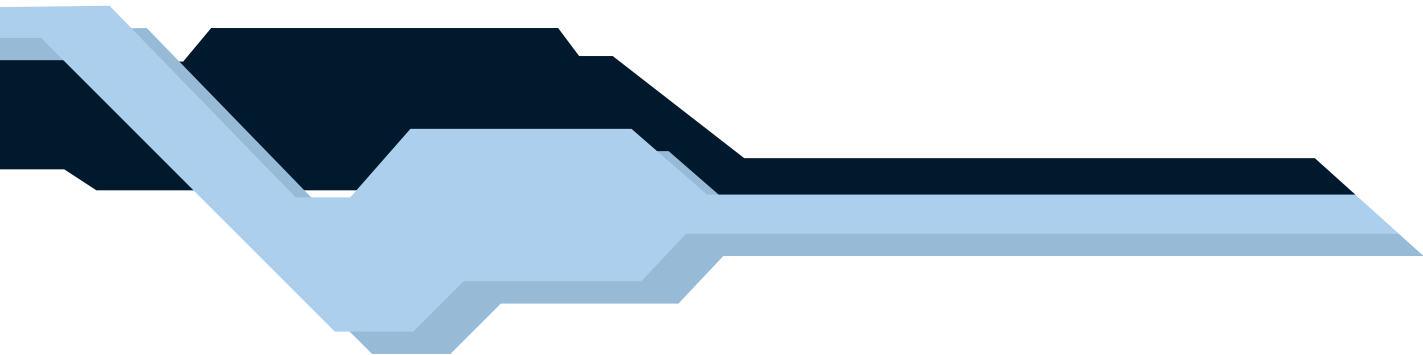


Plug-in Reference



CUBASE AI₄

Integrated Music Production System



Manual by Anders Nordmark

Revision for Cubase AI and Quality Control:

Cristina Bachmann, Heiko Bischoff, Birgit Grossmann, Sabine Pfeifer, Claudia Schomburg

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About this chapter

Cubase AI comes with a number of effect plug-ins included. This chapter contains general details about how to assign, use and organize effect plug-ins. The effects and their parameters are described in the chapter [“The included effect plug-ins”](#) on [page 18](#).

Overview

There are two ways to use audio effects in Cubase AI:

- As insert effects.

An insert effect is inserted into the signal chain of an audio channel, which means that the whole channel signal passes through the effect. This makes inserts suitable for effects for which you don't need to mix dry and wet sound, e.g. distortion, filters or other effects that change the tonal or dynamic characteristics of the sound. You can have up to eight different insert effects per channel (and the same is true for output busses).

- As send effects.

Each audio channel has eight effect sends, each of which can be freely routed to an effect (or to a chain of effects). Send effects are practical for two reasons: you can control the balance between the dry (direct) and wet (processed) sound individually for each channel using the sends, and several different audio channels can use the same send effect. In Cubase AI, send effects are handled by means of FX channel tracks.

About VST 3

The new VST 3 plug-in standard offers many improvements over the previous VST 2 standard, yet retains full backwards compatibility so you can still use your old VST effects and presets.

VST Preset management

From a user perspective, the main difference between VST 2 and VST 3 is in the effect preset management. The new preset handling replaces the old “.fxp/.fxb” files with VST 3 Presets (extension “.vstpreset”). You can also preview effect presets before you load them. A large number of presets for effects are included with the program. Should you have any previous VST plug-ins installed on your computer, you can still use them, and you can also choose to convert their programs to VST 3 Presets. See [“Effect presets”](#) on [page 13](#) for details.

Smart plug-in processing

Another feature of the VST3 standard is “smart” plug-in processing. Previously, any loaded plug-in was processing continuously, regardless of whether a signal was present or not. In VST3, there is a smart functionality built-in which disengages processing by a plug-in if there is no signal present. This can greatly reduce CPU load, thus allowing for more effects to be used. There are no settings involved for this functionality, it is fully automatic.

About plug-in delay compensation

A plug-in effect may have some inherent delay or latency. This means that it takes a brief time for the plug-in to process the audio fed into it – as a result, the output audio will be slightly delayed. This especially applies to dynamics processors featuring “look-ahead” functionality.

However, Cubase AI provides full plug-in delay compensation throughout the entire audio path. All plug-in delays are compensated for, maintaining the sync and timing of all audio channels.

Normally, you don't have to make any settings for this. However, VST3 dynamics plug-ins with look-ahead functionality have a “Live” button, allowing you to disengage the look-ahead to minimize latency if they are to be used during real-time recording (see the chapter [“The included effect plug-ins”](#) on [page 18](#) for details).

You can also constrain the delay compensation, which is useful to avoid latency when recording audio or playing a VST Instrument in real time. See [“Constrain Delay Compensation”](#) on [page 39](#).

About tempo sync

Plug-ins can receive MIDI timing information from the host application (in this case, Cubase AI). A typical use for this feature are tempo-based effects (delays, auto-panning, etc.), but it is also used in other ways for certain plug-ins.

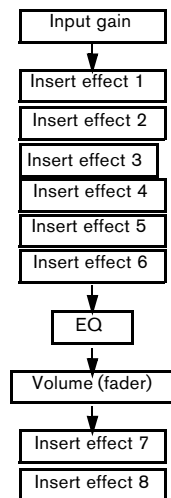
- MIDI timing information is automatically provided to any VST (2.0 or later) plug-in that “requests it”. You don't need to make any special settings for this.
- You set up tempo sync by specifying a base note value. You can use straight, triplet or dotted note values (1/1 - 1/32).

- When MIDI receive is available (or necessary) for other purposes than timing, the setting up and operation is described in the documentation for the corresponding effect. Please refer to the chapter ["The included effect plug-ins"](#) on [page 18](#) for details about the included effects.

Insert effects

Background

As the name implies, insert effects are inserted into the audio signal path – this means that the audio will be routed through the effect. You can add up to eight different insert effects independently for each audio channel (audio track, group channel track, FX channel track or VST Instrument channel) or bus. The signal passes through the effects in series from the top downwards, with the signal path shown below:



As you can see, the last two insert slots (for any channel) are post-EQ and post-fader. Post-fader slots are best suited for insert effects where you don't want the level to be changed after the effect, such as dithering and maximizers – both typically used as insert effects for output busses.

⇒ Applying insert effects on many channels uses up a lot of CPU power!

It might often be more efficient to use send effects or use insert effects on Group tracks, especially if you want to use the same type of effect on several channels. Remember that you can use the VST Performance window to keep an eye on the CPU load.

Which effect plug-ins can I use as insert effects?

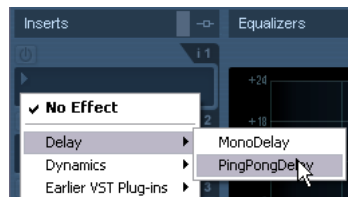
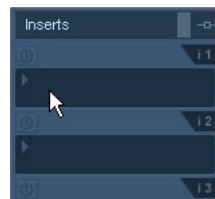
Most effect plug-ins will work fine as insert effects. In general, the only restrictions are with the number of inputs and outputs in the effects:

- For a plug-in to be usable as an insert effect, it has to have at least 1 or 2 inputs and 1 or 2 outputs. Different effects feature different amounts of inputs and outputs, but the number of inputs and outputs actually used is determined by whether you use the insert effects on a single (mono) audio channel or a stereo channel pair.

Routing an audio channel or bus through insert effects

Insert effect settings are available in the Channel Settings window and the Inspector. The examples below show the Channel Settings window, but the procedures are similar for both send sections:

1. Bring up the Channel Settings window or the Inserts section in the Inspector. In the Channel Settings window, the inserts are located to the far left.
2. Pull down the effect type pop-up for one of the insert slots, and select an effect.



The effect is loaded and automatically activated and its control panel appears. You can hide or show the control panel by clicking the “e” button for the insert slot.

- If the effect has a Dry/Wet Mix parameter you can use this to adjust the balance between the dry signal and the effect signal.

See [“Making settings for the effects”](#) on [page 12](#) for details about editing effects.

- When one or several insert effects are activated for a channel, the insert effects buttons light up in blue in the mixer, the Inspector and the Track list. Click the button for a channel to bypass (disable) all its inserts.

When the inserts are bypassed, the buttons are yellow. Click the button again to enable the inserts. Note that the bypass button is also available in the Inspector and the Channel settings window for the audio track.

- To remove an effect, pull down the effect type pop-up menu and select “No Effect”.

You should do this for all effects that you don’t intend to use, to minimize unnecessary CPU load.

- When you have several insert effects for a channel, you can bypass separate effects by clicking the bypass button of the respective slot.

When an effect is bypassed, the button is yellow.



The “PingPongDelay” insert effect slot is bypassed.

Insert effects in the channel overview

If the “Channel” section is selected in the Inspector, you will get an overview of which EQ modules, insert effects and effect sends are activated for the channel.

You can activate or deactivate individual insert effect slots by clicking the corresponding number (in the upper part of the overview).



The channel overview in the Inspector.

About adding insert effects to busses

As already stated, output busses have eight insert slots, just like regular audio channels. The procedures for adding insert effects are the same (except you cannot use the Inspector here).

- Insert effects added to an output bus will affect all audio routed to that bus, like a “master insert effect”. Typically you would add compressors, limiters, EQ or other plug-ins to tailor the dynamics and sound of the final mix.

Using group channels for insert effects

Like all other channels, group channels can have up to eight insert effects. This is useful if you have several audio tracks that you want to process through the same effect (e.g. different vocal tracks that all should be processed by the same compressor). Another special use for group channels and effects is the following:

If you have a mono audio track and want to process this through a stereo insert effect (e.g. a stereo chorus or an auto panner device), you cannot just insert the effect as usual. This is because the audio track is in mono – the output of the insert effect will then be in mono as well, and the stereo information from the effect will be lost.

One solution would be to route a send from the mono track to a stereo FX channel track, set the send to pre fader mode and lower the fader completely for the mono audio track. However, this makes mixing the track cumbersome, since you cannot use the fader.

Here's another solution:

1. Create a group channel track in stereo and route it to the desired output bus.
2. Add the desired effect to the group channel as an insert effect.
3. Route the mono audio track to the group channel.

Now the signal from the mono audio track is sent directly to the group, where it passes through the insert effect, in stereo.

Send effects

Background

Send effects are handled through FX channel tracks. These are special tracks that each can contain up to eight insert effects. The signal path is as follows:

- By routing an effect send from an audio track to an FX channel track, the audio is sent to the FX channel and through its insert effect(s).
Each audio channel has eight sends, which can be routed to different FX channels. You control the amount of signal sent to the FX channel by adjusting the effect send level.

- If you have added several effects to the FX channel, the signal passes through the effects in series, from the top (the first slot) downward.

This allows for “custom” send effect configurations – you could e.g. have a chorus followed by a reverb followed by an EQ and so on.

