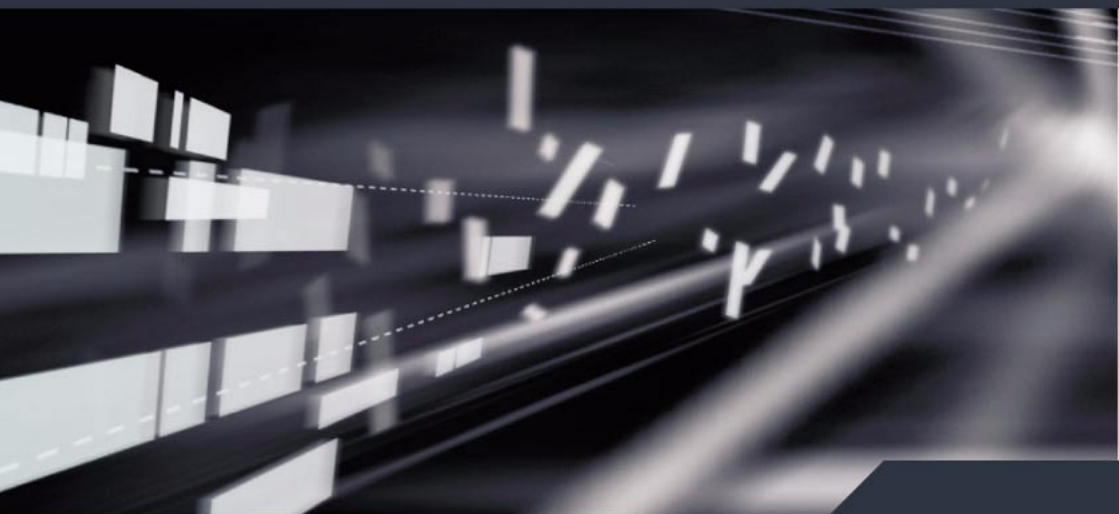


New Features in 3.1

Cubase • SX/SL 3

MUSIC CREATION AND PRODUCTION SYSTEM



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Introduction

Working with the new features

Welcome to Cubase SX/SL 3.1! This document lists and describes all features that have been added to or modified in the program since the original 3.0 version. To read more about a feature listed below, please click the respective green link.

Some of the new features described in this document only apply to the Cubase SX version. Whenever this is the case, this will be clearly stated in the heading of the related subject.

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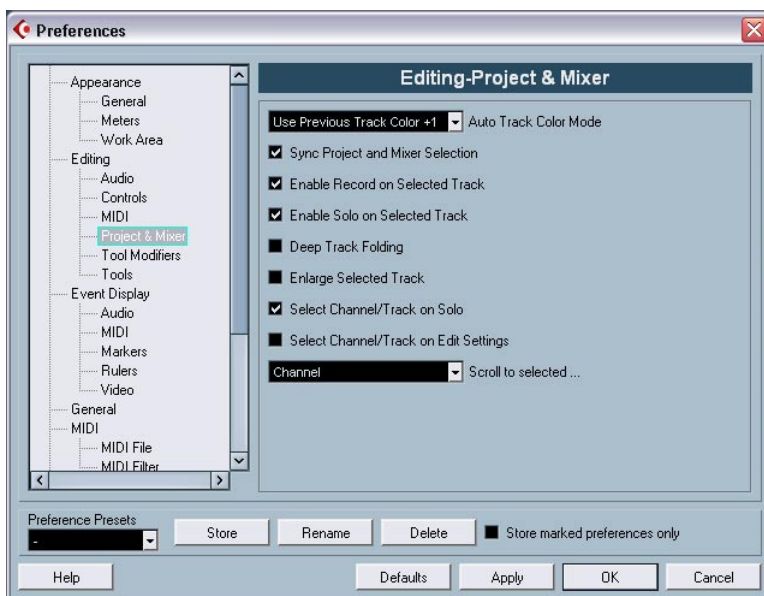
General improvements

- Recovery of audio recordings after system failure. See [page 60](#).
- About the Dolby Digital and DTS Encoders (Cubase SX only). See [page 61](#).

Working with the new features

Editing – General

New Preferences options



For Cubase SX/SL 3.1 several changes have been made to the Preferences dialog. The Appearance page has been completely modified (Cubase SX only), a new subpage “Project & Mixer” has been added to the Editing page, the VST page has been further subdivided, etc. In the following sections, the changes are described separately for the different pages of the dialog.

Appearance (Cubase SX only)

The Appearance page in the Preferences dialog now contains three subpages, on which you can adjust the look of the program in the following way:

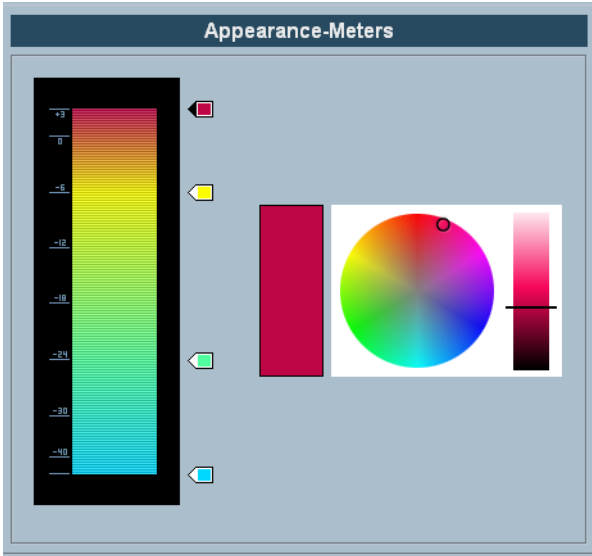
Appearance—General

The three controls on the General subpage affect the appearance of the work area backgrounds in Cubase SX.

- Saturation determines how rich the background colors are, from grey to blue.
- Contrast determines how bright or dark the background is in relation to controls and displays.
- Brightness lightens or darkens the background.

Appearance–Meters

The coloring of meters in Cubase SX can be controlled in sophisticated ways. Multiple colors can help to visually indicate what levels are being reached, e.g. in a channel of the Mixer. To do this, the meter on the Appearance–Meters page has color handles that allow you to define what color the meter will have at a given signal level.



The Appearance–Meters page.

- The default setting has four color handles. Each color handle has a unique color that gradually shifts as the meter moves towards the next color handle.
You can click on any color handle and move its position in the meter scale. If you hold down [Shift] while moving the handle with the mouse, it will move ten times slower for more precise positioning. You can also nudge the color handle's position with the arrow up/down keys. Holding Shift while nudging will move the color handle ten times faster.
- You can add color handles by [Alt]/[Option]-clicking anywhere along the side of the meter scale. [Ctrl]/[Command]-clicking on a handle removes it from the meter scale.
By adding more color handles to the meter scale, you can define colors for more specific signal levels. Try adding two color handles very close to one another. This way, you can make the meter color change more rapidly at a specific signal level.

- To change the color of a handle, click on the handle to select it. You can also use the [Tab] key to select the next handle. (To select the previous handle, hold down [Shift] and press the [Tab] key.) Use the hue and brightness controls on the right to alter the handle's color. The currently selected color handle is indicated by a black triangle.

Appearance–Work Area

“Work areas” in this context refers to those places where the actual data is displayed, such as the Project window event display. In these areas, there are items such as vertical and horizontal grid lines which can be altered in intensity by the controls found on this subpage.

Editing

On the main Editing page, the following options have been added:

- Use Up/Down Navigation Commands for selecting Tracks only
By default, tracks are selected with the up/down arrow keys on the computer keyboard. These are however also used for selecting events which can lead to confusing results in some cases. Since track selection is a most vital operation in both editing and mixing, you now have the opportunity to use the navigation controls for track selection only.

