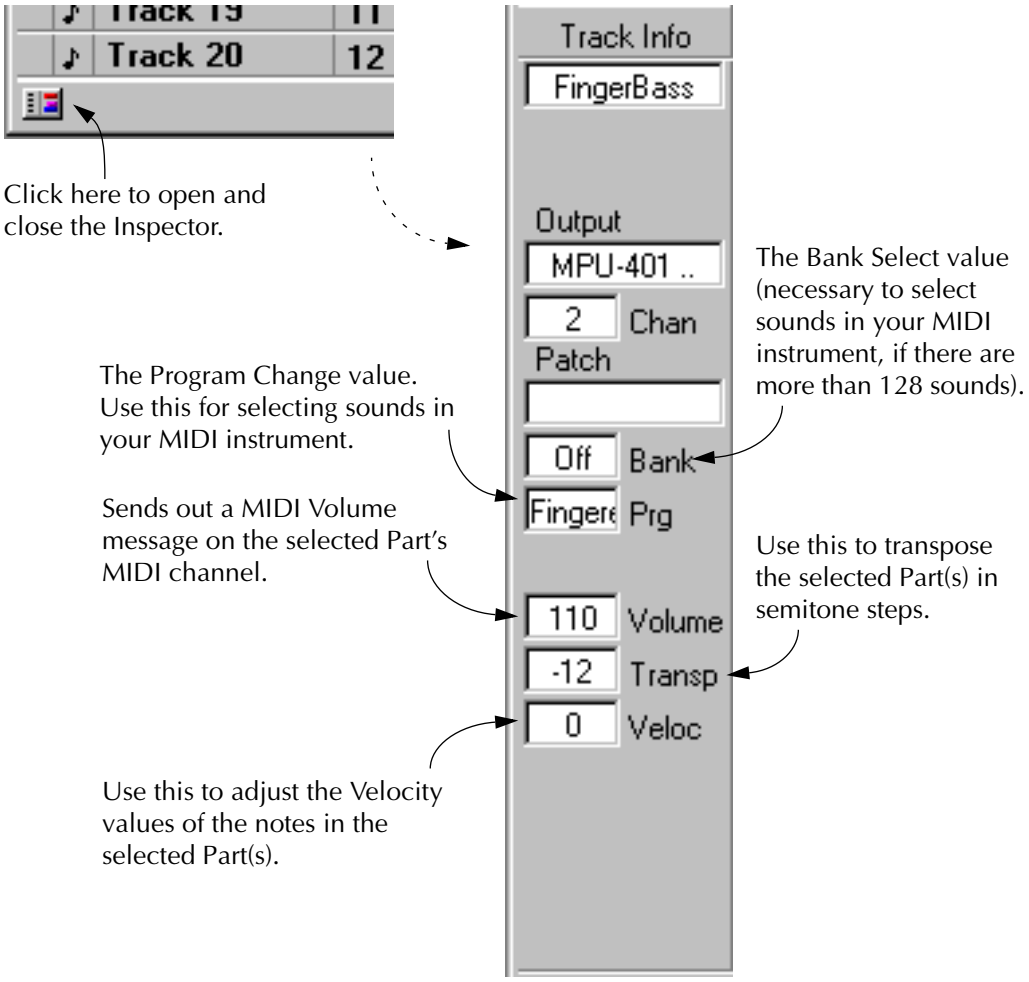
Using the Inspector

Cubasis VST features an area in the Arrange window called the Inspector. From here, you can make settings for the currently selected MIDI Parts, or (if no Parts are selected) for the selected MIDI Track.

● For Audio Tracks, the Inspector is mainly used for setting up for recording, as described on page 35.

Opening and closing the Inspector

The Inspector is opened/closed by clicking the Inspector icon in the lower left corner of the Arrange window.



- When you adjust Volume, Transpose or Velocity values in the Inspector, you don't actually change the recorded data. Rather, your adjustments affect the MIDI during playback. This also means that your changes won't be visible in a MIDI editor.
  If you want to make your changes permanent, use the function "Freeze Play Parameters" on the Functions menu.

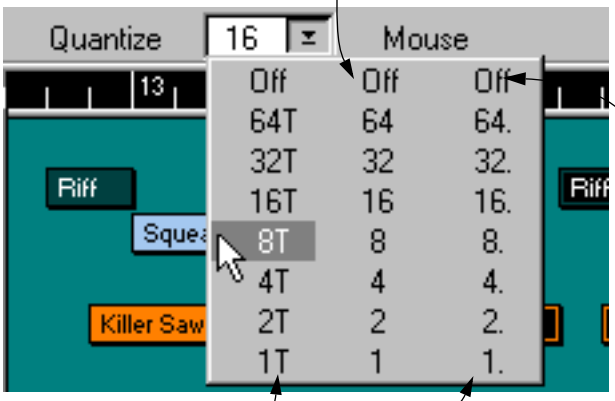
Quantizing MIDI notes

What is Quantizing?

Quantizing is a function that automatically moves recorded MIDI notes, positioning them on exact note values. If you for example record a series of eighth notes, some of them may end up slightly beside the exact eighth note positions. Quantizing the notes with the Quantize value set to eighth notes will move the "misplaced" notes to exact positions.

The Quantize value on the pop-up menu on the Status Bar determines the exact positions the notes should be moved to when you quantize. These are the options:

The middle column is for selecting the basic Quantize note value. As you see, the available values range from 1 (whole note) to 64 (1/64 note).



If you select OFF, no quantizing will be done.

The left and right columns are for selecting Triplet (T) or Dotted (.) Quantize values respectively.
In this example a Quantize value of eighth note triplets is selected.

- Quantizing in the Arrangement is the method to use if you want the Quantization to affect *all* notes in the selected Part(s). If you only want to quantize some of the notes in a Part, you should use the Quantize function in one of the MIDI Editors instead.

Performing the Quantize

1. **If you want to Quantize a certain set of Parts, select these.**
   If instead, you want to Quantize all Parts on a Track, select this Track in the Track list and make sure no Parts are selected in the Part display.

2. **Select the appropriate Quantize value, as described above.**

3. **Select Over Quantize from the Functions menu.**

4. **Play back to listen to the change.**

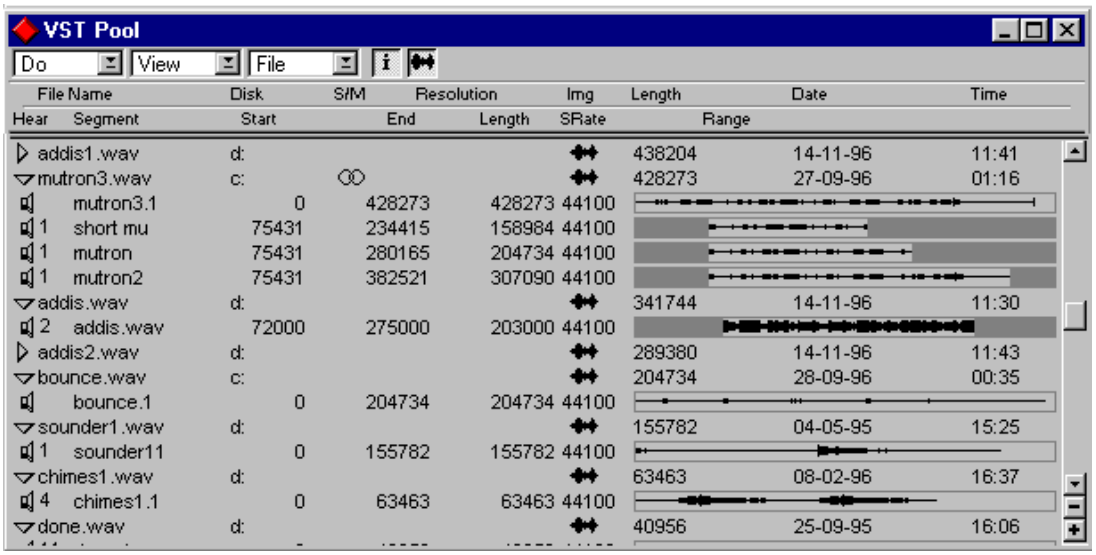
Undoing Quantize

If you don't like what you got when Quantizing, you can Undo it like any other action. However, Undo of Quantizing goes one step further. By using "Undo Quantize" on the Functions menu, you can revert Parts to their unquantized original, *at any time*, even after saving!

8

Using the Pool

What is the Pool?

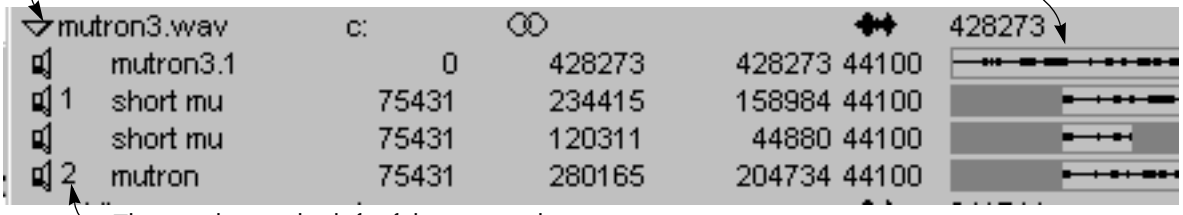


In the Pool, all audio files in the Song are listed, similar to the display of files and folders in the Windows Explorer. Every time you add an audio file to the Song, by recording or by importing it from your hard disk, it appears in the Pool.

But Cubasis VST is not restricted to playing complete files. It can also play any section of a file from the beginning, at the end, or some snippet in the middle, short or long, it doesn't matter.

A section of a file is called *segment*. A single audio file can have several segments. For example, different sections of an audio file might be used several times in the song.

This Audio File has four segments, playing different sections of the file.



The number to the left of the name, shows how often each segment is used in the Song.

- The Pool is not used for MIDI Tracks.

In this chapter we will show you some useful techniques related to the Pool.

Opening the Pool

The Pool is opened by selecting Pool from the Audio menu or by pressing [Control]-[F].

Viewing Files and Segments

Files

Each file is represented by a line, preceded by a triangle.

African.wav	C:			258K
Sterloop.wav	C:			172K

Renaming a file

You can rename an audio file by double clicking on its name in the Pool and typing in a new name. This method makes it possible for Cubasis VST to keep track of the name change. Renaming audio files in the Explorer or from the Desktop is *not* recommended.

Segments

Each file that is in use, has one or more segments, listed below the file in the Pool. The values to the right of the segments indicate their start and end-points, length, etc.

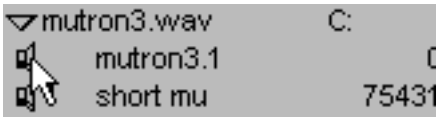
To display or hide the segments for one audio file, click on the triangle preceding the file.