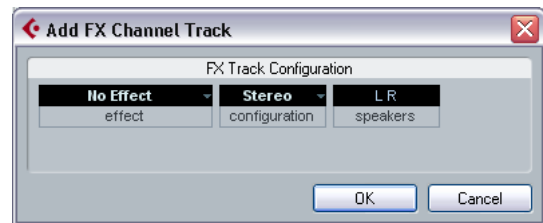
- The FX channel track has its own channel strip in the mixer, the effect return channel.
Here you can adjust the effect return level and balance.
- Each FX channel track has an automation subtrack, for automating various effect parameters.
See the chapter “Automation” in the Operation Manual for more information.

Setting up send effects

Adding an FX channel track

1. Pull down the Project menu and select “FX Channel” from the “Add Track” submenu.

A dialog appears.



2. Select a channel configuration for the FX channel track.

Normally, stereo is a good choice since most effect plug-ins have stereo outputs.

3. Select an effect for the FX channel track.

This is not strictly necessary at this point – you can leave the Plug-in pop-up menu set to “No Effect” and add effects to the FX channel later if you like.

4. Click OK.

An FX channel track is added to the Track list, and the selected effect, if any, is loaded into the first insert effect slot for the FX channel (in that case, the lit Inserts tab for the FX channel track in the Inspector indicates that an effect has been assigned and automatically activated).

- All FX channel tracks you create will appear in a kind of “folder” in the Track list.

This makes it easy to manage and keep track of all your FX channel tracks, and also allows you to save screen space by folding the FX Channel folder.



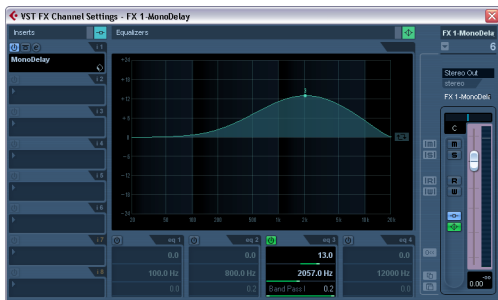
FX channel tracks are automatically named “FX 1”, “FX 2” etc., but you can rename them if you wish. Just double click the name of an FX channel track in either the Track list or the Inspector and type in a new name.

Adding and setting up effects

As mentioned above, you can add a single insert effect when you create the FX channel track if you like. To add and set up effects after the FX channel track is created, you can either use the Inspector for the track (click the Inserts tab) or the FX Channel Settings window:

1. Click the Edit (“e”) button for the FX channel track (in the Track list, mixer or Inspector).

The FX Channel Settings window appears, similar to a regular Channel Settings window.



To the left in the window is the Inserts section with eight effect slots.

2. Make sure the FX channel is routed to the correct output bus.

This is done with the output routing pop-up menu at the top of the fader section (also available in the Inspector).

3. To add an insert effect in an empty slot (or replace the current effect in a slot), click on the slot and select an effect from the pop-up menu.

This works just like when selecting insert effects for a regular audio channel.

4. When you add an effect, its control panel will automatically appear. Typically you should set the Wet/Dry Mix control to all “wet”.

This is because you control the balance between wet and dry signal with the effect sends. For more information about making settings in the effect control panels, see [“Making settings for the effects”](#) on [page 12](#).

- You can add up to eight insert effects for an FX channel. Note that the signal will pass through all the effects in series. It is not possible to adjust the effect send and return levels separately for each effect – this is done for the FX channel as a whole. If what you want is several separate send effects (where you can control their send and return levels independently) you should instead add more FX channel tracks – one for each effect.

- To remove an insert effect from a slot, click the slot and select “No Effect” from the pop-up menu.

You should do this for all effects that you don’t intend to use, to minimize unnecessary CPU load.

- You can also bypass individual effects (or all effects) by clicking the corresponding Bypass Inserts button(s) for the FX channel track.

See [“Routing an audio channel or bus through insert effects”](#) on [page 7](#).

- You can also adjust level, pan and EQ for the effect return in this window.

⇒ Remember that effects rely heavily on the CPU power in your computer.

The more activated effect units, the more computer power will be used for effects.

Setting up the sends

The next step is to set up and route a send for an audio channel to the FX channel. This can be done in the Channel Settings window or in the Inspector for the audio track. The example below shows the Channel Settings window, but the procedure is similar for both sections:

1. Click the “e” button for an audio channel to bring up its Channel Settings window.

In the Inspector you would click the Sends tab.

In the channel settings window, the send section is located to the left of the channel strip. Each of the eight sends has the following controls and options:

- A send on/off switch
- A send level slider
- A pre/post fader switch
- An Edit button

Note that the last three items are not shown until the Send is activated and an effect has been loaded.

2. Pull down the routing pop-up menu for a send by clicking in the empty slot, and select the desired routing destination.



- If the first item on this menu, “No Bus” is selected, the send isn’t routed anywhere.
- Items called “FX 1”, “FX 2” etc. correspond to existing FX tracks. If you have renamed an FX track (see [“Adding an FX channel track”](#) on [page 9](#)) that name will appear on this menu instead of the default.
- The menu also allows for routing a send directly to output buses, separate output bus channels or Group channels.

3. In this case, select an FX channel track from the pop-up menu.

Now the send is routed to the FX channel.

4. Click the power button for the effect send so that it lights up in blue.

This activates the send.



5. Click and drag the send level slider to a moderate value.

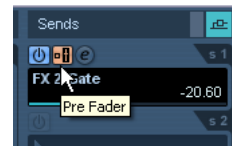
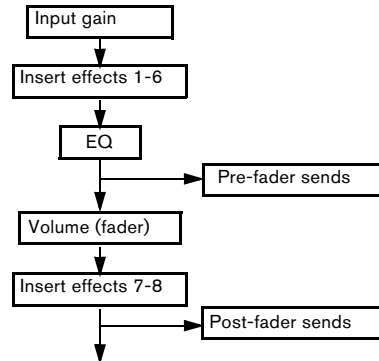
The send level determines how much of the signal from the audio channel is routed to the FX channel via the send.



Setting the Send level.

6. If you want the signal to be sent to the FX channel before the audio channel’s volume fader in the mixer, click on the Pre Fader button for the send so that it lights up.

Normally you want the effect send to be proportional to the channel volume (post fader send). The picture below shows where the sends are “tapped” from the signal in pre and post fader mode:



A send set to pre fader mode.

⇒ You can choose whether a send in pre fader mode should be affected by the channel’s Mute button or not. This is done with the option “Mute Pre-Send when Mute” in the Preferences (VST page).

- When one or several sends are activated for a channel, the Send Effects buttons light up in blue in the mixer and the Track list. Click the button for a channel to bypass (disable) all its effect sends.

When the sends are bypassed, the button is yellow. Click the button again to enable the sends. Note that this button is also available in the Inspector and the Channel settings window.



Click this button to bypass the sends.

- You can also bypass individual sends in the channel overview.

See “Insert effects in the channel overview” on page 8.

- Alternatively, in the same manner you can bypass the send effects by clicking the “Bypass Inserts” button for the FX channel.

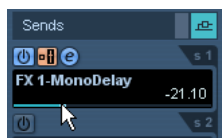
The difference is that this bypasses the actual send effects which may be used by several different channels. Bypassing a send affects that send and that channel only. If you bypass the insert effect the original sound will be passed through. This may lead to unwanted side effects (higher volume). To deactivate all effects, use the mute button in the FX channel.

Setting effect levels

After you have set up the sends as described in the previous sections, the following is now possible:

- You can use the send level slider in the Channel Settings or the Inspector to set the send level.

By adjusting the send level you control the amount of signal sent from the audio channel to the FX channel.



Setting the effect send level.

- In the mixer, you can use the level fader for the FX channel to set the effect return level.

By adjusting the return level you control the amount of the signal sent from the FX channel to the output bus.



Setting the effect return level.

FX channels and the Solo Defeat function

When mixing, you might sometimes want to solo specific audio channels, and listen only to these while other channels are muted. However, this will mute all FX channels as well. If the soloed audio channels have sends routed to FX channels, this means you won't hear the send effects for the channels.

To remedy this, you can use the Solo Defeat function for the FX channel:

1. First press [Alt]/[Option] and click on the Solo button for the FX channel.

This activates the Solo Defeat function for the FX channel. In this mode, the FX channel will not be muted if you solo another channel in the mixer.

2. You can now solo any of the audio channels without having the effect return (the FX channel) muted.

3. To turn off Solo Defeat for the FX channel, [Alt]/[Option]-click the Solo button for the FX channel again.

Making settings for the effects

Editing effects

All inserts and sends have an Edit (“e”) button. Clicking this opens the selected effect’s control panel in which you can make parameter settings.

The contents, design and layout of the control panel depends on the selected effect. However, all effect control panels have a power button, a Bypass button, Read/Write automation buttons (for automating effect parameter changes (see the chapter “Automation” in the Operation Manual), a Preset selection pop-up menu and a Preset Management pop-up menu for saving or loading programs.



The Rotary effect control panel.

- Please note that all effects can be edited using a simplified control panel (horizontal sliders only, no graphics). To edit effects using this “basic” control panel instead, press [Ctrl]/[Command]+[Alt]/[Option]+[Shift] and click on the Edit button for the effect send or slot.

Making settings

Effect control panels may have any combination of knobs, sliders, buttons and graphic curves.

⇒ For specifics about the included effects and their parameters, please refer to the chapter [“The included effect plug-ins”](#) on [page 18](#).

If you edit the parameters for an effect, these settings are saved automatically in the project. If you want to save the current settings, the following points apply:

- The basis for the current settings may have been a preset effect program, in which case there is a name in the preset field.
- The basis for the current settings may have been a default setting program location in which case “Default” is displayed in the preset field.

In both cases, if you have changed any effect parameter settings, these are automatically saved when you save the program. How to select and save effect presets is described below.

Automating effect parameters

Effects parameters can be automated – see the chapter “Automation” in the Operation Manual.

Effect presets

Cubase AI comes with a number of categorized VST presets that you can use straight out of the box. VST presets are stored parameter settings for a specific effect.

Selecting effect presets

Most VST effect plug-ins come with a number of useful presets for instant selection. The Preset browser can either be accessed from the control panel for the effect, from the Channel Settings window, or from the Inspector.

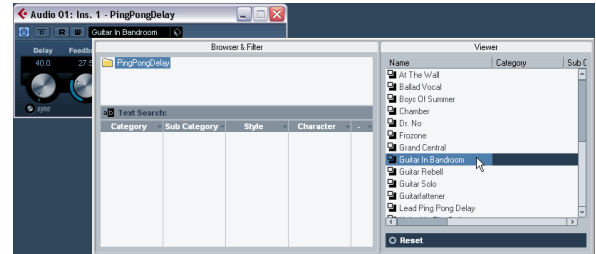
To select an effect preset, proceed as follows:

1. Load an effect, either as a channel Insert or into a FX channel, it doesn't matter.

The effect's control panel is automatically shown when loaded.

2. Click in the name field at the top of the effect's control panel.

This opens the Preset browser.