The following applies:

- When this option is deactivated and no event/part is selected in the Project window, the up/down arrow keys on the computer keyboard are used to step through the tracks in the Track list – just as you would expect this to work.
- When this option is deactivated and an event/part is selected in the Project window however, the up/down arrow keys still step through the tracks in the Track list – but on the currently selected track, the first event/part will automatically be selected as well. If this is not the desired behavior, you have to activate “Use Up/Down Navigation Commands for selecting Tracks only”.
- When this option is activated, the up/down arrow keys are only used to change the track selection – the current event/part selection in the Project window will not be altered.
- Default Track Time Type (Cubase SX only)
This allows you to specify the default track time type for new tracks (Audio, Group/FX, MIDI and Marker tracks). When you change this setting, all new tracks will use the selected time type. You can choose

between “Musical”, “Time Linear” and “Follow Transport Main Display”. Selecting “Musical” will cause all added tracks to be set to musical time type (the respective button shows a note symbol). When you select “Time Linear”, all new tracks will use linear time base (i.e. the button shows a clock symbol). The third option uses the primary time format setting on the Transport panel. When this is set to “Bars+Beats”, tracks with musical time base will be added. When this is set to any of the other options (Seconds, Timecode, Samples, etc.), all new tracks will use linear time base.

Editing–Project & Mixer

This is a new subpage of the Preferences dialog with the following new options:

- **Auto Track Color Mode**
This offers you several options for automatically assigning colors to tracks that are added to the project.
- **Sync Project and Mixer Selection**
This is not a new feature, rather an old one with a new name. In previous versions, this was called “Mixer Selection follows Project”. It has been renamed because the function really works both ways. For a description of the functionality (with the “old” name “Mixer Selection follows Project”), see the dialog help for the Preferences dialog or the chapter “The Mixer” in the Operation Manual.
- **Deep Track Folding**
When you activate this option, any folding settings you make (on the Project menu – Track Folding submenu) also affect the sub elements of the tracks, i.e. if you fold in a folder track which contains 10 audio tracks 5 of which have several automation sub-tracks open, all these audio tracks within the folder track will be folded in as well.
- **Enlarge Selected Track**
Activate this option to enter a mode where the selected track in the Project window will be enlarged. (You can adjust the size directly in the Track list if the default enlargement factor does not suit you.) When this option is activated and you select another track in the Track list, this is automatically enlarged and the previously selected track is displayed in its previous size again.
Please note that Enlarge Selected Track is also available on the Edit menu.

- **Select Channel/Track on Solo**
When you activate this option, a track in the Track list or a channel in the mixer automatically gets selected when the Solo button is activated.
Deactivating this option always keeps the current selection status, regardless of the Solo setting for the tracks.
- **Select Channel/Track on Edit Setting**
When you activate this option, a track in the Track list or a channel in the mixer automatically gets selected when you click the respective Edit button (e).
Deactivating this option always keeps the current track/channel selection.
- **The “Scroll to selected...” pop-up menu**
The options in this pop-up menu work as follows:
 - When you select “Track”, the Track list display follows the display in the Mixer, i.e. when you select a channel in the mixer, the respective track is automatically displayed in the Track list as well. (However, this does not work the other way around in this mode.)
 - When you select “Channel”, selecting a track in the Track list automatically scrolls the mixer to display the respective channel strip. (Here too, this does not work vice versa.)
 - When you select “Channel and Track”, both Track list and Mixer are automatically scrolled to display the track or channel selected in the other.
 - Selecting “Disabled” deactivates this scrolling behavior.

Editing–Tools

- **Cross Hair Cursor options:**
This allows you to display a cross hair cursor when working in the Project window and editors, facilitating navigation and editing, especially when arranging in large projects. You can set up the colors for the line and the mask of the cross hair cursor, and define its width.
The cross hair cursor works slightly differently for the different tools.
- When the Selection tool (or one of its subtools) is selected, the cross hair cursor appears when you start moving/copying a part/event or using the event trim handles.
- When the Scissors tool is selected, the cross hair cursor appears as soon as you move the mouse over the event display.
- For the other tools, the cross hair cursor is not used.

General

On the General page, there is one new option:

- **Maximum Backup Files**

This allows you to specify how many backup files will be created with the Autosave function. When the maximum number of backup files is reached, the existing files will be overwritten (starting with the oldest file).

MIDI

On the main MIDI page, the following options have been added:

- **Insert Reset Events after Record**

This is a very handy function for MIDI recording. At the end of each recorded part, a Reset event will be inserted, resetting controller data such as Sustain, Aftertouch, Pitchbend, Modulation, Breath Control, etc. This is useful if a MIDI part is recorded and e.g. the Sustain pedal is still held after stopping recording. Usually, this would cause all following parts to be played with Sustain, as the Pedal Off command was not recorded. This can be prevented by activating “Insert Reset Events after Record”.

- **Chase Events – Chase not limited to Part Boundaries**

In previous program versions, Chase was only performed on parts “touched” by the position cursor.

When you activate this option, MIDI controllers are also chased outside the part boundaries, i.e. the Chase will be performed on the part touched by the cursor as well as on all the parts to the left of it. Please note that this option should be deactivated for very large projects, as it considerably slows down e.g. positioning and soloing.

When you deactivate this option, the MIDI controllers are only chased within the parts under the position cursor.

VST

The main VST page now has three further subpages. On the main VST page, the following options have been added:

- **Default Stereo Panner Mode**
This allows you to specify the default pan mode for inserted audio tracks (Stereo Balance Panner, Stereo Dual Panner or Stereo Combined Panner). For a description of these modes, see the chapter “The Mixer” in the Operation Manual.
- **Activate dialog “Export Warnings as text file”**
When you open a project which contains e.g. missing plug-ins, a dialog opens listing these. When this dialog is closed, a message appears, asking whether you want to export these warnings as text file. This message can be deactivated, i.e. if you activate the “Do not show this message again” checkbox, it will not be displayed in the future (when opening other projects with missing plug-ins etc.). To display this message again, and thus be able to export important warnings as text files, activate the option “Activate dialog ‘Export Warnings as text file’”.
- **Warn on Processing Overloads**
When you activate this option, a warning message will be displayed as soon as the CPU clip indicator (on the Transport panel) lights up during recording.

VST-Metering

- **Map Input Bus Metering to Audio Track (in Direct Monitoring)**
When Direct Monitoring is activated in the Device Setup dialog, this option allows you to map the input bus metering to monitor-enabled audio tracks. This gives you the opportunity to watch the input levels of your audio tracks when working in the Project window.

When Direct Monitoring is activated in the Device Setup dialog, this function works as follows:

- When “Map Input Bus Metering to Audio Track (in Direct Monitoring)” is activated, audio tracks show the metering signal from the input bus they are routed to as soon as the track is record enabled.
Note that the tracks are mirroring the input bus signal, i.e. you will see the same signal in both places. When using mapped metering, any functions (e.g. trimming) you apply to the audio track are not reflected in its meters.
- When “Map Input Bus Metering to Audio Track (in Direct Monitoring)” is not activated, metering works as usual (see the Operation Manual for details).

VST–Scrub

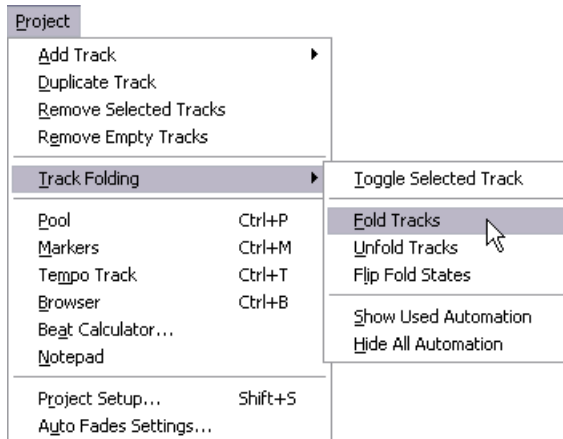
- CPU Saving Scrub Mode
When you activate this option, scrubbing will be less demanding on the processor. This can be very useful when scrubbing in a large project, where the “normal” scrub behavior leads to processing overloads. When “CPU Saving Scrub Mode” is activated, the effects are disabled for scrubbing and the resampling quality is lower.

Key Commands

A wide range of new key commands has been added for various areas of the program. These can be assigned or modified as usual in the Key Commands dialog (this is described in detail in the Key Commands chapter in the Operation Manual).

There is now a separate Mixer section in the Key Commands dialog (see also [page 48](#)), allowing you to e.g. hide the different channel types, to save or load the Mixer settings, etc. In the Edit category, you can now define a key command for opening the Device panel for the selected track. Also, please note that the key command that was used to open the Pool window can now be used to close the Pool as well.