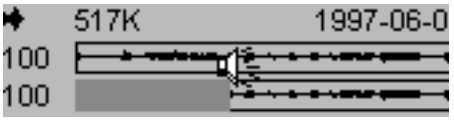
mutron3.wav		C:				517K
	mutron3.1	0	428273	428273	44100	
1	short mu	75431	234415	158984	44100	
2	mutron	75431	280165	204734	44100	
1	mutron2	75431	382521	307090	44100	

- **To Show/Hide all segments for all files, select Expand/Collapse from the View pop-up menu.**

Auditioning a segment

To audition a segment from its beginning, press and hold the mouse button with the pointer over the speaker icon to the left of the segment name. The segment will be played back in its entire length (or for as long as you hold down the mouse button).

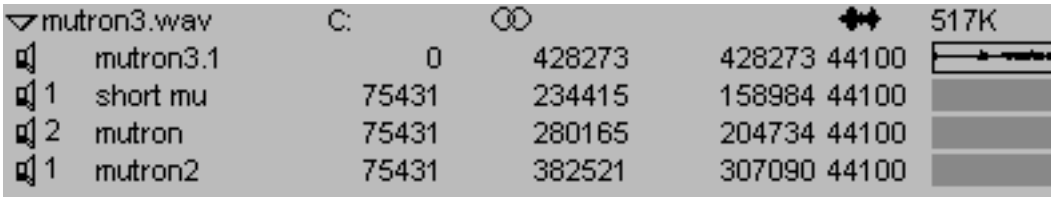




If you don't wish to audition the segment from its beginning, you can click anywhere in the waveform image to the right. The segment will play back from the position where you clicked, for as long as you keep the mouse button pressed.

Finding Out how a Segment is used in the Song

Next to the speaker icon for each segment, you will see a number telling how many times in the Song this segment is used. A segment without numbers is not used anywhere.

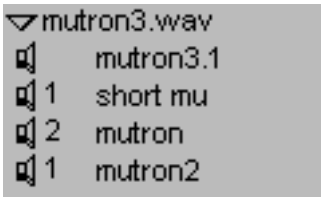


Managing Segments

On the Do pop-up menu, there are three items for managing segments:

- **Duplicate Segment.**
  If you select a segment or a file, and select "Duplicate Segment", a copy of the segment (or a segment playing the whole selected file) is created and added to the Pool. This is useful if you want to edit segments in the Pool, by adjusting their start and end points numerically in the list.

- **Purge Segments.**
  When you edit, split and delete Audio Parts in the Arrangement, you might end up with a lot of unused segments, cluttering the view in the Pool. Selecting "Purge Segments" automatically removes all unused segments from the Pool.



You can see which segments are used, by looking to the left of the segment names in the Pool. A number indicates how many instances of the segment are used in the Song.

- **Export Segment.**
  This allows you to export the selected segment as a separate audio file. Thus, you are able to create files that only contain the audio material you actually use.

Dragging from the Pool to the Arrange window

One of the most important features in the Pool, is the possibility to drag segments into the Arrange window. This example makes use of the Demo Song included in the program folder:

1. **Open the Song "Demo Song.all".**

2. **Select New from the File menu so that you get a new empty Arrangement.**
   In this example you will not use the original Arrangement, even though it will still be there in the background.

3. **Make sure you have a number of Audio Tracks at the top of the Arrangement.**

4. **Set the tempo of the Arrangement to 70 BPM.**

5. **Pull down the Audio menu and select Pool.**
   A Pool window with a large number of audio files in it is displayed.

6. **Resize and arrange the windows so that you can see the first eight Tracks in the Arrangement, as much as possible of the Part Display and as much as possible of the Pool window.**

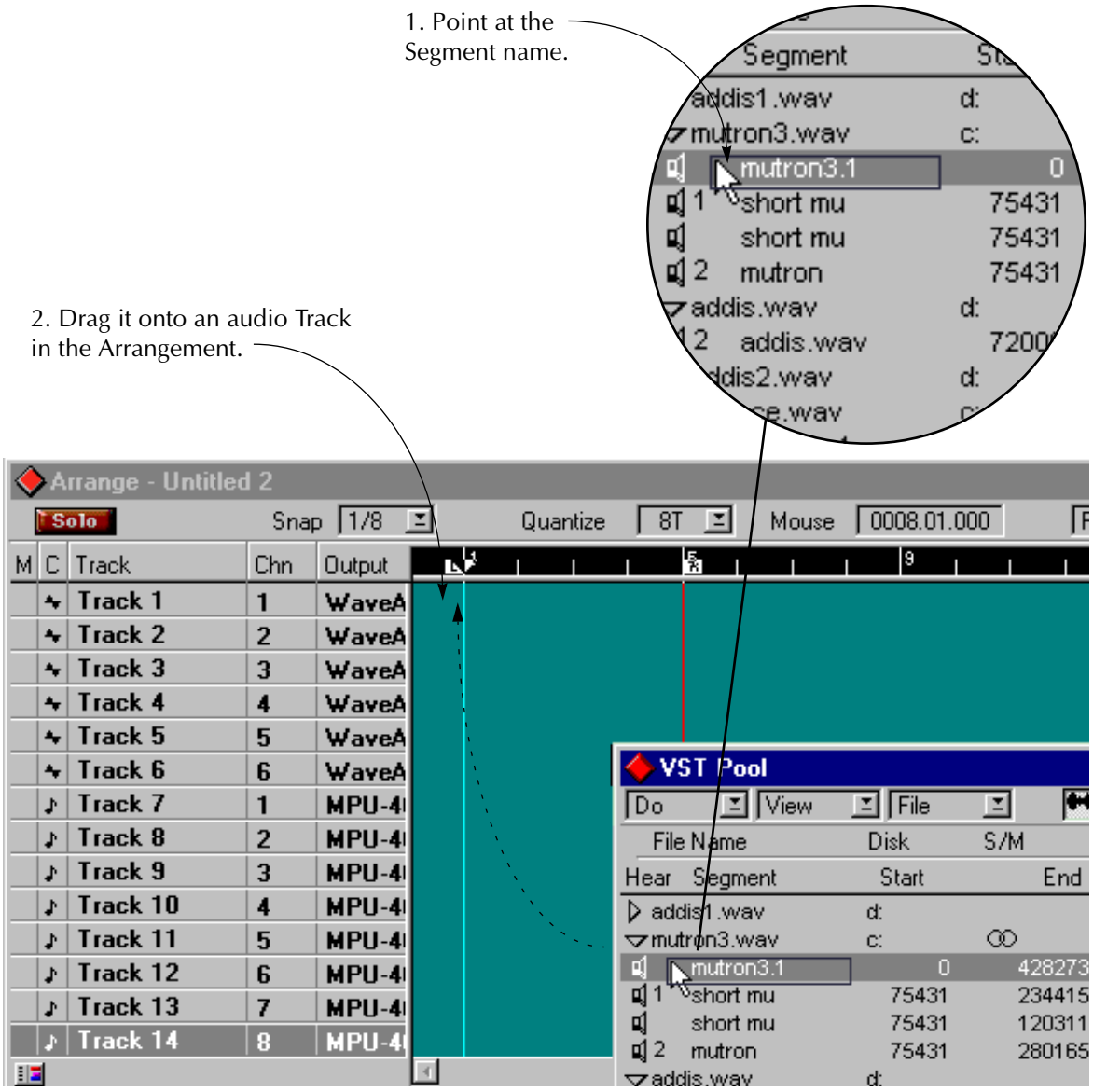
7. **In the Pool window, select Expand from the View pop-up menu.**

8. **Now, below each file appears one or several segments.**

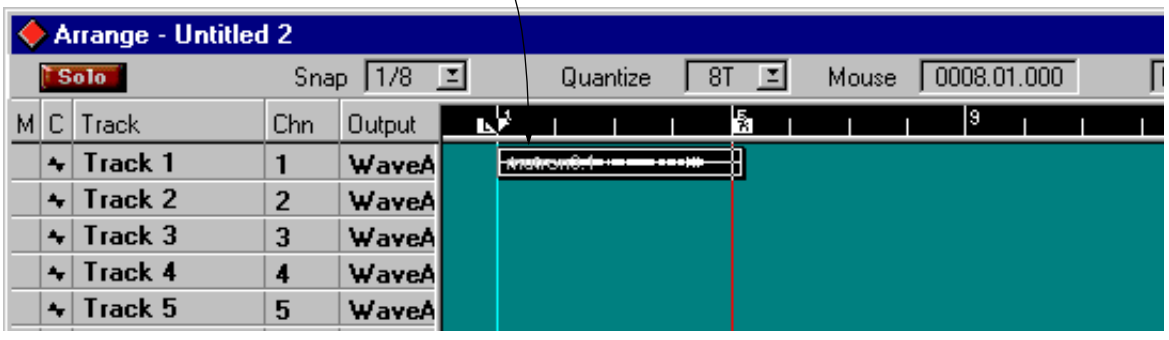
9. **Position the mouse pointer over one of the segment names, and press the button. With the mouse button down, drag the segment onto an Audio Track in the Arrangement.**
   The picture sequence below shows this step in more detail.

1. Point at the Segment name.

2. Drag it onto an audio Track in the Arrangement.



3. The Segment appears as a Part in the Part Display.



10. **If the segment doesn't appear at the place you intended, simply drag it to the right Track and bar position.**
    As always in the Arrangement, the Snap value affects where the segment is positioned.

11. **Play back to hear the new Arrangement.**

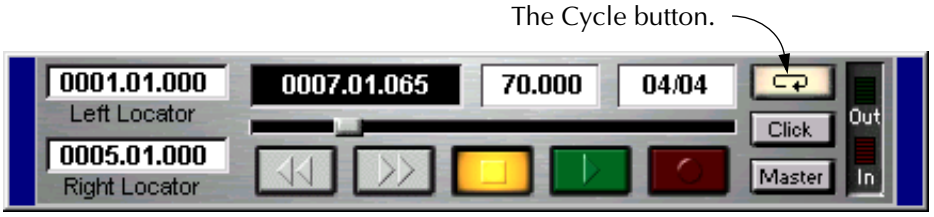
12. **Drag another segment to another Track, and position it in such a way that they start at the same time. Play back to hear the results.**

13. **Continue like this to add more Parts to build an Arrangement.**

Two tips:

- **Remember that you can repeat Parts that are already in the Arrangement.**
  This might be faster than dragging the same segment from the Pool many times.

- **Use the Cycle function to try out different files and see if they work well together.**
  The Cycle function makes the section between the Left and Right Locator repeat over and over again. Just place the Left and Right Locators where you want them, click on the Cycle button on the Transport Bar so that it is lit, and activate playback. Then drag files to positions inside the Cycle while the program is playing back!



Importing Files into the Pool

If you have any other audio file on your hard disk, and would like to use it in the song, you can import it into the Pool and then drag it into the Arrangement, as described above.