- The right half of the browser shows the available presets for the selected effect. Selecting a preset loads it directly, replacing the previous preset.
- The lower left half of the Preset browser contains a section where all assigned attributes (to any preset) for the selected effect are shown in the respective column. If no attributes have been specified for the effect presets, the various columns will be empty. If attributes have been assigned to a preset for this effect, you can click on the assigned attribute in the respective column (Category, Style etc.), to filter out all presets that do not match the selected attribute(s).
- The preset handling for VST 2 plug-ins is slightly different, see [“About earlier VST effect presets”](#) on [page 15](#).
- You can also open the Preset browser from the Inspector. Click the Inserts tab for the channel with the effect and click in the Preset name field.

⚠ In the Inspector there is a dual functionality. When an effect is loaded into a slot you can click on the Preset name (or in the bottom half of the effect slot) to open the Preset browser. Clicking in the upper half of the slot will instead open the Effect selection pop-up.

- Click the VST Sound button (the cube symbol) to open the Preset Management pop-up menu and select “Load Preset...” from the pop-up menu that appears. The “Load Preset” dialog opens.

This dialog is very similar to the Preset browser, but there is a difference in how the effect presets are loaded:

- If you use the “Load Preset” dialog, this allows you to select different presets and to audition them without actually loading them. If you chose to cancel the operation and exit the dialog, the preset that was selected before opening the dialog will be reloaded exactly as it was, including any unsaved changes. See [“Auditioning presets”](#) on [page 14](#).
 - When you use the Preset browser, selecting another preset will load it directly, replacing the previous preset.
3. When you have selected an effect preset in the list to the left, click OK to confirm the selection in case you used the Load Preset dialog, or simply click outside the browser window.

Auditioning presets

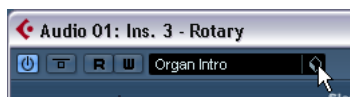
A new VST 3 feature is the option to audition effects before you load them. This works as follows:

1. Load an effect as usual for the track you wish to process.
 2. Start playback.
It may be helpful to set up cycle playback of a section to make comparisons between different preset settings easier.
- Open the Load Preset dialog by clicking the VST Sound button in the effect slot and select “Load Preset” from the pop-up.
3. Activate “Auto Preview” below the Viewer display.
 4. With playback still running, you now can step through different presets in the list and hear the results instantly!
- If you activate “Preview” in step 3 it works similarly, but you have to activate Preview for each selected preset to audition the settings.
 - To confirm a preset selection and to load it, click OK.
 - If you click Cancel, the previously loaded preset will remain, including any unsaved settings.

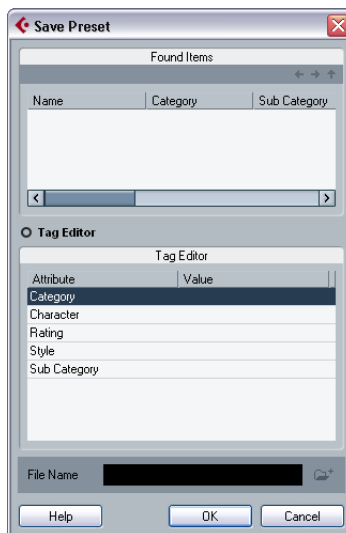
Saving effect presets

You can save your edited effects for further use (e.g. in other projects):

1. Click the VST Sound button to open the Load/Save Preset pop-up.



2. Select “Save Preset...” from the pop-up.
This opens a dialog where you can save the current settings as a preset.



Presets are saved into a default folder named VST3 Presets. Within this folder, there is a folder named “Steinberg Media Technologies” where the included presets are arranged in subfolders named after each effect.

You cannot change the default folder, but you can add further subfolders inside the individual effect preset folder.

Under Windows, the default preset folder is located in the following location:

Boot drive/Documents and Settings/User name/Application data/VST3 Presets.

Under Mac OS, the default preset folder is located in the following location:

Users/Username/Library/Audio/Plug-Ins/Presets/

3. In the File name field in the lower part of the dialog you can enter a name for the new preset.
4. Click OK to store the preset and exit the dialog.

About earlier VST effect presets

As stated previously, you can use any VST 2.x plug-ins in Cubase AI. For a description of how to add VST plug-ins see [“Installing and managing effect plug-ins”](#) on [page 15](#).

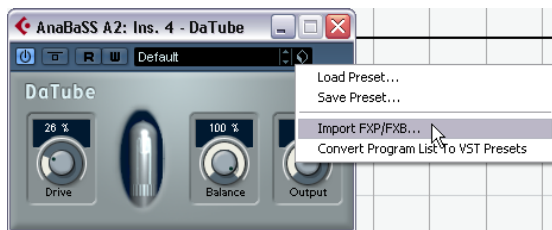
When you add a VST 2 plug-in, any previously stored presets for it will be of the old FX program/bank (.fxp/.fxb) standard. You can import such files, but the preset handling will be slightly different. You will not immediately be able to use the new features like the Preview function until you have converted the old “.fxp/.fxb” presets to VST 3 presets. If you save new presets for the included VST 2 plug-ins these will automatically be saved in the new “.vst-preset” format.

- For all the plug-ins in the “Earlier VST Plug-ins” category (or any other VST 2 plug-ins you may have installed), you can import presets of the previous “.fxp/.fxb” standard to ensure backwards compatibility.

Importing and converting FXP/FXB files

To import .fxp/.fxb files, proceed as follows:

1. Load an effect from the “Earlier VST Plug-ins” folder (or any VST 2 effect you may have installed), and click on the VST Sound button to open the Preset Management pop-up menu.



2. Select “Import FXP/FXB...” from the pop-up. This menu item is only available for VST 2 plug-ins.
3. In the file dialog that opens, locate the file and click Open.
If you loaded a Bank, it will replace the current set of all effect programs. If you loaded a single effect, it will replace the currently selected effect program only.

4. After importing, you can convert the current program list to VST Presets by selecting “Convert Program List to VST Presets” from the Preset Management pop-up.
After converting, the presets will be available in the Preset browser. The new converted presets will be stored in the VST3 Preset folder.

Installing and managing effect plug-ins

Cubase AI supports two plug-in formats; the VST 2 format (extension “.dll”) and the VST 3 format (extension “.vst3”). The formats are handled differently when it comes to installation and organizing.

Installing additional VST plug-ins

Installing VST 3 plug-ins under Mac OS X

To install a VST 3.x plug-in under Mac OS X, quit Cubase AI and drag the plug-in file to one of the following folders:

- /Library/Audio/Plug-Ins/VST3/

This is only possible if you are the system administrator. Plug-ins installed in this folder will be available to all users, for all programs that support them.

- Users/Username/Library/Audio/Plug-Ins/VST3/
“Username” above is the name you use to log on to the computer (the easiest way to open this folder is to go to your “Home” folder and use the path /Library/Audio/Plug-Ins/VST/ from there). Plug-ins installed in this folder are only available to you.

When you launch Cubase AI again, the new effects will appear on the effect pop-up menus. In the VST 3 protocol, the effect category, sub-folder structure etc. is built-in and cannot be changed. The effect(s) will show up in the assigned category folder(s) on the Effect pop-up menu.

Installing VST 2.x plug-ins under Mac OS X

⚠ Plug-ins in Mac OS 9.X format cannot be used.

To install a VST 2.x plug-in under Mac OS X, quit Cubase AI and drag the plug-in file to one of the following folders:

- /Library/Audio/Plug-Ins/VST/

This is only possible if you are the system administrator. Plug-ins installed in this folder will be available to all users, for all programs that support them.

▪ Username/Library/Audio/Plug-Ins/VST/

“Username” above is the name you use to log on to the computer (the easiest way to open this folder is to go to your “Home” folder and use the path /Library/Audio/Plug-Ins/VST/ from there). Plug-ins installed in this folder are only available to you.

When you launch Cubase AI again, the new effects will appear on the effect pop-up menus.

⇒ An effect plug-in may also come with its own installation application, in which case you should use this.

Generally, always read the documentation or readme files before installing new plug-ins.

Installing VST 3 plug-ins under Windows

Under Windows, VST 3 plug-ins are installed simply by dragging the files (extension “.vst3”) into the vst3 folder in the Cubase AI application folder. When you launch Cubase AI again, the new effects will appear on the Effect pop-up menus. In the VST 3 protocol, the effect category, sub-folder structure etc. is built-in and cannot be changed. The installed new effect(s) will show up in the assigned category folder(s) on the Effect pop-up menu.

Installing VST 2 plug-ins under Windows

Under Windows, VST 2.x plug-ins are usually installed simply by dragging the files (with the extension “.dll”) into the Vstplugins folder in the Cubase AI application folder, or into the Shared VST Plug-in folder – see below. When you launch Cubase AI again, the new effects will appear on the Effect pop-up menus.

⇒ If the effect plug-in comes with its own installation application, you should use this.

Generally, always read the documentation before installing new plug-ins.

Organizing VST 2 plug-ins

If you have a large number of VST 2 plug-ins, having them all on a single pop-up menu in the program may become unmanageable. For this reason, the VST 2 plug-ins installed with Cubase AI are placed in appropriate subfolders according to the effect type.

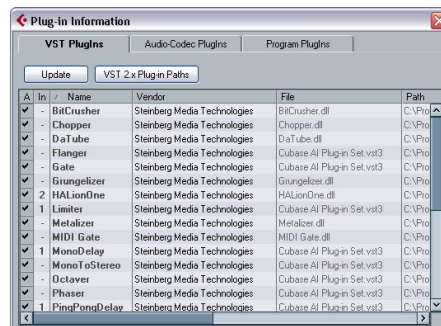
▪ Under Windows, you can rearrange this by moving, adding or renaming subfolders within the Vstplugins folder if you like.

When you launch the program and pull down an Effects pop-up menu, the subfolders will be represented by hierarchical submenus, each listing the plug-ins in the corresponding subfolder.

▪ Under Mac OS X, you cannot change the hierarchic arrangement of the “built-in” VST plug-ins.

You can however arrange any additional plug-ins you have installed (in the /Library/Audio/Plug-Ins/VST/ folders, see above) by placing them in subfolders. In the program, the subfolders will be represented by hierarchical submenus, each listing the plug-ins in the corresponding subfolder.

The Plug-in Information window



On the Devices menu, you will find an item called “Plug-in Information”. Selecting this opens a dialog listing all the available VST compatible plug-ins in your system (including VST Instruments).

Managing and selecting VST plug-ins

To see which VST plug-ins are available in your system, click the “VST PlugIns” tab at the top of the window.

▪ To enable a plug-in (make it available for selection), click in the left column.

Only the enabled plug-ins (shown with a check mark in the left column) will appear on the effect menus.

▪ The second column indicates how many instances of the plug-in are currently used in Cubase AI.

Clicking in this column for a plug-in which is already in use produces a pop-up showing exactly where each use occurs – select an instance to open the control panel for the plug-in.

⇒ A plug-in may be in use even if it isn’t enabled in the left column.

You might for example have opened a project containing effects that currently are disabled on the menu. The left column purely determines whether or not the plug-in will be visible on the effect menus.

▪ All columns can be resized by using the divider in the column header.