Track Folding



On the Project menu, the Track Folding submenu has been added, allowing you to quickly show, hide or invert what is displayed in the Project window event display. This allows e.g. for dividing the project into several parts (by creating several folder tracks for the different project elements) and showing/hiding their contents by selecting a menu function (or using a key command). The following options are available:

- **Toggle Selected Track**
When you select this menu option, the fold state of the selected track is reversed, i.e. if the track was folded in (its elements (subtracks) were hidden), it is now unfolded (all subtracks displayed) and vice versa.
- **Fold Tracks**
Select this menu option to fold in all open folder tracks in the Project window. Please note that the exact behavior of this function depends on the “Deep Track Folding” setting in the Preferences dialog, see [page 16](#).
- **Unfold Tracks**
Select this menu option to unfold all folder tracks in the Project window. Please note that the exact behavior of this function depends on the “Deep Track Folding” setting in the Preferences dialog, see [page 16](#).

- **Flip Fold States**
Select this menu option to flip the fold states of the tracks in the Project window. This means that all tracks that were folded in will be unfolded and all unfolded tracks will be folded in, respectively.
- **You can assign key commands for these menu options in the Key Commands dialog (Project category).**
- **Note that there is a separate Deep Track Folding setting in the Preferences dialog (Editing – Project & Mixer page), which affects some of these menu items (see [page 16](#)).**

Gluing events/parts together

In version 3.1 of the program, the behavior of the Glue Tube tool has been modified. Below, you will find descriptions of what you can do with this tool.

Working with the Glue Tube tool

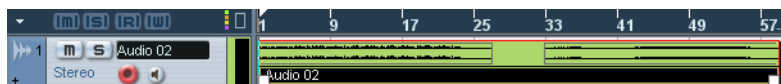
By using the Glue Tube tool, you can combine several audio or MIDI events in the Project window, the In-Place-Editor, the MIDI editors, etc. in the following ways:

Gluing one audio event/part to the next

Clicking on an audio event or part with the Glue Tube tool glues it to the next audio event on the track. The events do not have to touch one another. The result is a part containing the two events. The resulting part will get the name of the track:

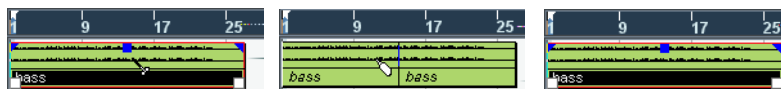


If you click on the “bass” event to glue it to the “guitar” event...



...a part with the name of the audio track will be created, containing the two events.

- If you first split an event and then glue the two sections together again (without moving or editing them first), they become a single event again.



Each audio event in the part will keep its own properties (event name, mute status, etc.).

Gluing one MIDI event/part to the next

Clicking on a MIDI part with the Glue Tube tool glues it to the next part on the track. The parts do not have to touch one another. The resulting part will get the name of the first part:



If the Parts overlap, they are merged in the overlapping area, i.e. no events are lost.

The resulting long part will get the properties of the first part (the one on which you clicked). This includes part name, part mute status, etc.

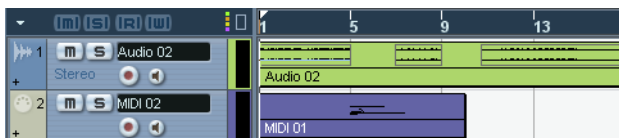
- You can also glue events within folders this way.

Gluing several events in one go

You can also glue several selected events on one or on several tracks in one go. This means that you can select several pairs of events on different tracks, and click with the glue tool on one of them. All selected events on the same track will be glued together.



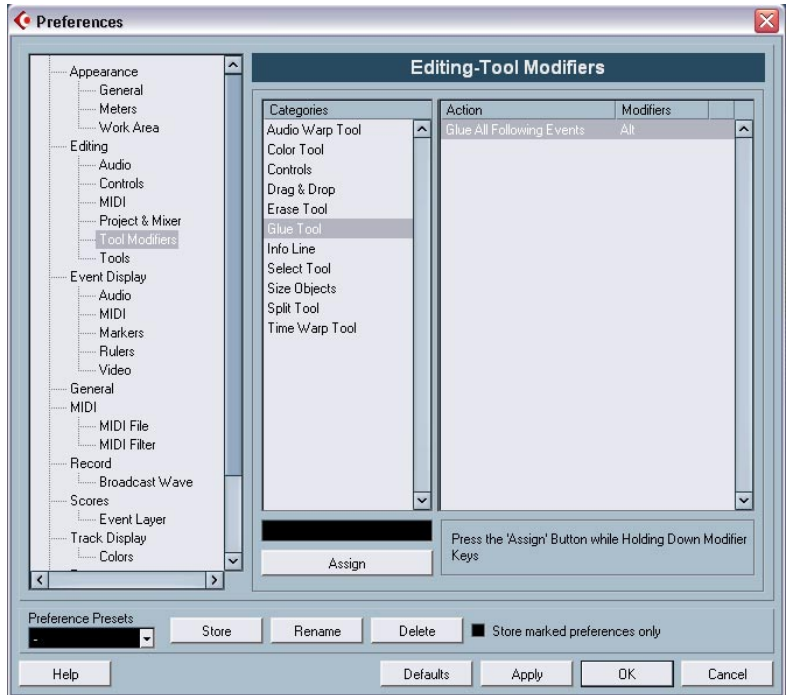
Click on one of the selected events with the Glue Tube tool...



...to glue the events on the same track together.

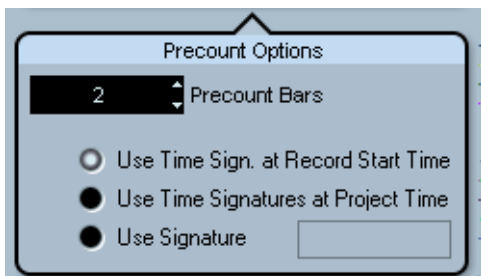
Gluing an event to all following events of a track in one go

If you hold down [Alt]/[Option] and click on an event with the Glue Tube tool, this and all following events on that track will be glued together. You can also change the default key command for this in the Preferences dialog (Editing–Tool Modifiers page).



Metronome settings

There is a new option called Use Time Signature at Record Start Time in the Precount Options section of the Metronome Setup dialog (which is accessed via the Transport menu).



In the Precount Options section you can specify how long (i.e. for how many bars) a precount click should be audible before recording starts and which time signature this precount click should use.

There are three options regarding the time signature of the precount:

- When you select Use Time Signature at Project Time, the time signature of the Tempo track including all tempo changes is used.
- When you select Use Signature, you can set a separate time signature that is independent of the Tempo track.
- When you select Use Time Signature at Record Start Time, the precount will automatically use the time signature and tempo set at the position where recording will start.

Synchronization settings

There is a new option called “MIDI Clock Follows Project Position” in the MIDI Clock Destinations section of the Synchronization Setup dialog (which is accessed via the Transport menu).



The MIDI Clock Destinations section in the Synchronization Setup dialog.

This option is similar to the “MIDI Timecode Follows Project Time” option in the MIDI Timecode Destinations section in the same dialog (see the Synchronization chapter in the Operation Manual), only that this is applicable for devices synchronized to MIDI Clock signals instead of MIDI Timecode signals.

- Activate “MIDI Clock Follows Project Position” if you want the other device to follow when you loop, jump and locate during playback. When this is activated, the sent MIDI Clock signals will follow the sequencer time and tempo position at all times.

Please note that some external devices may not react smoothly to these repositioning messages. Especially when working with some older devices, it may take some time for them to synchronize accurately to the project time.

Duplicating tracks

On the Project menu, you will find the new “Duplicate track” command. When you select a track in the track list and choose this option, a copy of the selected track is created and inserted below the original track. You can also define a key command for this function.

Exporting selected tracks (Cubase SX only)

Cubase SX allows you to select individual tracks of a project and to export these as a track archive. When exporting, you now have the option to exclude the media files referenced by these tracks from the export, i.e. only file references and other track specific data are exported.