File Specifications

The Audio file must meet the following specifications:

- It must be in Wave (.WAV, most common on PC computers) or AIFF (.AIF, Audio Interchange File Format, most common on Macintosh computers) format.
- It must be an uncompressed 16 bit file.
- The sample rate (also called sampling frequency) of the file must be the same as the one used in the Song (see page 32).
- The file can be mono or stereo.

Importing the file

1. **Activate the Pool window.**

2. **Select Import Audio from the File pop-up menu.**

A regular file dialog appears.

3. **Select a file format (WAV, AIF or both) from the File Type pop-up.**
Files of the selected type(s) are listed in the file dialog box.

4. **Use the file dialog box to locate the file and select it.**

- **You can audition the audio file with the Play button.**
When you click the Play button, its label changes to “Stop” and the selected audio file is played back. Playback continues until you click on Stop, or select another file.

- **You can select several files by using the [Shift] or [Control] keys, as in many other Windows applications.**

5. **Click “Open”.**
Now, the File(s) will appear at the bottom of the Pool window, each complete with a segment which can be dragged into the Arrangement (see above).

- **Please note that you can also import audio files directly into the Arrangement, using the “Import Audio File” item on the File menu.**
This will put the imported audio on the selected Track, at the Left Locator.

9

MIDI Editing

What can I do with the MIDI Editors?

When you record MIDI data, you fill Parts with notes and other MIDI "Events". But you don't really get to see and manipulate those Events individually from the Arrange window. In the MIDI editors you do!

If you haven't yet recorded any Part

You might want to open the editor to input notes from scratch, without recording anything first. In this case you have to create a Part, using any of the following methods:

- Draw a Part with the Pencil tool.
- Select Create Part command on the Parts menu (creates a Part between the Locators on the selected Track).
- Double click between the Locators (creates a Part on the Track you double click on).

Opening An Editor

Cubasis VST has three different MIDI editors: Key Edit, List Edit and Score Edit (all described on the following pages). There are several ways to open a MIDI editor:

- **By double clicking on one Part.**
  Which editor opens depends the "Double Click Opens" setting on the Options menu.

- **By selecting the desired editor on the Edit menu.**

- **By using keyboard shortcuts.**
  The key commands for opening Key Edit, List Edit and Score Edit are [Control]-[E], [Control]-[G] and [Control]-[R], respectively.

- The editor will open with the currently selected Part(s).
- If no Parts are selected, the editor will open with all Parts on the selected Track.
- In Key and Score Edit, it is possible to edit Parts from several Tracks at the same time.

How Events are displayed in the different Editors

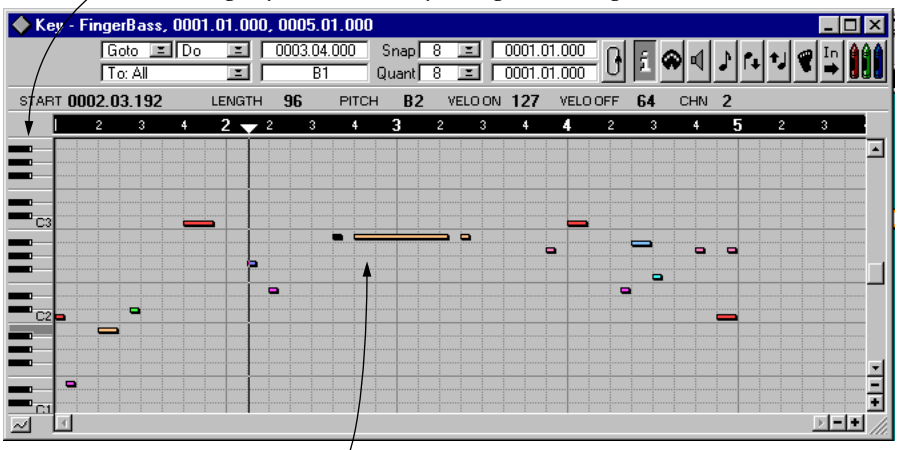
Below we'll list the different types of MIDI data that Cubasis VST can record, and how and where they are displayed for editing:

Notes (Note On and Off messages)

Notes are displayed in all MIDI editors. Let's look at a simple melody line and how it is shown in the different editors:

In Key Edit

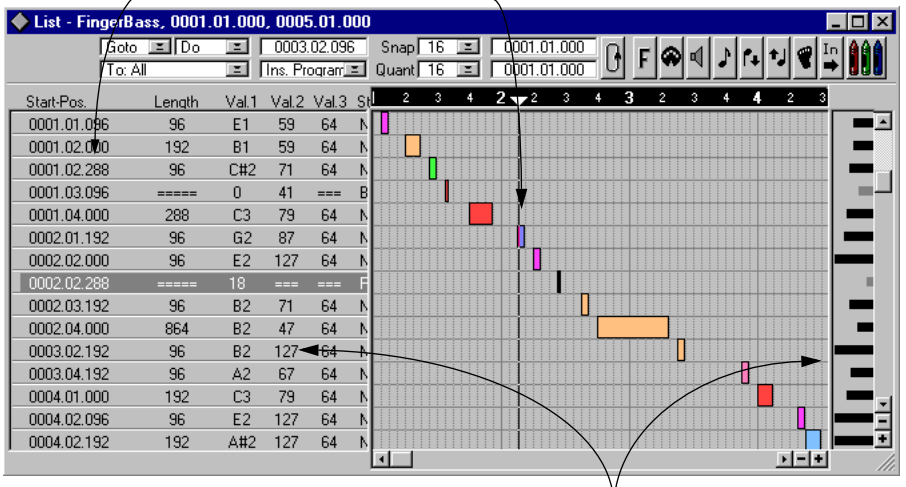
The piano keyboard to the left makes it easy to find the right pitch when inputting or editing notes.



The notes are shown as boxes, with higher notes higher up in the grid.
The note length is indicated by the width of the rectangle.

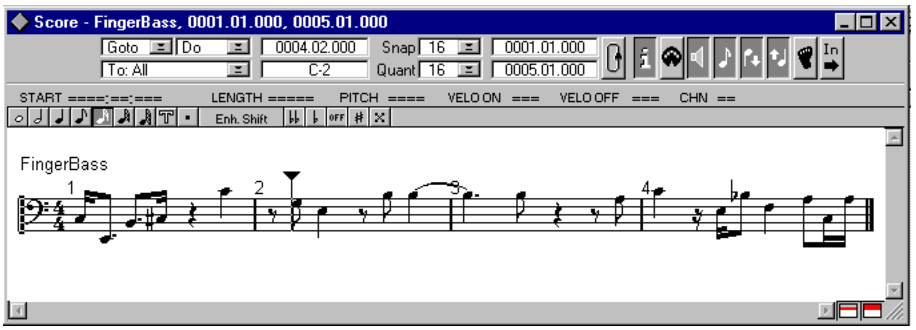
In List Edit

The notes are shown both in the list to the left, and in the graphic display to the right.



The bar graph display to the right is used for graphically displaying and editing MIDI "Value 2" in every Event. In the case of notes, "Value 2" is the velocity value.

In Score Edit



In Score Edit, notes are displayed and edited just as notes on a printed score.

Continuous Events

In MIDI, various types of MIDI messages are used to transfer continuous changes. To be exact, these types are:

- Aftertouch (Channel Pressure).
- Pitch Bend.
- Controllers, like sustain pedal, MIDI Volume, Modulation wheel etc.

To be really exact (not to say pedantic!) some of these are not really continuous. Sustain Pedal for example can only be down (On) or up (Off). However, the MIDI specification groups all these messages as Continuous messages, and so does Cubasis VST.

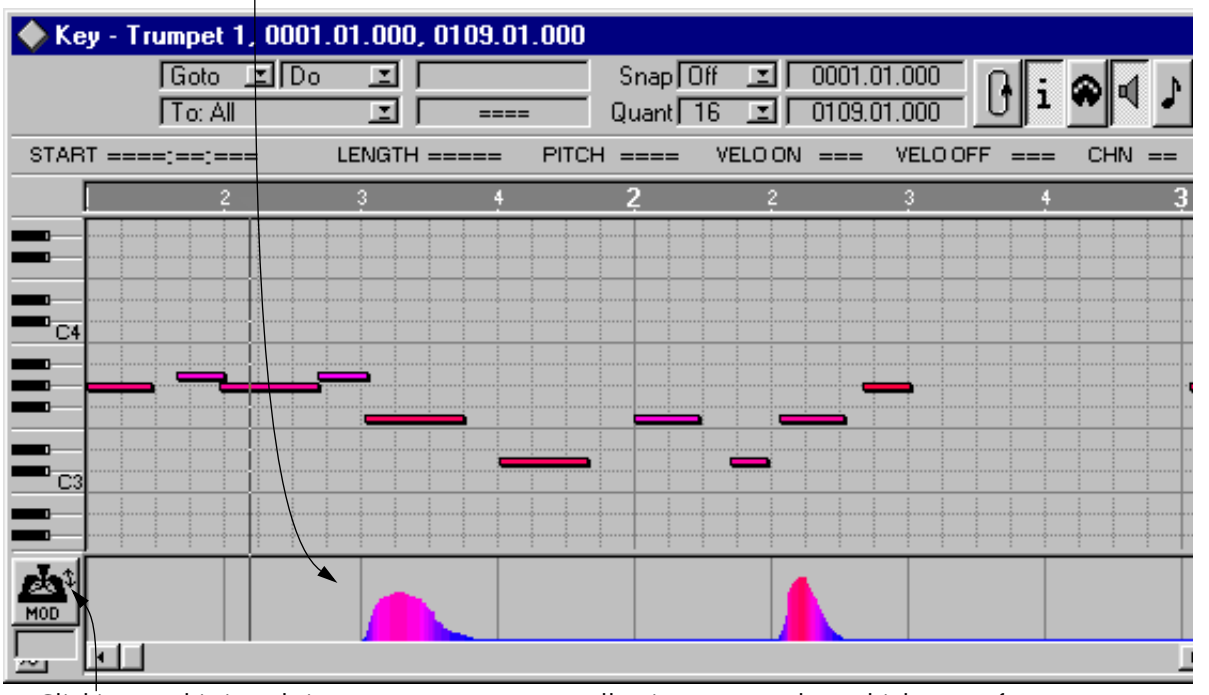
Continuous messages are shown and edited in Key Edit and List Edit:

Key Edit

To open the Controller Display in Key Edit, click the “wave” button at the lower left corner:

Clicking the button again closes the Controller Display.

This is the Controller Display.