The other columns show the following information about each plug-in:

Column	Description
Name	The name of the plug-in.
Vendor	The manufacturer of the plug-in.
File	This shows the complete name of the plug-in (with extension).
Path	The path and name of the folder in which the plug-in file is located.
Category	This indicates the category of each plug-in (such as VST Instruments etc.).
Version	Shows the current version of the plug-in.
SDK	Shows with which version of the VST protocol a plug-in is compatible.
Latency	This shows the delay (in samples) that will be introduced if the effect is used as an Insert. This is automatically compensated for by Cubase AI.
I/O	This column shows the number of inputs and outputs for each plug-in.

Update button

Pressing this button will make Cubase AI re-scan the designated VST folders for updated information about the plug-ins.

VST 2.x Plug-in Paths button

This opens a dialog where you can see the current paths to where VST 2.x plug-ins are located. You can freely Add/Remove folder locations by using the corresponding buttons. If you click Add a file dialog is opened, where you can select a folder location.

About the Shared Plug-ins Folder (Windows and VST 2.x only)

You can designate a “shared” VST 2.x plugins folder. This will allow VST 2.x plug-in to be used by other programs that support this standard.

You designate a shared folder by selecting a folder in the list and clicking the “Set As Shared Folder” button in the VST 2.x Plug-in Paths dialog.

Introduction

This chapter contains descriptions of the included plug-in effects and their parameters.

In Cubase AI, the plug-in effects are arranged in a number of different categories. This chapter is arranged in the same fashion, with the plug-ins listed in separate sections for each effect category.

Delay plug-ins

This section contains descriptions of the plug-ins in the “Delay” category.

MonoDelay



This is a mono delay effect that can either be tempo-based or use freely specified delay time settings.

The parameters are as follows:

Parameter	Description
Delay	This is where you specify the base note value for the delay if tempo sync is on (1/1–1/32, straight, triplet or dotted). If tempo sync is off, it sets the delay time in milliseconds.
Tempo sync on/off	The button below the Delay Time knob is used to turn tempo sync on or off. If set to off the delay time can be set freely with the Delay Time knob, without sync to tempo.
Feedback	This sets the number of repeats for the delay.
Filter Lo	This filter affects the feedback loop of the effect signal and allows you to roll off low frequencies from 10Hz up to 800Hz. The button below the knob activates/deactivates the filter.
Filter Hi	This filter affects the feedback loop of the effect signal and allows you to roll off high frequencies from 20kHz down to 1.2kHz. The button below the knob activates/deactivates the filter.
Mix	Sets the level balance between the dry signal and the effect. If MonoDelay is used as a send effect, this should be set to maximum as you can control the dry/effect balance with the send.

PingPongDelay



This is a stereo delay effect that alternates each delay repeat between the left and right channels. The effect can either be tempo-based or use freely specified delay time settings.

The parameters are as follows:

Parameter	Description
Delay	This is where you specify the base note value for the delay if tempo sync is on (1/1–1/32, straight, triplet or dotted). If tempo sync is off, it sets the delay time in milliseconds.
Tempo sync on/off	The button below the Delay Time knob is used to turn tempo sync on or off. If set to off the delay time can be set freely with the Delay Time knob, without sync to tempo.
Feedback	This sets the number of repeats for the delay.
Filter Lo	This filter affects the feedback loop and allows you to roll off low frequencies up to 800Hz. The button below the knob activates/deactivates the filter.
Filter Hi	This filter affects the feedback loop and allows you to roll off high frequencies from 20kHz down to 1.2kHz. The button below the knob activates/deactivates the filter.
Spatial	This parameter sets the stereo width for the left/right repeats. Turn clockwise for a more pronounced stereo “ping-pong” effect.
Mix	Sets the level balance between the dry signal and the effect. If PingPongDelay is used as a send effect, this should be set to maximum as you can control the dry/effect balance with the send.

Dynamics plug-ins

This section contains descriptions of the plug-ins in the “Dynamics” category.

Gate



Gating, or noise gating, silences audio signals below a certain set threshold level. As soon as the signal level exceeds the set threshold, the gate opens to let the signal through.

The available parameters are as follows:

Parameter	Description
Threshold (-60 – 0dB)	This setting determines the level where Gate is activated. Signal levels above the set threshold trigger the gate to open, and signal levels below the set threshold will close the gate.
Filter buttons	When the Side Chain button (see below) is activated, you can use these buttons to set the filter type to either Low Pass, Band Pass or High Pass.
Side chain (Off/On)	This button (below the Center knob) activates the filter. The input signal can then be shaped according to set Center and Q-Factor parameters which may be useful in tailoring how the Gate operates.
Center (50Hz – 20000Hz)	Sets the center frequency of the filter.
Q-Factor (0.01 – 10000)	Sets the Resonance of the filter.
Monitor (Off/On)	Allows you to monitor the filtered signal.
Attack (0.1 – 1000 ms)	This parameter sets the time it takes for the gate to open after being triggered. If the Live button (see below) is deactivated, it will ensure that the gate will already be open when a signal above the threshold level is played back. Gate manages this by “looking ahead” in the audio material, checking for signals loud enough to pass the gate.

Parameter	Description
Hold (0 – 2000 ms)	This determines how long the gate stays open after the signal drops below the threshold level.
Release (10 – 1000 ms or “Auto”)	This parameter sets the amount of time it takes for the gate to close (after the set hold time). If the “Auto” button is activated, Gate will find an optimal release setting, depending on the audio program material.
Analysis (0 – 100) Pure RMS	This parameter determines whether the input signal is analyzed according to Peak or RMS values (or a mixture of both). A value of 0 is pure Peak and 100 pure RMS. RMS mode operates using the average power of the audio signal as a basis, whereas Peak mode operates more on peak levels. As a general guideline, RMS mode works better on material with few transients such as vocals, and Peak mode better for percussive material, with a lot of transient peaks.
Live mode (On/Off)	When activated, Live mode disengages the “look ahead” feature of the Gate. Look ahead does produce more accurate processing but will add a certain amount of latency as a trade-off. When Live mode is activated, there is no latency, which might be better for “live” processing.

Limiter



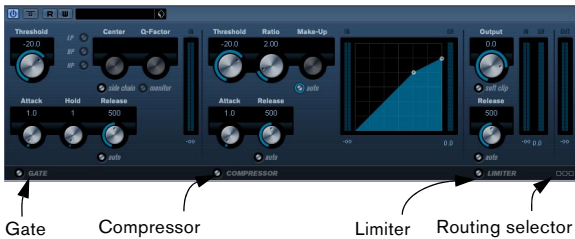
Limiter is designed to ensure that the output level never exceeds a certain set output level, to avoid clipping in following devices. Limiter can adjust and optimize the Release parameter automatically according to the audio material, or it can be set manually. Limiter also features separate meters for the input, output and the amount of limiting (middle meters).

The available parameters are the following:

Parameter	Description
Input (-24 – +24dB)	Allows you to adjust the input gain.
Output (-24 – +6 dB)	This setting determines the maximum output level.

Parameter	Description
Release	This parameter sets the amount of time it takes for the gain (0.1 – 1000ms to return to its original level. If the “Auto” button is activated, Limiter will automatically find an optimal release setting that varies depending on the audio material.

VSTDynamics



VSTDynamics is an advanced dynamics processor. It combines three separate processors: Gate, Compressor and Limiter, covering a variety of dynamic processing functions. The window is divided into three sections, containing controls and meters for each processor.

Activating the individual processors

You activate the individual processors using the buttons at the bottom of the plug-in panel.

The Gate section

Gating, or noise gating, is a method of dynamic processing that silences audio signals below a certain set threshold level. As soon as the signal level exceeds the set threshold, the gate opens to let the signal through. The Gate trigger input can also be filtered using an internal side-chain.

The available parameters are as follows:

Parameter	Description
Threshold (-60 – 0dB)	This setting determines the level where Gate is activated. Signal levels above the set threshold trigger the gate to open, and signal levels below the set threshold will close the gate.
Side Chain (On/Off)	This button activates the internal side-chain filter. This lets you filter out parts of the signal that might otherwise trigger the gate in places you don't want it to, or to boost frequencies you wish to accentuate, allowing for more control over the gate function.
LP (Lowpass), BP (Bandpass), HP (Highpass)	These buttons set the basic filter mode.

Parameter	Description
Center (50 – 22000Hz)	This sets the center frequency of the filter.
Q-Factor (0.001 – 10000)	This sets the resonance or width of the filter.
Monitor (Off/On)	Allows you to monitor the filtered signal.
Attack (0,1 – 100 ms)	This parameter sets the time it takes for the gate to open after being triggered.
Hold (0 – 2000 ms)	This determines how long the gate stays open after the signal drops below the threshold level.
Release (10 – 1000 ms or “Auto”)	This parameter sets the amount of time it takes for the gate to close (after the set hold time). If the “Auto” button is activated, Gate will find an optimal release setting, depending on the audio program material.

The Compressor section

Compressor reduces the dynamic range of the audio, making softer sounds louder or louder sounds softer, or both. Compressor functions like a standard compressor with separate controls for threshold, ratio, attack, release and make-up gain parameters. Compressor features a separate display that graphically illustrates the compressor curve shaped according to the Threshold, Ratio and MakeUp Gain parameter settings. Compressor also features a Gain Reduction meter that shows the amount of gain reduction in dB, and a program dependent Auto feature for the Release parameter.

The available parameters work as follows:

Parameter	Description
Threshold (-60 – 0dB)	This setting determines the level where Compressor “kicks in”. Signal levels above the set threshold are affected, but signal levels below are not processed.
Ratio (1:1 – 8:1)	Ratio determines the amount of gain reduction applied to signals over the set threshold. A ratio of 3:1 means that for every 3 dB the input level increases, the output level will increase by only 1 dB.
Make-Up (0 – 24dB)	This parameter is used to compensate for output gain loss, caused by compression. When Auto is on, gain loss will be compensated automatically.
Attack (0.1 – 100 ms)	This determines how fast Compressor will respond to signals above the set threshold. If the attack time is long, more of the early part of the signal (attack) will pass through unprocessed.
Release (10 – 1000ms or “Auto”)	Sets the amount of time it takes for the gain to return to its original level when the signal drops below the Threshold level. If the “Auto” button is activated, Compressor will automatically find an optimal release setting that varies depending on the audio material.

Parameter	Description
Graphic display	Use the graphic display to graphically set the Threshold or the Ratio value.

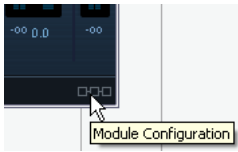
The Limiter section

Limiter is designed to ensure that the output level never exceeds a certain set output level, to avoid clipping in following devices. Conventional limiters usually require very accurate setting up of the attack and release parameters, to prevent the output level from going beyond the set threshold level. Limiter adjusts and optimizes these parameters automatically, according to the audio material. You can also adjust the Release parameter manually.