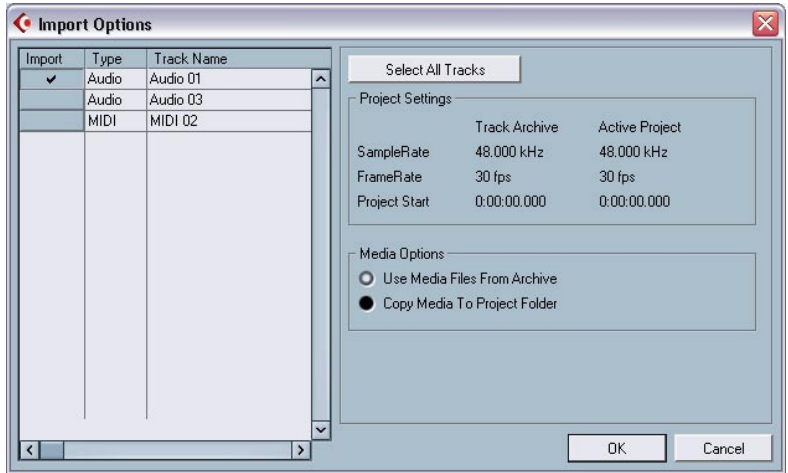
Importing Track Archives (Cubase SX only)

Selecting individual tracks in an archive

When importing a track archive, you can select which of the tracks contained in this archive you wish to import. Proceed as follows:

1. Pull down the File menu and open the Import submenu.
2. On the submenu, select Track Archive.

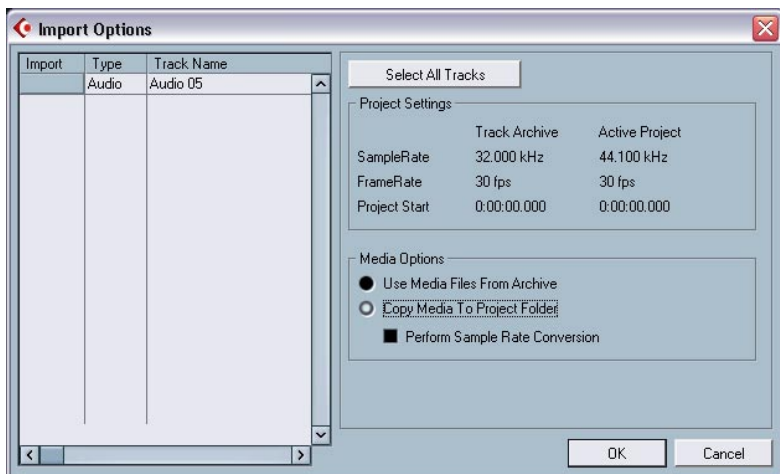
- In the file dialog that appears, locate the archive's xml file, select it and click "Open".
The Import Options dialog opens.



- In the Import Options dialog, click in the Import column to the left to select the desired track(s).
A check mark is shown for all selected tracks.

Sample rate conversion when importing tracks

A track archive may contain media files with a sample rate that is different from the sample rate of your currently active project. When importing such a track archive, the Import Options dialog will show the different sample rates and an additional option in the Media Options section:



“Perform Sample Rate Conversion” is available in the Import Options dialog.

In the Media Options section of the Import Options dialog, select which operation to perform when importing the track(s):

- Select “Use Media Files From Archive” if you want to import the track without copying the media files into your project folder.
- Select “Copy Media To Project Folder” if you want to import the media files into your project folder.
- When “Copy Media To Project Folder” is selected, the “Perform Sample Rate Conversion” option becomes available, allowing you to convert the imported media files to the sample rate used in the active project.

The Stereo Pan Law modes

In the Project Setup dialog there is a pop-up menu named “Stereo Pan Law”, on which you can select a pan mode. These different pan modes provide gain compensation. This is necessary because without compensation, the gain of the sum of the left and right side will be higher (louder) if a channel is panned center than if it’s panned left or right. This is described in the chapter “The mixer” in the Operation Manual.

- **You can now also select “Equal Power” on this pop-up menu, which means that the power of the signal will remain the same regardless of the pan setting.**

Resizing tracks in the Track list

With the introduction of version 3.1 of the program, you have now the possibility to resize a track in the Track list without automatically selecting it. This is a handy feature when “Enlarge Selected Track” is activated (see [page 16](#)).

Normally, a track automatically gets selected when it is being resized in the Track list. With Enlarge Selected Track activated, it is therefore impossible to change the track size for a track permanently. As soon as you try to resize it, it gets selected and is automatically enlarged.

However, there might be situations where you want to change the size of one of the tracks permanently. If this is the case, proceed as follows:

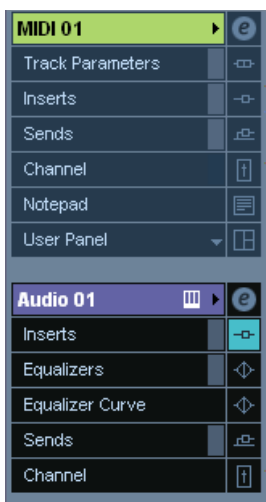
1. Move the mouse pointer over the lower border of the (unselected) track you want to resize.
The mouse pointer turns into a divider symbol.
 2. Hold down [Alt]/[Option] and drag the lower border of the track until it reaches the desired height.
- The track height is adjusted, but the track is not automatically selected. This way you can change the “original” size of the track. When this track is selected (and Enlarge Selected Track is activated), it will be enlarged and when another track gets selected, the track will revert to the size you specified.

Inspector sub panels

Normally, when a MIDI track is routed to a VST instrument, a new sub panel (with the name of the instrument) is added to the inspector for the selected track.

This is now also the case in the following situations:

- When a MIDI track is routed to an external instrument or effect that has an associated MIDI Device. In this case, the new sub panel gets the name of the device.
- When a MIDI track is routed to an effect plug-in that also receives audio data, i.e. that is used as an insert effect for an audio track (e.g. MIDI Gate), a sub panel for this audio track appears in the MIDI track inspector.
- If a MIDI track is routed to an effect-plug-in assigned to a FX Channel track, a respective FX sub panel is added to the Inspector.



A MIDI track routed to an effect plug-in used as an insert effect on an audio track.

Editing – MIDI

Freezing track parameters

This function affects the following settings for MIDI tracks:

- Several settings on the main tab of the Inspector (program and bank selection and the Delay parameter).
- The settings on the Track Parameters tab (i.e. Transpose, Velocity Shift, Velocity Compression and Length Compression).
- The settings on the Inserts tab. (If you are using an arpeggiator for example and want to convert the added notes into real events.)

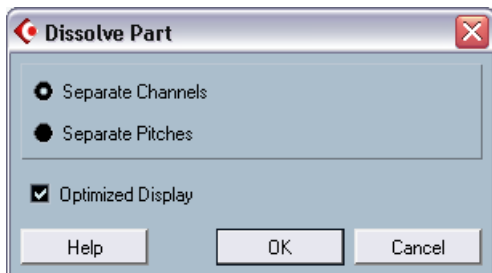
The following settings for MIDI parts are taken into account as well:

- The Transpose and Velocity settings for parts displayed on the info line – please note that the Volume setting is not taken into account.

Those settings usually do not change the MIDI events themselves, but rather work like a “filter”, affecting the music on playback. However sometimes you may want to make these settings permanent, i.e. convert them to “real” MIDI events. For this, you can use the Freeze Track Parameter command on the MIDI menu. This works as follows:

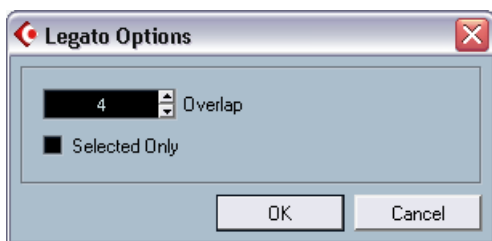
1. Select the tracks whose settings should become permanent.
2. Pull down the MIDI menu and select “Freeze Track Parameter”.
The Inspector settings will be converted to MIDI events and inserted at the beginning of the part(s). All notes of the part(s) will be modified accordingly and the Inspector settings will be reset.

Dissolving parts



The option “Optimized Display” has been added to the Dissolve Part dialog. The Dissolve Part function still splits parts into separate channels or pitches (depending on your settings), but you can now automatically remove the silent (empty) areas of the resulting parts by activating the “Optimized Display” checkbox.

The Legato dialog



One new feature has been added to the Legato dialog. Previously, when the Legato function was applied, it lengthened the selected note so that it reached the following note (for a detailed description of this function, see the Operation Manual chapter “MIDI processing and quantizing”). In version 3.1 of the program, the Legato Options dialog contains the checkbox “Selected Only”. When you activate this option, the length of the note will be adjusted so that it reaches the next *selected* note, allowing you e.g. to only apply Legato to your bass line (when playing on a keyboard).