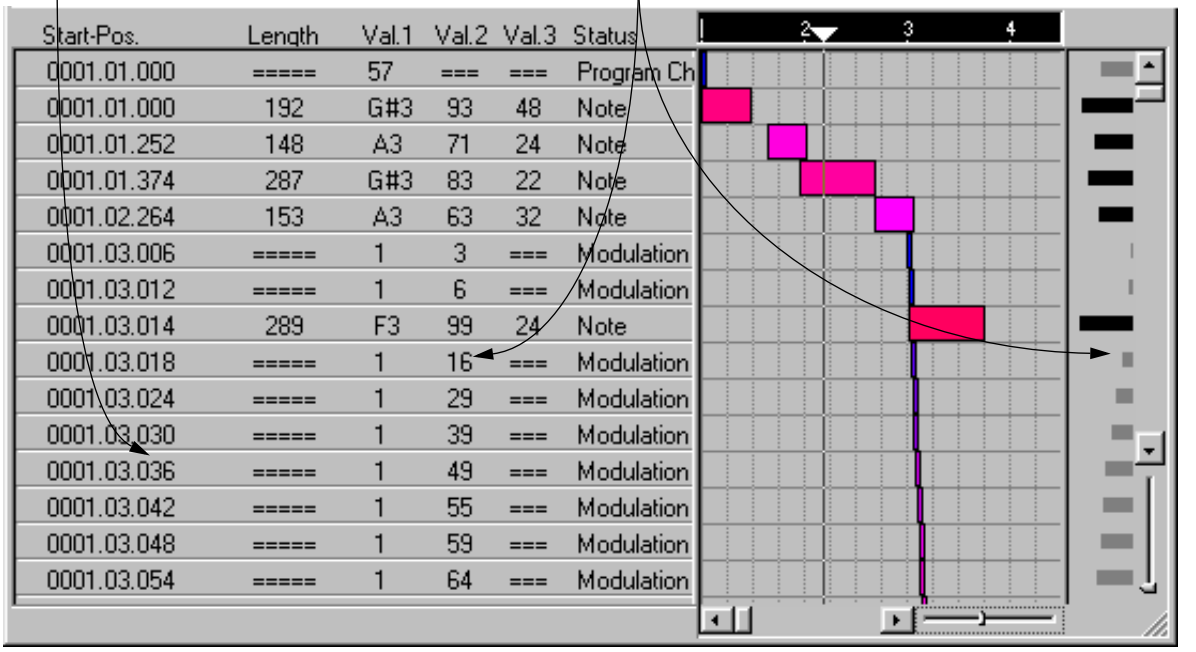
Clicking on this icon brings up a pop-up menu, allowing you to select which type of continuous data should be shown. In this case, modulation wheel Events are displayed.

List Edit

The "mountains" of continuous data (as shown in the Key Edit Controller Display) are in reality a large number of single Events. This becomes clear when looking at the same data in the List Edit Window:

The modulation Events are listed in their playback order.

Value 2 for each Event is shown in the list and in the bar display. The grey color indicates non-note Events.



Start-Pos.	Length	Val.1	Val.2	Val.3	Status
0001.01.000	=====	57	===	===	Program Ch
0001.01.000	192	G#3	93	48	Note
0001.01.252	148	A3	71	24	Note
0001.01.374	287	G#3	83	22	Note
0001.02.264	153	A3	63	32	Note
0001.03.006	=====	1	3	===	Modulation
0001.03.012	=====	1	6	===	Modulation
0001.03.014	289	F3	99	24	Note
0001.03.018	=====	1	16	===	Modulation
0001.03.024	=====	1	29	===	Modulation
0001.03.030	=====	1	39	===	Modulation
0001.03.036	=====	1	49	===	Modulation
0001.03.042	=====	1	55	===	Modulation
0001.03.048	=====	1	59	===	Modulation
0001.03.054	=====	1	64	===	Modulation

- Please note that only the most common Continuous Controller Events are shown in Key Edit. These are Aftertouch (Channel Pressure), Pitch Bend, Modulation, Main Volume and Pan. The “Controller” display also shows velocity values, but these are not Events themselves, only attributes of note Events.
  To display, create or edit other types of Continuous Events, use List Edit.

The Tools in the Editors

Like the Arrange window, the MIDI editors have different sets of editing tools for:

Key and List Edit (The Crosshair tool is not used in List Edit).

Score Edit.

The Toolboxes of the different Edit Windows.

The Arrow Tool

Selecting Events

Events are selected for editing using the Arrow tool. This works just like selecting Parts in the Arrange window; you can use [Shift] to select several Events, or drag an enclosing rectangle that will select all the Events it touches, etc. (see page 59).

Moving Events

Just as in the Arrange window, notes (and in List Edit – other Events too) can be dragged around as desired.

Duplicating Events

Again like in the Arrange window, if you hold down [Alt], the notes you drag will be duplicated.

The Eraser

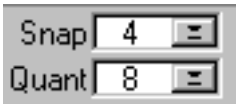
This is used to delete notes and other Events in the graphic displays. Click and/or drag over the events you want to delete.

The Pencil (Key and List Edit)

Entering Notes in Key Edit

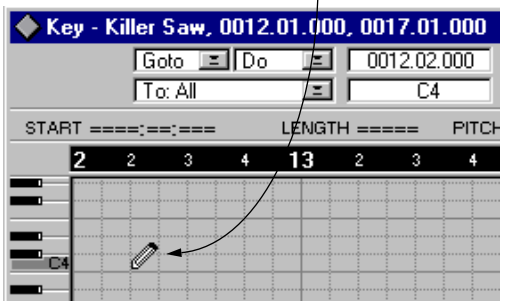
1. Set the Snap value to the smallest division at which you want to enter a note. If for example you only want to enter notes at quarter note positions, set Snap to “4”.

2. Set the default length of the note to enter with the Quantize value. The value “8” will for example give eighth notes.

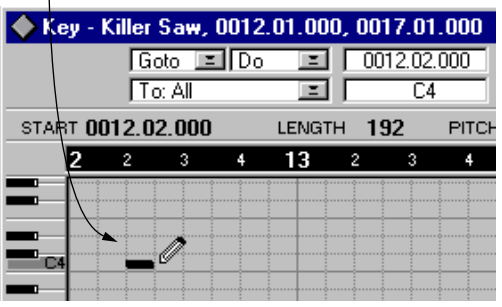


3. Select the Pencil tool from the Toolbox. Move the pointer onto the note display.

4. Aim at the correct position. Two fields on the Status Bar will help you by showing the position and Pitch you move the pointer over.

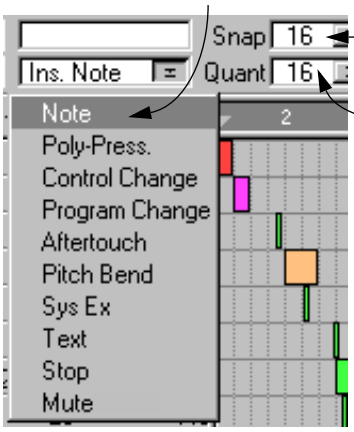


5. Click once with the mouse. The note appears.



Entering Events in List Edit

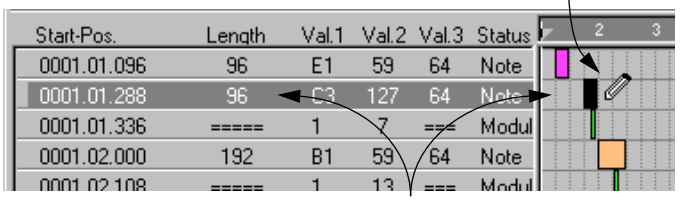
1. Use the Insert pop-up menu to decide what type of Event to Insert.



2. Set the Snap value to the smallest position you want to enter a note at.

3. If you are entering notes, set the length with the Quantize value. If you for example set this to “8”, you will input eighth notes.

4. Click with the Pencil tool in the Event Display. Use the ruler to find the right position.



The Event appears both in the Event Display and in the List.

The Brush Tool (Key and List Edit)

This is used for continuous “painting” of notes, and in List Edit also of other Events.

The Note Tool (Score Edit)

This is used to enter notes in Score Edit, in a similar way as with the Pencil in Key Edit. The shape of the Note tool changes depending on which note value you are inserting.

The Rest Tool (Score Edit)

This is used for inserting rests between notes. As with the Note tool, the Rest tool changes appearance depending on the chosen note value.

The Magnifying Glass

If you click on an Event with the Magnifying Glass, it is played back. You can also drag over Events to play them back one after the other.

The Crosshair (Key Edit)

This tool is used in the Controller Display, to draw smooth “ramps” of Events, such as volume fades or pitch bends.

- Clicking with the Crosshair or the Pencil in the Controller Display will only change the values of existing Controller Events. To actually draw new Events, you have to press [Alt] and use the tool.

Other settings and functions

The Speaker

When you click on the speaker symbol on the Status Bar, Events will be output automatically when you click on them, when you create them using the pencil or paint brush, and when you make changes on the Info line (see below).

The To menu

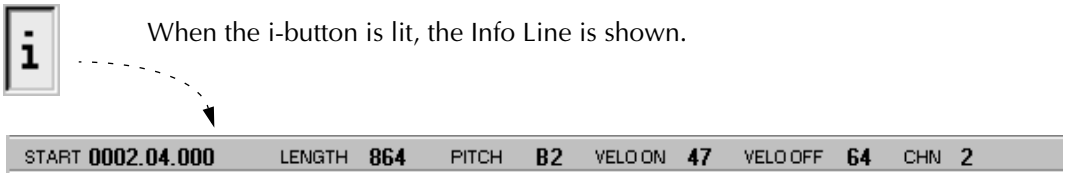
All MIDI Editors contain a pop-up menu called To. This is used to determine what Events will be affected by whatever editing you perform. The two most important options are:

- **“All” - all Events in the edited Part(s) are affected.**
- **“All Selected” - all Events that you have selected are affected.**

Editing on the Info Line

At the top of the Key and Score editors, you have the Info Line. The Info Line shows the values for one selected note. The values can be edited, just as in the List in List Edit:

1. **To show/hide the Info Line, click on the i-button on the Status Bar or press [Alt Gr]-[I] on the computer keyboard.**



2. **Select a single Event.**
   Its values are shown on the Info Line.

   If no Event or several Events are selected, the Info Line shows "– – –" for all values.

3. **Change the desired values using regular value editing.**
   You could either click on the value with the left/right mouse button to lower/raise the value or double click on it and type in a new value from the computer keyboard.

Cutting, Copying and Pasting

You can use the Cut, Copy and Paste commands to move Events between editors or to duplicate a series of Events.

- **Cut or Copied Events are Pasted in starting at the Song Position. The Events will keep their relative positions, pitch and other properties.**

Follow Song

If Follow Song on the Options menu is turned on, the Edit window will scroll automatically during playback, so that the current Song Position is always visible.

- **You may also press [F] on the computer keyboard to turn Follow Song on and off.**

Step Recording

If you prefer not to record your music in real time, you may use the Step Recording function to input music one note at a time from your MIDI instrument:

1. **Set the desired spacing of notes with the Snap value.**

2. **Set the desired length of notes with the Quantize value.**

3. **Click the "Foot" button on the Status Bar to activate Step Recording.**
   The MIDI button is automatically activated, indicating that Cubasis VST is ready for MIDI input.