The available parameters are the following:

Parameter	Description
Output (-24 – +6 dB)	This setting determines the maximum output level. Signal levels above the set threshold are affected, but signal levels below are left unaffected.
Soft Clip (On/Off)	Soft Clip acts differently compared to the limiter. When the signal level exceeds -6dB, SoftClip starts limiting (or clipping) the signal "softly", at the same time generating harmonics which add a warm, tubelike characteristic to the audio material.
Release (10 – 1000ms or "Auto")	This parameter sets the amount of time it takes for the gain to return to its original level when the signal drops below the threshold level. If the "Auto" button is activated, Limiter will automatically find an optimal release setting that varies depending on the audio material.

The Module Configuration button



In the bottom right corner of the plug-in panel you will find a button with which you can set the signal flow order for the three processors. Changing the order of the processors can produce different results, and the available options allow you to quickly compare what works best for a given situation. Simply click the Module Configuration button to change to a different configuration. There are three routing options:

- C-G-L (Compressor-Gate-Limit)
- G-C-L (Gate-Compressor-Limit)
- C-L-G (Compressor-Limit-Gate)

Filter plug-ins

In this section, the Filter plug-in WahWah will be described.

WahWah



WahWah is a variable slope bandpass filter that can be auto-controlled via MIDI modeling the well-known analog pedal effect (see below). You can independently specify the frequency, width and the gain for the Lo and Hi Pedal positions. The crossover point between the Lo and Hi Pedal positions is at 50.

The parameters are as follows:

Parameter	Description
Pedal	This controls the filter frequency sweep.
Freq Lo/Hi	Sets the frequency of the filter for the Lo and Hi Pedal positions.
Width Lo/Hi	Sets the width (resonance) of the filter for the Lo and Hi Pedal positions.
Gain Lo/Hi	Sets the gain of the filter for the Lo and Hi Pedal positions.
Slope	Specifies the slope of the filter; 6dB or 12dB.

MIDI control

For real-time MIDI control of the Pedal parameter, MIDI must be directed to the WahWah plug-in.

- Whenever the WahWah has been added as an insert effect (for an audio track or an FX channel), it will be available on the Output Routing pop-up menu for MIDI tracks. If WahWah is selected on the Output Routing menu, MIDI will be directed to the plug-in from the selected track.

Modulation plug-ins

This section contains descriptions of the plug-ins in the “Modulation” category.

Flanger



Flanger is a classic flanger effect with added stereo enhancement.

The parameters are as follows:

Parameter	Description
Tempo sync on/off	The button below the Rate knob is used to switch tempo sync on or off. The button is lit when tempo sync is on.
Rate	If tempo sync is on, this is where you specify the base note value for tempo syncing the flanger sweep (1/1 to 1/32, straight, triplet or dotted). If tempo sync is off, the sweep rate can be set freely with the Rate knob, without sync to tempo.
Range Lo/Hi	This sets the frequency boundaries for the flanger sweep.
Feedback	This determines the character of the flanger effect. Higher settings produce a more “metallic” sounding sweep.
Spatial	This sets the stereo width of the effect. Turn clockwise for a wider stereo effect.
Mix	Sets the level balance between the dry signal and the effect. If the Flanger is used as a send effect, this should be set to maximum as you can control the dry/effect balance with the send.
Shape	This changes the shape of the modulating waveform, altering the character of the flanger sweep.
Delay	This parameter affects the frequency range of the modulation sweep, by adjusting the initial delay time.
Manual	If this is activated, the flanger sweep will be static, i.e. no modulation. You can instead change the sweep position manually by turning this knob.
Filter Lo/Hi	These parameters allow you to roll off low and high frequencies of the effect signal, respectively.

Phaser



Phaser produces the well-known “swooshing” phasing effect with additional stereo enhancement.

The parameters are as follows:

Parameter	Description
Tempo sync on/off	The button below the Rate knob is used to switch tempo sync on or off. The button is lit when tempo sync is on.
Rate	If tempo sync is on, this is where you specify the base note value for tempo syncing the phaser sweep (1/1 to 1/32, straight, triplet or dotted). If tempo sync is off, the sweep rate can be set freely with the Rate knob, without sync to tempo.
Width	The width of the modulation effect between higher and lower frequencies.
Feedback	This determines the character of the phaser effect. Higher settings produce a more pronounced effect.
Spatial	When using multi-channel audio, Spatial creates a 3-dimensional impression by delaying modulation in each channel.
Mix	Sets the level balance between the dry signal and the effect. If the Phaser is used as a send effect, this should be set to maximum as you can control the dry/effect balance with the send.
Manual	If this is activated, the phaser sweep will be static, i.e. no modulation. You can instead change the sweep position manually by turning this knob.
Filter Lo/Hi	These parameters allow you to roll off low and high frequencies of the effect signal, respectively.

Rotary



The Rotary plug-in simulates the classic effect of a rotary speaker. A rotary speaker cabinet features variable speed rotating speakers to produce a swirling chorus effect, commonly used with organs. Rotary features all the parameters associated with the real thing.

The parameters are as follows:

Parameter	Description
Speed	This controls the speed of the Rotary in three steps. (Stop/Slow/Fast)
Mode	Selects whether the Slow/Fast setting is a switch or a variable control. When switch mode is selected and Pitch Bend is the controller, the speed will switch with an up or down flick of the bender. Other controllers switch at 64.
Speed Mod	Selects the Rotary speed from 0 (Stop) to 100 (Fast).
Overdrive	Applies a soft overdrive or distortion.
Crossover Freq.	Sets the crossover frequency (200–3000Hz) between the low and high frequency loudspeakers.
Slow	Fine adjustment of the high rotor Slow speed.
Accel.	Fine adjustment of the high rotor acceleration time.
Fast	Fine adjustment of the high rotor Fast speed.
Amp Mod	High rotor amplitude modulation.
Freq Mod	High rotor frequency modulation.
Slow	Fine adjustment of the low rotor Slow speed.
Fast	Fine adjustment of the low rotor Fast speed.
Accel	Fine adjustment of the low rotor acceleration time.
Amp Mod.	Adjusts amplitude modulation depth.
Level	Adjusts overall bass level.
Phase	Adjusts the amount of phasing in the sound of the high rotor.
Angle	Sets the simulated microphone angle. 0 = mono, 180 = one mic on each side.
Distance	Sets the simulated microphone distance from the speaker in inches.
Output	Adjusts the overall output level.
Mix	Adjusts the mix between dry and processed signals.

Directing MIDI to the Rotary

For real-time MIDI control of the Speed parameter, MIDI must be directed to the Rotary.

- Whenever the Rotary has been added as an insert effect (for an audio track or an FX channel), it will be available on the Output Routing pop-up menu for MIDI tracks. If Rotary is selected on the "out:" menu, MIDI will be directed to the plug-in from the selected track.

Tremolo



Tremolo produces amplitude (volume) modulation.

Parameters are as follows:

Parameter	Description
Tempo sync on/off	The button below the Rate knob is used to switch tempo sync on or off. The button is lit when tempo sync is on.
Rate	If tempo sync is on, this is where you specify the base note value for tempo-syncing the effect (1/1 to 1/32, straight, triplet or dotted). If tempo sync is off, the modulation speed can be set freely with the Rate knob, without sync to tempo.
Depth	This governs the depth of the amplitude modulation.
Spatial	This will add a stereo effect to the modulation.
Output	Adjusts the output volume.

Vibrato



The Vibrato plug-in produces pitch modulation.

Parameter	Description
Tempo sync on/off	The button below the Rate knob is used to switch tempo sync on or off. The button is lit when tempo sync is on.
Rate	If tempo sync is on, this is where you specify the base note value for tempo-syncing the effect (1/1 to 1/32, straight, triplet or dotted). If tempo sync is off, the modulation speed can be set freely with the Rate knob, without sync to tempo.
Depth	This governs the depth of the pitch modulation.
Spatial	This will add a stereo effect to the modulation.

Other plug-ins

This section contains descriptions of the plug-ins in the “Others” category.

Octaver



This plug-in can generate two additional voices that track the pitch of the input signal one octave and two octaves below the original pitch, respectively. Octaver is best used with monophonic signals. The parameters are as follows:

Parameter	Description
Direct	This adjusts the mix of the original signal and the generated voice(s). A value of 0 means only the generated and transposed signal is heard. By raising this value, more of the original signal is heard.

Parameter	Description
Octave 1	This adjust the level of the generated signal one octave below the original pitch. Set to 0 means the voice is muted.
Octave 2	This adjust the level of the generated signal two octaves below the original pitch. Set to 0 means the voice is muted.

Tuner



This is a guitar tuner. Simply connect a guitar or other instrument to an audio input and select the Tuner as an insert effect (make sure you deactivate any other effect that alters pitch, like chorus or vibrato). When the instrument is connected, proceed as follows:

- Play a note.
The key is shown in the middle of the display. In addition, the frequency in Hz is shown in the bottom left corner and the octave range in the bottom right corner. If the key is wrong (e.g. if you wish to tune the E string and the key is shown as Fb), first tune the string so that the correct key is shown.
- The two arrows indicate any deviation in pitch by their position. If the pitch is flat, they will be positioned in the left half of the display, if the pitch is sharp they will be in the right half.
The deviation is also shown (in Cent) in the upper area of the display.
- Tune the instrument so that the two arrows are in the middle.

Repeat this procedure for each string.

Spatial plug-ins

This section contains descriptions of the plug-ins in the “Spatial” category.

MonoToStereo



This effect will turn a mono signal into a “pseudo-stereo” signal. The plug-in must be inserted on a stereo track playing a mono file to work.

The parameters are as follows:

Parameter	Description
Width	This controls the width or depth of the stereo enhancement. Turn clockwise to increase the enhancement.
Delay	This parameter increases the amount of differences between the left and right channels to further increase the stereo effect.
Color	This parameter also generates differences between the channels to increase the stereo effect.
Mono	This switches the output to mono, to check for possible unwanted coloring of the sound which sometimes can occur when creating an artificial stereo image.

StereoEnhancer



This plug-in will expand the stereo width of (stereo) audio material. It can not be used with mono files.

The parameters are as follows:

Parameter	Description
Width	This controls the width or depth of the stereo enhancement. Turn clockwise to increase the enhancement.
Delay	This parameter increases the amount of differences between the left and right channels to further increase the stereo effect.
Color	This parameter also generates differences between the channels to increase the stereo enhancement.
Mono	This switches the output to mono, to check for possible unwanted coloring of the sound which sometimes can occur when enhancing the stereo image.

Earlier VST plug-ins

This contains a selection of earlier VST plug-ins, divided into various sub-categories.

Distortion plug-ins

This section contains descriptions of the plug-ins in the “Distortion” category.

DaTube



This effect emulates the characteristic warm, lush sound of a tube amplifier.

The parameters are as follows:

Parameter	Description
Drive	Regulates the pre-gain of the “amplifier”. Use high values if you want an overdriven sound just on the verge of distortion.
Balance	This controls the balance between the signal processed by the Drive parameter and the dry input signal. For maximum drive effect, set this to its highest value.
Output	Adjusts the post-gain, or output level, of the “amplifier”.

Dynamics plug-ins

This section contains descriptions of the plug-ins in the “Dynamics” category.