Selecting notes of equal pitch (Edit menu)

On the Edit menu–Select submenu, you will find the options “Equal Pitch – all Octaves” and “Equal Pitch – same Octave”. These are not new in this program version, but the functionality has been modified. Up until now, selecting one of these menu items selected all *following* notes of the same pitch, on all octaves or on the same octave, respectively. In version 3.1 of the program, this has changed. Now all notes in the part that have the same pitch as the selected note will be selected. This makes editing in the Key Editor (or in-place editing) much easier, as you do not have to scroll to the first note of the part with the desired pitch. Now, all notes of the same pitch on all positions within the part get selected, which is generally what you want when using this function.

To select all notes (of the same pitch) following the selected note, you can define an action in the Logical Editor. (For a description of the Logical Editor, please refer to the chapter “The Logical Editor, Transformer and Input Transformer” in the pdf document “MIDI Devices and Features”).

Extracting MIDI automation

On the MIDI menu–Functions submenu, the command “Extract MIDI Automation” has been added. This allows you to automatically convert continuous controller data of a MIDI part into MIDI track automation data.

Proceed as follows:

1. Select the desired MIDI part containing the continuous controller data.
 2. From the Functions submenu on the MIDI menu, select “Extract MIDI Automation”. (This command is also available on the Key editor context menu.)
The controller data will automatically be removed from the controller lane in the editor.
 3. In the Project window, open the automation track(s) for the respective MIDI track (by clicking on the plus signs or by selecting “Show used Automation” from the context menu). You will find that an automation track has been created for each of the continuous controllers in the part.
- **Please note that this function can only be used for continuous controllers. Data such as e.g. Aftertouch, Pitchbend or Sysex cannot be converted to MIDI track automation data.**

This is an extremely useful function as it allows you to quickly and easily convert the continuous controllers of your recorded MIDI parts into MIDI track automation data, making them available for editing in the Project window.

- **Note that to be able to hear the automation data, you have to activate the Read button for the respective automation track(s).**

External instruments/effects (Cubase SX only)

Since the release of version 3 of Cubase SX, the program supports the integration of external effect devices into the sequencer signal flow.

With Cubase SX 3.1, you can also integrate external instruments, e.g. hardware synthesizers. You can use the External Instrument tab in the VST Connections window to define the necessary return ports and access the instruments through the VST Instruments window.

You may have projects created in Cubase SX 3.0 that use an external effect as defined in the VST Connections dialog. When you open such a project in version Cubase SX 3.1 for the first time, a message warning about a missing plug-in will be displayed. This is because the handling of external devices has been changed. See [page 44](#).

Requirements

- To use external effects, you need audio hardware with multiple inputs and outputs. To use external instruments, a MIDI interface must be connected to your computer.

An external effect will require at least one input and one output (or input/output pairs for stereo effects) – in addition to the input/output ports you use for recording and monitoring.

- As always, audio hardware with low-latency drivers is a good thing to have.

Cubase SX will compensate for the input/output latency and ensure that the audio processed through external effects isn't shifted in time. However, this automatic delay compensation results in added latency – if your audio hardware has a high latency to start with, this could be a problem.

Connecting the external effect/instrument

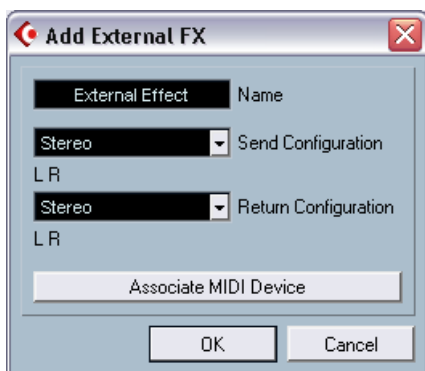
To set up an external effect or instrument, proceed as follows:

1. Connect an unused output pair on your audio hardware to the input pair on your external hardware device.
In this example, we assume that the hardware device has stereo inputs and outputs.
2. Connect an unused input pair on your audio hardware to the output pair on your hardware device.

Once the external device is connected to the audio hardware of your computer, you must set up the input/output busses in Cubase SX:

Setting up external effects

1. Open the VST Connections window from the Devices menu.
2. Open the External FX tab and click "Add External FX".



3. In the dialog that appears, enter a name for the external effect and specify the Send and Return configurations. If you want to set up a MIDI device corresponding to the external effect, click the Associate MIDI Device button.

Depending on the type of effect, you can specify mono, stereo or surround configurations. When clicking Associate MIDI Device, you can use the MIDI Device Manager functions to create a new MIDI device for the effect. Note that delay compensation will only be applied for the effect when you use MIDI devices. For information about the MIDI Device Manager and user device panels see the chapter "MIDI devices" in the pdf document "MIDI Devices and Features".

4. Click OK. This adds a new External FX bus.
5. Click in the Device Port column for the Send Bus “Left” and “Right” ports and select the outputs on your audio hardware that you connected in step 1 in the section [“Connecting the external effect/instrument”](#).
6. Click in the Device Port column for the Return Bus “Left” and “Right” ports and select the inputs on your audio hardware that you connected in step 2 in the section [“Connecting the external effect/instrument”](#).
7. If you like, make additional settings for the bus.
These are found in the columns to the right. Note however that you can adjust these while actually using the external effect – which may be easier as you can hear the result.

Setting	Description
Delay	If your hardware effect device has an inherent delay (latency), you should enter this value here, as it allows Cubase SX to compensate for that delay during playback. You can also let the delay value be determined by the program by right-clicking (Win)/[Ctrl]-clicking (Mac) in the Delay column for the effect and selecting “Check User Delay”. Note that you don’t have to take the latency of the audio hardware into account – this is handled automatically by the program.
Send Gain	Allows you to adjust the level of the signal being sent to the external effect.
Return Gain	Allows you to adjust the level of the signal coming in from the external effect. Note however that excessive output levels from an external effect device may cause clipping in the audio hardware. The Return gain setting cannot be used to compensate for this – you have to lower the output level on the effect device instead.
MIDI Device	When you click in this column, a pop-up menu opens where you can either disconnect the effect from the associated MIDI device, select a MIDI device, create a new device or open the MIDI Device Manager in Cubase SX to edit the MIDI device. When Studio Manager 2 is installed, you may also select an OPT editor to access your external effect.
Used	Whenever you insert an external effect into an audio track, this column shows a check mark (“x”) to indicate that the effect is being used.

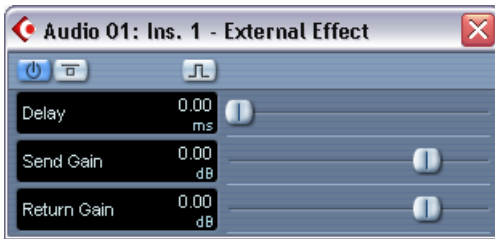
8. When you are done, close the VST Connections window.

How to use the external effect

If you now click an insert effect slot for any channel and look at the effect pop-up menu, you will find the new external FX bus listed on the “External Plugins” submenu.

When you select it, the following happens:

- The external FX bus is loaded into the effect slot just like a regular effect plug-in.
- The audio signal from the channel will be sent to the outputs on the audio hardware, through your external effect device and back to the program via the inputs on the audio hardware.
- A parameter window appears, showing the Delay, Send Gain and Return Gain settings for the external FX bus. You can adjust these as necessary while playing back. The parameter window also provides the “Measure Effect’s Loop Delay for Delay Compensation” button. This is the same function as the “Check User Delay” option in the VST Connections window. It provides Cubase SX with a Delay value to be used for delay compensation. When you have defined a MIDI device for the effect, the corresponding Device window will be opened. When Studio Manager 2 is installed, and you have set up a corresponding OPT editor, this OPT editor will be displayed.

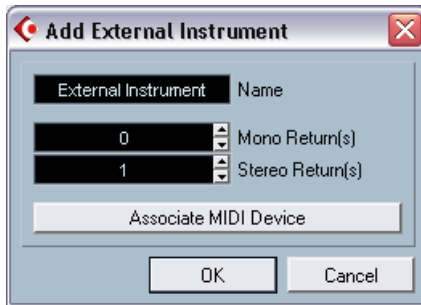


The default parameter window for an external effect

Like any effect, you can use the external FX bus as an insert effect or as a send effect (an insert effect on an FX channel track). You can deactivate or bypass the external effect with the usual controls.