4. **Move the Song Position to where you want to start.**

5. **Play a note or a chord.**
   It is registered, and the Step Position jumps to the next position (according to the Snap value). Proceed with the next note or chord, and so on.

- **To input a pause, press [Tab].**
- **To remove the last note or chord and go back one step, press [Backspace].**

6. **When you are finished, turn off Step Recording by clicking the MIDI symbol button (the "Foot" button is automatically deactivated).**

Closing the Editor

There are two ways of closing the editor, "Cancelling" and "Keeping".

Cancelling

If you press [Esc] on the computer keyboard, you will exit the editor, cancelling all changes you have made since you opened the editor.

Cancelling can be thought of as a super-undo. It allows you to try out a series of changes to a recorded piece of music and then easily revert back to its original state.

Keeping

If you close the editor by clicking the window's Close box or by pressing [Return], the window closes and all the editing you have done is kept.

10

Mixing

Introduction

This chapter describes the general procedures of handling levels, pan, EQ and effects to create a final stereo mix. Mixing is done in different windows in Cubasis VST, mainly the VST Channel Mixer (for audio) and the MIDI Mixer (for MIDI).

- The MIDI Mixer is designed to interact with MIDI instruments compatible with any of the standards GM (General MIDI), GS or XG. However, even if your instrument is not GM/GS/XG compatible, you may still be able to use some of the functions in the editor.

Mixing Audio

Setting Levels

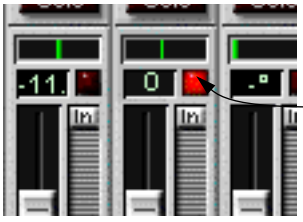
1. **Set up your Audio Tracks and possibly the Locators, so that they play back the section you want.**

2. **Pull down the Audio menu and select "VST Channel Mixer" (or press [Control] and [*] on the numeric keypad).**
   The VST Channel mixer window opens. This contains "channel strips" for the 8 audio channels, and a Master section for adjusting the level of the final mix.

3. **Make sure the “In” buttons next to the faders are not activated for the audio channels.**
   When these are activated, the level meters show the input level instead of the playback level.

4. **Make sure the Read and Write buttons are deactivated.**
   These are used for automating mixer movements, as described on page 94. For now, we’ll stick to manual mixing.

5. **Activate playback, and use the faders to set the relative volume for the audio channels.**
   The fader settings are displayed numerically below the faders. You can boost weak signals by +6 dB in the VST Channel Mixer, if you like. Just be sure to avoid signal levels above 0 dB (clipping - see page 37).



Clipping is indicated by the red clip light above the “In” button. To reset the clip indicator and the peak level display, click on it.

- **For stereo channel pairs, the faders are automatically “linked”, i.e. moving the fader for the left channel will automatically move the fader for the right channel, and vice versa.**
  To set the level independently for one channel in a stereo pair, hold down [Alt] and drag the fader.

A stereo channel pair.

- **If you hold down [Control] and click on a channel fader, it will automatically be set to position 0.0 dB.**

6. **Adjust the total volume with the faders in the Master section to the right.**
   The faders are linked, i.e. if you move one fader the other will move as well. If you want to adjust the level of one stereo channel independently, press [Alt] and move the fader.

Setting Pan

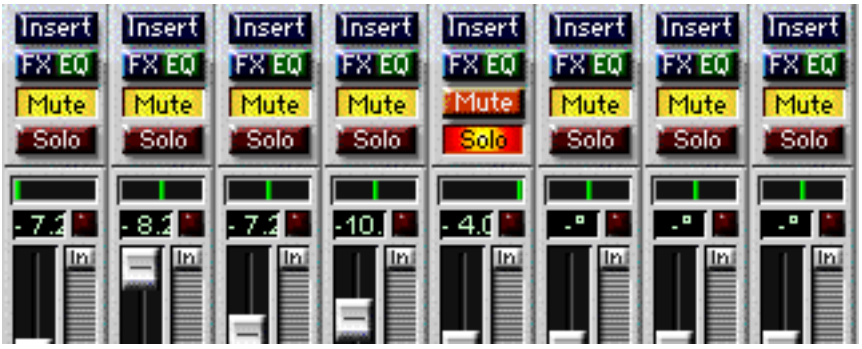
With the Pan controls, you set the stereo position of each audio channel. Like volume, pan settings can be automated using the Write/Read functions.

- **When you are changing Pan for a channel, the setting is shown numerically (L63–R63) in the level display below the fader.**
  To make the display show the fader setting again, click the fader handle.
- **To select the center Pan position, hold down [Control] and click on the Pan control.**
- **For audio channels in a stereo pair, you should probably pan the left (odd-numbered) channel fully left and the right (even-numbered) fully right.**

● If the Mono switch in the Master window is activated, all audio playback will be in mono, and the Pan settings will have no effect.

The Mono switch

Using Mute and Solo



For each audio channel, there is a Mute and a Solo button, which are useful when you want to listen closely to one or several audio channels. These work as follows:

- **Clicking the Mute button silences the output of the audio channel.**
  To deactivate Mute, click on the button again.
- **Clicking the Solo button silences the output of all other audio channels.**
  You may Solo several audio channels at the same time if you like. To deactivate Solo, click on the button again.

Making Equalizer settings

Each audio channel in Cubasis VST is equipped with a two band parametric equalizer. To activate and set EQ for a channel, proceed as follows:

1. **Click on the EQ button at the top of the channel strip.**
   The VST Channel Settings window for that channel opens. This contains a duplicate of the channel strip, two effect send knobs (see page 90) and 2 EQ modules.

- If you make Equalizer settings for one channel in a stereo channel pair, the settings will automatically be reflected in the other channel.

2. **Activate one or both EQ modules by clicking on their Enable buttons.**

- The maximum total number of EQ modules (for all channels together) is governed by your computer's performance. If you activate more EQ modules than your system can handle, you will note that the Over indicator in the VST Performance window lights red, and the audio playback stutters and distorts. Keep an eye on the VST Performance bar graphs and deactivate a number of EQ modules, until the computer load seems normal.

3. Set the parameters for the activated EQ module.
It is perhaps easiest to set up a playback cycle and experiment with the settings until you get the desired sound. The three basic EQ parameters are:

Gain	Governs the amount of boost or attenuation around the set frequency. The value range is ± 24 dB.
Frequency	The center frequency for the equalization. Around this frequency, the sound will be boosted or attenuated according to the Gain setting. The range of the Frequency parameter is determined by the four Hi/Lo buttons below the knobs.
Q	Determines the width of the frequency band around the center frequency to be affected. The narrower frequency band, the more drastic effect of the boost or attenuation.

● Please note that high Gain values may give rise to distortion. Check the channel level meters and compensate with the channel volume faders.

4. Close the EQ window by clicking on its close box.
In the VST Channel Mixer window, the EQ button indicator for the audio channel will now be lit, which means EQ is applied to that channel.

Turning EQ on and off from the VST Channel Mixer

When you have enabled the desired EQ modules and made settings, you can turn equalizing on and off for the channel from the VST Channel Mixer window, by holding down [Control] and clicking the EQ button for the channel.

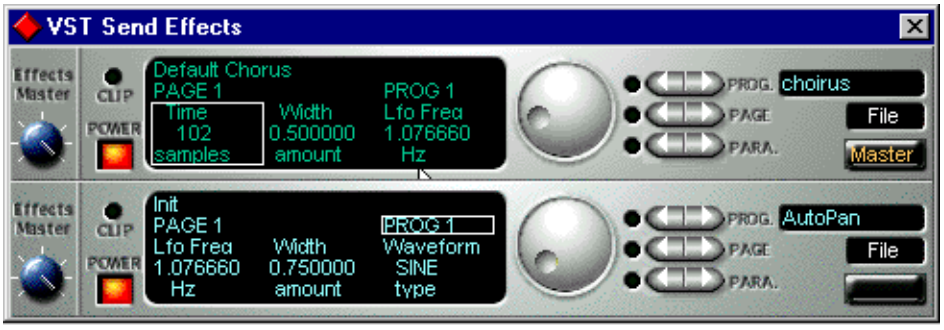
Applying Effects

There are two basic types of effects in Cubasis VST: insert effects (applied separately to each channel, by using the channel inserts in the VST Channel Mixer) and send effects (applied separately to each channel by using the effect sends in the VST Channel Mixer). Typical uses for insert effects would be distortion, filters, auto panners or any effect that you want to send a whole channel through. Typical send effects would be reverb, delay, chorus or anything that you want to apply in different amounts to the different audio channels.

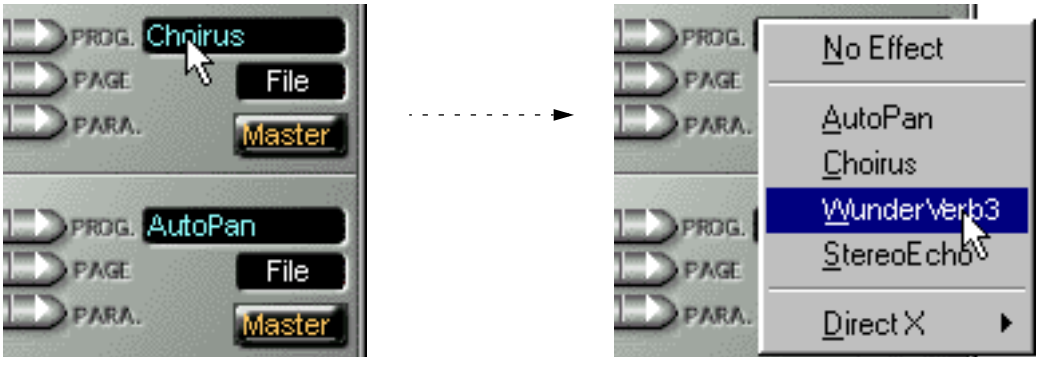
Routing an Audio Channel through the Send Effects

You can have two different send effects in Cubasis VST, and each channel has two effect sends. The first step is to select, activate and make settings for the two effects:

1. **Select Effects from the Audio menu.**
   The VST Send Effects window opens. This window resembles an effect rack, with two separate "processors" arranged on top of each other.



2. **Pull down the effect type pop-up menu for one of the processors and select an effect type.**



You can select between the following effects:

Effect	Description
Choirus	A chorus and flanger effect, which adds "depth" and "animation" to a sound.
WunderVerb3	A reverb effect, adding ambience and "room quality" to the sound.
Auto Pan	Makes the sound move between the left and right channel.
Stereo Echo	A delay effect, with the possibility to set different delay times for the left and right channel.

There are additional Effect Plug-Ins separately available - contact your Steinberg dealer for more information. Furthermore, Cubasis VST can also use DirectX compatible plug-ins installed on your computer - see page 93.

- **The "No Effect" option is used for deactivating the effect processor totally.** Use this if you need to conserve computer power, and don't need the effect.