MIDI Gate



Gating, in its fundamental form, silences audio signals below a certain set threshold level. That means, when a signal rises above the set level, the Gate opens to let the signal through while signals below the set level are cut off. MIDI Gate however, is a Gate effect that is not triggered by threshold levels, but instead by MIDI notes. Hence it needs both audio and MIDI data to function.

Setting up

MIDI Gate requires both an audio signal and a MIDI input to function.

To set it up, proceed as follows:

1. Select the audio to be affected by the MIDI Gate. This can be audio material from any audio track, or even a live audio input (provided you have a low latency audio card).
2. Select the MIDI Gate as an insert effect for the audio track. The MIDI Gate control panel opens.
3. Select a MIDI track to control the MIDI Gate. This can be an empty MIDI track, or a MIDI track containing data, it doesn't matter. However, if you wish to play the MIDI Gate in real-time – as opposed to having a recorded part playing it – the track has to be selected for the effect to receive the MIDI output.
4. Open the Output Routing pop-up menu for the MIDI track and select the MIDI Gate option. The MIDI Output from the track is now routed to the MIDI Gate.

What to do next depends on whether you are using live or recorded audio and whether you are using real-time or recorded MIDI. We will assume for the purposes of this manual that you are using recorded audio, and play the MIDI in real-time.

Make sure the MIDI track is selected and start playback.

5. Now play a few notes on your MIDI keyboard.

As you can hear, the audio track material is affected by what you play on your MIDI keyboard.

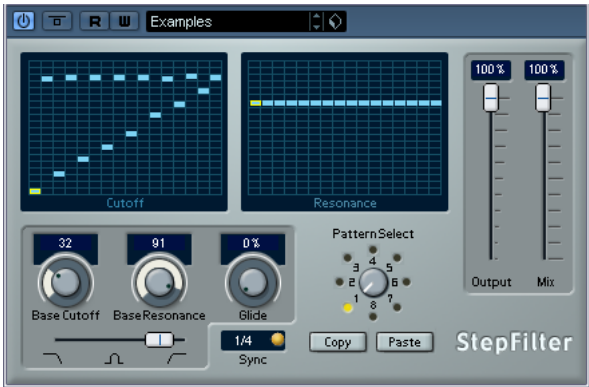
The following MIDI Gate parameters are available:

Parameter	Description
Attack	This is used for determining how long it should take for the Gate to open after receiving a signal that triggers it.
Hold	Regulates how long the Gate remains open after a Note On or Note Off message (see Hold Mode below).
Release	This determines how long it takes for the Gate to close (in addition to the value set with the Hold parameter).
Note To Attack	The value you specify here determines to which extent the velocity values of the MIDI notes should affect the Attack. The higher the value, the more the Attack time will increase with high note velocities. Negative values will give shorter Attack times with high velocities. If you do not wish to use this parameter, set it to the 0 position.
Note To Release	The value you specify here determines to which extent the velocity values of the MIDI notes should affect the Release. The higher the value, the more the Release time will increase. If you do not wish to use this parameter, set it to the 0 position.
Velocity To VCA	This controls to which extent the velocity values of the MIDI notes determine the output volume. A value of 127 means that the volume is controlled entirely by the velocity values, while a value of 0 means that velocities will have no effect on the volume.
Hold Mode	Use this switch to set the Hold Mode. In Note-On mode, the Gate will only remain open for the time set with the Hold and Release parameters, regardless of the length of the MIDI note that triggered the Gate. In Note-Off mode on the other hand, the Gate will remain open for as long as the MIDI note plays, and then apply the Hold and Release parameters.

Filter plug-ins

This section contains descriptions of the plug-ins in the “Filter” category.

StepFilter



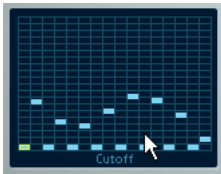
StepFilter is a pattern-controlled multimode filter that can create rhythmic, pulsating filter effects.

General operation

StepFilter can produce two simultaneous 16-step patterns for the filter cutoff and resonance parameters, synchronized to the sequencer tempo.

Setting step values

- Setting step values is done by clicking in the pattern grid windows.
- Individual step entries can be freely dragged up or down the vertical axis, or directly set by clicking in an empty grid box. By click-dragging left or right, consecutive step entries will be set to the pointer position.

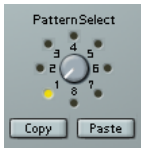


Setting filter cutoff values in the grid window.

- The horizontal axis shows the pattern steps 1–16 from left to right, and the vertical axis determines the (relative) filter cutoff frequency and resonance setting. The higher up on the vertical axis a step value is entered, the higher the relative filter cutoff frequency or filter resonance setting.
- By starting playback and editing the patterns for the cutoff and resonance parameters, you can hear how your filter patterns affect the sound source connected to StepFilter directly.

Selecting new patterns

- Created patterns are saved with the project, and up to 8 different cutoff and resonance patterns can be saved internally. Both the cutoff and resonance patterns are saved together in the 8 Pattern memories.
- To select new patterns you use the pattern selector. New patterns are all set to the same step value by default.



Pattern Selector

Using pattern copy and paste to create variations

- You can use the Copy and Paste buttons below the pattern selector to copy a pattern to another pattern memory location, which is useful for creating variations on a pattern.
- Select the pattern you wish to copy, click the Copy button, select another pattern memory location and click Paste.
- The pattern is copied to the new location, and can now be edited to create variations using the original pattern as a starting point.

StepFilter parameters

Parameter/Value	Description
Base Cutoff	This sets the base filter cutoff frequency. Cutoff values set in the Cutoff grid window are values relative to the Base Cutoff value.
Base Resonance	This sets the base filter resonance. Resonance values set in the Resonance grid window are values relative to the Base Resonance value. Note that very high Base Resonance settings can produce loud ringing effects at certain frequencies.
Glide	This will apply glide between the pattern step values, causing values to change more smoothly.
Filter Mode	This slider selects between lowpass (LP), bandpass (BP) or highpass (HP) filter modes (from left to right respectively).
Sync 1/1 to 1/32 (Straight, Triplet or Dotted)	This sets the pattern beat resolution, i.e. what note values the pattern will play in relation to the tempo.
Output	Sets the overall volume.
Mix	Adjusts the mix between dry and processed signal.

Modulation plug-ins

This section contains descriptions of the plug-ins in the “Modulation” category.

Metalizer



The Metalizer feeds the audio signal through a variable frequency filter, with tempo sync or time modulation and feedback control.

Parameter	Description
Feedback	The higher the value, the more “metallic” the sound.
Sharpness	Governs the character of the filter effect. The higher the value, the narrower the affected frequency area, producing sharper sound and a more pronounced effect.
Tone	Governs the feedback frequency. The effect of this will be more noticeable with high Feedback settings.
On button	Turns filter modulation on and off. When turned off, the Metalizer will work as a static filter.
Mono button	When this is on, the output of the Metalizer will be in mono.
Speed	If tempo sync is on, this is where you specify the base note value for tempo-syncing the effect (1/1 to 1/32, straight, triplet or dotted). Note that there is no note value modifier for this effect. If tempo sync is off, the modulation speed can be set freely with the Speed knob, without sync to tempo.
Tempo sync on/off	The button above the Speed knob is used to switch tempo sync on or off. The button is lit when tempo sync is on.
Output	Sets the overall volume.
Mix	Sets the level balance between the dry signal and the effect. If Metalizer is used as a send effect, this should be set to maximum as you can control the dry/effect balance with the send.

Ringmodulator



The Ringmodulator can produce complex, bell-like enharmonic sounds. Ring modulators work by multiplying two audio signals. The ring modulated output contains added frequencies generated by the sum of, and the difference between, the frequencies of the two signals.

The Ringmodulator has a built-in oscillator that is multiplied with the input signal to produce the effect.

Parameter	Description
Oscillator LFO Amount	Controls how much the oscillator frequency is affected by the LFO.
Oscillator Env. Amount	Controls how much the oscillator frequency is affected by the envelope (which is triggered by the input signal). Positive and negative values can be set, with center position representing no modulation. Left of center, a loud input signal will decrease the oscillator pitch, whereas right of center the oscillator pitch will increase when fed a loud input.
Oscillator Wave	Selects the oscillator waveform; square, sine, saw or triangle.
Oscillator Range	Determines the frequency range of the oscillator in Hz.
Oscillator Frequency	Sets the oscillator frequency +/- 2 octaves within the selected range.
Oscillator Roll-Off	Cuts high frequencies in the oscillator waveform, to soften the overall sound. This is best used when harmonically rich waveforms are selected (e.g. square or saw).
LFO Speed	Sets the LFO Speed.
LFO Env. Amount	Controls how much the input signal level – via the envelope generator – affects the LFO speed. Positive and negative values can be set, with center position representing no modulation. Left of center, a loud input signal will slow down the LFO, whereas right of center a loud input signal will speed it up.
LFO Waveform	Selects the LFO waveform; square, sine, saw or triangle.

Parameter	Description
Invert Stereo	This inverts the LFO waveform for the right channel of the oscillator, which produces a wider stereo perspective for the modulation.
Envelope Generator (Attack and Decay dials)	The Envelope Generator section controls how the input signal is converted to envelope data, which can then be used to control oscillator pitch and LFO speed. It has two main controls: Attack sets how fast the envelope output level rises in response to a rising input signal. Decay controls how fast the envelope output level falls in response to a falling input signal.
Lock L < R	When this button is enabled, the L and R input signals are merged, and produce the same envelope output level for both oscillator channels. When disabled, each channel has its own envelope, which affects the two channels of the oscillator independently.
Output	Sets the overall volume.
Mix	Adjusts the mix between dry and processed signal.

Tranceformer



Tranceformer is a ring modulator effect, in which the incoming audio is ring modulated by an internal, variable frequency oscillator, producing new harmonics. A second oscillator can be used to modulate the frequency of the first oscillator, in sync with the Song tempo if needed.

Parameter	Description
Waveform buttons	Sets the pitch modulation waveform.
Tone	Sets the frequency (pitch) of the modulating oscillator (1 to 5000 Hz).
Depth	Governs the depth of the pitch modulation.
Speed	If tempo sync is on, this is where you specify the base note value for tempo-syncing the effect (1/1 to 1/32, straight, triplet or dotted). Note that there is no note value modifier for this effect. If tempo sync is off, the modulation speed can be set freely with the Speed knob, without sync to tempo.
Tempo sync on/off	The button above the Speed knob is used to switch tempo sync on or off. The button is lit when tempo sync is on.
On button	Turns modulation of the pitch parameter on or off.
Mono button	Governs whether the output will be stereo or mono.
Output	Adjusts the output level of the effect.
Mix	Sets the level balance between the dry signal and the effect.

⇒ Note that clicking and dragging in the display allows you to adjust the Tone and Depth parameters at the same time!

Other plug-ins

This section contains descriptions of the plug-ins in the “Other” category.