Setting up external instruments

1. Open the VST Connections window from the Devices menu.
2. Open the External Instrument tab and click “Add External Instrument”.



3. In the dialog that appears, enter a name for the external instrument and specify the number of required mono and/or stereo returns. If you want to set up a MIDI device corresponding to the external instrument, click the Associate MIDI Device button.
Depending on the type of instrument, a specific number of mono and/or stereo return channels is required. When clicking Associate MIDI Device, you can use the MIDI Device Manager functions to create a new MIDI device. For information about the MIDI Device Manager and user device panels see the chapter “MIDI devices” in the pdf document “MIDI Devices and Features”.
4. Click OK. This adds a new external instrument bus.
5. Click in the Device Port column for the Return Bus “Left” and “Right” ports and select the inputs on your audio hardware to which you connected the external instrument.
6. If you like, make additional settings for the bus.
These are found in the columns to the right. Note however that you can adjust these while actually using the external instrument – which may be easier as you can hear the result.

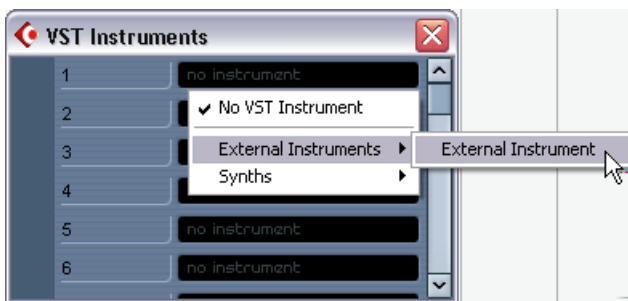
Setting	Description
Delay	If your hardware device has an inherent delay (latency), you should enter this value here. This allows Cubase SX to compensate for that delay during playback. Note that you don't have to take the latency of the audio hardware into account – this is handled automatically by the program.

Setting	Description
Return Gain	Allows you to adjust the level of the signal coming in from the external instrument. Note however that excessive output levels from an external device may cause clipping in the audio hardware. The Return gain setting cannot be used to compensate for this – you have to lower the output level on the device instead.
MIDI Device	When you click in this column, a pop-up menu opens where you can either disconnect the instrument from the associated MIDI device, select a MIDI device, create a new device or open the MIDI Device Manager in Cubase SX to edit the MIDI device. When Studio Manager 2 is installed, you may also select an OPT editor to access your external instrument.
Used	Whenever you insert the external instrument into a VST Instrument slot, this column shows a chicanery (“x”) to indicate that the instrument is being used.

7. When you are done, close the VST Connections window.

How to use the external instrument

Once you have set up the external instrument in the VST Connections window, you can use it as a VST Instrument. Open the VST Instruments window and click on an empty instrument slot. In the instrument pop-up menu, your external instrument is listed on the External Instruments submenu:



When you select the external instrument in the VST Instruments window, the following happens:

- A parameter window for the external device is opened automatically. This may either be the Device window, allowing you to create a generic device panel, an OPT editor window or a default editor. For information about the Device window, the MIDI Device Manager and User device panels, see the chapter “MIDI devices” in the pdf document “MIDI Devices and Features”.
- To send MIDI notes to the external instrument, open the output pop-up menu in the Inspector for the corresponding MIDI track and select the MIDI device to which the external instrument is connected. This ensures use of delay compensation. The instrument will now play any MIDI notes it receives from this track and return them to Cubase SX through the return channel(s) you have set up.

The external instrument will behave like any other VST Instrument in Cubase SX.

About the Favorites buttons

In the VST Connections window, both the External FX tab and the External Instrument tab feature a Favorites button.



The Favorites button on the External FX tab

Favorites are device configurations that you can recall at any time, like a library of external devices that are not constantly connected to your computer. They also allow you to save different configurations for the same device, e.g. a multi-effect board or an effect that provides both a mono and a stereo mode.

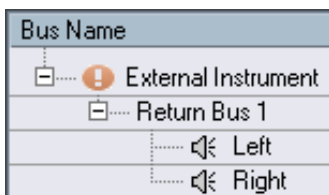
To save a device configuration as a favorite, proceed as follows:

- When you have added a new device in the VST Connections window, select it in the Bus Name column and click the Favorites button. A context menu is displayed showing an option to add the selected effect or instrument to the Favorites.
- You can recall the stored configuration at any time by clicking the Favorites button and selecting the device name from the context menu.

About the “plug-in could not be found” message

When you open a project that uses an external effect/instrument, you may get a “plug-in could not be found” message. This will happen whenever you remove an external device from the VST Connections window although it is used in a saved project, or when transferring a project to another computer on which the external device is not defined. You may also see this message when opening a project last saved with version 3.0 of Cubase SX.

In the VST Connections window, the broken connection to the external device is indicated by an icon in the Bus Name column:



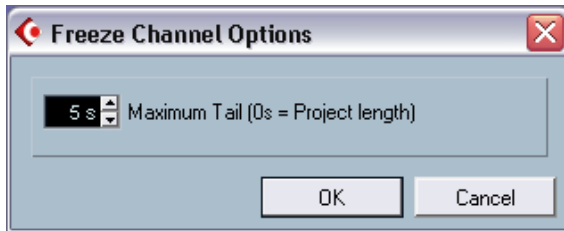
To reestablish the broken connection to the external device, simply right-click (Win) or [Ctrl]-click (Mac) the entry for the device in the Bus Name column and select “Connect External Effect”. The icon is removed, and you can use the external device within your project as before.

Note that busses set up for external effects or external instruments are saved not with the current project, but “globally”, i.e. for your particular computer setup.

Freezing external effects/instruments

Just as when working with regular VST instruments and effects, you can also choose to freeze external effects and instruments. The general procedure is described in detail in the Operation Manual chapters “Audio effects” and “VST Instruments”.

When freezing external instruments or effects, you can adjust the respective tail value in the Freeze Channel Options dialog:



- Use the arrow buttons next to the Maximum Tail value field to set the desired Tail length, i.e. the range after the part boundary that should also be included for the freeze. You can also click directly in the value field and enter the desired value manually (the maximum value being 60 s).
- When Maximum Tail is set to 0s (default), the freezing will only take into account the data within the Part boundaries.

Mixer operations

Several changes have been made to the mixer, to facilitate editing, navigating, etc. A whole new Mixer category has been added in the Key Commands dialog for example, allowing you to create keyboard shortcuts for the mixer functions you often work with. Several new functions have been added to the mixer context menu, allowing you e.g. to specify which channels functions should be applied to. These new functions are described in the following sections.

The context menu functions



The context menu contains two new submenus:

The Window submenu

This submenu is handy for quickly switching to another open mixer window, showing/hiding the different mixer panes etc. It contains the following options:

- **Show Routing View**
Allows you to show/hide the topmost section of the mixer which contains the input/output routing settings.
- **Show Extended View (Cubase SX only)**
Allows you to show/hide the middle section of the mixer, where you can display different settings for the channels (EQs, Send effects, etc.).
- **Next Mixer**
This displays the next mixer window (if you have several mixer windows open).

The Command Target submenu

This submenu lets you specify which channels should be affected by the “commands” (basically all the functions that can be assigned key commands), e.g. what to display in the extended mixer pane (Cubase SX only), the width setting of the channel strips, etc. It contains the following options:

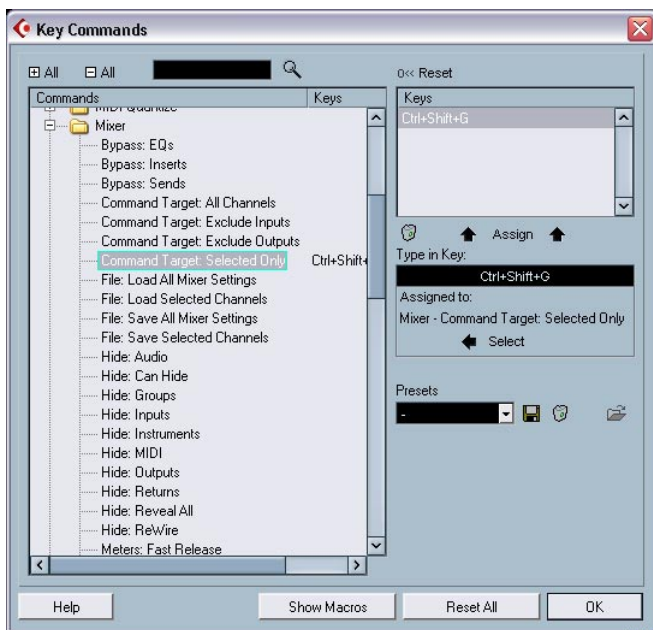
- **All Channels**
Select this if you want your commands to affect all channels.
- **Selected Only**
Select this option if you want your commands to affect the selected channels only.
- **Exclude Inputs**
Select this if you do not want your commands to affect the input channels.
- **Exclude Outputs**
Select this if you do not want your commands to affect the output channels.