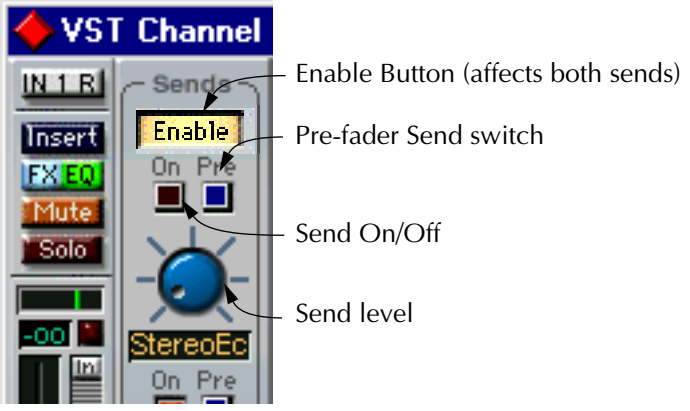
3. **Activate the effect processor by clicking on its Power button.**

4. **Make sure the Effects Master knob is turned up.**
   This governs the amount of input level to the effect processor. If you later activate a lot of effect sends, you may need to turn down the Effects Master somewhat, to avoid clipping (distorsion) in the processor.

5. **Repeat steps 2 to 4 for the other processor if you like.**

   Now it's time to set up the effect sends:

6. **In the VST Channel Mixer window, click on the EQ button for the audio channel you want to apply the effect to.**
   The VST Channel Settings window opens, as described on the previous pages. The section between the channel fader and the EQ modules contains the effect sends.



7. **Click on the On button for one or both effect sends and turn the Send level knobs to moderate values.**
   Remember that the Effects rely heavily on the processing power in your computer. The more activated sends and effect units, the more computer power will be used for effects.

8. **If you want the signal to the effect to be independent of the channel fader setting, click on the PRE button for the send.**
   With Pre-fader effect sends, the amount of effect for the channel is not affected by the volume fader. With Post-fader effect sends (PRE button not activated), the amount of effect is proportional to the channel volume, and will change with the volume fader movements. This is the most common setting.

   If you activate playback, you should hear the selected effect(s) being added to the sound. At this point, you will probably want to try out the different effect programs and make settings for the selected effects. This is described below.

Adding Insert Effects

Each audio channel has one insert effect slot. However, the total maximum number of insert effects that can be used at one time is six.

● If you "run out of effect slots", you can always use the Export Audio function to create a new audio file including the effects, thereby freeing up slots. This is also useful if your computer isn't powerful enough to run all effects in real time. See page 104.

To add an insert effect to an audio channel, proceed as follows:

1. **In the VST Channel Mixer, click the Insert button for the channel.**
   The Insert Effect window opens.

2. **Pull down the Effect type pop-up menu and select an effect.**

3. **Activate the Power button.**
   Now, the audio channel signal will pass through the insert effect.

● To deactivate an insert effect, pull down the Effect type pop-up menu and select "No Effect". If you just turn off the Power button, the effect slot will still be counted as "in use", and thus reduce the number of available insert effect slots.

Editing Effects

Effects in Cubasis VST can have two types of interfaces: Native and Rack Xpander. Native effect interfaces have all parameters available in the effect processor, while Rack XPander effects have a special window for making settings (which allow the effects to be designed as "real" hardware effect units, etc.). The four included effects all have native effect interfaces.

To edit effects, use the following methods:

- **You change effect programs by clicking the PROG. buttons in the effect processors.**
  Not all effects come with ready-made programs.

- **To adjust effect parameters in an effect with a Native interface, use the PARA. button to select a parameter, and adjust it using the value dial.**
  If there are more parameters than what can be shown on the effect display, you can use the PAGE buttons to go between display pages.

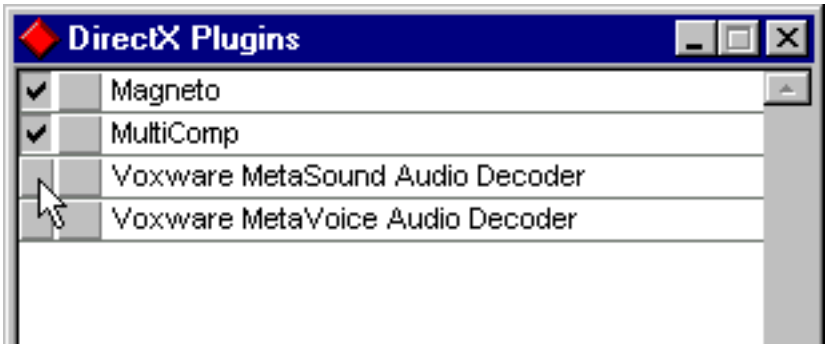
- **To adjust effect parameters in a Rack XPander effect, click the EDIT button to open the effect window, and use the mouse to adjust knobs, sliders, buttons, etc.**

- **You can create your own programs by making the desired settings and selecting a program location.**
  Renaming programs is done by clicking at the program name (at the top of the display) and typing in a new name. If you want to use your effect programs in other Songs, you can save and load them using the effect processor's File pop-up menu.

● Effect settings can be automated. See page 94.

About DirectX Plug-ins

If you have installed any DirectX compatible effect plug-ins on your computer, these will appear on a separate submenu on the Effect Type pop-up menus in Cubasis VST. However, not all DirectX plug-ins may be intended for musical audio processing. Therefore, you can disable any unwanted plug-ins by opening the DirectX Plugins dialog on the Audio menu, and deactivating their checkboxes in the leftmost column.



In this example, the two plug-ins at the top are activated and will appear on Cubasis VST's effect pop-up menus. The two plug-ins at the bottom of the list are deactivated, and will not appear in Cubasis VST.

Copying Mixer Channel Settings

You can copy all settings from one channel to another in the VST Channel Mixer. This is valuable if you want several channels to have the same EQ settings, etc. Proceed as follows:

1. **In the VST Channel Mixer window, select the channel you want to copy settings from, by clicking on the channel number label below the faders.**

Channel 2 selected for copying.

2. **Select Copy from the Edit menu (or press [Ctrl]-[C]).**

3. **Select the channel you want to apply the settings to, by clicking on its channel number label.**

4. **Select Paste from the Edit menu (or press [Ctrl]-[V]).**
   All channel settings except Insert Effects are copied.

Automating the VST Mixer

It is possible to automate all VST Mixer actions, so that volume, pan, EQ and effects can change automatically during playback. This is done by “writing” your mixer actions into a special Audiomix Part. When played back, this Part will repeat your fader movements and button presses just like you performed them. You will even see the faders and buttons move on the screen, like on a physical mixer with motorized controls.

Recording your actions

1. **Open the VST Channel Mixer window.**

2. **Click on the Write button above the Master Section to the right.**
   While this button is “lit” (activated), every mixer action you make will be recorded.

3. **Start playback.**

4. **Move the faders and other controls as you would during a manual mixdown.**
   Since you can repeat this recording several times, it is probably easiest to mix one or a couple of channels at a time, and stop and deactivate the Write function in between. That way, you can also Undo your last run if you're not satisfied, using the Undo command on the Edit menu.

5. **Stop playback.**
   If you check the Arrange window, you will note that a special Track called "Audio Mix" has been created. This Track contains one long Part named "Audio Mix", in which all your Monitor mixer actions are stored. Don't worry about the length of this Part; it will automatically be lengthened if you record past its end.
   Please note that there is only one Audiomix Part/Track, created the first time you use the Write function in your Arrangement. No new Parts are created the next time you use the Write function; information is added to the existing Part instead.

6. **Deactivate the Write function by clicking on the button.**
   Exiting the mixer window will automatically deactivate the Write function.

● The Write function works in Stop mode as well as during playback. If you activate Write when Cubasis VST is stopped, all changes you make to your mixer parameters are recorded at the current Song Position. This feature can be used creatively if you need initial mixer settings, abrupt changes, etc.

Playing back your recorded Mixer actions

1. **Activate the Automated playback by clicking on the Read button above the VST Channel Mixer's Master Section.**

   You may have Write and Read activated simultaneously, if you want to watch and listen to your recorded mixer actions while you're recording fader movements for another mixer channel, etc.

2. **Start playback as usual.**
   The monitor faders and controls will move automatically, following your recorded actions.

Mixing MIDI

If you have a MIDI instrument that supports any of the standards GM (General MIDI), GS (Roland's extension of GM) or XG (Yamaha's extension of GM), you can use the MIDI Mixer to "mix" the sound of your MIDI instrument, by sending MIDI messages to the instrument. These messages include volume, pan, program change and effect settings (GS/XG only). For more information about GM, GS and XG, see page 101.

● If your instrument does not support any of the standards mentioned, you may still be able to use some of the functions in the editor, such as volume and pan. Refer to the instrument's documentation.

Working with GM/GS/XG Instruments

The empty Song that gets automatically loaded when Cubasis VST is first installed, is set up in such a way that each track transmits on one of the 16 MIDI Channels. This corresponds to the setup of the MIDI Mixer. To avoid confusion, we recommend that you keep this Track/Channel layout when recording music for GM/GS/XG sound modules.

The MIDI Mixer settings are saved with the Song and should be seen as an intuitive hands-on approach to quickly build a good sounding mix.

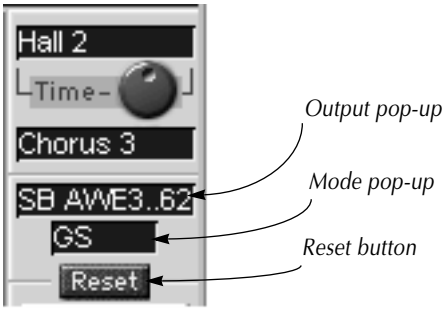
Opening the MIDI Mixer

There are two ways to open the editor window:

- **Pull down the Edit menu and select "MIDI Mixer".**
- **Press [Control]-[Y] on the computer keyboard.**

Selecting Output and Mode

Before you start mixing, you need to make sure the editor is set to the correct Mode and sends on the desired MIDI Output. This is done in the upper right section of the MIDI Mixer:



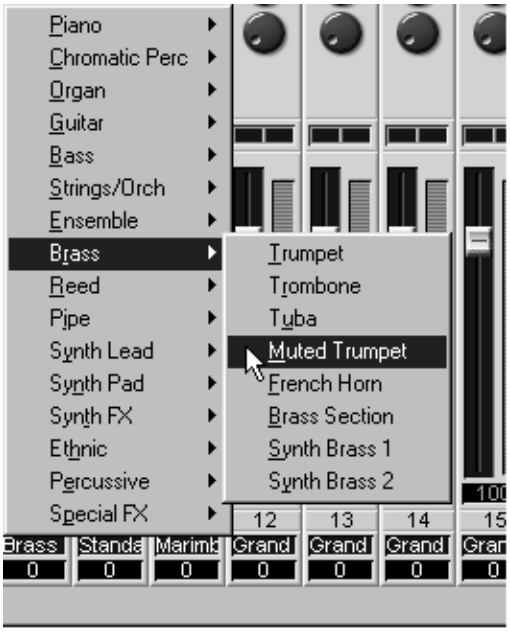
1. **Pull down the Output pop-up menu and make sure that the correct MIDI Output is selected.**
   This should be the Output to which your GM/GS/XG instrument is connected.