Bitcrusher



If you're into lo-fi sound, Bitcrusher is the effect for you. It offers the possibility of decimating and truncating the input audio signal by bit reduction, to get a noisy, distorted sound. You can for example make a 24 bit audio signal sound like an 8 or 4 bit signal, or even render it completely garbled and unrecognizable. The parameters are:

Parameter	Description
Mode	Select one of four operating modes for the Bitcrusher. Each mode will produce a result sounding a bit different. Modes I and III are nastier and noisier, while modes II and IV are more subtle.
Sample Divider	This sets the amount by which the audio samples are decimated. At the highest setting (65), nearly all of the information describing the original audio signal will be eliminated, turning the signal into unrecognizable noise.
Depth	Use this to set the desired bit resolution. A setting of 24 gives the highest audio quality, while a setting of 1 will create mostly noise.
Output	Governs the output level from the Bitcrusher. Drag the slider upwards to increase the level.
Mix	This slider regulates the balance between the output from the Bitcrusher and the original audio signal. Drag the slider upwards for a more dominant effect, and drag it downwards if you want the original signal to be more prominent.

Chopper



Chopper is a combined tremolo and autopan effect. It can use different waveforms to modulate the level (tremolo) or left-right stereo position (pan), either using tempo sync or manual modulation speed settings. The parameters are as follows:

Parameter	Description
Waveform buttons	Sets the modulation waveform.
Depth	Sets the depth of the Chopper effect. This can also be set by clicking in the graphic display.
Speed	If tempo sync is on, this is where you specify the base note value for tempo-syncing the effect (1/1 to 1/32, straight, triplet or dotted). Note that there is no note value modifier for this effect. If tempo sync is off, the tremolo/auto-pan speed can be set freely with the Speed knob, without sync to tempo.
Tempo sync on/off	The button above the Speed knob is used to switch tempo sync on (the button lights up) or off.
Stereo/Mono button	Determines whether the Chopper will work as an auto-panner (button set to “Stereo”) or a tremolo effect (button set to “Mono”).
Mix	Sets the level balance between the dry signal and the effect. If Chopper is used as a send effect, this should be set to maximum.

Restoration plug-ins

This section contains descriptions of the plug-ins in the “Restoration” category.

Grungelizer



The Grungelizer adds noise and static to your recordings – kind of like listening to a radio with bad reception, or a worn and scratched vinyl record. The available parameters are as follows:

Parameter	Description
Crackle	This adds crackle to create that old vinyl record sound. The farther to the right you turn the dial, the more crackle is added.
RPM switch	When emulating the sound of a vinyl record, this switch lets you set the RPM (revolutions per minute) speed of the record (33/45/78 RPM).
Noise	This dial regulates the amount of static noise added.
Distort	Use this dial to add distortion.
EQ	Turn this dial to the right to cut off the low frequencies, and create a more hollow, lo-fi sound.
AC	This emulates a constant, low hum of AC current.
Frequency switch	This sets the frequency of the AC current (50 or 60Hz), and thus the pitch of the AC hum.
Timeline	This dial regulates the amount of overall effect. The farther to the right (1900) you turn this dial, the more noticeable the effect.

Reverb plug-ins

This section contains descriptions of the plug-ins in the “Reverb” category.

RoomWorks SE



RoomWorks SE is a “lite” version of the RoomWorks reverb plug-in. This plug-in delivers high quality reverberation, but has fewer parameters and is less CPU demanding than the full version. RoomWorks SE has the following parameters:

Parameter	Description
Predelay	The amount of time before the onset of reverb. This allows you to simulate larger spaces by increasing the time it takes for first reflections to reach the listener.
Time	Reverb Time in seconds.
Diffusion	This affects the character of the reverb tail. Higher diffusion is smoother while less diffusion can be clearer. This emulates changing the types of surfaces in a room (brick vs. carpet for instance).
High Damping Amount	This affects the decay time of high frequencies. Normal room reverb decays quicker in the high and low frequency range than in the midrange. Lowering the damping percentage will cause high frequencies to decay quicker. Damping percentage values above 100% will cause high frequencies to decay longer than the midrange.
Low Damping Amount	The amount of damping applied to the low frequencies. At 100%, no damping occurs. Values lower than 100% increase the amount of damping, reducing low frequencies over time. Values above 100% have the opposite effect.
Mix	Determines the blend of dry (unprocessed) signal to wet (processed) signal. When using RoomWorks SE inserted in an FX channel, you will most likely want to set this to 100% or use the Send button.

Introduction

VST Instruments are software synthesizers (or other sound sources) that are contained within Cubase AI. They are played internally via MIDI, and their audio outputs appear on separate channels in the mixer, allowing you to add effects or EQ, just as with audio tracks.

The VST Instrument HALionOne is included with Cubase AI, others can be purchased separately from Steinberg and other manufacturers.

⇒ This chapter describes the general procedures for setting up and using VST Instruments.

For a description of HALionOne and its parameters, see the chapter "HALionOne" on [page 40](#).

Activating and using VST Instruments


VST Instruments can be activated and used in two different ways:

- By using the VST Instruments rack.

This creates an Instrument channel, which can be played by a (or several) MIDI track(s) connected to it.

- By creating Instrument tracks.

Instrument tracks are a combination of a VST Instrument, an Instrument channel and a MIDI track. You play and record MIDI note data directly for this track.

 In this chapter, we will describe how to set up and use both Instrument channel/MIDI tracks and Instrument tracks, and also outline the main differences between the two methods. However, for detailed descriptions of Instrument tracks, please refer to the respective chapter in the Operation Manual.

When a VST Instrument is loaded, each audio output bus is represented by a channel strip in the mixer. When you are working with VST Instruments that have a lot of audio busses, this maybe a bit confusing. Therefore, you can deactivate unused output busses by clicking the corresponding button in the VST Instruments rack.



Click this button to activate the busses for the VST Instrument.

You can activate these busses at a later time.

What should I use – VST Instrument channel or Instrument track?

Each of these two methods have their advantages, and should be selected according to what best suits your needs. The following applies:

Instrument tracks

- Instrument tracks feature a single MIDI input and a single stereo output.
- Instrument tracks provide a very convenient way of quickly browsing for and auditioning preset sounds before you actually create the track!
- All automation parameters are available directly in the Instrument track.
This is different to a VST Instrument channel where you have both VST Instrument channel automation and automation for the connected MIDI track. E.g. if you move a MIDI part with Volume automation, any recorded automation for the VST Instrument channel will not automatically follow the moved part.
- Instrument tracks have most options that MIDI tracks have (e.g. MIDI Modifiers) and are automated the same way.
- Instrument tracks have all options that VST Instrument channels have, i.e. Inserts, Sends, EQ, etc.

There are certain limitations that apply to Instrument tracks:

- As there is only one stereo output available, you cannot use multiple outputs for VST Instruments loaded as an Instrument track.
Thus, you can only use the first output channel pair of a multitimbral instrument.

- The MIDI volume and pan are not visible. Instead, the VST Instrument volume and pan are displayed.
- The output device of an Instrument track always has to be a VST Instrument.

VST Instrument channels activated from the VST Instruments rack

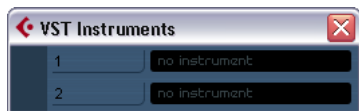
- This method provides full control over multitimbral instruments.
You can have several MIDI tracks routed to the VST Instrument, each playing a different part.
- Similarly, you can route channels/parts to any available output provided by the VST Instrument.

Summing up

- If you wish to quickly browse for a particular sound, but don't know which VST Instrument to use, select an Instrument track.
- Do likewise if the above listed limitations do not matter.
- If you need to use multitimbral parts and/or multiple outputs, select an Instrument channel.

Setting up VST Instrument channels

1. On the Devices menu, select VST Instruments.
The VST Instruments rack appears with 2 slots.



2. Pull down the pop-up menu for an empty slot in the panel and select the desired instrument.
3. You will be asked if you want to automatically create an associated MIDI track connected to the VST Instrument. Do so.

The instrument is loaded and activated, and its control panel is automatically opened. If you pull down the output pop-up menu for the MIDI track in the Track list or in the Inspector you can find an additional item, with the name of the activated VST Instrument. It has automatically been selected as the output destination.

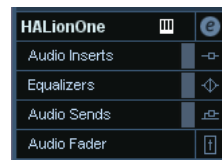
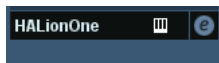
⇒ In the Preferences dialog (VST–Plug-ins page) you will find the “Create MIDI track when loading VSTi” pop-up menu where you can specify what should happen when you select a VST Instrument.

- If you look in the Project window track list, you will find that a special “folder” for the selected instrument has been added, within a “VST Instruments” folder (where all your VST Instrument channels will appear).

The separate folder for the added VST Instrument contains two or more automation tracks: one for automating the plug-in parameters and one for each mixer channel used by the VST Instrument. For example, if you add a VST Instrument with four separate outputs (four separate mixer channels), the folder will contain five automation tracks. To keep the screen less cluttered, you may want to close the folder for the VST Instrument until you need to view or edit any of the automation tracks. For more about automation, see the chapter “Automation” in the Operation Manual.

- A new tab also appears in the Inspector with the name of the VST Instrument when the MIDI track connected to the VST Instrument is selected in the Track list.

When opened, the VST Instrument's audio channel settings (inserts, EQs, Sends and fader settings) are shown. If closed, the tab has two buttons for opening the Channel Settings window (for the VST Instrument channel) and the Edit Instrument button which opens the control panel for the VST Instrument.



4. Depending on the selected VST Instrument, you may also need to select a MIDI channel for the track.

For example, a multitimbral VST Instrument can play back different sounds on different MIDI channels – check the VST Instrument's documentation for MIDI implementation details.

5. Make sure the option “MIDI Thru Active” is activated in the Preferences dialog (MIDI page).

6. Click the Monitor button for the MIDI track (in the Track list, Inspector or mixer).


When this is activated (or when the track is record enabled), incoming MIDI is passed on to the selected MIDI output (in this case the VST Instrument), see the chapter “Recording” in the Operation Manual.

7. Open the mixer.

You will find one or more additional channel strips for the VST Instrument's audio outputs. VST Instrument channel strips have the same features and functionality as group channel strips, with the addition of an Edit button at the bottom of the strip for opening the VST Instrument control panel.

8. Play the VST Instrument from your MIDI keyboard.

You can use the Channel Settings window to adjust the sound, add EQ or effects, etc. – just as with regular audio channels. Of course, you can also record or manually create MIDI parts that play back sounds from the VST Instrument.

 You can have up to 2 VST Instruments activated at the same time, different models or several instances of the same instrument.

Setting up instrument tracks

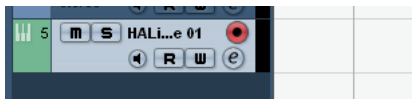
Instrument tracks can be created in several different ways:

- By selecting “Add Track” on the Project menu and then selecting “Instrument” from the submenu.
- By right-clicking in the Track list and selecting “Add Instrument Track” on the context menu.

Selecting any of the two options opens a dialog where you can specify an instrument for the track from a pop-up. You can leave this until later if you wish. You can also specify the number of Instrument tracks you wish to create.

- Once an Instrument track has been added, it appears in the Track list and as an Instrument channel in the mixer.