Copying channel settings to/from several tracks in one go

In the previous program version, the channel settings could be copied for one channel and pasted into another channel. This behavior was a bit cumbersome if the same settings had to be applied to several channels, as they had to be applied to each channel separately. In version 3.1 of the program, it is now possible to apply the settings of one channel on several other channels in the mixer, or even to select several channels, copy their settings and apply them to the same number of other channels in one go.

Mixer key commands

The Key Commands dialog now contains a dedicated Mixer category, allowing you to create keyboard shortcuts for the mixer functions. For a detailed description of setting up and working with key commands, see the Key Commands chapter in the Operation Manual.



Panning Bypass

In version 3.1 of the program, it is now possible to bypass the panning for all track types except MIDI tracks. To do this, keep [Shift] and [Alt]/[Option] pressed and click on the pan setting for the respective channel in the mixer (on the fader panel or in the extended mixer view – Cubase SX only). The Panning Bypass state is reflected in all the different pan setting sections, e.g. if you bypass a channel in the mixer, this is automatically reflected in the Inspector for the respective track.

When panning is bypassed for a channel, the following happens:

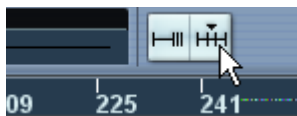
- Mono channels will be panned center.
- Stereo channels will be panned left and right.
- Surround channels will be panned center.
- **To deactivate Panning Bypass, simply [Shift]+[Alt]/[Option]-click again.**

The Tempo Track (Cubase SX only)

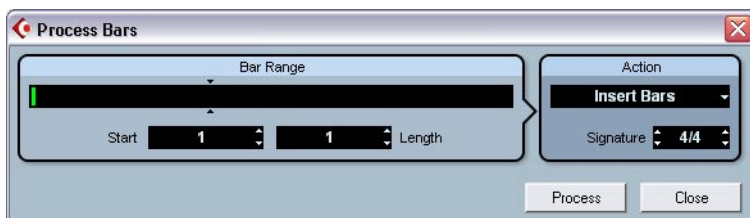
A very handy new feature can be found in the Tempo Track window: the Process Bars dialog. This dialog uses the global “Insert Silence” and “Delete Time” functions from the Edit menu – Range submenu, but uses a musical “bars+beats-based” environment for calculating the necessary ranges (or parameters). It also ensures that the time signatures stay “in sync” after these operations. This allows for a much more intuitive approach when inserting, deleting or replacing “time” while working with a project set to the Bars+Beats time type.

The Process Bars dialog

The Process Bars dialog is opened by clicking on the respective button on the Tempo Track toolbar (next to the Process Tempo button).



Click this button on the Tempo Track toolbar...



... to open the Process Bars dialog.

The dialog contains the following elements:

Option	Description
Bar Range	The Bar Range display gives you a graphical overview of the position of the bar range within the project as well as its length. You can change the setting here by dragging the green rectangle, however this is accomplished much easier by using the Start and Length value fields (see below). The small arrow pair in this section mark the length of the current project. The area to the right marks the bar range that can be added (500 bars max.).

Option	Description
Bar Range – Start	This is where you specify the desired start position for the bar range. Click on the small arrows to raise/lower the value by one step or click directly in the value field and enter the desired number manually.
Bar Range – Length	This is where you specify the desired length of the bar range. Click on the small arrows to raise/lower the value by one step or click directly in the value field and enter the desired number manually.
Action – Insert Bars	When you select this action, clicking the Process button will insert the specified number of empty bars with the set time signature at the desired start position in the project.
Action – Delete Bars	When you select this action, clicking the Process button will delete the specified number of bars beginning at the set start position.
Action – Reinterpret Bars	<p>When you select this action, clicking the Process button will reinterpret the bar range to fit the specified time signature. This is very special in the sense that both bars+beats positions of the notes and the tempo are being changed to fit the new time signature, but the playback of the notes will stay just the same.</p> <p>If you want to reinterpret e.g. a bar with the time signature 3/4 so that it gets the time signature 4/4, quarter notes will become half note triplets. If you reinterpret a bar with the time signature 4/4 to attain 3/4, you will get quadruplets.</p>
Action – Replace Bars	When you select this action, clicking the Process button will cause the time signature of the specified bar range to be replaced by the one you specify in this dialog.
Action – Signature	This lets you specify the desired time signature for the action you select in the Action pop-up menu (except for the Delete Bars action).
Process	Click this button to apply your changes to the desired bar range.
Close	Clicking this button closes the Process Bars dialog. Please note that you have to click the Process button first to apply your settings. Clicking this button without clicking on “Process” first will close the dialog without applying your settings.

Pool Operations

The extended search functionality in the Pool (Cubase SX only)

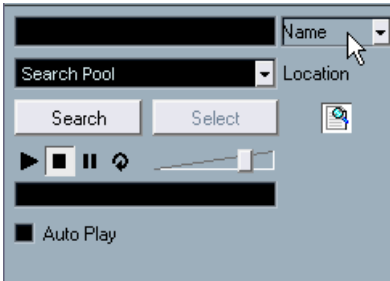
A number of new features have been added to the Search pane in the Pool window. When you click the Search button in the Pool toolbar, a lower Pool pane is displayed, allowing you to search for files on your hard disk or other media. This is described in detail in the chapter “The Pool” in the Operation Manual. The new program version allows for a more extensive search, including a range of additional search filters.

This works as follows:

1. Click the Search button on the toolbar.
The Search pane is displayed in the lower part of the Pool window.
- By default, the search parameters available in the lower Pool pane are “Name” and “Location”.

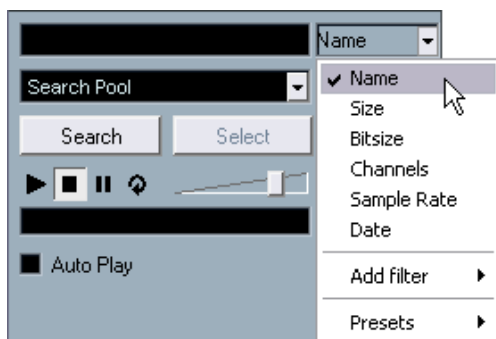
When you move the mouse pointer over the “Name” text to the right of the name field, an arrow is displayed to the right. Click on it to open a pop-up menu.

Move the mouse pointer over the “Name” text to the right of the name field...



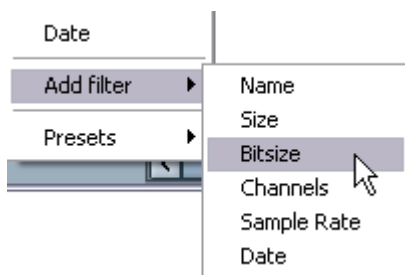
... to show the Extended Search pop-up menu.

2. When you click on “Name”, the Extended Search pop-up menu opens. This contains six options determining which settings will be displayed above the Location parameter (Name, Size, Bitsize, Channels, Sample Rate or Date) and the Add Filter and Presets submenus.



The pop-up menu with the extended search options.

3. Select one of the topmost 6 options in the pop-up menu to change the search option above the Location pop-up menu. This way, you can choose e.g. to display the Size or Sample Rate parameter instead of the Name field.
4. If you want to display more search options, select the desired element from the Add filter submenu. This allows you e.g. to add the Size or the Sample Rate parameters to the already displayed Name and Location parameters.



This allows for a very detailed search, helping you to master even the largest, most chaotic sound database.