2. **Use the Mode pop-up menu to select the desired mode (GM, GS or XG).**
   - Select GM if your instrument is General MIDI compatible, or if you have a non-GM compatible instrument but still want to use some of the mixer functions.
   - Use the Roland GS or Yamaha XG mode only if you have a Roland GS or Yamaha XG compatible instrument and wish to access some of the additional features.

3. **Use the Reset button to make your instrument ready for GM/GS/XG operation.**
   Clicking it resets all controls in the window, as well as any connected GS/XG instrument, to their default values.

Selecting Sounds

You can select a General MIDI sound for each MIDI channel (except channel 10, which is used for drums) by using the hierarchical Instrum. pop-up menus at the bottom of each “channel strip” in the mixer.



The sounds are organized in 16 instrument groups, each containing eight sounds. To select a sound, pull down the pop-up, move the pointer to one of the instrument groups and select the sound from the sub-menu that appears.

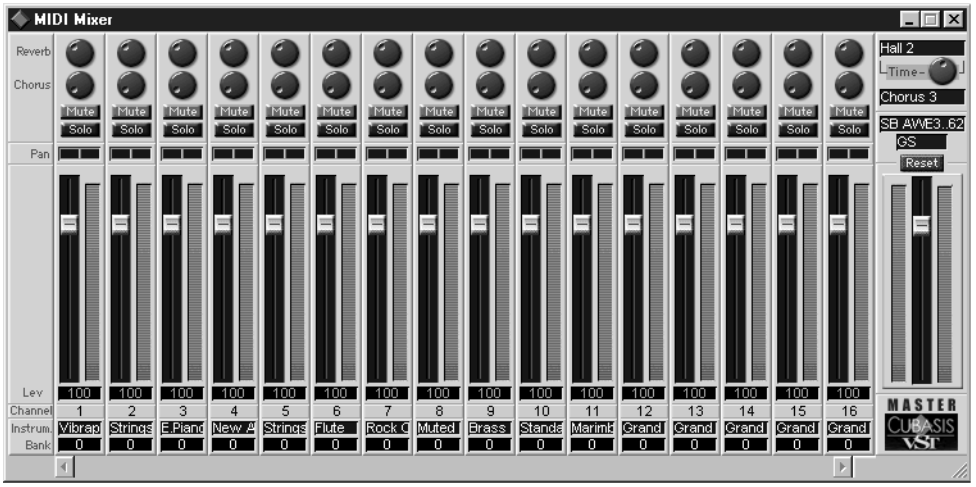
Selecting Drum Kits

If your instrument supports GS and XG, you can use the Instrum. pop-up menu to select a Drum Kit for MIDI channel 10 (which is reserved for drums).

- The Program settings in the MIDI Mixer are *not* reflected in the Inspector and vice versa. Also, if you use ready-made GM Scores that include Program changes, these will not be reflected in the MIDI Mixer.

Setting Levels and Pan

You can use the MIDI Mixer, to set levels, pans, etc. for each MIDI channel. Even though this has the “feel” of a normal mixer, it actually works quite differently: The MIDI Mixer mixes and changes the sound by sending MIDI messages to the instrument. If the mixer parameters don’t seem to work as expected, you should check that your MIDI instrument really is capable of (and set to) receiving the MIDI message in question.



The MIDI Mixer

The following controls are available for each MIDI channel:

- **Volume fader.**
  Drag the fader to change the volume of the corresponding MIDI channel.

- **Pan.**
  Use this to set the position in the stereo image for the corresponding MIDI channel.

- **Reverb level.**
  Although this is not a part of the GM specifications, many GM instruments (and all GS/XG instruments) have a built-in reverb that can be controlled via the standard MIDI controller number for reverb (#91). In this case, use this to set the amount of reverb for the channel.

- **Chorus level.**
  Like the Channel Reverb controls, this parameter is not a part of the GM specification. However, some GM instruments (and all GS/XG units) have a built-in chorus (sometimes flanger or delay) that can be controlled via the standard MIDI controller number for chorus depth (#93). In this case, use this to set the amount of chorus for the channel.

● In GS/XG Mode, you can make additional effect settings, as described below.

- **Mute and Solo switches (GS/XG mode only).**
  In GS/XG Mode (see below) there are buttons for Mute and Solo below the faders. You can mute/unmute each channel individually by clicking on the respective button.

Effect Settings (GS/XG Mode only)

If your instrument supports GS or XG, you can use the MIDI Mixer to select and make settings for effects in the instrument. This is done in the Effects section of the window (which only appears in GS or XG mode).

The Effects section contains the following global settings for the reverb and chorus effects that are included in all GS/XG instruments:

- **Reverb pop-up.**
  Lets you select one of eight reverb types. The available reverb types are different in GS and XG instruments. In XG mode, selecting “No Effect” allows you to easily turn off the reverb.

- **Time.**
  Lets you change the overall reverb time.

- **Chorus pop-up.**
  Lets you select one of eight chorus- and related effect types. The available effect types are different in GS and XG instruments. In XG mode, selecting “No Effect” allows you to easily turn off the effect.

What is GM/GS/XG?

General MIDI

General MIDI (GM) is a standard set up by the MIDI Manufacturers Association (MMA) and the Japanese MIDI Standards Committee (JMSC).

It defines a standardized group of sounds and the minimum requirements for General MIDI compatible synthesizers or sound modules, so that a specially prepared sequence or MIDI file that is sent to the instrument via MIDI will play back the correct sound types, regardless of make and model of the instrument.

MIDI identifies sounds by their program change number. Before the General MIDI standard was introduced, the same MIDI program change number often addressed totally different *types* of sound in any two synthesizers or sound modules from different manufacturers, e.g., a flute type sound in one instrument and a piano type sound in the other.

With the introduction of General MIDI standard compatible instruments this changed. These instruments use the same program change numbers for the same *types of instruments*.

So, if the person who prepared a sequence or MIDI file wants the melody to be played by a “piano”, he can use a certain program change command embedded into the sequence to automatically select a piano sound in any GM compatible sound module. The GM standard does not specify in great detail how that piano should sound. It is simply assumed that the manufacturer reproduces an acoustic piano within the capabilities used by the instrument.

General MIDI supports all 16 MIDI channels. Each channel can play a variable number of voices (thus be polyphonic). Each channel can play a different instrument (or sound or program). A minimum of 24 fully dynamically allocated voices are simultaneously available for both melodic and percussion sounds.

Furthermore, in GM compatible instruments, percussion and drum instruments which are key-based always use MIDI channel 10 and specific note numbers are reserved for specific drum sounds.

There are a number of other MIDI messages that GM compatible instruments should respond to. Among these are the MIDI controller events for Volume (Controller 7) and Pan (controller 10). By using these controllers, it is possible to create a MIDI Mix for a piece of music.

Roland GS

This is a variation of General MIDI introduced by Roland. It defines additional standard procedures for selecting alternate drum kits and sound variations, and for setting a number of other parameters in Roland GS compatible instruments.

Yamaha XG

This is a variation of General MIDI introduced by Yamaha. It defines additional standard procedures for selecting alternate drum kits and for setting a number of other parameters in Yamaha XG compatible instruments.

11

Importing and Exporting Audio

Importing audio files into the Arrangement

By using the Import Audio File feature on the File menu, you can quickly import audio into your Arrangement without having to open the Pool:

1. **Select the Audio Track to which you want to import an audio file.**
   Note that you can only import stereo files to stereo Tracks and vice versa.

2. **Move the Left Locator to where you want the audio file to start.**

3. **Pull down the File menu and select "Import Audio File...".**
   A file dialog opens.

4. **Select a file format (WAV, AIF or both) from the File Type pop-up.**
   Files of the selected type(s) are listed in the file dialog box.

5. **Use the file dialog box to locate the file and select it.**

- **You can audition the audio file with the Play button.**
  When you click the Play button, its label changes to "Stop" and the selected audio file is played back. Playback continues until you click Stop, or select another file.

6. **Click "Open".**
   The file is imported into the Pool, just as when using the Import Audio File command on the File menu in the Pool. A segment that plays the whole file is created and placed in an Audio Part, which in turn is placed on the selected Audio Track, at the position of the Left Locator.

Mixing down to an audio file

The Export Audio File feature in Cubasis VST allows you to mix down any number of audio tracks, complete with effects and mixer automation, to a new audio file, in mono or stereo.

- **The rule is: All audio you hear on playback will be included in the Mixdown file!**
  However, please note that MIDI Tracks are not included in this type of mixdown. To make a complete mixdown containing both MIDI and audio, you first need to record your MIDI music onto Audio Tracks in Cubasis VST, and then proceed with the mixdown.

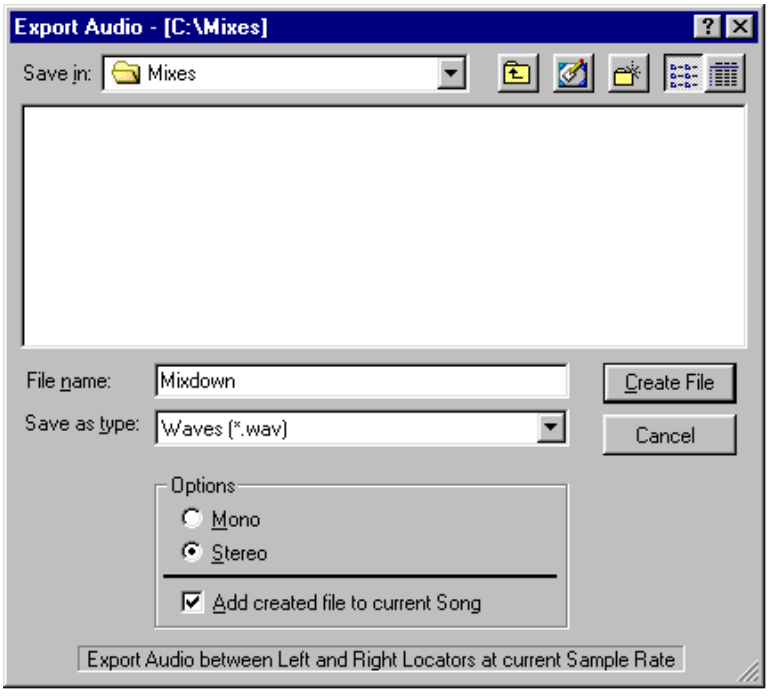
1. **Set up the left and right locator to encompass the area that you want to mix down.**

2. **Set up your Tracks, so that they play back the way you want.**
   You can use the automation in the VST Channel Mixer window, as well as EQ and effects. If you are planning not to include any of these features in the exported audio file, you should turn them off while preparing the Tracks, to hear what you get.