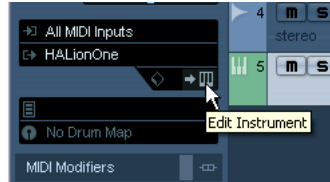
The instrument panel does not open automatically (regardless of whether an instrument was selected in the “Add Instrument Track” dialog or not). If a device was selected, the track will have the same name as the instrument, otherwise it will be named “Instrument Track”. Note that VST Instruments loaded into Instrument tracks do not show up in the VST Instruments rack. If you need a quick overview of all VSTi's used in a Project, use the Plug-in Information window (opened from the Devices menu).



An Instrument track in the Track list.

- In the Inspector, you can select a VST Instrument from the Instrument pop-up.
- Only VST Instruments are available on the pop-up. When you select an instrument on this pop-up menu, its control panel is opened.
- On the Input Routing pop-up you can select a MIDI input.
- Instrument tracks only have one MIDI input.

- To open the control panel for the VST Instrument, click the “Edit Instrument” button in the Inspector.



- The available Track controls and items available in the Inspector reflect the mixed nature of Instrument tracks, as it combines audio, VST Instruments and MIDI.
- See the chapter “Instrument Tracks” in the Operation Manual for a complete listing of what items and controls are available.
- Recording/playing the instrument is done just like for MIDI tracks.

Using VST presets

About VST presets

VST presets store all panel settings for an instrument, but no track/channel settings.

As explained in the chapter “Audio effects” on [page 5](#) there are also two types of VST presets that can be used; the VST 2 standard “.fxb/.fxp” files and the new VST 3 preset standard with the extension “.vstpreset”. It works exactly the same way for VST Instruments.

All VST 2 instruments can import “.fxb/.fxp” files and also convert them to the VST 3 standard. Once converted you can use all the Preset browser features. See “[About earlier VST Instrument presets](#)” on [page 38](#).

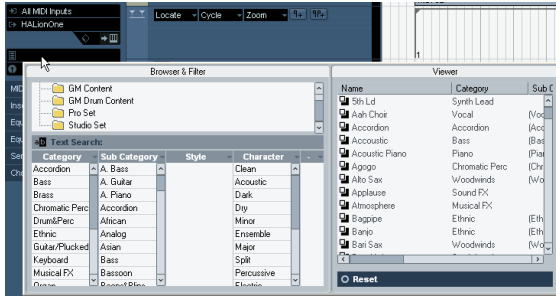
Selecting VST presets

VST Instruments come with a large number of VST presets for instant selection. Presets can either be accessed from the control panel for the effect or from the Inspector.

To select a VST Instrument preset, proceed as follows:

1. Load a VST Instrument either by activating it from the VST Instruments rack or by creating an Instrument track.
2. If you use a VST Instrument channel, select the MIDI track connected to the instrument. If you use an Instrument track, select this.

3. If necessary, click on the track name at the top of the Inspector to open the basic track settings.
4. Click in the Programs field in the Inspector.
This opens the Presets Browser. Selecting a new preset overwrites the settings of the current preset so any unsaved changes will be lost.



5. To exit the browser, double-click the desired preset or click somewhere outside the window to close it.
- You can also open the preset list from the VST Instrument's control panel. Simply click in the Preset name field.
 - If you click the VST Sound button (the cube symbol), the "Load Preset..." dialog opens.

This dialog is much like the Preset list, but there is a difference:

- If you use the "Load Preset" dialog, this allows you to preview the settings of other presets without actually loading them. If you chose to cancel the operation, the preset that was selected before opening the dialog will be re-loaded exactly as it was, including any unsaved changes. If you activate "Auto Preview" below the Viewer section, you can step through the presets and play them via MIDI.
- When you use the Preset list, selecting another preset will load it directly, replacing the previous preset.
- The Viewer section of the Load Preset dialog and the Preset list automatically display all the available presets for the instrument.

6. When you have selected an instrument preset, click OK to close the Load Preset dialog or – if you used the Preset browser – double-click the preset or click outside the browser window to close it.

Saving VST Instrument presets

You can save your edited settings for further use (e.g. in other projects):

1. In the VST Instrument panel, click the VST Sound button to the right of the name field.
This opens a pop-up menu.
2. Select "Save Preset" from the pop-up menu.
This opens a dialog where you can save the current settings as a preset.

Presets are saved into a default folder named VST3 Presets. Within this folder, there is a folder named "Steinberg Media Technologies" where the included presets are arranged in sub-folders named after each instrument.

You cannot change the default folder, but you can add further subfolders inside the instrument's preset folder.

- Under Windows, the default preset folder is in the following location:
Boot drive/Documents and Settings/User name/Application data/VST3 Presets.
- Under Mac OS, the default preset folder is in the following location:
Users/Username/Library/Audio/Plug-Ins/Presets/

3. In the File name field in the lower part of the dialog you can enter a name for the new preset.
4. Click OK to store the preset and exit the dialog.

About earlier VST Instrument presets

You can use any VST 2.x Instrument plug-ins in Cubase AI. Adding VST Instrument plug-ins works the same way as for audio effects – see ["Installing additional VST plug-ins"](#) on [page 15](#).

When you add a VST 2 plug-in, any previously stored presets for it will be of the old FX program/bank (.fxp/.fxb) standard. You can import such files, but the preset handling will be slightly different. You will not be able to use the new features like the Preview function until you have converted the old ".fxp/.fxb" presets to VST 3 presets. If you save new presets for a VST 2 plug-in these will automatically be saved in the new ".vstpreset" format in the default location.

Importing and converting FXB/FXP files

To import .fxp/.fxb files, proceed as follows:

1. Load any VST 2 instrument you may have installed, and click on the VST Sound button to open the Preset Management pop-up menu.

2. Select "Import FXB/FXP" from the pop-up.

This menu item is only available for VST 2 instrument plug-ins.

3. In the file dialog that opens, locate the file and click Open.

If you loaded a Bank, it will replace the current set of all programs. If you loaded a single preset, it will replace the currently selected preset program only.

4. After importing, you can convert the current program list to VST Presets by selecting "Convert Program List to VST Presets" from the Preset Management pop-up.

After converting, the presets will be available. The new converted presets will be stored in the VST3 Preset folder.

About latency

Depending on your audio hardware and its ASIO driver, the latency (the time it takes for the Instrument to produce a sound when you press a key on your MIDI controller) may simply be too high to allow comfortable real-time VST Instrument playback from a keyboard.

If this is the case, a workaround is to play and record your parts with another MIDI Sound Source selected, and then switch to the VST Instrument for playback.

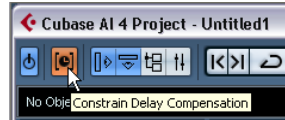
⇒ You can check the latency for your audio hardware in the Device Setup dialog (VST Audio System page).

The input and output latency values are shown below the ASIO Driver pop-up menu. For live VST Instruments playing, these values should ideally be a few milliseconds (although the limit for "comfortable" live playing is a matter of personal taste).

Constrain Delay Compensation

Cubase AI features full delay compensation throughout the entire audio path. This means that any delay inherent in the VST plug-ins you use will automatically be compensated for during playback, so that all channels are kept in perfect sync (see ["About plug-in delay compensation"](#) on [page 6](#)).

However, when you play a VST Instrument in real time or record live audio (with monitoring through Cubase AI activated), this delay compensation may sometimes result in added latency. To avoid this, activate the Constrain Delay Compensation button on the Project window toolbar. This function tries to minimize the latency effects of the delay compensation, while maintaining the sound of the mix as far as possible.



- In the Preferences dialog (VST page) you will find a setting called Delay Compensation Threshold. Only plug-ins with a delay higher than the value entered here will be affected by the Constrain Delay Compensation function.

- VST plug-ins (with higher delay than the threshold value) which are activated for VST Instrument channels, audio track channels that are record enabled, group channels and output channels will be turned off when you activate Constrain Delay Compensation.

- VST plug-ins activated for FX channels are not turned off but their delay is disregarded by the program (delay compensation is turned off).

After recording or using a VST Instrument with Constrain Delay Compensation, you should turn off the function to restore full delay compensation.

Automating a VST Instrument

- Automation of the VST Instrument channel settings is done in the same way as automating regular channels.
- Automation of the specific parameters for a VST Instrument is done in the same way as automating VST effect parameters.

See the chapter "Automation" in the Operation Manual.

4

HALionOne

Introduction



HALionOne is a sample player that can play sound content in the *.hsb (HALion Sound Bank) format. These samples have associated preset files that store the panel settings and reference the HSB samples. Included are several presets (as *.vstpreset files).

The operation of HALionOne is very simple; load a preset and start playing! You also can tweak the basic parameters to tailor the sound to your liking.

HALionOne parameters

The HALionOne panel parameters shown can vary according to which parameters are stored in the HSB file. HSB files cannot be created with HALionOne – you need the full version of HALion to do this – but when created, certain parameters are assigned as part of the file and the associated program (or preset). This means that for each preset, only these assigned parameters are shown on the instrument panel. Typically, these are filter cutoff, DCA and DCF parameters and any assigned effect parameters (the effects are “built in”).

If you load HALionOne for an Instrument track and don't select a preset, the following main parameters are shown:

Parameter	Description
Cutoff	This allows you to adjust filter frequency or cutoff. The filter used is a Waldorf Low Pass filter with a 24 dB slope.
Resonance	Raising the filter resonance value will emphasize the frequencies around the set filter frequency.
DCF Amount	Controls the amount of the DCF (filter) envelope.
DCA Attack	Controls the time it takes for the DCA signal to reach its highest level.
DCA Decay	Controls the time it takes the DCA signal to decay to the sustain level.
DCA Sustain	Controls the DCA signal level after the Decay phase, as long as you press the key on your MIDI keyboard.

Parameter	Description
DCA Release	Controls the DCA signal after a key is released.
DCA Amount	Controls the amount of the DCA (amplifier) envelope.

As stated earlier, other parameters may be shown; these will be clearly labelled on the panel. For most of the presets there are also associated effects – the effect parameters are usually located to the right on the panel and typically control the dry/wet mix of the effect.

Effects Bypass

- This button, located at the bottom right in the box displaying the preset name, allows you to bypass any effects. The blue LED beside the button is lit if any effects are used in the preset.

Efficiency slider

The Efficiency slider provides a way of balancing audio quality vs. conservation of computer power. The lower the setting, the more voices are available. As a trade-off, sound quality is reduced.

Voices allocated

The Voices field dynamically displays the number of voices currently used.

MIDI and Disk activity LEDs

The MIDI activity LED indicates received MIDI input. The Disk LED will light up green when samples are streamed from disk, and red when samples cannot be loaded from disk in time. In such a case you should consider lowering the Efficiency slider.

Locate Contents

If you have moved the HALionOne content files to a different location (i.e. any other location than the folder in which it was stored during the installation), you need to use the Locate Contents function to inform HALion One about where to find its files. This is done as follows:

- Right-click anywhere on the control panel and select “Locate contents”.
- A file dialog opens where you can navigate to the folder location.

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