Pool key commands

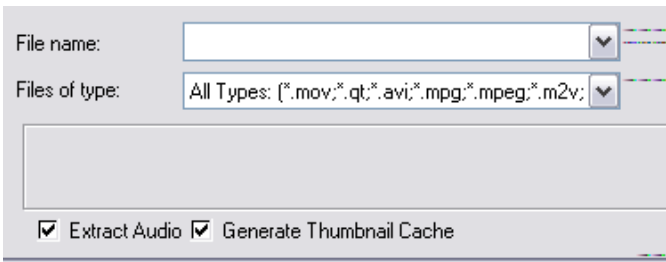
- It is now possible not only to open, but also to close the Pool window using a key command. By default, this is [Ctrl]/[Command]+[P], but you can change this as usual in the Key Commands dialog (Project page).

Video

When working with video in Cubase SX/SL, video files are displayed as events/clips on the video track, with thumbnails representing the frames in the film (if the option “Show Video Thumbnails” is activated in the Preferences dialog). In the previous program versions, these were calculated in real time and had to be redrawn during e.g. scrolling or moving. As this does consume quite a lot of processor power, the reaction sometimes seemed sluggish. To remedy this, you now have the possibility to generate a thumbnail cache file which will be used in situations requiring a lot of processor power. This is a very handy new feature, allowing you to economize system performance during CPU intensive tasks.

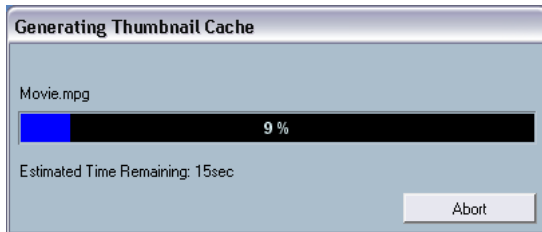
Generating thumbnail cache files during video import

When you import a video file into Cubase SX/SL 3.1, you will find that the additional option “Generate Thumbnail Cache” is available on the Import dialog.



The Generate Thumbnail Cache option activated in the Import Video dialog.

When you activate “Generate Thumbnail Cache” in the Import video dialog and click “Open”, a thumbnail cache file will be created before the file is inserted in the Project window. A window will be displayed showing you the progress and the estimated time for the process.



The thumbnail cache file is created.

After the cache file is created, the window will be closed and the video clip is inserted as usual. When you now start video playback and perform processor consuming operations, the thumbnail file is used to display the video frames in the Project window. When enough processor power is available, the “real” calculated thumbnail frames are displayed again.

- **The generated thumbnail cache file will be stored in the same folder as the video file and will get the name of the file with the suffix “videocache”.**

Generating thumbnail cache files from within the Pool

When you have video files without thumbnail cache files (e.g. if you did not create a thumbnail cache file during import, if you imported the file by drag & drop or if you are working with an older project), you always have the possibility to generate the thumbnail cache file at a later stage. This is done from within the Pool.

Proceed as follows:

1. Open the Pool window and locate the video file you want to create a thumbnail cache file for.
2. Right-click (Win) or [Ctrl]-click (Mac) on the file to open the context menu and select “Generate Thumbnail Cache”.
Just as when creating the file during import, the status window opens (see above).

After the file is created, the window will be closed and the thumbnail cache file is used when necessary (see below).

Please note that the cache file will not be automatically updated if a video file is edited. Whenever you change a video file (e.g. in a video editing application), you need to create a new thumbnail cache file manually, as described above.

When exactly is the cache file used?

The cache file is used in situations where the processor load is very high and the correct redrawing or real-time calculation might use system resources necessary for editing or processing. When the cache file is used and you zoom in on the thumbnails, you will see that they are in a lower resolution, i.e. the pictures are not as clean as when they are calculated. When the processes that rely heavily on the computer CPU are finished, the frames will automatically be calculated again, i.e. the program switches automatically between real-time calculation of the pictures and the usage of the cache file.

The above paragraphs apply only if “Show Video Thumbnails” is activated in the Preferences dialog, i.e. if thumbnails are displayed in the Project window.

Score editor operations

About the selection indicators

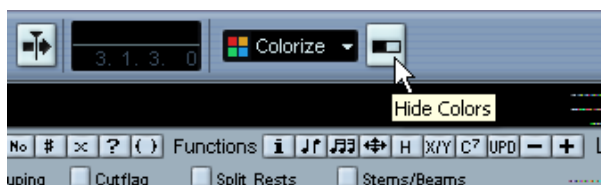
With version 3.1 of the program, the display of selected elements in the Score editor has changed. The following applies:

- Selected events are displayed in red.
- The active staff has blue lines and a blue rectangle to the left. Please note that you can use this blue rectangle to select, move or edit the active staff.
- A selected system (grand staff) is indicated by a red line regrouping the staves.
- The active staff in a selected system has violet lines.

Showing/Hiding the custom colors

If you have specified colors for notes (or other elements) in the score (see the separate pdf document “Score Layout and Printing”), the score coloring may become confusing as you might e.g. mistake colored notes for selected notes and vice versa. Therefore, you have now the possibility to hide (ignore) all color settings you specified for the score:

To hide the color settings you specified, simply click the “Hide Colors” button on the Score editor toolbar.

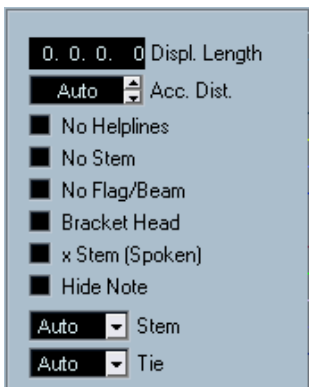


Click the “Hide Colors” button to hide all your color settings.

- **If the custom colors are hidden in the Score editor, only the selection indicator colors are used, as described above.**
- To display your color settings again, simply click the button again.

The Set Note Info dialog

The Set Note Info dialog now contains an option called “No Flag/Beam”. Activate this to hide the flags or beams of the selected note(s).



The No Flag/Beam option in the Set Note Info dialog.

Remote Control

Accessing user panel parameters via remote control devices (Cubase SX only)

Cubase SX allows you to control external MIDI devices through user device panels. When you have assigned project parameters to a device panel to be displayed in the Mixer (i.e. when creating the panel, you must select the Channel Strip Size option in the Add Panel dialog), you can now access these parameters through some of the remote control devices supported by Cubase SX.

This feature is supported for the following devices:

- Steinberg Houston
- Mackie Control
- Mackie HUI
- Yamaha DM 2000
- CM Motormix
- SAC2K

For these remote control devices, an extra display page has been added in the Inserts section for the selected channel.

This page is called User and is displayed as the 9th insert page for audio channels and as the 5th insert page for MIDI channels. It allows you to control the parameters assigned to your user device panel from your remote control device.

General improvements

Recovery of audio recordings after system failure

Stability and reliability of Cubase SX/SL have further improved with the release of version 3.1.

Normally, when a computer crashes, all changes made to your current project since you last saved it will be lost. Usually, there is no quick and easy way to recover your work.

With Cubase SX/SL 3.1, when your system crashes while you are recording (because of a power cut or other mishap), you will find that your recording is still available, from the moment when you started recording to the time when your computer crashed.

When you experience a computer crash during a recording, simply re-launch the system and check the project record folder (by default this is the Audio subfolder inside the project folder). It should contain the audio file you were recording at the time of the crash.

Please note: This new feature does not constitute an “overall” guarantee by Steinberg. While the program itself was improved in such a way that audio recordings can be recovered after a system failure, it is always possible that a computer crash, power cut, etc. might have damaged any other component of the computer, making it impossible to save or recover any of the data.

Warning: Please do not try to actively bring about such a situation to test this new feature. Although the internal program processes have been improved to cope with such situations, Steinberg cannot guarantee that other parts of the computer may not be damaged as a consequence.

About the Dolby Digital and DTS Encoders (Cubase SX only)

With version 3.1 of the program, Steinberg now provides support for the Dolby Digital and DTS encoders not only for Nuendo, but also for Cubase SX, allowing you to e.g. export a surround mix to a Dolby Digital AC3 file or a DTS file (provided you have purchased the Steinberg Dolby Digital Encoder or the Steinberg DTS Encoder). For details, please go to www.steinberg.net.

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