3. **If you want to include the automation, make sure that the Read button is activated in the VST Channel Mixer.**

4. **If you want to add the mixdown file to the Song, select an empty Audio Track (mono or stereo, depending on whether you want to mixdown in mono or stereo).**

5. **Pull down the File menu and select "Export Audio File...", or click the "Create File" button in the VST Channel Mixer's Master Section.**
   The Export Audio dialog opens.



6. **If you want to automatically import the resulting audio file back into Cubasis VST, activate the checkbox “Add created file to current Song”.**
   This will automatically import the file into the Pool, and place a segment for the file in a new Part on the selected Audio Track, starting at the Left Locator.

7. **Select mono or stereo with the radio buttons.**

8. **Select a folder and a name for the audio file to be created.**

9. **Press the Create File button.**
   The audio is mixed down to a .WAV file with the sample rate used in the Song.

   If you have activated “Add created file to current Song”, the file will be imported into the Pool and onto the selected audio Track. You can play it back to check the results immediately. Just remember to mute the original Tracks, and turn off any EQ and/or effects for the audio channel(s) used by the imported Track, so that you really hear the true result.

12

Movies

Introduction

Cubasis VST can open movie files and play them back in synchronization with Cubasis VST's playback. Both Video for Windows files (extension ".avi") and QuickTime files (extension ".mov" or ".qt") can be played.

- To be able to use the Movie functions in Cubasis VST, you need to have Microsoft DirectX Media installed on your computer. This is included on the Cubasis VST CD-ROM.

Opening a Movie

1. **Select Open Movie from the File menu.**
   A standard file dialog appears.

2. **Use the "Files of type" pop-up menu to specify which file type to look for.**
   If you select "Movie Files", both Video for Windows and QuickTime files will be displayed in the file dialog.

3. **Locate and select the movie file and click Open.**
   The movie appears in a new window.

Playing back the movie

1. **Right click in the movie window and select “Options...” from the pop-up menu that appears.**
   The DS Video Monitor Options dialog appears.

2. **Make sure that the On Line option is activated.**
   This makes the movie play back in sync with Cubasis VST’s playback. If for some reason you don’t want the movie to play when you play back MIDI and audio, you should deactivate On Line.

3. **Click OK to close the dialog.**

4. **Activate playback in Cubasis VST.**
   The movie plays back in sync.

● The audio in the movie is not played back when you play it from within Cubasis VST.

About Positioning

The positions of Cubasis VST and the movie are completely linked. This means that if you Fast Forward, Rewind, Locate etc, the movie will be positioned accordingly.

Setting Offset

If you don’t want the movie to start at the first bar of the Cubasis VST Song, you can define an Offset value in the Options dialog. The value is in time code format (hours:minutes:seconds:1/25ths of seconds). If you e. g. set this to “00:01:00:00", the movie will start one minute in, from the beginning of the Song.

Adjusting the Size of the Movie

You can display the movie in another size than the original, by using the Movie Window Size pop-up menu in the Options dialog.

Closing the Movie

You close the Movie by right clicking on it and selecting Close Movie from the pop-up menu.

13

Saving and Opening

Saving

Once you have created some music of your own, you'll probably want to save it to your hard disk. When you save your music in Cubasis VST, there are three document formats you can use for saving your music: Song, Arrangement or MIDI File. You should only choose MIDI Files if you want your music (MIDI only - no audio) to be playable in other sequencers. If you want to save your music for further use in Cubasis VST, you should use either the Song or the Arrangement format:

Song

When you save a Song, the following is saved:

- All the Arrangements.
- All settings in dialogs, on the Transport Bar, etc.
- All Audio Parts and segments, and references to their respective audio files.
- The Pool.
- The settings in the Mixer and MIDI Mixer windows.

Arrangement

When you save an Arrangement, the following is saved:

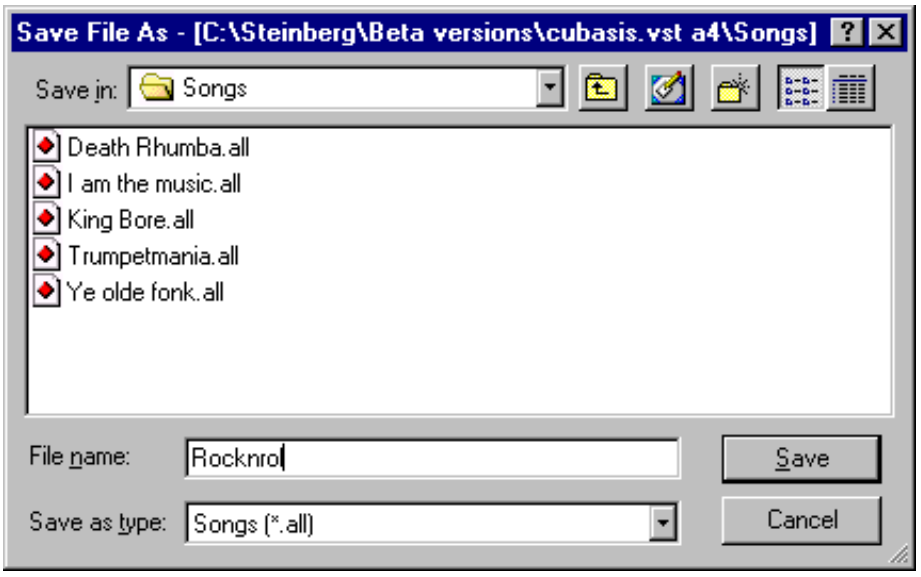
- All the things you see in one Arrange window; the Tracks, the Parts, the Inspector settings etc.

The audio files, however, are stored in the Pool, and the Pool is not part of the Arrangement. This means that if you only save an Arrangement, there will be no audio files for them to reference to! Therefore:

● When doing audio work with Cubasis VST we recommend that you always save complete Songs!

Performing the Save

1. **Pull down the File Menu and select “Save As...”.**
   The file dialog appears.



2. **Use the standard controls to navigate to the desired folder.**

3. **Use the file type pop-up to select a format, Song or Arrangement.**

4. **Type in a name for the file.**

5. **Click Save.**

Using Save Song

On the File menu you will find a menu item called “Save Song”.

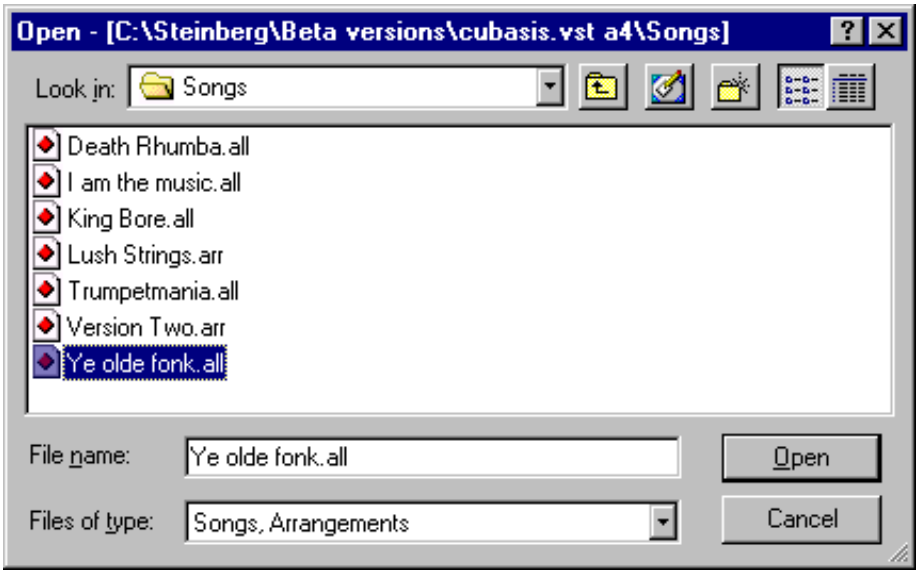
- If you have already saved your Song once (using “Save As...”) this menu command will save your Song without asking for a file name and location. The file you save now will simply overwrite the earlier version.
- If you have not yet saved your Song, selecting “Save Song” is the same as selecting “Save As...”.

The “Save Song” command can also be executed by pressing [Control]-[S] on the computer keyboard.

Opening

Just as with saving, Cubasis VST can open three different file types: Songs, Arrangements and MIDI Files. Opening MIDI Files (which is useful if you import music created in other sequencers) is done with the Import MIDI File command which is described later on. This section describes opening Songs or Arrangements.

1. **Select Open... from the File menu.**
   The Open dialog appears.



2. **Use the pop-up to select which type of file you want to open, Song or Arrangement.**
   Song files have the extension ".all" and Arrangement files have the extension ".arr".

3. **Navigate to the desired folder.**

4. **Select the file and click Open.**

About opening Songs

There can only be one Song open at a time. If the currently open Song contains unsaved changes, you will be asked whether you want to save the current Song first.

About opening Arrangements

If the file is an Arrangement, it will appear as a new window on screen, in addition to any Arrange windows already open. You can have up to 16 Arrangements open at the same time.

Exporting MIDI Files

You might want to export an Arrangement as a Standard MIDI File, so that it can be loaded into other computer programs or hardware sequencers, for example.

● A Standard MIDI File contains MIDI data only - no audio. Any Audio Tracks in your Arrangement will automatically be excluded from the created MIDI file.

1. **Mute all the Tracks you *don't* want to include in the MIDI File.**

2. **Make sure the Song runs at the correct tempo.**
   The Master button should be activated on the Transport Bar, since the exported MIDI File will get the tempo stored in the Master Track.

3. **Pull down the File menu and select "Export MIDI File...".**
   The file dialog appears.

4. **Select a name and location for the file.**
   The file will automatically get the extension ".MID", which is the standard extension for MIDI files.

5. **Click Save.**

MIDI File formats

Cubasis VST normally saves MIDI files in format 1. This means the Track structure is preserved in the file (even though all Parts on each Track will be linked together into one long Part). However, if you Export a MIDI File with only one Track unmuted, a MIDI File of type 0 is created.

Importing MIDI Files

1. **Pull down the File menu and select "Import MIDI File...".**
   Cubasis VST recognizes files as MIDI Files if they have the extension ".MID" (the standard extension for MIDI Files).

2. **In the dialog box that appears, decide whether you want the file to appear in a new Arrange window or if you want to merge the MIDI File into the current Arrangement.**
   If you choose the latter option, the file will appear in the current Arrangement, starting at the Left Locator position.

   The file dialog appears.

3. **Locate the file and click Open.**

   When importing MIDI Files, the data is automatically split up into shorter segments (Parts) to make it easier to edit the music in the Arrange window.

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